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Securing and Maintaining a High-Class Dairy Herd.

HOW a high average may be obtained, and once obtained, held, is a problem as intricate as it is immense. Many splendid herds, created by genius, have passed into oblivion through the inability of owners to hold them up to the high average that has been attained. When a high average is reached the greatest care and skill are required, for having reached this point, there is always a tendency to degenerate. Many of the most skillful breeders of dairy cattle have been deceived by certain crosses, and it requires study and close observation to detect any error in time to prevent its extending. Whether this tendency is due to the attainment of the breeder's ideal and then a relapse, or to the exhaustion of the animal due to inadequate feeding, bad environment or bad breeding is an intricate question. Does Like Beget Like, or is Variation the Hope of the Breeder of Dairy Cattle?

The first and foremost aim of the breeder of a herd of registered cattle is to fix and perpetuate uniform characteristics in the herd. Like begets like, and were it not for their faith in this fact, very few men would buy registered breeding animals; however, variation is an associate law that enables good qualities seen in individuals to be fixed and made permanent by selection. An animal may be unlike either parent in color, markings and appearances, yet possess many qualities superior to either. Such an animal should not be discarded because it does not possess the markings required by the fixed standard of the herd. It is rash to reject a creative force in the shape of a sire or dam, discovered under whatever circumstances that promises to bring about the results he is seeking.

Breeders select sires and dams that have strongly inherited tendencies to breed true to one type and to transmit these tendencies to their descendants, but if variation ceases and all of the animals are of one type, temperament and capacity, how are they to secure the benefits of selection. Common sense dictates that he should not keep scallawags as breeders or mate his animals promiscuously, yet I believe breeders should multiply to such an extent that they will have outstanding individuals in their herds to carry on the work of further improvement. It is wrong to make an idol of uniformity. The important law of variation that clothes the world with variety should be studied far enough back in ancestry and far enough forward in ideals to enable breeders of dairy cattle to move with well thought out plans.

Pure Breeds vs. Scrubs.

Various experiments have proved that grades and scrubs have the ability to return as many pounds of meat and milk from the amount of food consumed as a pure-bred animal. Such results seem startling, but on reflection they are not unreasonable. Breeders have fixed form in meat-producing animals and it is of great economic importance. It places the maximum development in parts that have the highest selling value. The Jersey or Holstein steer is capable of turning as much food into flesh as the Hereford or Polled Angus steer, but this does not signify that they will give as valuable a carcass, for the packing house dressing sheet is the final tribunal from whose decision there is no appeal and this places a higher value upon the well rounded carcass of the Hereford and Angus steers. Breeders have fixed in the but-

ter breeds of dairy cattle a larger ratio of fat to total milk solids, a very important point, since fat sells for several times the price of other milk solids.

But the most important factor in breeding has been neglected, because no one has tried to fix it in his herd. This is the power to increase the ratio of food that goes to the production of milk, and we have no direct evidence that pure-bred animals have the ability to make better use of their food that goes to production, than scrubs and grades; in fact, there is evidence that they do not. This explains why dairy farmers cannot per-

fection is sure to be the cow that gives him the best returns, consequently she must not only be a large producer but an economical producer. In judging registered stock for what they will produce, ancestry must be weighed to an extent of fully fifty per cent of the whole. To the man who keeps a sire or dam for producing young, a knowledge of pedigree, whether pure-bred or grade, is of as much importance as the make-up of the animal itself. Estimating the value of pedigrees must ever be a determining factor in the work of breeding and success will be achieved by those who mas-

ter was being made. Common animals would often put to shame some of the advanced registry records, if the item of food consumed was taken into account. The time has come when it is up to the breeder of dairy cattle to make pedigrees mean more than they do now.

Inbreeding and Line Breeding.

Inbreeding is what its name would signify, while line breeding is simply mating animals of the same line of breeding, but not having the same immediate ancestors, but those that have been bred with the same general object in view. It is not necessary that they be bred in the same herd, but they should possess a similarity of type, characteristics and blood lines. This is the surest method of obtaining results and maintaining uniformity of type in a herd.

Line breeding is the closest we can approach to in-and-in breeding without being in danger of impairing the size, vigor and productive capacity of the cattle. Some of the most famous dairy performers are closely inbred, but the great trouble with close in-and-in breeding is the fact that defects and undesirable qualities appearing in the sire and dam, or in their remote ancestors, will be more marked, thus a larger number of animals must be discarded from the herd, than is the case where line breeding is practiced. There is seldom, if ever, an animal that does not possess some undesirable points that its owner recognizes. There is no surer way to perpetuate these points than by close in-and-in breeding. Types must be maintained, but very few herds have been greatly improved by too close inbreeding for many generations. It requires less skill, and success is far more certain to blend blood by line breeding than by outcrossing and concentrating it by uniting various families of a breed. It requires years of systematic selection and breeding to sift out the good qualities of the many families of a breed and organizing them into a single family that has a fixed type and prepotency. Breeders who attempt to multiply variations (outside of certain families), cannot succeed in establishing prepotency and productive capacity in their herds.

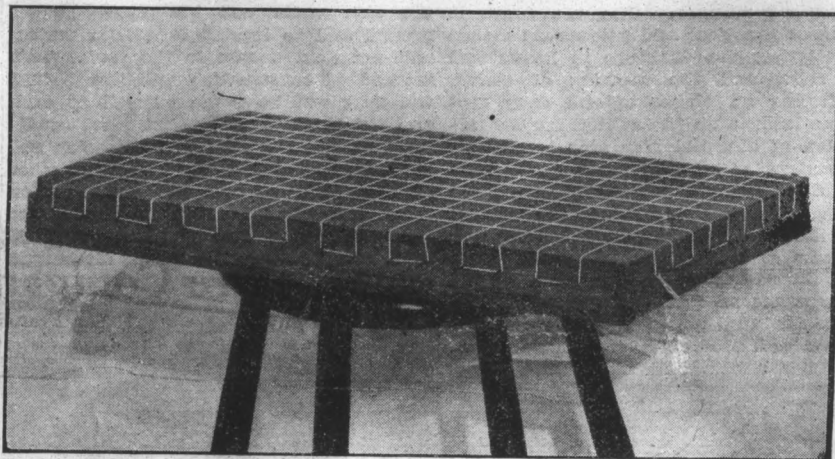
The Mission of Feed.

Good feeding is an integral part of success in breeding dairy cattle. Heredity is a peculiar force. We can use it to do some things, we can head it off to prevent it doing other things we do not want, and frequently it does things that no one can account for. Much that appeals to the eye is caused by what goes in at the mouth. Good breeders who have made a mark have been good feeders. Feed is not all, for there are many cows that cannot return a profit under any system of feeding. It is no more possible to get a large milk yield from cows of low vigor and capacity to produce milk than it would be to get great speed from a Belgian or Clydesdale horse by heavy feeding. No dairy farmer should feed unprofitable cows. But such cows are to be found as well in the registered herds of the country as among the grades and scrubs, although perhaps in small proportions. It is the writer's opinion that food has been as important as blood in the development of the leading dairy breeds.

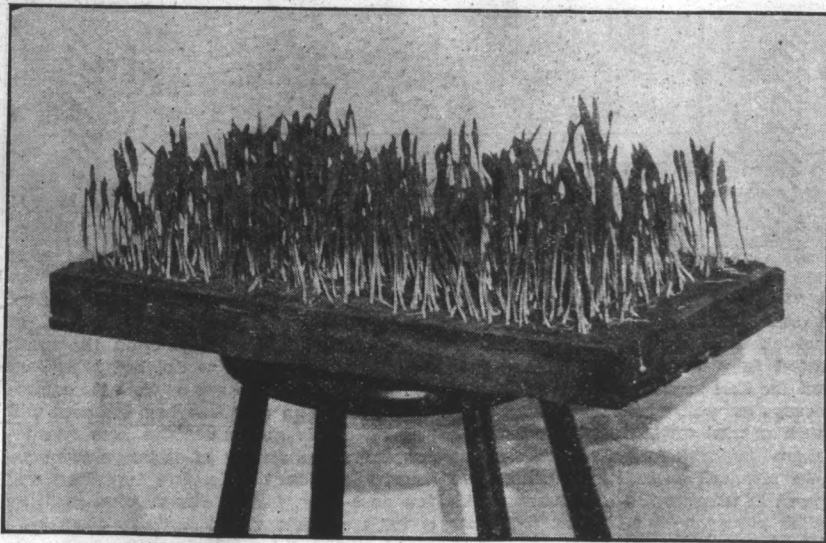
Selecting and Mating.

The road to success is not clearly marked, but many points are plain. In improving a better herd animals that apply the largest ratio of food eaten to

(Continued on page 387).



A Convenient Germinating Box for Seed Corn, Divided Into Squares for Kernels from Separate Ears by Twine Stretched Across its Top.



Ten Days After Corn is Planted in Germinating Box, a Good Stage of Growth in which to Judge the Quality of Seed Ears from which it Came.

ceive any better results from feeding pure-bred cows than grades or scrubs.

It seems to me that we have arrived at a stage in the development of our dairy breeds when we must consider the ability of the cows to consume, digest and assimilate their food and use these feed records as a basis of selection in mating breeding animals. Anything that could be done to increase the ability of dairy cattle to produce milk and butter at less cost would mean the saving of a vast amount of dairy farmers. You may assert that breeding from the best leads to this efficiency. I claim that reliable data does not prove the assertion.

Judging Pedigrees.

The cow that shows a profit at the end of the year gives more real satisfaction than a phenomenal producer who does her work at a loss. The dairyman's ideal

ter and utilize this knowledge and do not lose sight of the pedigree's best proof, the make-up of the animal itself.

The new breeder attaches too much importance to pedigree, as it often blinds him to the necessity of going behind the pedigree for study of the merits of the individual. Pedigrees merely trace the parentage of an animal and do not tell the merits of the ancestry. They have no value beyond tracing the parentage of an animal. It is up to the buyer or breeder to trace out the merit of the ancestry as best he can. With all pedigrees there should be a record of performance.

It is true that in the dairy breeds we now have the advanced registry that gives the production record of the registered animal. This record should contain a full record of the amount of food consumed during the period this forced rec-

FARM NOTES.

Testing the Seed Corn.

The importance of planting good seed corn cannot be emphasized too strongly. Every farmer will concede that point without argument. But does every farmer take the precaution necessary to insure that only good seed corn is planted? As has been frequently reiterated in these columns, the only absolutely certain way of insuring that only good seed is planted is to make an ear test of the seed corn, and discard every ear which does not give perfect germination and produce strong, vigorous plants. Nor is this a very great task. On the preceding page is illustrated a simple form of germinating box, marked off into squares for the planting of grains of corn selected from different ears. After the box is prepared simply lay out the best available seed ears on a table, and commencing at one end of the first row take four or six kernels from different parts of each ear and plant in the first square in the box. Continue the process until all the squares are filled, placing the ears from which the kernels are selected in consecutive order. Then place the box in some room where the temperature is suitable and give it a little water occasionally. After about ten days take the box to the place where the corn has been arranged in consecutive order as above mentioned and examine each square in turn, placing the corresponding ear from which the kernels in the square examined were taken in the baskets or crates to be used as seed and rejecting those which do not come up to the standard in germinating power or in vigor of the plants which have grown.

This will take comparatively little time, and will pay a very high wage for the time required. It can easily be done in an evening or on a stormy day, and all the members of the family will be interested in the work and in the results secured. The germinating box can be easily made by securing a light, shallow packing case from your grocer, and the work of preparing it is very simple. The result will prove a surprise to every man who has not tried this method of testing seed corn, and it will be found that quite a percentage of the ears will be rejected from a lot of seed corn that will give a fairly good germinating test when the test is made in a promiscuous way by the planting of a few kernels selected at random. When the fact is considered that ten ears of corn is enough to plant an acre, the advantage of having every ear tested for germinating quality and vigor will at once become apparent. Of course, the other kind of test is better than none, but one cannot be too particular as to the quality of the seed planted, especially in a year like the present when the supply of really good seed corn is limited. It is none too early to make a test of this kind, to the end that better seed may be secured and tested in turn in case the available supply upon the farm should not test out well. This is the first step necessary to insure a good crop of corn the coming season, and a good crop of corn is the most important thing for a successful year on almost any Michigan farm.

Treat the Seed Oats for Smut.

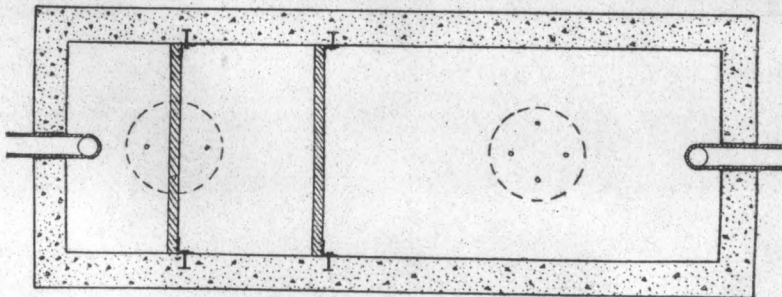
There is no one of the easily preventable fungous diseases which attack our common farm crops that causes a greater financial loss every year than the loose smut of oats. When we consider how easily this trouble may be prevented, it is a cause for wonder that more farmers do not take the necessary precautions to eliminate this loss. The simplest method of treatment is to clean the seed well and spread it on a tight barn floor in a thin layer. Mix one pound (a pint) of commercial formaldehyde (40 per cent solution) with 40 gallons of water and sprinkle the oats until thoroughly wet. Then add another layer of oats and sprinkle as before, and so on until the whole has been moistened. Then turn the moistened mass of grain with a scoop, adding more solution if necessary to insure that every grain has been thoroughly wet. Then shovel into a compact pile and cover with a canvas or blankets and allow to stand for at least two hours, after which the grain should be again spread out in a thin layer to dry and occasionally shoveled over to facilitate the drying process. When thoroughly dried the grain may be bagged. To insure that it will not be reinfected with smut spores the floor should be well sprinkled with the solution before the treating is done, and unless new bags are used these should also be disinfected as well as the grain drill. This treatment

will insure the comparative freedom of the crop from smut and will proportionately increase the yield and quality of the grain as well as the feeding value of the straw.

Subsoiling.

My attention has lately been directed to sub-soiling, but I find very little literature devoted to the subject. I believe the practice has in it the possibilities of much good and venture to think that others of your readers besides myself would be interested in an article on the matter from your pen. Would you kindly tell us something of its method, the theory of its action on the soil, its advantages, its practicability in general farming, etc.?

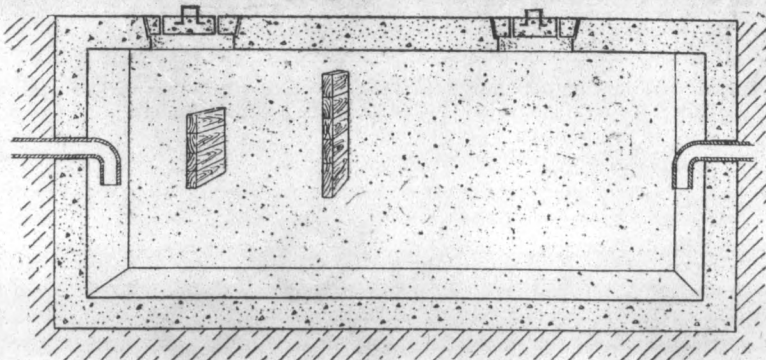
The theory of subsoiling, which was quite popular in some sections a generation or more ago, was the loosening up of the lower strata of soil, admitting air, improving natural drainage and facilitating the natural processes of making the inert plant food in the soil available for growing crops. With the advent of tile drainage and the growing of clover at frequent intervals in the crop rotation,



Horizontal Sectional View of Septic Tank.

the practice lost its popularity, as nearly the same results were achieved in a more economical manner. The tile drain is the most practical and permanent means of bettering the drainage in heavy and wet soils, and the growing of clover, which has an elaborate and deep root system loosens up the subsoil for the admission of air, and also aids in making its content of mineral plant foods more available for the use of other plants which follow the clover. At the present time little subsoiling is done, but in some sections a method of deep tillage is used, in which a plow is arranged to throw a second furrow from the bottom of the first and mix the subsoil with the surface soil. This has been found beneficial for alfalfa and some other crops

and the use of steel reinforcement in the cover. The tank should be located where the side walls will be entirely under ground and so located that flood waters will not gain access to the tank. This method of construction will insure that the tank will be warm as well as dark and tight, which will afford ideal conditions for the bacteria, which develop and live in much the same way as another species which causes the fermentation which converts cider into vinegar. These bacteria attack and destroy the solid matter in the sewage, which is discharged as clear water, without offensive odors. For best results a filter bed of cinders should be provided where the drain pipe discharges, but even this will not be absolutely necessary if the discharge pipe



Transverse Sectional View of Septic Tank.

which require considerable lime on soils which are of limestone formation but from which the lime has been washed or exhausted in the surface soil. Much is claimed for this method on some soils for other crops as well, and this method may be worth a trial on some of our heavier and more impervious soils. It can be tried on a small scale by following the plow used in turning the first furrow with a smaller plow which will turn a furrow from the bottom of the first where it will be mixed with the surface soil in subsequent cultivation. It is questionable, however, whether this method would prove profitable on loam soils or any except the more impervious clays.

THE SEPTIC TANK.

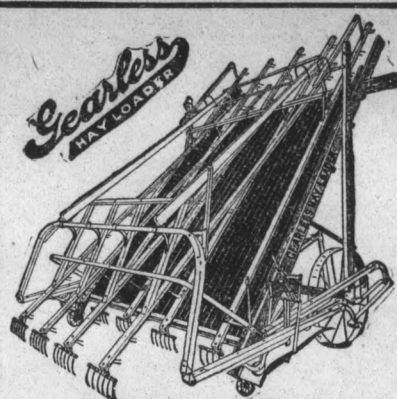
Will you advise me as to how to build a septic tank or a sanitary cesspool for farm home.

Eaton Co.
J. G.
There is no such thing as a sanitary cesspool. A cesspool is simply a pit dug in the ground into which the house sewage is run, and there is nothing to prevent it from percolating through the soil and contaminating the water supply. The cesspool is always dangerous, but the septic tank will afford an inexpensive means for the disposal of farm sewage in a safe and sanitary manner. The modern septic tank is simply a concrete tank buried in the ground into which the sewage is introduced through a pipe with an

empties at some distance from the house.

The size of the tank required will, of course, depend somewhat upon the work which it is expected to do, but it is best to have it large enough so that its capacity may not be overtaxed as the cost will not be much greater. The size recommended for a family of eight or ten persons, is five feet wide, five feet deep and ten feet long, inside dimensions, and for a tank of this size the walls should be eight inches thick. Before the forms are placed the inlet and outlet pipes should be placed, putting them in 2½ feet below the ground level. These should preferably be of 6-in. sewer pipe and should have elbows directed downward inside the tank as illustrated. In making the side walls heavy bolts should be inserted two and four feet from the inlet end for the later attachment of the partitions or baffle boards. These boards should be made to reach entirely across the tank, extend above the sewage and to within one foot of the bottom of the tank. In building the manholes short pieces of inch gaspipe may be inserted in them for needed ventilation, as illustrated. The forms may be removed through the manholes and should be placed with that in view.

This form of septic tank has the approval of the best sanitary engineers and the plans are taken from "Concrete in the Country," a new book published by the Universal Portland Cement Company.



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SEEDING CLOVER SUCCESSFULLY.

The keynote in getting a seeding of clover is the mechanical condition of, and the humus in, the soil. The mechanical condition can be improved, first, by underdraining where needed; second, by putting vegetable matter in the soil, preferably as a top-dressing, and by plowing stalks, weeds and other vegetation under. Straw spread on the wheat will make a catch of clover reasonably certain, but top-dressing with barnyard manure makes a seeding of clover almost certain. Here the manure spreader is invaluable, on account of making the manure go as far as possible. I never object to straw or sawdust in the manure, as I consider manure worth a great deal for a mulch, besides the plant food contained therein. Since manure on fairly good soil makes a seeding of clover a practicable certainty, I put all the manure I can get on my growing wheat. I seldom plow under manure directly, as I consider it worth more to make wheat and clover, and a good sod is one of the best coats of manure one can have. By using the manure to get a catch of clover, I use my available means and fertilizer to make clover, if the land is not sufficiently strong already. This plant in turn employs innumerable bacteria to gather fertility for me. In other words, by getting more clover, I am employing more help in the form of bacteria to gather fertility for my soil.

Commercial fertilizer is often a great help in getting a seeding of clover; but it by no means makes it certain. Often the soil is too wet and clammy on account of a lack of proper drainage, or a lack of humus in the soil; or, possibly the soil is so poor it makes the sowing of clover a risky proposition. On such soils, it is liable to freeze out the following winter, or it makes a feeble growth, on account of the land being poor, and a drouth kills it.

The use of barnyard manure makes conditions by fermentation, etc., that cause bacteria to thrive; so fertilizer will do a greater good than would be possible without the manure, as they work better in conjunction. But in the absence of barnyard manure, if the soil is rather thin and sour, the next resort is to use lime to correct the acidity, as the bacteria will not thrive in a sour soil, and it is throwing away money to put it there.

I usually sow my clover seed from March 20 to April 15. This is late enough with me usually, and I often sow about the first of April, but I always try to be governed by the weather conditions. I know that if a hard freeze catches the clover just after it sprouts, while it is in the curl, it is sure death, so I always try to avoid the freeze. Clover may be successfully sown on wheat where it has been plowed in the fall and sown to wheat, and the chances are very good for a catch here. However, I prefer and think I can get a better seeding on corn stubble if I top-dress with stable manure. I sow the land to oats, drilling the rows of the oats north and south, and only using about one bushel of seed to the acre, thus the clover is not smothered and when the oats are cut the sun makes it grow very rapidly instead of killing it.

I have gotten good seeding of clover sown with rye, but the rye grew so rank it sometimes tended to choke the clover. I am led to believe that there would be more certainty of getting a seeding of clover on sandy land without a nurse crop. I am a great believer in clover and know it to be a great feed, and will sow this spring as usual although the seed is high, especially the best grades, and that is the only kind that is worth sowing at all. Finally, I would say, if sown with a nurse crop, don't crowd the clover, and use lime to correct acidity, or manure to increase fertility and your barns in the future will be filled with the best of feed.

Illinois.

R. B. RUSHING.

Some have said if Mr. Lillie uses small potatoes for seed, why don't he advocate using small, inferior corn for seed? Now, I don't think that has anything to do with this potato argument at all. For who ever heard of or had corn too large or that yielded too much per acre, if it was fully matured and ripe. But many of us have had potatoes too large, unless it was for feeding stock, and we are not in the habit of growing potatoes for stock feed.

Springtime is clip time, both in the city and on the farm. Horses that are clipped dry off fast at night, which is to be preferred to standing in a heavy wet coat of hair.

fertility the corner stone

OF AGRICULTURE. The modern idea of plant feeding applies to everything the soil produces. Take, for instance, our fruit growers in this section. How many of them are using commercial fertilizers on their orchards? Only the large and prosperous growers make it a practice to properly fertilize, and they profit by it. The climatic and other conditions in Michigan and Indiana are ideal for fruit culture; still the quality of fruit is greatly deteriorating because the soil lacks the required supply of plant food to grow abundant crops of the highest quality. In New York and other Eastern States the fruit growers fertilize heavily. Every farmer will be found to have a stock of good Commercial Fertilizer stored in his barn and will use it whenever he thinks it necessary. He no longer looks at the cost, because he has learned from experience that

fertilizer is a good investment.

Why is it that heavy shipments of fine fruit were made from New York State to Michigan last Fall? Because here was a good market and local supply was lacking. One of the largest and most successful fruit growers in Northern Michigan wrote under date of November 1st, 1910, as follows—"I had the fertilizer drilled in the orchard when the peaches were about half grown and it was very beneficial to the development of the fruit."

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SEEDING OATS IN A CLOVER FIELD.

I have a clover meadow which I cut last year. As the timothy seed did not grow, it is a very poor stand, perhaps 60 per cent of what it should be. Really, this meadow should be a corn field this year, but owing to a complete failure of last year's clover seeding I must cut this field again this year. I have been thinking of getting a disc drill and sowing a few oats on this meadow this spring to be cut with the clover for hay. What do you think of such a plan? What size disc drill would you buy for a two-horse drill? Don't you think a disc drill, one where the clover seed can be run in the grain tubes and thereby placed in the ground and covered would be an ideal way of sowing clover seed? How deep should clover seed be covered if a drill was used? Also, will you please tell how to make the acid test of soil with the litmus paper? If a soil by this test proves to be acid would lime help in getting clover to grow? How much lime would you sow per acre?

Hillsdale Co.

L. W. M.

My idea is that this plan will not work out very successfully, although I know nothing about it because I have never tried it, but I should think that if a disk drill cuts up the ground sufficiently to cover oats that it will destroy a lot of clover which probably would be more valuable than the oats. This, of course, is reasoning on the theory that the clover is a thin stand but rather evenly distributed over the field. On the other hand, if it is patchy, if on a portion of the field there is a good catch of clover and on large portions of the field there is no clover at all, then one with a disk drill could simply sow oats where there was no clover and then raise the disks and skip over the places where there is a good stand of clover. Now this might work, but once over with the disk drill would hardly be sufficient to cover the oats so that anywhere near all of them would germinate unless the weather conditions were very favorable.

Then again, the oats will not be mature enough to cut when the clover is. Oats ought to be fairly well developed, they ought to be in milk when they are cut for hay in order to get anything like their full value. Now this won't happen until probably along the first or second week in July while the clover will be ready to cut the last of June. The probability is that when the clover ought to be cut for hay the oats will hardly be headed out, and so I do not believe the scheme will work and I believe that if I had the management of this field and wanted hay or a substitute for hay I would plow the field just as early as I possibly could this spring, fit it up in good shape and sow it to peas and oats. Mix in a proportion of one bushel of peas to one bushel of oats by weight, and I believe you would get a good deal better crop and would make better hay, and would be much more profitable than trying to patch up this old meadow which has outgrown its usefulness anyway.

If you get the ground plowed early, and the land is rich, or made so by using a good heavy application of fertilizer, it will be possible to get a crop of pea and oat hay which will yield as well and be very nearly as good as clover hay. Of course, there will be the labor of plowing and fitting and seeding this field, but my judgment would be that it would be a good investment to do it.

Testing Soil for Acidity.

Go to the drug store and get a small amount of blue litmus paper. Don't expose it to the air any more than is necessary until you want to use it. Take a small garden trowel or a big knife, go over the field and press this well into the ground and stick the litmus paper down into the moist soil and cover it, and leave it there a short time. If there is any acid in the soil it will turn the blue litmus paper red. One ought to go over the field pretty thoroughly to find out whether his field contains acidity quite generally or whether this was in certain places of the field.

Another way would be to go quite generally over the field and gather up with a trowel a small portion of the soil from many different places and mix all together and then you could test once with the litmus paper and get an idea of the acidity.

The clover plant or any other legume will not do well on an acid soil. The bacteria which thrive upon the roots of the legume must have a soil that is alkaline. It cannot thrive in an acid soil. Many other crops, like corn, wheat, oats or timothy might do fairly well on a soil that is slightly acid, but the clover plant must have an alkaline soil, or a neutral one at least.

If the soil, by the litmus paper test, shows acidity, this acidity can be cor-

rected by the application of carbonate of lime, or caustic lime, either one. The caustic lime will have the quicker effect but the carbonate of lime will correct the acidity and it will not destroy the vegetable matter in the soil.

Personally, I do not believe that an application of 1,500 lbs., or even a ton, of caustic lime will destroy very much humus or organic matter if the land shows an acidity, because the strength of the lime or the caustic property of the lime, will be destroyed by the acid in the soil and it will be made neutral, consequently it will have no power of acting upon the organic matter or humus of the soil and destroying it. Of course, excessive applications of caustic lime would work upon the vegetable matter and no doubt destroy a considerable portion of it and it would not be good policy to do this, and where one applies lime primarily for a plant food on say, for instance, the soil that is seeded to alfalfa, knowing that the alfalfa is a gross consumer of lime, I would not think it advisable to use caustic lime, because it would not be necessary, but if I had a soil that turned the litmus paper red I wouldn't hesitate to put on from 1,000 to 1,200 lbs. of caustic lime just as soon as possible, but the question that is being discussed at the present time is whether even then it would not be just as well to use carbonate of lime and put it on in larger quantities. Just as soon as carbonate of lime is put on a soil that has an acid reaction, the acid in the soil attacks the lime and becomes neutral. But the one application of the carbonate of lime you can put on a sufficient amount without any danger of injuring the soil so that you will not only correct the acidity but you will furnish an abundant supply as a plant food also. You can buy the carbonate of lime cheaper than you can the caustic lime.

I would buy an eleven-disk drill or an eleven-hoe drill. A good pair of horses can handle this just as well as they can a nine-disk drill and you can accomplish much more in a day.

Clover seed ought not to be sown very deep. I would not want to let the clover seed run into the hose with the oats or wheat seed, because I think much of it would be covered deeper than it ought to be. I would prefer to have the clover seed distributed ahead of the disks.

COLON C. LILLIE.

FERTILIZER QUESTIONS.

I never used any fertilizer, but I wish to sow six acres of oats on land that grew beans last year. The land is clay loam with some sandy spots. The stones on it are mostly limestone. The land was sod previous to the bean crop. What kind and what amount of fertilizer should I use? I have no barnyard manure to give it. Since it will be only an experiment, I have no machine to spread it. How should I put it on? What kind and amount should I use for corn on the same kind of land?

Antrim Co.

G. G. H.

Since you have no fertilizer drill, the fertilizer can be sown broadcast as you would wood ashes or plaster. If you select a day when the wind doesn't blow it is not so bad a job to sow it by hand, or you can dump it onto a stone boat and with a shovel spread it quite evenly over the ground and then harrow it in, or you can go over the field with a lumber wagon and scatter it from the wagon box.

Now, as to the amount, I would recommend that you use 200 to 300 lbs. of fertilizer to the acre on the beans, sown broadcast and harrowed into the soil. For the corn, I would recommend 500 lbs. per acre, distributed in the same way. For beans I would use a fertilizer containing one per cent of ammonia, eight per cent of phosphoric acid and five per cent of potash, or something like that, and for corn I would use one containing at least two per cent of ammonia, more would be better, eight or nine per cent of phosphoric acid and four or five per cent of potash.

COLON C. LILLIE.

ABSORBENTS FOR LIQUID MANURE.

Scientific experiments have shown us a way in which we can reduce the amount of straw required for bedding the cattle and other stock with an actual saving in the value of the manure made, instead of a waste, and that is by substituting ground phosphate rock or floats, or acid phosphate, for use in the gutters and about the stable floors. This will act as an absorbent for the saving of the liquid manure and will at the same time tend to fix the volatile ammonia gas so there will be a smaller loss of nitrogen than would otherwise be the case.

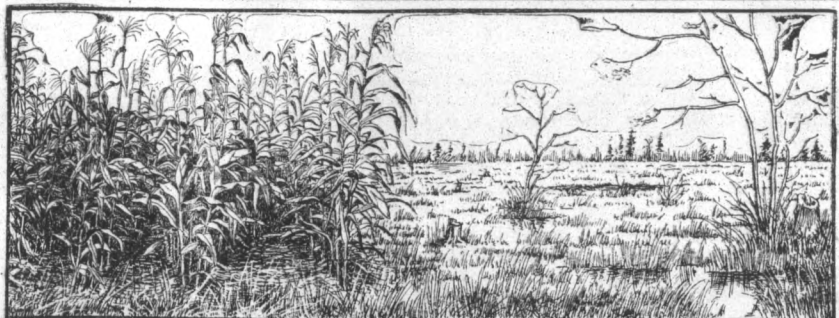


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LIVE STOCK

THE BREEDING AND FEEDING OF MARKET HOGS.

It is an economic law that any product which is scarce and for which there is a demand will bring a premium in the market. At the present time there is a scarcity of light hogs suitable for the block or for bacon purposes, and in the big markets of the country there is a constantly widening difference in the price which is paid for hogs of this class as compared with the price for the heavy lard hogs which make up the bulk of the market offerings at this time. Of course, this condition is at present largely due to the comparative price of corn and hogs, which makes it profitable to put as much weight on the porkers as is practicable, but it is also largely due to the type of hogs that are being bred and fed on the farms of the country and particularly on those in the corn belt.

The process of breeding for more refinement, which has been a fad with many breeders of pure-bred animals, and the tendency toward decreasing bone development and increasing the production of fat which results from a too exclusive corn diet has altered the conformation of the average hog to no small degree. In many cases this has occurred to such an extreme degree that weak legs and broken down feet are common among our hogs. Of course, this condition can be largely remedied by a change of feeding methods, substituting more bone and muscle-making feeds for a portion of the corn, but this is not all that should be done to remedy it. In the selection of sires to which the common farm sows are to be bred, care should be taken to secure a rugged type of hog, with plenty of bone and scale, with depth and smoothness without being too coarse. Such care will insure the breeding of a class of pigs which will make better feeders, and which can be placed on the market at any time between the ages of six and nine months in condition for use in the fresh meat trade or for the manufacture of bacon. There is far less risk and a greater profit in breeding and feeding this class of hogs than in producing the little, chubby, wheezy kind with weak legs, poor feet and a tendency to lay on fat from the start rather than to make a vigorous muscular growth and develop a strong frame.

The writer has in mind three litters of pigs, he recently saw in the same herd in which the two types above described were well illustrated. These pigs were of identical breeding, with a direct line of breeding from the same ancestors. None of them were inbred, but there were extreme evidences of atavism or breeding back to unlike ancestors which could not escape the notice of even a casual observer. These pigs were pure-breds, of one of the larger bacon breeds, but the pigs from one sow showed a decided tendency toward the lard type. They were smooth, sleek, broad backed, chubby fellows, of a very good block type, and no doubt superior in quality for cutting up on the block to pigs of similar conformation from a breed of the lard type of hogs. Yet they did not have the size or the weight of the pigs of the more vigorous type from the other litters, although they had an equal opportunity with them. Nor do we believe they would make as profitable breeders as the more growthy pigs, which were developing muscle at four months of age instead of loading an undeveloped carcass with fat.

But breeding will not correct this tendency entirely. Proper feeding should go hand in hand with judicious breeding for best results in producing the most useful type of hogs, and it should be borne in mind that the writer is not advocating any particular breed, but simply pointing out the fact that extremes in type are to be found in all breeds, and that whatever his favorite breed, the breeder or farmer should exercise good judgment in the selection of breeding stock or sires from that breed for best results in the growing of market hogs. Yet the feed is just as important, and the farmer who would make the hog a mortgage lifter in reality as well as in name should use equally good judgment in making up and feeding the ration to his growing pigs as he does in selecting and mating the dam and sire for their production. Sufficient protein must be fed to insure a good growth of muscular tissue, and the ra-

tion must contain enough mineral ash to insure a normal development of bone of good quality. Of course, it is preferable to accomplish this with home-grown feeds as largely as possible, and the alfalfa or clover pasture will help out in this direction greatly during the summer season. Other legumes, such as peas or soy beans may profitably be grown to supplement the corn in the grain ration, and some alfalfa or clover hay may be fed with the grain in the winter season for the same purpose. But where provision of this kind has not been made it will not pay to deny the pigs a proper ration, even if concentrates have to be purchased for the purpose. In a recent article in this paper it was shown that wheat middlings mixed with corn resulted in a saving of 25 per cent in the economy of the ration, and there are many other by-product feeds that can be used with equal economy. But some provision should be made for summer forage for the hogs, since the green succulent feed is just as important as a well-balanced ration in the dietary of the pigs.

In breeding and feeding the hogs grown on the farm in such a manner as will promote a strong, well-muscled carcass which will finish evenly and smoothly between the ages above mentioned, the grower will not only have a class of market hogs that are always in demand and sell well but which will, as well, be a source of both pride and profit.

Oakland Co.

A. R. F.

SOME SPECIAL PHASES OF HORSE PRODUCTION.

At the present time, there is a greater demand for certain classes of horses than the market can supply, and not at all strange that such animals are hard to secure. According to the old law of sup-

ply and demand, when an article gets scarce the price goes up and that is the case in certain lines of horse production. A very common want is that of really good carriage animals. It is a mighty hard job to secure a really good carriage pair and when you do see them you notice them going down the street. The truth of the matter is that they are not to be had in any numbers at all. You can pick up all sorts of common drivers but when it comes to getting one with any class at all you have to look a long while as well as to pay a long price. Now with present prices for this class of animals there is good money waiting for those who will produce strictly fancy carriage animals. Good-gaited saddlers are hard to find. When found they bring good prices, even though they do not always come up to the strict requirements as to conformation. A short time ago a friend of mine made an even \$125 on a horse that he bought and taught the saddle gait, yet this animal came a long way from conforming to the saddler type. The government is discussing the matter of a stud for the production of mounts for the cavalry. This is because of the fact that they cannot find enough suitable mounts. It is not because the government does not pay enough to justify the growing of these animals, as the government buyers pay rather liberal prices.

Another special phase of this work for which the farmer is especially equipped is the production of expressers. At the present time expressers of the right type are selling for nearly as much as drafters which have reached the 1,800-lb. mark.

It stands to reason that horses of around 1,200 to 1,500 lbs. weight can be grown for less than the larger animals. At the present time there are hundreds of farmers who are doing their farm work with animals which weigh close to the 1,200-lb. mark. Now, I will not discuss the wisdom of it, but as they have mares of this size for a foundation stock from which to grow horses they are losing money when they do not raise colts. It is seldom that one can breed such mares to a horse of 2,000 lbs. weight with satisfactory results. As a rule, the colt is a misfit. At the present most of the expressers are the result of misfits; but the trade does not like them. So is it not as well to breed such mares to a really good light draft stallion that leans to the expresser type, or to a heavy coach stallion? Then one would get a colt that as a general thing would make just the right sort of animal for the expresser class. Of course, much depends on the makeup of your mares. It must be kept in mind that the expresser is a special class and this must be regarded when breeding. The expresser must have good legs. He should be upstanding, yet fairly short in the leg. He is built for the purpose of moving a heavy load at a fast gait and a light one at a snappy trot. Thus, with farmers having light foundation stock, it would in many cases be more profitable to produce expressers than to produce animals that will hardly qualify as drafters.

Another special type is the hearse horse and here is a striking example of the demand for animals that are especially adapted for some one purpose. A pair of white horses that will qualify for hearse purposes is hard to find and I have known of several pairs to change hands for \$550 to \$600. The main point was the fact that they had to be white and because they were of that color they brought the



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price. I know a white stallion that was so prepotent that each year he dropped several white colts from black mares. In that neighborhood, mares that were nearly white sold at a premium.

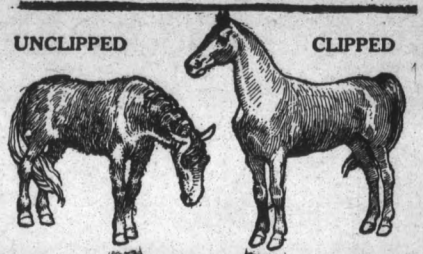
Shetland ponies would come in under this heading and it is doubtful if any phase of horse growing pays any better than that of growing the small ones. In one week, I received five letters asking where the writers could get ponies. The great movement for more life out of doors has created a great demand for them for the use of children, but even before this there was a buyer for every pony produced. Marketing is easy. They tell me that a pony can be kept a year for the same price as a sheep. This may be stretching the point but I know of many ponies that are kept on contract for \$12 per year. I know an enterprising pony man who lets his mares out among families who keep the pony for the sake of using it. The only string tied to the transaction is that the owner gets the colt as soon as it is ready to wean. Thus he gets a colt a year for the interest on the investment and the service fee. A pony will thrive under the roughest kind of treatment. If it had not been for poor feed and rough environment we would have never had the Shetland. A colt ready to sell can be produced for considerably less than \$50. Indeed, that is a high estimate. It is hard to buy any sort of a pony at all for less than \$75 while most of them go at \$125 and \$150. All this is done on home-grown feeds and with but little care on the part of the grower.

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64c for 218-inch; 64 1/2-65 for 220-inch; 65c for 222-inch; 65 1/2-66 for 224-inch; 66c for 226-inch; 66 1/2-67 for 228-inch; 67c for 230-inch; 67 1/2-68 for 232-inch; 68c for 234-inch; 68 1/2-69 for 236-inch; 69c for 238-inch; 69 1/2-70 for 240-inch; 70c for 242-inch; 70 1/2-71 for 244-inch; 71c for 246-inch; 71 1/2-72 for 248-inch; 72c for 250-inch; 72 1/2-73 for 252-inch; 73c for 254-inch; 73 1/2-74 for 256-inch; 74c for 258-inch; 74 1/2-75 for 260-inch; 75c for 262-inch; 75 1/2-76 for 264-inch; 76c for 266-inch; 76 1/2-77 for 268-inch; 77c for 270-inch; 77 1/2-78 for 272-inch; 78c for 274-inch; 78 1/2-79 for 276-inch; 79c for 278-inch; 79 1/2-80 for 280-inch; 80c for 282-inch; 80 1/2-81 for 284-inch; 81c for 286-inch; 81 1/2-82 for 288-inch; 82c for 290-inch; 82 1/2-83 for 292-inch; 83c for 294-inch; 83 1/2-84 for 296-inch; 84c for 298-inch; 84 1/2-85 for 300-inch; 85c for 302-inch; 85 1/2-86 for 304-inch; 86c for 306-inch; 86 1/2-87 for 308-inch; 87c for 310-inch; 87 1/2-88 for 312-inch; 88c for 314-inch; 88 1/2-89 for 316-inch; 89c for 318-inch; 89 1/2-90 for 320-inch; 90c for 322-inch; 90 1/2-91 for 324-inch; 91c for 326-inch; 91 1/2-92 for 328-inch; 92c for 330-inch; 92 1/2-93 for 332-inch; 93c for 334-inch; 93 1/2-94 for 336-inch; 94c for 338-inch; 94 1/2-95 for 340-inch; 95c for 342-inch; 95 1/2-96 for 344-inch; 96c for 346-inch; 96 1/2-97 for 348-inch; 97c for 350-inch; 97 1/2-98 for 352-inch; 98c for 354-inch; 98 1/2-99 for 356-inch; 99c for 358-inch; 99 1/2-100 for 360-inch; 100c for 362-inch; 100 1/2-101 for 364-inch; 101c for 366-inch; 101 1/2-102 for 368-inch; 102c for 370-inch; 102 1/2-103 for 372-inch; 103c for 374-inch; 103 1/2-104 for 376-inch; 104c for 378-inch; 104 1/2-105 for 380-inch; 105c for 382-inch; 105 1/2-106 for 384-inch; 106c for 386-inch; 106 1/2-107 for 388-inch; 107c for 390-inch; 107 1/2-108 for 392-inch; 108c for 394-inch; 108 1/2-109 for 396-inch; 109c for 398-inch; 109 1/2-110 for 400-inch; 110c for 402-inch; 110 1/2-111 for 404-inch; 111c for 406-inch; 111 1/2-112 for 408-inch; 112c for 410-inch; 112 1/2-113 for 412-inch; 113c for 414-inch; 113 1/2-114 for 416-inch; 114c for 418-inch; 114 1/2-115 for 420-inch; 115c for 422-inch; 115 1/2-116 for 424-inch; 116c for 426-inch; 116 1/2-117 for 428-inch; 117c for 430-inch; 117 1/2-118 for 432-inch; 118c for 434-inch; 118 1/2-119 for 436-inch; 119c for 438-inch; 119 1/2-120 for 440-inch; 120c for 442-inch; 120 1/2-121 for 444-inch; 121c for 446-inch; 121 1/2-122 for 448-inch; 122c for 450-inch; 122 1/2-123 for 452-inch; 123c for 454-inch; 123 1/2-124 for 456-inch; 124c for 458-inch; 124 1/2-125 for 460-inch; 125c for 462-inch; 125 1/2-126 for 464-inch; 126c for 466-inch; 126 1/2-127 for 468-inch; 127c for 470-inch; 127 1/2-128 for 472-inch; 128c for 474-inch; 128 1/2-129 for 476-inch; 129c for 478-inch; 129 1/2-130 for 480-inch; 130c for 482-inch; 130 1/2-131 for 484-inch; 131c for 486-inch; 131 1/2-132 for 488-inch; 132c for 490-inch; 132 1/2-133 for 492-inch; 133c for 494-inch; 133 1/2-134 for 496-inch; 134c for 498-inch; 134 1/2-135 for 500-inch; 135c for 502-inch; 135 1/2-136 for 504-inch; 136c for 506-inch; 136 1/2-137 for 508-inch; 137c for 510-inch; 137 1/2-138 for 512-inch; 138c for 514-inch; 138 1/2-139 for 516-inch; 139c for 518-inch; 139 1/2-140 for 520-inch; 140c for 522-inch; 140 1/2-141 for 524-inch; 141c for 526-inch; 141 1/2-142 for 528-inch; 142c for 530-inch; 142 1/2-143 for 532-inch; 143c for 534-inch; 143 1/2-144 for 536-inch; 144c for 538-inch; 144 1/2-145 for 540-inch; 145c for 542-inch; 145 1/2-146 for 544-inch; 146c for 546-inch; 146 1/2-147 for 548-inch; 147c for 550-inch; 147 1/2-148 for 552-inch; 148c for 554-inch; 148 1/2-149 for 556-inch; 149c for 558-inch; 149 1/2-150 for 560-inch; 150c for 562-inch; 150 1/2-151 for 564-inch; 151c for 566-inch; 151 1/2-152 for 568-inch; 152c for 570-inch; 152 1/2-153 for 572-inch; 153c for 574-inch; 153 1/2-154 for 576-inch; 154c for 578-inch; 154 1/2-155 for 580-inch; 155c for 582-inch; 155 1/2-156 for 584-inch; 156c for 586-inch; 156 1/2-157 for 588-inch; 157c for 590-inch; 157 1/2-158 for 592-inch; 158c for 594-inch; 158 1/2-159 for 596-inch; 159c for 598-inch; 159 1/2-160 for 600-inch; 160c for 602-inch; 160 1/2-161 for 604-inch; 161c for 606-inch; 161 1/2-162 for 608-inch; 162c for 610-inch; 162 1/2-163 for 612-inch; 163c for 614-inch; 163 1/2-164 for 616-inch; 164c for 618-inch; 164 1/2-165 for 620-inch; 165c for 622-inch; 165 1/2-166 for 624-inch; 166c for 626-inch; 166 1/2-167 for 628-inch; 167c for 630-inch; 167 1/2-168 for 632-inch; 168c for 634-inch; 168 1/2-169 for 636-inch; 169c for 638-inch; 169 1/2-170 for 640-inch; 170c for 642-inch; 170 1/2-171 for 644-inch; 171c for 646-inch; 171 1/2-172 for 648-inch; 172c for 650-inch; 172 1/2-173 for 652-inch; 173c for 654-inch; 173 1/2-174 for 656-inch; 174c for 658-inch; 174 1/2-175 for 660-inch; 175c for 662-inch; 175 1/2-176 for 664-inch; 176c for 666-inch; 176 1/2-177 for 668-inch; 177c for 670-inch; 177 1/2-178 for 672-inch; 178c for 674-inch; 178 1/2-179 for 676-inch; 179c for 678-inch; 179 1/2-180 for 680-inch; 180c for 682-inch; 180 1/2-181 for 684-inch; 181c for 686-inch; 181 1/2-182 for 688-inch; 182c for 690-inch; 182 1/2-183 for 692-inch; 183c for 694-inch; 183 1/2-184 for 696-inch; 184c for 698-inch; 184 1/2-185 for 700-inch; 185c for 702-inch; 185 1/2-186 for 704-inch; 186c for 706-inch; 186 1/2-187 for 708-inch; 187c for 710-inch; 187 1/2-188 for 712-inch; 188c for 714-inch; 188 1/2-189 for 716-inch; 189c for 718-inch; 189 1/2-190 for 720-inch; 190c for 722-inch; 190 1/2-191 for 724-inch; 191c for 726-inch; 191 1/2-192 for 728-inch; 192c for 730-inch; 192 1/2-193 for 732-inch; 193c for 734-inch; 193 1/2-194 for 736-inch; 194c for 738-inch; 194 1/2-195 for 740-inch; 195c for 742-inch; 195 1/2-196 for 744-inch; 196c for 746-inch; 196 1/2-197 for 748-inch; 197c for 750-inch; 197 1/2-198 for 752-inch; 198c for 754-inch; 198 1/2-199 for 756-inch; 199c for 758-inch; 199 1/2-200 for 760-inch; 200c for 762-inch; 200 1/2-201 for 764-inch; 201c for 766-inch; 201 1/2-202 for 768-inch; 202c for 770-inch; 202 1/2-203 for 772-inch; 203c for 774-inch; 203 1/2-204 for 776-inch; 204c for 778-inch; 204 1/2-205 for 780-inch; 205c for 782-inch; 205 1/2-206 for 784-inch; 206c for 786-inch; 206 1/2-207 for 788-inch; 207c for 790-inch; 207 1/2-208 for 792-inch; 208c for 794-inch; 208 1/2-209 for 796-inch; 209c for 798-inch; 209 1/2-210 for 800-inch; 210c for 802-inch; 210 1/2-211 for 804-inch; 211c for 806-inch; 211 1/2-212 for 808-inch; 212c for 810-inch; 212 1/2-213 for 812-inch; 213c for 814-inch; 213 1/2-214 for 816-inch; 214c for 818-inch; 214 1/2-215 for 820-inch; 215c for 822-inch; 215 1/2-216 for 824-inch; 216c for 826-inch; 216 1/2-217 for 828-inch; 217c for 830-inch; 217 1/2-218 for 832-inch; 218c for 834-inch; 218 1/2-219 for 836-inch; 219c for 838-inch; 219 1/2-220 for 840-inch; 220c for 842-inch; 220 1/2-221 for 844-inch; 221c for 846-inch; 221 1/2-222 for 848-inch; 222c for 850-inch; 222 1/2-223 for 852-inch; 223c for 854-inch; 223 1/2-224 for 856-inch; 224c for 858-inch; 224 1/2-225 for 860-inch; 225c for 862-inch; 225 1/2-226 for 864-inch; 226c for 866-inch; 226 1/2-227 for 868-inch; 227c for 870-inch; 227 1/2-228 for 872-inch; 228c for 874-inch; 228 1/2-229 for 876-inch; 229c for 878-inch; 229 1/2-230 for 880-inch; 230c for 882-inch; 230 1/2-231 for 884-inch; 231c for 886-inch; 231 1/2-232 for 888-inch; 232c for 890-inch; 232 1/2-233 for 892-inch; 233c for 894-inch; 233 1/2-234 for 896-inch; 234c for 898-inch; 234 1/2-235 for 900-inch; 235c for 902-inch; 235 1/2-236 for 904-inch; 236c for 906-inch; 236 1/2-237 for 908-inch; 237c for 910-inch; 237 1/2-238 for 912-inch; 238c for 914-inch; 238 1/2-239 for 916-inch; 239c for 918-inch; 239 1/2-240 for 920-inch; 240c for 922-inch; 240 1/2-241 for 924-inch; 241c for 926-inch; 241 1/2-242 for 928-inch; 242c for 930-inch; 242 1/2-243 for 932-inch; 243c for 934-inch; 243 1/2-244 for 936-inch; 244c for 938-inch; 244 1/2-245 for 940-inch; 245c for 942-inch; 245 1/2-246 for 944-inch; 246c for 946-inch; 246 1/2-247 for 948-inch; 247c for 950-inch; 247 1/2-248 for 952-inch; 248c for 954-inch; 248 1/2-249 for 956-inch; 249c for 958-inch; 249 1/2-250 for 960-inch; 250c for 962-inch; 250 1/2-251 for 964-inch; 251c for 966-inch; 251 1/2-252 for 968-inch; 252c for 970-inch; 252 1/2-253 for 972-inch; 253c for 974-inch; 253 1/2-254 for 976-inch; 254c for 978-inch; 254 1/2-255 for 980-inch; 255c for 982-inch; 255 1/2-256 for 984-inch; 256c for 986-inch; 256 1/2-257 for 988-inch; 257c for 990-inch; 257 1/2-258 for 992-inch; 258c for 994-inch; 258 1/2-259 for 996-inch; 259c for 998-inch; 259 1/2-260 for 1000-inch; 260c for 1002-inch; 260 1/2-261 for 1004-inch; 261c for 1006-inch; 261 1/2-262 for 1008-inch; 262c for 1010-inch; 262 1/2-263 for 1012-inch; 263c for 1014-inch; 263 1/2-264 for 1016-inch; 264c for 1018-inch; 264 1/2-265 for 1020-inch; 265c for 1022-inch; 265 1/2-266 for 1024-inch; 266c for 1026-inch; 266 1/2-267 for 1028-inch; 267c for 1030-inch; 267 1/2-268 for 1032-inch; 268c for 1034-inch; 268 1/2-269 for 1036-inch; 269c for 1038-inch; 269 1/2-270 for 1040-inch; 270c for 1042-inch; 270 1/2-271 for 1044-inch; 271c for 1046-inch; 271 1/2-272 for 1048-inch; 272c for 1050-inch; 272 1/2-273 for 1052-inch; 273c for 1054-inch; 273 1/2-274 for 1056-inch; 274c for 1058-inch; 274 1/2-275 for 1060-inch; 275c for 1062-inch; 275 1/2-276 for 1064-inch; 276c for 1066-inch; 276 1/2-277 for 1068-inch; 277c for 1070-inch; 277 1/2-278 for 1072-inch; 278c for 1074-inch; 278 1/2-279 for 1076-inch; 279c for 1078-inch; 279 1/2-280 for 1080-inch; 280c for 1082-inch; 280 1/2-281 for 1084-inch; 281c for 1086-inch; 281 1/2-282 for 1088-inch; 282c for 1090-inch; 282 1/2-283 for 1092-inch; 283c for 1094-inch; 283 1/2-284 for 1096-inch; 284c for 1098-inch; 284 1/2-285 for 1100-inch; 285c for 1102-inch; 285 1/2-286 for 1104-inch; 286c for 1106-inch; 286 1/2-287 for 1108-inch; 287c for 1110-inch; 287 1/2-288 for 1112-inch; 288c for 1114-inch; 288 1/2-289 for 1116-inch; 289c for 1118-inch; 289 1/2-290 for 1120-inch; 290c for 1122-inch; 290 1/2-291 for 1124-inch; 291c for 1126-inch; 291 1/2-292 for 1128-inch; 292c for 1130-inch; 292 1/2-293 for 1132-inch; 293c for 1134-inch; 293 1/2-294 for 1136-inch; 294c for 1138-inch; 294 1/2-295 for 1140-inch; 295c for 1142-inch; 295 1/2-296 for 1144-inch; 296c for 1146-inch; 296 1/2-297 for 1148-inch; 297c for 1150-inch; 297 1/2-298 for 1152-inch; 298c for 1154-inch; 298 1/2-299 for 1156-inch; 299c for 1158-inch; 299 1/2-300 for 1160-inch; 300c for 1162-inch; 300 1/2-301 for 1164-inch; 301c for 1166-inch; 301 1/2-302 for 1168-inch; 302c for 1170-inch; 302 1/2-303 for 1172-inch; 303c for 1174-inch; 303 1/2-304 for 1176-inch; 304c for 1178-inch; 304 1/2-305 for 1180-inch; 305c for 1182-inch; 305 1/2-306 for 1184-inch; 306c for 1186-inch; 306 1/2-307 for 1188-inch; 307c for 1190-inch; 307 1/2-308 for 1192-inch; 308c for 1194-inch; 308 1/2-309 for 1196-inch; 309c for 1198-inch; 309 1/2-310 for 1200-inch; 310c for 1202-inch; 310 1/2-311 for 1204-inch; 311c for 1206-inch; 311 1/2-312 for 1208-inch; 312c for 1210-inch; 312 1/2-313 for 1212-inch; 313c for 1214-inch; 313 1/2-314 for 1216-inch; 314c for 1218-inch; 314 1/2-315 for 1220-inch; 315c for 1222-inch; 315 1/2-316 for 1224-inch; 316c for 1226-inch; 316 1/2-317 for 1228-inch; 317c for 1230-inch; 317 1/2-318 for 1232-inch; 318c for 1234-inch; 318 1/2-319 for 1236-inch; 319c for 1238-inch; 319 1/2-320 for 1240-inch; 320c for 1242-inch; 320 1/2-321 for 1244-inch; 321c for 1246-inch; 321 1/2-322 for 1248-inch; 322c for 1250-inch; 322 1/2-323 for 1252-inch; 323c for 1254-inch; 323 1/2-324 for 1256-inch; 324c for 1258-inch; 324 1/2-325 for 1260-inch; 325c for 1262-inch; 325 1/2-326 for 1264-inch; 326c for 1266-inch; 326 1/2-327 for 1268-inch; 327c for 1270-inch; 327 1/2-328 for 1272-inch; 328c for 1274-inch; 328 1/2-329 for 1276-inch; 329c for 1278-inch; 329 1/2-330 for 1280-inch; 330c for 1282-inch; 330 1/2-331 for 1284-inch; 331c for 1286-inch; 331 1/2-332 for 1288-inch; 332c for 1290-inch; 332 1/2-333 for 1292-inch; 333c for 1294-inch; 333 1/2-334 for 1296-inch; 334c for 1298-inch; 334 1/2-335 for 1300-inch; 335c for 1302-inch; 335 1/2-336 for 1304-inch; 336c for 1306-inch; 336 1/2-337 for 1308-inch; 337c for 1310-inch; 337 1/2-338 for 1312-inch; 338c for 1314-inch; 338 1/2-339 for 1316-inch; 339c for 1318-inch; 339 1/2-340 for 1320-inch; 340c for 1322-inch; 340 1/2-341 for 1324-inch; 341c for 1326-inch; 341 1/2-342 for 1328-inch; 342c for 1330-inch; 342 1/2-343 for 1332-inch; 343c for 1334-inch; 343 1/2-344 for 1336-inch; 344c for 1338-inch; 344 1/2-345 for 1340-inch; 345c for 1342-inch; 345 1/2-346 for 1344-inch; 346c for 1346-inch; 346 1/2-347 for 1348-inch; 347c for 1350-inch; 347 1/2-348 for 1352-inch; 348c for 1354-inch; 348 1/2-349 for 1356-inch; 349c for 1358-inch; 349 1/2-350 for 1360-inch; 350c for 1362-inch; 350 1/2-351 for 1364-inch; 351c for 1366-inch; 351 1/2-352 for 1368-inch; 352c for 1370-inch; 352 1/2-353 for 1372-inch; 353c for 1374-inch; 353 1/2-354 for 1376-inch; 354c for 1378-inch; 354 1/2-355 for 1380-inch; 355c for 1382-inch; 355 1/2-356 for 1384-inch; 356c for 1386-inch; 356 1/2-357 for 1388-inch; 357c for 1390-inch; 357 1/2-358 for 1392-inch; 358c for 1394-inch

PEAS AS A SHEEP FEED.

I was lately talking to a Colorado friend who has had a great deal of experience in fattening range lambs. His method was entirely new to me, and owing to the possibilities in pea growing in Michigan, I thought it might be of particular interest to Michigan sheepmen. It is not the alfalfa method. It is, however, a method that has proved exceedingly profitable on irrigated lands valued at from \$150 per acre upwards. Furthermore, it is not a method which means depletion of soil fertility, but rather the increase of fertility. For that reason I thought that it might be used to advantage by many farmers living in the none too fertile section of the state.

Early in the fall he gets the lambs off his ranch in the foothills and turns them into a large field of peas. It is just like hogging down corn. It might be called sheepling down peas. He simply leaves the lambs in the field until they are fat. Peas are said to have most of the elements required in a good all-around ration. I hardly believed him when he told me of the enormous gains the lambs made. After the lambs are fattened, he turns a bunch of hogs in the field to gather up what is left. He usually ships to Kansas City and the lambs are in such shape that they are, to say the least, no drug upon the market. Indeed, the plan looked so good that I thought it might interest some pea grower enough to try it. The system may mean much to Michigan.

Ohio.

CLYDE A. WAUGH.

HOW TO CURE CORNS IN HORSES.

Corn are caused by bad shoeing, or from allowing the shoe to wear too long without reshoeing, and also from having too much of the foot taken off. My remedy, by which I have never failed to effect a permanent cure, is as follows:

Have the shoes pulled off, the feet pared and then poulticed until they are as soft as jelly. Get your knife again, cut the corns down to the quick, extract the cores of the corns by means of a pair of small pliers, and then apply spirits of salts to eat away any remnants of the corn which may remain.

By this time the foot has been so much reduced that time must be allowed for a new growth of the foot, which may be satisfactorily and quickly attained by placing the foot of the patient in blue clay for three weeks, or more if necessary. If these directions are followed a new foot and a permanent cure will be the result; and although it takes time you should remember that anything worth having is worth waiting for. Rubber pads, and bar shoes will help a horse temporarily only, but will keep him going in a cramped way. But if you are impatient you can take your choice between quickness and thoroughness.

St. Joseph Co.

W. J. GRAND.

LIVE STOCK NOTES.

The packers in western markets are having great difficulty in securing sufficient numbers of hogs to meet their requirements for manufacturing bacon, and a few days ago a Chicago packing firm was forced to buy a dozen car loads of hogs in order to obtain a double-deck of 180-lb. bacon hogs, selling the remainder of the lot to other packing concerns at a loss. Recently the average weight of hogs marketed at Chicago has increased sharply, and predictions have been made that the summer months will bring about a greater scarcity of bacon hogs than ever. The receipts are running largely to hogs tipping the scales at 250 to 300 lbs., and even droves averaging around 200 lbs. come to market fairly rolling in fat. Of course, the reasons for this state of things are easy to see, for corn and other feeds are everywhere unusually abundant and extremely cheap, and farmers have figured it out that putting corn into pork will pay them much larger returns than marketing the grain. Although the domestic and foreign demand for lard has been a good deal improved of late, the spread between bacon and lard hogs has been widening out, and close observers do not hesitate to predict that it will amount to \$1 per 100 lbs. later on. The exports of cured hog meats have been increasing, despite their extreme dearth, but stocks are accumulating for all that. There is also a large consumption of fresh pork.

It will now be possible for stockmen to restock the Texas pastures with cattle in the region below the quarantine line, as the United States Department of Agriculture has revoked the former order that required ticky cattle from Mexico to be held 60 days after dipping before crossing the boundary line that separates the two republics. Down in that portion of Texas there is a superabundance of grass and a great lack of cattle, and it is expected that a quarter of a million of Mexican cattle will be brought in during this spring. Not only Texas is short of cattle, but many other parts of this country are sadly in need of more cattle to

fatten, and rather than have grass go to waste, many farmers are paying fancy prices for stockers and feeders. In the Chicago market of late stock calves and well-bred yearlings suitable for fattening have been selling about as high as the choicer lots of fleshy feeders, both going dangerously high in the opinion of conservative stockmen, although some farmers seem to be able to come out ahead by feeding carefully. The fashion now is to select thrifty cattle that will make good and quick gains on grass, and fewer farmers than formerly are going in for long-time feeding, this being too expensive. Besides, the biggest demand these days is for handy little fat yearlings, both steers and heifers.

Many parts of the country are failing to breed anywhere near enough horses to meet their local requirements, and some of these places are beginning to stock up with good stallions and mares, but many are neglecting to do so. Farmers intending to make horse breeding a part of their business in the future should not fail to purchase high-grade breeders, for this is the only way that maximum profits are to be made. It is a fact that at no time is there a surfeit of prime business horses in the markets of the country, and much of the time there are buying orders in the Chicago market for high-class heavy horses that cannot be filled at short notice. Choice wagon horses that tip the scales around 1,250 lbs. have been in demand in the Chicago market recently for supplying the principal business houses of that city, and suitable animals were not to be had. The horses wanted are of the light expresser order of the finer class. There is also a persistent demand for teams of horses, and orders have been received recently from places as far distant as Minnesota. It is a matter of encouragement that when farmers want breeding mares they are usually purchasing a better grade than has been their practice heretofore.

Michigan sheepmen have been shipping a larger share of their fed flocks to the Chicago market this year than usual, as generally higher prices have been paid than in the Buffalo market. Many of the Michigan sheepmen have been shearing their flocks in recent weeks, and this has tended to decrease the Chicago offerings and thereby put up prices materially.

E. G. Read, who is widely known as one of the prominent successful sheep feeders of Michigan, marketed the last of his season's fed lambs not long ago at Chicago. He stated at that time that while most of his lambs brought less money than they cost at the start as feeders, they about paid for the grain he fed them. He reported a good many lambs in his region still on feed, more feeding having been carried on than a year ago. Mr. Read bought in the Chicago stock yards 1,500 head of Idaho range lambs the first day of last October for \$6.50, their average weight then having been 57 pounds. When returned to market their average weight was 95 pounds, and they showed that they had received good care and plenty of good feed.

In the greater portion of western Canada there is a serious lack of beef cattle, and speculators have been paying as high as \$6.50 per 100 lbs. west of Winnipeg, along the line of the Canadian Pacific, and forwarding the cattle to British Columbia. Ontario has plenty of cattle, and there is talk of shipping fat beefs to Winnipeg from Toronto.

Texas has had recent rains, interfering with Kansas and Oklahoma owners of pastures from getting their usual supplies of stock cattle, and now prices are the highest ever recorded, with a great scarcity of cattle.

The demand for provisions has started up in the Chicago market, and larger sales of lards and meats are reported. The southern demand is growing steadily in volume, and the English houses have been fair buyers of meats for some time.

With a good grade of corn selling for cash in the Chicago market at 47½¢ per bushel, and country prices correspondingly lower, it is natural that farmers should be anxious to convert their grain into beef, pork and mutton. Recent sales in Chicago for May delivery as compared with a year ago have shown reductions of fully 16¢ for corn, 15½¢ for oats and 24¢ for wheat.

P. S. Haner, the chairman of the Illinois State Board of Live Stock Commissioners, and one of the leading successful farmers of the great middle west, who feeds 40,000 bushels of corn to his own live stock in the course of a year, is obviously a great believer in the live stock industry, so that his views on the matter are worthy of attention. He regards summer feeding of cattle the most profitable, as the cattle gain faster and show larger gains on half the corn needed in the winter, while the roughness costs less. He regards a silo as absolutely necessary where winter feeding is carried on, and he does not advocate feeding at that season of the year. Mr. Haner says: "By feeding just at sundown a peck of corn it takes the place of a half bushel fed in the morning, for when you feed in the morning your cattle are full of corn and do not go out to graze as they should, but lie around most of the morning. If you feed at night they will graze early in the morning and also in the afternoon before feeding time at night. To these rations may be added two or three pounds of cottonseed meal, according to the age of the animal fed. This will add greatly to the daily gain of your animals and is one of the best conditioners that I have ever used. I speak from experience, because I use many tons of it each year. It is also important in the feeding of cattle that you separate them into uniform lots. If you feed in the winter you must have aged animals that carry a sufficient amount of flesh. If they do not it seems certain that they will not be a very profitable investment. This, I consider, a very important point for the farmer and the feeder to remember."

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.

Flat Warts on Teats.—Have a three-year-old cow with warts on teats; these warts are about as large as a dime, flat and sooth. When this heifer came fresh her teats appeared to be smooth. S. H., Brooklyn, Mich.—Apply vinegar a time or two, then apply castor oil until they disappear. If the castor oil fails add one part salicylic acid to four parts castor oil.

Light Attack of Azoturia.—I have a mare that is usually driven a short distance every day, but after standing in a few days she stiffens and perspires freely as though in pain. Her appetite is good and she is in fairly good condition. P. K., Levering, Mich.—When your mare cramps in hind quarters and perspires freely, she must suffer from a mild attack of either azoturia or lumbago. She should be fed not more than one-third as much grain when idle as if working; besides, her bowels and kidneys should be kept active. Give her a tablespoonful of the following compound powder at a dose in feed two or three times a day: Powdered nitrate of potash, powdered rosin, and bicarbonate of soda. This is given to produce better kidney action; now then, in order to keep her bowels open, feed some well-salted bran mash, clover, or roots.

Urine Discharge Through the Navel.—Would like to know how to treat leaking navel of a foal. I lost one last spring from that cause; the colt when born had a large navel string and appeared to be twisted. I tied and cut a portion of it off, but was told it would have broken loose when the mother got on foot. I have two foals coming this spring again and am sure that many other readers of your paper would be interested in knowing more about this ailment; therefore I ask for information. C. J. L., Palms, Mich.—It pleases me to know that stockmen are interested in knowing more about animal ailments that prove fatal. As you perhaps know, before birth the urine of a foetus passes from the bladder through a foetal tube called the urachus, through the navel and string into the outer water bag and at birth this should close and the tube be drawn in toward the bladder. Male calves and colts are more likely to drip urine at the navel than females. If a portion of the cord remains it should be tied with a piece of linen, silk, or catgut dipped in one part carbolic acid and ten parts glycerine or sweet oil and the end of cord which is usually left about one inch long allowed to drop off. If the cord pulls off close to body and the navel leaks apply equal parts powdered alum and tannic acid or if the cord bleeds apply Monsell's solution of iron a few times, then apply the first mentioned powder. It is sometimes necessary to stitch the opening with silk or linen and let the stitches remain in for a few days, applying, of course, healing remedies to the wound. In some cases I find touching the leaking parts lightly with a red-hot iron or rubbing in a small quantity of cerate of cantharides on their surrounding parts to create swelling, it will very often close the opening and the urine will soon flow through its natural channel. Kindly understand, nearly all home astrigent healing remedies are proper applications to apply to the navel of newly born animals and every colt and calf's navel should be treated with antiseptic astrigent healing applications. This is done to prevent infectious germs from passing through this channel into the circulation of young animals. Just a word in conclusion—let me suggest that readers of this paper will perhaps save money by clipping this statement and making future use of it.

Winter Cholera.—I have three yearling heifers (not pregnant) which I stabled and turned out every morning to walk some distance and drink out of a creek. All three returned on the 14th, playing and feeling fine. Towards evening two of them showed indications of bowel pain and commenced to scour badly and frequently pointed nose to side. They breathed quickly and jerkily, growing weaker gradually, finally laid down and one of them died and the other one also died a day later. The third heifer is apparently all right. I cut the dead ones open and found all parts right except the bowels and inner lining of paunch. What caused their death? T. C. D. K., Orion, Mich.—Your heifers drank too much impure ice water which brought on dysentery or winter cholera, which resulted in great emaciation and death. It is doubtful if they could have been saved; however, if you have another case give 4 ozs. of castor oil, one dose only, and follow by giving ½ oz. doses of tincture of opium every two hours and if the purging does not cease increase the dose until it does.

Irritation of Kidneys.—Condition Powder.—Last spring I bought a 24-year-old mare of my father that has been afflicted with kidney or bladder trouble for the past ten years and for many years she has had occasional attacks of colic and it was necessary to give her sweet spirits of nitre. Now she is tender in loins when pressed, even lightly. I drove her to town the other day, a distance of 2½ miles;

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she urinated twice on the way and another time on arrival. She seems to crave rotten wood and, in fact, bankers' after wood of any kind, but is in seemingly good health; she prefers oats more than corn. I would also like to have you suggest a formula for condition powder. E. E. W., Pennville, Mich.—Discontinue giving your mare sweet spirits of nitre and saltpeter for both of them produce an irritation of the pelvis of kidney. Give her one-half ounce of fluid extract of buchu twice a day for a week then give a dose daily for one week more, then give a dose every two or three days for as often as you believe it necessary to produce free kidney action. She no doubt suffers from acidity of stomach or has a little dyspepsia. Mix together equal parts of ground gentian, bicarbonate soda and powdered charcoal and give her two tablespoonfuls at a dose in feed two or three times a day. Feed her some roots. A very good and not expensive tonic and condition powder for live stock is made by mixing together equal parts by weight powdered sulphate iron, gentian, ginger, fenugreek, anise, bicarbonate soda and Glauber's salts. Dose, a tablespoonful mixed with feed and it should be given two or three times a day. This you will find useful for all kinds of live stock; but of course, sheep and hogs should be dosed in proportion to their weight, as a tablespoonful is a dose for a horse or an ox.

Gored by Cow.—I have a six-year-old mare due to foal in three months that was gored by a cow, making a wound seven inches in front of stifle joint, causing considerable swelling which seems to have extended underneath belly and brisket. The swollen parts are extremely tender and I would like to know how to treat the case. V. G. W., Montague, Mich.—Inject one part carbolic acid and 30 parts water into wound twice a day and dissolve 1/4 lb. salt in a gallon of hot water and apply to swelling twice a day. If your barn is cold don't apply this salt water, but apply one part alcohol and three parts water instead. Give her 1/2 oz. fluid extract of buchu at a dose in feed three times a day. She should be fed some well salted bran mash and vegetables or roots to keep her bowels active.

Looseness of Bowels.—I would like to know what to do for my four-months-old heifer calf that has diarrhoea all the time. This calf refuses to drink milk, but eats hay and is growing thin. E. W., Dalton, Mich.—Give calf 20 grs. salol at a dose four times a day. It is generally good practice to give a dose of oil every ten days.

Indigestion.—I have a 5-year-old horse that is out of condition, is inclined to bite manger, kick side of stall and his kidneys do not act enough. D. O. L., Petoskey, Mich.—Give a tablespoonful of the following compound powder at a dose in feed three times a day: Equal parts by weight of powdered sulphate iron, gentian, fenugreek and resin. I also suggest that you feed some roots.

Eczema.—Have an eight-year-old cow that seems to be shedding her coat in spots and on these bare patches I notice a little pus or fluid. Is this a contagious ailment? W. K. L., Williamston, Mich.

Impure Blood.—I have a mare now in foal that was troubled with boils on shoulder and back during all last summer, but she is free from them this winter. K. K., Nunica, Mich.—Give your mare 1/2 oz. fluid extract sarsaparilla and 1/2 dr. iodide of potassium at a dose in feed two or three times a day for 30 days.

Lumpjaw.—One of my cows has a hard bunch on jaw, but it is not sore; how should it be treated and is her milk fit to use? W. S. S., Woodland, Mich.—Apply tincture iodine to bunch once a day and give 2 drs. iodide potassium at a dose in feed three times a day for 30 days. In her present condition I do not believe there is any danger from using her milk; however, if the bunch suppurates, she should be segregated from your other cows and you should not use her milk for domestic purposes.

Chronic Cough.—My five-year-old horse is troubled with a cough and there appears to be some rattling in his throat. F. T. C., Alma, Mich.—Give a tablespoonful tincture opium, a teaspoonful fluid extract belladonna and a teaspoonful of fluid extract of lobelia at a dose in feed three times a day; also apply iodine ointment to throat three times a week.

Worms.—Chapped Udder.—I rather suspect that my horse is troubled with stomach worms and I have a cow that is inclined to lick her bag, causing the skin to chap. G. K. S., Willis, Mich.—Give 2 tablespoonfuls of ground gentian at a dose in feed three times a day. Your cow should be obliged to wear a halter and surcingle, attaching a broomstick or pole with a hole in each end, one fastened to halter and the other to surcingle, which will prevent her licking and keeping the udder wet. Apply one part lemon juice and five parts glycerine to chaps twice a day.

Suppurative Lymphatic Trouble.—Constipation.—I have a mare that is pretty well along in years that I have treated for farcy for a long time without being able to affect a cure. One leg first became affected, some time later the other hind leg, and now there are several blotches under belly and I am inclined to believe that she has farcy. I have another seven-year-old mare that began to switch her tail violently by spells, bite her sides and also rub tail against stall and thinking perhaps she might have worms our local Vet. gave her 2 drs. of santonine in 1/2 pt. raw linseed oil, following up later with a quart of linseed oil which did not purge her. I noticed no worms in her passages, but lately she does not fidget and is quiet. Her bowels are constive. J. B., Harrietta, Mich.—Give 1 dr. iodide potassium, 1 dr. powdered sulphur and 2 drs. Fowler's solution at a dose in feed three times a day. Also apply 1 part bichloride mercury and 500 parts water to sores twice a day.



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THE DAIRY

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HOW TO HAVE GOOD COWS.

A relative of the writer residing in the state of New York, who has followed dairying for 30 years, and always keeping from 40 to 50 cows, (which were bought, not raised), said he never owned any prodigy, or uncommonly good cows, but a large number of ordinary, and poor ones; that in buying he had always picked for the best in accordance with the rules, and marks laid down by the experts, who declare that the dairy type indicates good cows. He spoke of a neighbor who boasted of having a cow that gave a bushel of milk (32 quarts) a day, but said such cows were scarce as the famous trotting horses that got over a mile in about two minutes.

The writer said to a neighbor who raised good dairy stock, and frequently sold cows: "When you have a good cow to sell, let me know, I want to buy her." He smiled, and answered confidentially: "I don't sell my good cows." Other sellers, no doubt have the same rule and keep their best cows for their own use, as they certainly should. This being generally the case, it would seem that the only way to have a good dairy, and keep it good, is to raise the heifer calves to maturity, and motherhood, and after testing them, retain only the best. Of course, the calves should be sired by a full blood dairy bull. A heifer should not be condemned and discarded for unsatisfactory performance at the pail the first year. She should be given another chance to prove her worth with the second calf.

Like is said to produce like, and why the calf of a superior cow, begotten by a dairy bull, should not be equal to the mother for milk production, is a hidden fact of nature which will never be discovered. I have owned three uncommonly good cows, and had them served by good bulls, but not one of the calves ever equaled her mother for milk, or butter production. No doubt they were better cows than they would have been had not their parents been good. If painstaking and mating the best, does not meet expectations it is nevertheless necessary to practice it in order to prevent deterioration. If like does not always produce like, it is more likely to, than blind chance. Breeding only from the best, and discarding the poorest, was the rule and practice of the old breeders who founded the breed which have remained superior to this day. A dairy critic wrote: "When a well bred heifer proves inferior to the parent stock, it is the fault of the breeder, or feeder," and that "the nerve force must be kept up, the lung capacity made large, and the digestion powerful." It is barely possible that the growth of a calf might be stunted, its size at maturity lessened, and its constitution weakened by improper feeding, but such cases are not common enough to account for the fact above stated, and I know that my calves were properly fed and cared for, as I did it myself. Good digestion is preserved by proper feeding of the right foods, and the proper foods fed too liberally will bring on the scours, the scourge of calfdom. Calves are greedy animals, and will eat and drink more milk than their stomachs will bear, and the stomachs will weaken and fail to do good work. Gormandizing food is not the failing of calves alone, human beings are also guilty. Some dairy writers have said that heifer calves should have food of a different composition from bull calves. It does not seem reasonable. Until a heifer gives milk, the food she needs, and must have, is to make flesh, blood and bone, precisely the same the male calf needs. Do these writers provide different foods for their daughters than for their sons?

It appears that the only way to have good cows is to raise them yourself, and weed out some of the poorest. The weeding out process may be carried too far. Some of the cows weeded out would have paid well for their keeping, and given some profit besides. A little profit is better than none. Because hogs are more profitable than hens, we do not stop raising poultry. The dairy reformers say: "Weed them out!" "Send them to the butcher!" "Don't send them to board on some other unfortunate man!"

Some people are perfectionists, and carry their doctrine to extremes. Ex-Gov. Hoard journeyed all the way from Wisconsin, to tell us that the average annual production in the state of New York is

3,000 lbs. of milk, or 125 lbs. of butter, and that Pennsylvania and Wisconsin are in the same category, and asks: "Does any man believe this will keep the cow and leave any profit?" It depends altogether on how much it costs to keep the cow, the price obtained for dairy products and the cost of labor. Cows can be kept in some places cheaper than in others, and the exact cost of a quart of milk or pound of butter is a sum which has never yet been accurately determined. It depends on the value of the land on which the cows are kept, the value of the cows, (or price they would sell for), the value of the calf, the value of the food consumed, (whether raised or bought), the cost of labor, and the value of the manure. The cost varies in different localities, and on different farms in the same locality, and on the same farm in favorable, or unfavorable seasons.

Pa.

J. W. INGHAM.

ARRANGING A BASEMENT STABLE

I have a wall built for a barn 30x40 with the walls 12 inches thick. I would like to know how wide to have feeding alley through the center and how wide to have the alleys behind the cows. Barn is for cattle only. Also the best way to get from the barn floor to the basement, there being a heavy timber each side of driveway from which sleepers run to the sill.

Kent Co.

C. W. P.

A cow stable 30x40 ft. is not of the proper shape to be arranged the most economically so far as space is concerned, and for being convenient, and labor-saving in the care of cows. If you put two rows of cows through the narrow way of the barn 30 ft. you cannot

through and then have a wide enough alley back of each row of cows to drive through with the manure spreader and take care of the manure the work of caring for animals would be further reduced. This would be a little bit extravagant for space, but on the other hand it would give you larger storage capacity above and there is where nearly every dairy barn is deficient.

But now G. W. P. wants to run two rows of cows across the barn the 30-ft. way and have them face the center with one common feeding alley. I would have this feeding alley 6 ft. wide, and then the two rows of cows would take up 7 ft. on either side of this feeding alley back to the gutters. One foot more would be necessary for the gutter, and that would leave two 4-ft. alleys behind the cows in which to handle the manure, and as long as the manure must be wheeled out this will be a sufficient alley or space to do the work, and the 6-ft. alley between the mangers will be wide enough where everything is done by hand.

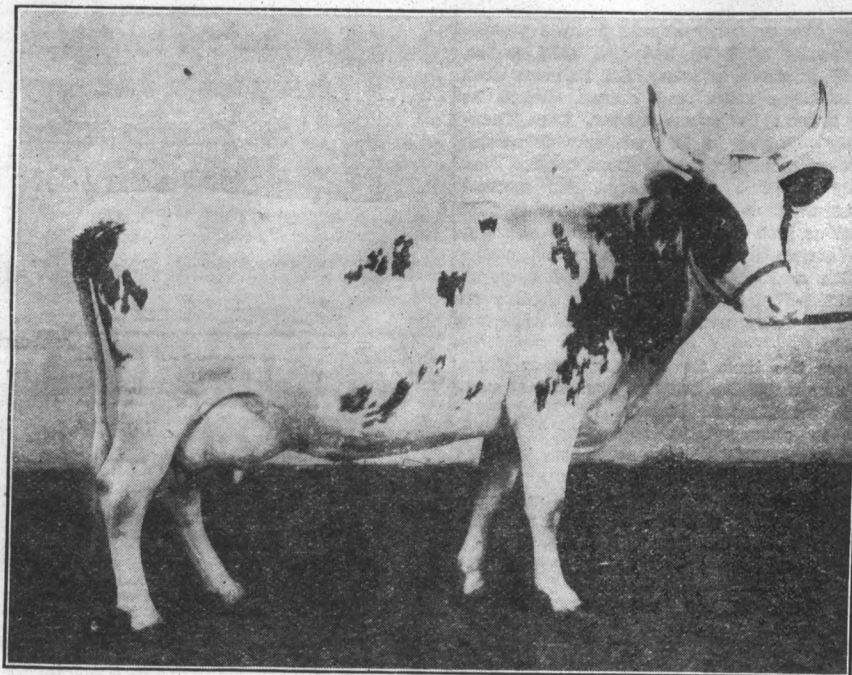
WEIGHT AND VALUE OF SILAGE.

I am taking the liberty to bother you a few minutes. I sold my farm. The man buying it wants to buy the silage. What would it be worth a ton? It was filled and refilled with reasonably good corn that would go 80 to 90 bu. per acre. It has kept fine. Also, how many tons is there left? The silo is 12 ft. in diameter and 34 ft. high, with a 4-ft. basement. It was thoroughly packed by three or four men while filling. There is 9 ft. of silage left in bottom now.

Wayne Co.

A. D.

It is difficult to say what corn silage is worth as there is no market for it. In



Grand Champion Ayrshire Cow at National Dairy Show.

have an alley wide enough to drive through to feed the cows, if you have the cows face each other in the center of the barn, and if you have them face the outside you cannot provide an alley behind the two rows of cows wide enough so that you can drive through with the manure spreader or a manure truck to draw out the manure. Arranging it with two rows of cow stalls in a 30-ft. barn there is no way to plan it except to have everything done by hand. The manure must be wheeled out on a wheelbarrow and all the feed must be drawn in by hand or carried in.

On the other hand, if we arrange the cow stalls the other way in the 40-ft. width of the barn this will be a little bit wider than is really necessary. You can have a driveway in front of the cows if you have them face each other in the center of the barn so that you can drive through with selling crops or anything of that sort and feed directly from the wagon, or if you want them to face the outside then you can have a wide enough alley between the cows to drive through with the manure truck or manure spreader but a barn 36 ft. wide will answer every purpose. I should prefer to have the cows face the outside and have an alleyway in the center because the manure job is the worst job upon a dairy farm and the labor is reduced to a minimum when you load it directly onto a wagon from the gutters and take it to the fields.

Of course, if one had a barn wide enough, and I think if I was going to build another barn I would have it that way, so that you could have the cows stand in two rows and have a wide enough alley between them to drive

our cow testing work we charge the cows \$3.50 per ton but it is really worth more. On the average for a whole silo the rule is to figure 40 lbs. per cu. foot, but the bottom of your silo will surely run 50 lbs. per cu. foot. If the diameter of your silo is 12 ft., the area would be 120 sq. ft. of surface, and if filled 9 ft. would make 1,080 cu. ft., and figuring 50 lbs. to the cu. ft. you would have 54,000 lbs., or 27 tons of ensilage on hand, which at \$3.50 per ton would be worth \$94.50.

Prof. Hecker at Round-Up Institute at Lansing, a year ago stated ensilage was worth \$5.00 per ton, but he figured in the value of its succulency as well as its food value.

A FOUR-BOTTLE BABCOCK TESTER.

I have bought a four-bottle Babcock milk tester, and casually remarking the fact in the presence of our creamery manager he informed me that such were not reliable, that all they would do for one would be to show the relative richness of the different cows' milk, that one did not get speed enough on hand testers to be accurate. Is that a fact, or is he "stringing" me?

Allegan Co. "SCOTT." There isn't any reason why one cannot do just as accurate work with a four-bottle tester as he can with any other tester. There are certain things that are necessary in handling the tester. You must have accurate bottles and an accurate pipet and then taken an accurate sample. That is the all important thing. Besides this it must be run at the proper velocity and the milk must be kept at the proper temperature. When you comply with these requisites it doesn't make any difference whether you have got a two bottle tester, a four-bottle tester, or a

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Ask us for it. The Dairy Tubular is later than and different from all others. Twice the skimming force of common separators, therefore skims faster and twice as clean. Repeatedly pays for itself by saving cream no common separator can get.

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Cheaper, and gives better results than bran for which it is substituted by the best dairymen. Forms a valuable addition to any ration, being vegetable the mechanical effect is good which causes a better assimilation of the other feeds. Especially good with cotton seed meal as it counteracts the objectional features of this feed. Dried Beet Pulp will cheapen any ration. Substitute it for a portion of the ration you use and you will secure better results in both production and improvement in the health of your animals. Call on your dealer, if he cannot supply you write

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thirty-bottle tester, and it doesn't make any difference whether it is run by power or by hand. The creamery manager certainly spoke carelessly if he said it was impossible for the average person who has had little or no experience in running a Babcock tester to get accurate results. If he said that you would get only comparative results he would state the case correctly, but when he says that it is impossible to do accurate work with a hand Babcock tester, he is stating something that is not so. Probably what he meant was the results usually obtained were not satisfactory. The farmer with the four-bottle tester can have just as accurate glassware as the creamery man can with his power tester. The farmer can, if he is careful enough, take just as accurate a sample as anybody and he can turn the machine at the proper velocity and he can have a sufficient amount of hot water so that he can keep the temperature just where he wants it.

CARE OF MILK AND CREAM ON THE FARM.

Milk as it leaves the udder of a healthy cow, is practically pure, free from germs and foreign matter. It may, however, become impure and tainted in various ways, as, for instance, in any of the following: 1st. By mixture with it of particles of dirt, manure, bedding, hair, etc., during and after milking. 2nd. By absorbing strong odors, as from manures, fertilizers, etc. 3d. By introduction of bacteria, which may cause souring; or bitter, slimy, ropy, or so-called "bloody" milk.

Under the first condition milk is contaminated with filth of various kinds, in many cases through carelessness in the barns. There are likely to be particles of dust and dirt in the air and on the bodies of most cows, especially about the udder, which readily finds access to the milk, chiefly during milking period. The attempt to prevent this by attaching a strained to the milk pail during milking is not advisable. Such strainers are cumbersome, they tend to spatter the milk, and are disagreeable to use. The sure method of preventing contamination of milk by such foreign matter as we are considering is to be sought in securing the right conditions in the stables, thoroughly cleansing the cow, and by the employment of milkers, clean in person and clothing, who understand how the cow should be milked, and who will do the work properly.

During the summer months when the milking is done in the open air, the surrounding atmosphere should be pure, the milking be done in a sheltered spot, which largely prevents the wind from blowing dry dust into the milk, and the yard be kept scrupulously clean. The whole body of the cow should be brushed and the udder parts of the body adjacent to the udder should not only be brushed, but also wiped with a damp cloth or sponge. Dampening the hair just before milking will do much to prevent dust from the udder and the parts adjacent from falling into the pail. The dress and hands of the milker should be thoroughly clean, and milking always be done with dry hands. If the hands could simply be moistened the practice might be allowable, but the custom of moistening the hands is apt to degenerate into the habit of making them wet, so wet, that there is a drip from the hands into the pail, which means filth, and which cannot be too strongly condemned. Owing to the marvelous rapidity with which it absorbs while cooling, the milk should be removed from the stable as soon as it is drawn. While the aim should be to keep the stable free from odors, the result can seldom be so perfectly attained as to make it desirable that the milk should stand in the stable, or in an atmosphere polluted with stable odors, or such as are too often manifest near where the milking is going on.

The use of a fine cloth strainer is desirable, but it should be remembered that the mere straining of milk does not undo the evil of a filthy milker, and also, that the carelessness in washing and sterilizing the strainer cloth may lead to serious trouble in contaminating the fresh milk. The cloth should be thoroughly rinsed and washed in tepid water, and as a last operation be sterilized in boiling water.

Probably the most common form of contamination of milk is by means of bacteria. Milk as it is secreted by a healthy cow is believed to be sterile, that is, it contains no germs. So far as it is known, it is not possible for bacteria of any kind to pass through the digestive

organs and the blood vessels and appear in the milk. In the end of the teat of the cow, however, which is usually moist, and its temperature favorable to the multiplication of germs, the organisms are invariably found, and because of this probability it is advisable to discard the first few streams of milk drawn from the cow, which wash out and hold the germs lodged at the end of the teat. It is practically impossible to milk a cow under such conditions that no bacteria will find their way into the milk. They are to be found almost everywhere, and the air and fine particles of dust contain many of these minute organisms. They find a fertile and congenial medium for growth and multiplication in the warm milk as it is drawn from the cow, and while absolute freedom from bacteria is an impossibility, the number can be kept relatively low by observing the conditions of cleanliness alluded to above, and by immediately cooling the milk to at least 60 degrees Fahr., and retaining it at that temperature until delivered at the creamery. At a moderately high temperature, or from 70 to 100 degrees Fahr, bacteria multiply with a marvelous rapidity, while below 60 degrees Fahr. their growth is very materially checked, and the milk or cream will keep free from taint for a considerably longer period. Milk pails and dirty utensils of various kinds are often the source from which bacteria have multiplied, and then being imperfectly cleansed, they abundantly seed the new milk put into them with germs of various kinds.

All dairy utensils should be smooth, especially on the interior, and the seams of the pails should be perfectly fitted with solder. Wooden pails should never be used. Every dairy should have a plentiful supply of both hot and cold water, and if possible, steam. All tinware used in handling milk and cream should be first rinsed in warm water, then thoroughly washed in hot water and strong soap or washing soda, then rinsed and finally scalded or steamed for several minutes. Simply turning live steam into a can or pail is not all that is necessary. The steam needs time to reach every crevice and corner. Cloths and sponges should be used as little as possible in washing dairy utensils; brushes are preferable.

From the time the milk is drawn from the cow until the butter is manufactured, much trouble will be avoided if cleanliness is observed in every detail from start to finish, and the milk immediately cooled, and kept below 60 degrees Fahr., when the surrounding air is free from odors and dust, and when perfect ventilation is easily obtainable.

Canada. W. R. GILBERT.

ARE THEY CONSISTENT?

Each oleomargarine witness at the recent hearings at Washington, was very emphatic in his claims that he was exceedingly anxious to prevent fraud in the sale of oleomargarine. He did not wait for anyone to accuse him of being insincere—just seemed to take it for granted that he was suspicioned and that he should make answer. No one can blame him for exercising this caution, it prevented embarrassing questions being asked.

Occasionally, however, the mask slipped off and the witness was shown up in his true light. Mr. Geo. E. Green, secretary of the Illinois Retail Merchants' Association, who claimed to be "speaking for probably 250,000 or 300,000 dealers in a food product in these United States," said:

"I want to answer Mr. Flanders as to my conception of fraud. You speak of fraud. Can a fraud be perpetrated without particularly injuring the people—unless it particularly injures the people? Now, assuming that oleomargarine is sold for butter, does it, in its fullest sense, perpetrate a fraud, because nobody is injured under it?" (Official record of hearings, page 222).

Of course, he had no sooner uttered the words before he realized his mistake and was most emphatic in his claims that he didn't want this done. But the "cat was out of the bag." It was too late.

Mr. Green should not, however, be selected as the chief offender. We have quoted him because he talked for so many (?) people. We have been wondering how the thousands of honest retail dealers who are fully in accord with all pure food laws, one of the fundamental principles of which is the proposition that an article shall sell upon its own merits, enjoy such a (mis)representation.

Minn. E. K. SLATER.

this man was sore

He bought a high priced separator without investigating any other makes. When he failed to get the promised yield of cream he was disappointed, but when he found that his neighbor's Economy got all the cream and cost only about half he was sore.

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—Automatically oils itself—Pour oil at the top, once a month from your oil jug or can—No danger of running dry, or ruining it like others—No oil cups to remember to fill or turn up twice a day.

—Dust-proof—Danger-proof—All gears enclosed—simple but standard built and absolutely dependable.

SECURING AND MAINTAINING A HIGH-CLASS DAIRY HERD.

(Continued from first page).

butter-fat should be selected. Personally I am in favor of selecting animals that stand high as economical producers, whether it sacrificed uniformity or not. The uniform is to a degree, inbred. Unlikes, within certain limits, invigorate and are desirable.

It seems to me that our leading breeds of dairy cattle have reached a stage of development at which we should not be afraid to sacrifice color markings in order to produce animals that will give larger profits at the pail. By this I do not advocate wide crossing or mating extremes of type, characteristics and temperament. In studying the milk records and feed records of the cows we must take into account her ability to produce a good, vigorous calf, for when we speak of production of dairy products we must consider the calf as one of the products. In the pure-bred herd it is one of the most important dairy products.

Some divergence of opinion prevails in relation to the time the heifers should be bred for their first calf. It is held by many well known breeders that the milk producing tendencies should be cultivated before the fattening tendencies are beginning to be brought into play. The time for mating is placed so that the heifer will drop her first calf at about two years of age. Obviously, the time must depend somewhat upon the development secured by good care and feeding. The heifer that is compelled to take upon herself the burdens of maternity at two years of age requires a liberal system of feeding to overcome the tendency to being stunted. Breeding is not a fixed science and in saying this I have not overlooked the Menadl law that assumes in part that breeding may be conducted along mathematical lines. By whatever laws that are, or are to be, unfolded we may pursue in breeding, it will be necessary to breed from the best and conduct a rigid system of selection and mating. Then, after we have attained a high average, it should be our aim to hold the animals in good health by the aid of well lighted and well ventilated sanitary barns. A good, comfortable stable is essential in uplifting and holding the level of a high-producing dairy herd.

New York. W. MILTON KELLY.

HOW TO DO A CHURNING.

It may seem like a very simple matter to do a churning, and one that requires very little attention, yet there is a right and a wrong method. The churning is perhaps the least important part of butter-making, but at the same time if it is not done properly the butter may be spoiled. Improper churning may spoil a batch of butter which otherwise would have been good, but no method of churning will overcome the evil effects caused by neglecting the cream and milk previous to churning.

Before churning, one should make sure that the cream is properly ripened and has received the needed attention. After it has ripened to the correct sourness it should be cooled down to the churning temperature and let stand for a few hours. Then the churn is first thoroughly scalded and rinsed out with cold water. The scalding prevents cream and butter from sticking to the sides of the churn. The cold water should be left in the churn until the cream is put in for the churning.

In churning, the first thing to see to, is that the cream is at the right temperature. A small floating glass thermometer should be kept for this purpose. No exact churning temperature can be given, because so much depends upon the conditions under which the churning is done, season of year, breed of cows, state of lactation period, feed and other factors. It should be churned at a temperature so that the butter will gather in the form of small granules in about 45 minutes. If it gathers quicker than this, it is likely the cream was too warm and that fat was left in the buttermilk. Under the average conditions, the temperature varies from 56 to 62 degrees. Better results seem to be obtained when churned at the minimum temperature rather than the maximum, the only objection to a long churning being the time required. If the cream is too warm in the churn a pail of cold water may be added.

The most favorable results are obtained from cream testing in the neighborhood of 33 per cent. When this ripens it may be too thick for agitation and not fall in the churn, but this difficulty can be over-

come easily by adding cold water. Better results are obtained from a heavy cream diluted with water than from a thin cream undiluted. If the cream is churned so that every gallon of cream yields about three and a quarter pounds of butter, the thickness is not far from correct.

The churning should be continued until the butter has gathered into granules the size of corn kernels. When it first begins to break they will be smaller than pin heads, but increase in size as the churning continues. Some buttermakers stop the churning when the granules are the size of grains of wheat, but it is best to let them get as large as corn kernels, which insures a more complete churning.

The buttermilk should then be drawn off and the butter washed once in a liberal amount of water. When the butter comes in the form of these granules, the buttermilk will drain from the butter, leaving it reasonably free from buttermilk. Generally the one water is sufficient to wash it. Excessive washing destroys a delicate flavor and is not necessary. Use as much water as there was buttermilk and have it as near the same temperature as possible, colder if anything. Sometimes the butter comes in a warm mass, when it will be necessary to wash it more to remove all the buttermilk. One should avoid having it come in a mass, which can be done by churning at a lower temperature and by diluting the cream with cold water.

The salting is preferably done as soon as the butter is washed. The most convenient and practical way is to have a combined churn and worker, and salt the butter before it is removed from the churn. Otherwise it must be worked in with a ladle or with a regular butter worker. The amount of salt to use depends upon the taste of the trade and temperature at which butter came. If it came warm a less amount of salt will give the same results as a greater quantity when the butter is cold. Generally about an ounce to the pound is sufficient, but if the butter is cold or the trade likes salty butter, more than this may be needed. It should be thoroughly and uniformly worked into the butter, which is best accomplished by a partial brine salting and when there will be less danger of over-salting.

Pennsylvania.

L. J. HAYNES.

THE PRACTICAL VALUE OF THE CREAM SEPARATOR.

The cream separator enables the farmer to separate the milk immediately after being drawn from the cow, thus providing for the very best disposition of the products. The cream can be immediately cared for, a thing of the greatest importance if a high quality is expected of it or its products.

If the skim-milk is intended to be fed to pigs or calves, it, too, contains its greatest feeding value, having still retained its animal heat, and if properly fed makes a very valuable by-product.

The cream separator not only enables the farmer and his family to produce a better product than they otherwise could do, but it opens to them various profitable markets that would not be possible with any other method, namely, cream for the city retail trade, whipping cream, pasteurized whipping cream used by bakers and confectioners for frosting and fillings, also certified cream, which is coming into use in connection with certified milk, a product used as food for infants, invalids and the more wealthy class of people in our large towns and cities.

Now, production for these cream trades would not be possible with any degree of uniformity as regards percentage of butter-fat consistency, etc., by the gravity system, and as to certified cream, containing a low bacterial count, it would be simply impossible.

You may feel that these conditions do not apply to the farmer with a small herd and that he and his family are not competent to supply such markets as are named above. But it is a fact nevertheless, that the writer has been actively engaged during the past ten years in supplying just such markets as named above and just in the order named and knows exactly whereof he speaks when he says that any of these markets are open to you if you but produce the goods. Also, that he began some of these with a herd consisting of one cow.

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J. A. LAWSON.

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The United States Separator excels in efficiency and **all other points** that go to make a perfect cream separator.

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Distributing Warehouses in all Dairy Sections of the Country.

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The Lawrence Pub. Co.,
Detroit, Mich.

DETROIT, APRIL 1, 1911.

CURRENT COMMENT.

Reciprocity and the Dairy Industry.

In the last issue the report of Consul Slater, located at Sarnia, Ont., was quoted to show a measure of the result which the enactment of the Canadian reciprocity agreement would have upon the dairy industry of Michigan and the country. The reader will remember that this report showed large importations of cream from Ontario following the enactment of the Payne-Aldrich tariff bill, in which—it is alleged by mistake—the tariff on cream was reduced from five cents per pound to five cents a gallon. Figures relating to the extent of such importations during the past year under this reduced tariff, and estimates of the probable extent of like importations under the free admission of dairy products will prove most interesting reading at this time for the dairymen of the state. Official information on this subject is hard for an American citizen to get at this time, but we are in possession of correspondence between a creamery located close to the Canadian border in northern New York and an exporter of butter and cheese at Montreal, which illuminates this problem in an interesting manner. In this correspondence the statement is made by the Montreal firm that "the cream shipped to the United States during 1910 would have made up about 150,000 fifty-pound boxes of butter, and of course, to that extent is the cause of the surplus in the United States today. The total excess of milk products in Canada for export, whether it goes into cream, butter or cheese, is equivalent to about 2,000,000 packages of butter. During the past year we shipped out as above equal to 150,000 to the United States, about the same quantity to British Columbia and the Northwest, and about 3,000,000 boxes to England, besides 2,200,000 boxes of 84-lb. cheese."

Writing further of the probable effect of reciprocity on the exports of dairy products from Canada, the same authority says: "If the reciprocity treaty comes into force, the butter for the Northwest will mostly come from New Zealand and the way will be open for us to bring a large quantity from other countries into Canada, so that, if your market can absorb say a million packages more than it did last year, at say 22 cents per pound,

Canada will probably be a large importer of butter from other countries for home consumption."

If these figures may be assumed to be correct, the cream imported from Canada last year was equivalent to 7,500,000 lbs. of butter, while Canada's exports to England amounted to about 1,500,000 lbs. It must be remembered that this comparatively large export of cream to the United States occurred notwithstanding the duty of five cents per gallon which is still in effect. It is, then, reasonable to assume that at a maximum price approximating the figures above given, or 22 cents per pound, we would get the equivalent of another 50,000,000 lbs. of butter from Canada, an amount closely approaching the consumption of the country's metropolis for a year, and nearly equaling our present surplus, to which Canada has already contributed as above noted.

Now let us for a moment consider the ability of New Zealand and Australia to supply the western provinces of Canada and portions of the United States contiguous thereto. According to the Yearbook of the Department of Agriculture for 1909, these two countries exported in 1908, an aggregate of nearly 77,000,000 lbs. of butter, which could be placed in those markets at a season when domestic supplies would largely come from stocks in storage.

All this is not conducive to a feeling of quiet security on the part of our dairymen, especially at a time when the consumption of oleomargarine has increased to an extent which has caused a considerable decrease in the consumption of butter in the large centers of population. On the contrary, it is an incentive for the Michigan dairyman to bring every possible influence to bear upon the United States senators from Michigan and the Michigan delegation in the lower house of congress to induce them to oppose the ratification of the reciprocity agreement with Canada during the special session of congress which will begin on April 4.

Reciprocity Petitions.

In a recent issue we commented on the comparative value of a mass of personal letters and petitions signed by as many men as a factor in influencing the attitude of senators or members of congress on the proposition of Canadian reciprocity. While there is no doubt that the personal letters are more effective, since they reflect a greater degree of interest on the part of the writers, yet petitions also serve an excellent purpose in showing the general trend of sentiment among the people and consequently should not be neglected when it is desirable or necessary to show a practical unanimity of opinion, such as undoubtedly exists among the farmers of Michigan on this proposition of reciprocity with Canada under the terms of the pending agreement. It is claimed that a poll of the weekly newspapers of the state has been taken to get at their attitude on this subject, and that a large majority of them are in favor of the ratification of the agreement. The metropolitan press has commented upon this fact as an evidence that the general sentiment of the people of Michigan is in favor of the agreement. No reader of The Farmer will for a moment believe this to be true. Indeed, those who make the contention know that it is not true, or would know it if they would but sound public sentiment in any farming community in Michigan, for they all think and talk alike upon this proposition. But still it is a more or less logical excuse unless those who are opposed to the pact make their views on the subject known in no uncertain terms. There is still time to do this by letter before the session of congress opens, and there is also the best of opportunities to flood congress with petitions which will leave no shadow of a doubt as to how the farmers of Michigan regard this agreement. On Monday next, nearly every farmer in Michigan will visit the polling place in his township for the purpose of exercising his right of franchise. Practically without exception, these farmers would be glad to place their names on a petition opposing the agreement for reciprocity with Canada if they were afforded the opportunity. All that is necessary to this end is to have some public spirited farmer in each township circulate a petition, asking the members of congress and senators from Michigan to use their influence and votes against the passage of the bill which will put this agreement into effect. Forward these petitions to the United States senators from Michigan, for the reason that the proposition will

have to be stopped in the senate, if at all.

A general movement of this kind will leave no doubt in the minds of those gentlemen as to how the farmers of Michigan feel about this agreement. While, as we have before stated, a like number of personal letters would be more effective, yet not all interested farmers will write the letters, while all would sign the petitions most willingly and gladly. Here is a chance to volunteer a little active work in a good cause. Surely there is one or more public spirited farmers in each township in the state who will recognize a duty in this suggestion.

A Constitutional Amendment.

There will be submitted at the general election on Monday next a proposed amendment to Section 9 of Article XI of the constitution of Michigan, relating to the distribution of the primary school interest fund. The present wording of the constitutional provision regarding the distribution of this fund is as follows:

"Section 9. The legislature shall continue a system of primary schools, whereby every school district in the state shall provide for the education of its pupils without charge for tuition; and all instruction in such schools shall be conducted in the English language. If any school district shall neglect to maintain a school within its borders as prescribed by law for at least five months in each year, or to provide for the education of its pupils in another district or districts for an equal period, it shall be deprived of the ensuing year of its proportion of the primary school interest fund."

By the adoption of the proposed amendment the following words would be added to the foregoing section of the state's constitution:

"If any school district shall, on the second Monday in July of any year, have on hand a sufficient amount of money in the primary school interest fund to pay its teachers for the next ensuing two years as determined from the pay roll of said district for the last school year, and in case of a primary district, all tuition for the next ensuing two years, based upon the then enrollment in the seventh and eighth grades in said school district, the children in said district shall not be counted in making the next apportionment of primary school money by the superintendent of public instruction; nor shall such children be counted in making such apportionment until the amount of money in the primary school interest fund in said district shall be insufficient to pay teachers' wages or tuition as herein set forth for the next ensuing two years."

The effect of the proposed amendment would be that under its provisions no apportionment of primary school money would be made to districts having on hand a sufficient amount of money in the primary school interest fund to pay its teachers for the next ensuing two years. All primary money would then be distributed to districts not having enough money on hand coming from this fund to pay its teachers for the next ensuing two years.

Under the existing system there are some school districts in the state which have received more money from this fund than is required to pay their entire cost for teachers wages, and owing to the fact that they can expend it for no other purpose, this fund has accumulated in some districts to considerable amounts, for which reason the above mentioned constitutional amendment has been submitted by the legislature for the ratification of the electors at the coming election.

Cold Storage Legislation.

Attention was called in the last issue to a bill pending in the legislature for the regulation of the cold storage business in this state and some of its inconsistencies were pointed out. Among these was the provision prohibiting the storing of poultry in an undrawn condition, and mention was made of the investigations of the United States Department of Agriculture which showed the error of such a provision. Since the writing of that comment, a further report of similar investigations has been received, in which detailed reports of a number of experiments made by the bureau of chemistry of the Department are given, from which the positive deduction is made that undrawn poultry decomposes more slowly than does poultry which has been either wholly or partially eviscerated. Also, that poultry which has been "full-drawn," or completely eviscerated, with heads and feet removed, decomposes most rapidly. Thus it will be seen that the man or men who propose legislation affecting a great industry with the best of intentions to protect the consumer from a supposed injury or injustice, without first investigating every phase of the question, may be imposing upon them an extra hardship, as well as aiming a body blow at the producers in the same line. What is true of the bill mentioned in this

respect is undoubtedly true as to the time limit which it proposes for the storing of perishable products. We believe that when this bill comes up for consideration, if it does at this session of the legislature, that these inconsistencies will be revealed and eliminated. A similar bill has been under consideration in Illinois, but it is stated upon good authority that the attempt to pass it has been abandoned for the present at least. As noted in our last issue, this is properly a matter for national rather than state legislation, and the latter would only complicate the situation and prove a hardship to producers and consumers alike.

OUR LANSING LETTER.

Lansing, Mich., March 27.—The end of the session is in sight. The first of next week the introduction of bills will have to cease as the constitution requires that bills shall be printed and on the desk of members at least five days before consideration. With adjournment fixed for April 19 the state printers are already overloaded with the printing of the mass of bills which the committees are reporting out day by day, so that no bill is sure of consideration unless the introducer sends it up several days before the five day limit will expire.

This week the initiative, referendum and recall have the center of the stage in the house. The committee on state affairs in reporting out the bills to submit to the people the question of establishing this system in the state, raised the percentages to 20 per cent for the initiative and referendum and 25 per cent for the recall. This change is somewhat disappointing to the more radical supporters of the measures and there is talk of an attempt to reduce the percentages to ten and twelve. On the other hand, the opposition of the conservatives will be strengthened if this amendment is shifted to the percentage of the original bills, as many who say they will vote for the bills in their present form, assert their emphatic objection to a reduction of the per cent below the figure fixed by the committee. There seems to be little question but what the bills will go through the house in case the friends of them can bring them out for a fair fight where no one can kill the bills under cover.

The bill before the senate relative to a filing tax on mortgages which Senator Fowle drafted, is attracting much attention. It provides for a tax of 50 cents a hundred on mortgages at the time they are filed, and requires no other tax against them. Discussion of the bill among members indicates that the plan has strong backing and there is a fair prospect that the bill will receive favorable consideration in both houses.

With the tonnage tax bill killed there is every prospect that the bill to establish a tax on mining reservations, will go through as well as the bills giving Governor Osborn opportunity to appoint a commission to investigate taxation conditions in Michigan. The Lord bill which greatly broadens the power of the state tax commission has been signed by Governor Osborn and the commission is preparing plans to take up the work under the scope of the measure, by increasing the force and making an investigation of assessments throughout the state during the summer. Under the law any increase which the commission orders cannot be lowered by supervisors within three years thereafter, without the written consent of the commission.

The Giles bill to make telephone companies common carriers of telephone messages as well as requiring them to interchange messages is on the general order in the house for consideration this week. This bill places the question of rates under the supervision of the state railroad commission. Last session the bill went through the house and was killed in the senate. Owing to the fact that combinations between the Bell and independent lines are being brought about in many sections of the state, there is a much stronger sentiment in favor of the bill than two years ago, many members expressing the view that it is time to establish state supervision over these public service corporations.

The Symonds bill to establish the Torrens land system is before the house committee on state affairs, and an agreement has been entered into among the members to report the bill out this week. According to the statement of various members there will be no liquor legislation of consequence passed at this session. There is to be a fight for a city, village and township unit on local option, but the votes are in sight to defeat the measure. There will also be a fight it is expected, to force the liquor committee to report our the Straight state wide prohibition measure but no one seems to believe the bill stands any chance.

One of the noteworthy bills of the session is that introduced by Rep. F. L. Woodworth, of Huron, providing for taxing the stocks and bonds of the D. G. H. & M. railroad. This is the road, owned by the Grand Trunk, which, under a special charter granted by a pioneer legislature, has been evading its share of state taxes ever since the ad valorem tax law went into effect. Taxed proportionately to other railroads the D. G. H. & M. would pay about \$100,000 more annually in taxes than it does pay, and the Woodworth bill will just about place the railroad on par with its competitors. The bill is backed by Governor Osborn and Attorney General Kuhn, both of whom assert that if any bill introduced this session, is to go through, that is the one.

(Continued on page 399).

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND LIVE STOCK JOURNAL
PUBLISHED WEEKLY
ESTABLISHED 1843

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

The Comforts of a Hotel on Wheels—By James Cooke Mills.

RUSHING across the continent, to and from the populous cities of our eastern seaboard and the prosperous cities of the midwest and the south, climbing the Rockies and slipping down into the fertile valleys of the Pacific coast, are some hundreds of perfectly appointed caravans of modern travel which form, indeed, a veritable world on wheels. All the comforts and conveniences that anyone could dream of, or desire, are embodied in these splendid trains, with their steel cars, heated by steam and lighted by electricity, which are drawn in endless double procession by the most powerful speed locomotives yet devised by man. In these palaces on wheels, habitual travelers are pampered by all the luxuries of brilliantly illuminated library, smoking, dining, sleeping and compartment - observation cars, with their bathrooms and barbers, telegraph ticker, trade bulletins, and engaging stenographers, their elegant state rooms, easy chairs, willing porters and waiting maids, and everything else to coddle them and ease their journey. High speed and comfort by present-day methods combine quite readily to make a transcontinental journey easy and enjoyable. The first cuts short the time and brings the traveler to his destination with dispatch, while the other keeps him fresh and ready for business deals or pleasure jaunts before him.

The hustling, driving business man, intent only on gaining the almighty dollar, regards his "limited" with all these comforts as a matter of course, much as he does his morning paper or his after-dinner cigar.

In this age, commerce is king and time is money, and the train which helps him to exemplify these truths, is the one he patronizes. The railroads, be it said, realize these facts and, in meeting the public demand for high speed and luxurious appointments of trains, have shown a characteristic willingness to permit the dear public to disgorge its wealth into their coffers. Based on modern standards, however, we undoubtedly get our "money's worth" in safety, comfort and despatch of rapid travel. Many of us have not forgotten that less than thirty years ago a train which ran from New

York to Chicago in thirty-six hours was an hour. It is probably needless to re-considered a "flyer," while the average mind anyone that two eastern trunk lines upon settling yourselves comfortably in a smooth, even tracks, can get all the con- time of a train from Chicago to "The now operate eighteen-hour trains between day coach or chair car, have ever stopped veniences with some frills thrown in for Coast" was seven days. And we still New York and Chicago, and that one to think, "How fares it with the man up a very reasonable outlay of expense.

western road has a sixty-eight-hour train which runs in two and sometimes three sections, between Chicago and Los Angeles.

How many of you, I wonder, who, like myself, are content to travel at less

in front, in the leaping, quivering cab of the locomotive, the man whose eyes must be ever riveted ahead, whose steady grip clutches the throttle—the man who holds your very lives in the hollow of his hand?

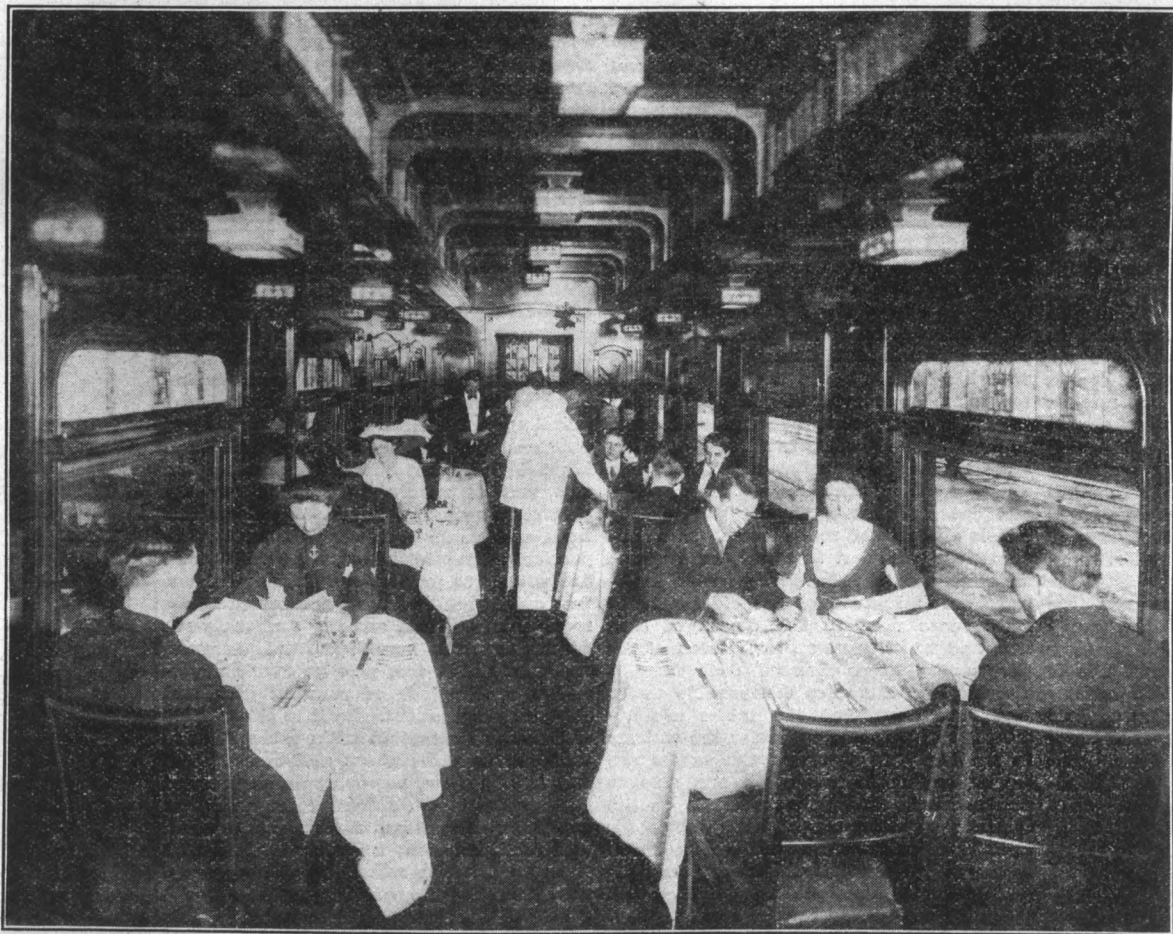
It is, indeed, a very different story up there amid the oil and soot, in the reeking swelter of the boiler and the scorching breath of the fire-box. And what of the fireman kept busy hurling great chunks of fuel into the blazing maw, calling signals 'white,' or 'white eye,' perchance a 'red,' in the insistent din of seething steam and the titanic pounding of giant driving wheels on frogs and rails." Then, how about the postal clerks in their narrow dens, sorting and distributing the people's mails, and the express men guarding rich treasure and valuable merchandise, and anon, the baggage smashers, keeping an eye on your belongings. These are the men whose nerve never fails, and who generally get the "worst of it" when anything happens at the front.

The modern through train, running between cities of importance, is in all truth, a complete hotel on wheels. There is scarcely a feature of the best hostleries that is not contemplated in the fast and reliable service. And this is not confined to the limited trains, but includes many of the heavier, slower trains, and those running on branch lines where there is considerable travel. Competition between the railroads themselves has a great deal to do with the train service, and isolated points cannot, of course, expect as good or modern equipment running to junctions as is found on the main lines. All-night trains will include one or more sleepers, and, if they do not reach the end of the division or terminal in the early morning, a diner or cafe car is attached during the breakfast hours. Particular care is always taken of old people and invalids, as well as women with small children traveling alone. It is a good service that makes them as comfortable as possible according to the accommodations they choose, and helps them off the train at the end of their journey.

But those of us who like to travel comfortably, yet independent of the assiduous attention of porters, in clean



Modern Parlor-Observation and Dining Cars Add Much to the Comfort and Pleasure of Traveling.



—Photos by courtesy of Chicago, Milwaukee & St. Paul R. R.

There is quite general impression, I believe, among certain classes of thrifty Americans, that the accommodations of sleeping and dining cars are quite beyond them or their means, and many travelers no doubt cut these very necessary comforts of travel because of this erroneous idea. As a matter of fact, travel on our railroads has resolved itself into an intricate system of giving all sorts of people, in all walks of life, the conveniences and comforts they want at or about the price they are willing or able to pay. Thousands of people, for instance, find the easy tourist cars, although running on slower trains than the "limiteds," as comfortable as they could desire; and, in crossing the desert these cars are cooler than the regulation Pullmans, which are kept closed and stuffy during the trying run across the alkaline sands. And the tourist car berth rate, including the use of warming ovens in the buffets provided in each car, is only one-half that of the hot and uncomfortable Pullmans. There are porters, too, on all tourist sleepers, and they are as attentive as those in charge of the regular cars; and, best of all, they receive no "tips," as the company pays them full wages. This feature of the more reasonable service will appeal to all fair-minded Americans.

The average mechanic, farmer, or tradesman travels mostly by day. Whether it is due to long established custom, a desire to see the country, or to curtail the additional expense, is impossible to say. It may in some instances be a combination of the three. But sometimes when he is making a long journey, nightfall will find him hundreds of miles from his destination, and to take a berth in the sleeping car would generally seem a wise course. Of course, he may be a sound sleeper, and by doubling up in the stiff car seat, or stretching out in chairs, which form the equipment of cars run on some lines, may get some rest and sleep fairly well through the night. But even under the most favorable conditions, he will arise in the morning stiff and lame, and often ill-tempered and entirely unfit for whatever duties of a busy day lie before him. Had he arrived at his journey's end late at night he certainly would not have spent the rest of it in a noisy railway station, but would have sought a convenient hotel to get a night's lodging. And yet the sleeping car, which would have offered equal comforts of sound rest at only slightly greater cost for the same or better accommodations than the hotel, was dispensed with.

In these days of large farming operations, the busy farmer with the care and management of a valuable property resting upon him, and a multitude of operations to keep well in hand, must travel, when he can, at night. Like the business man whose time means money, and the carrying through of large deals means the making of fortune, the prosperous and business-like farmer holds his time during daylight to be too valuable to be spent on railway trains. He has found it much more profitable to finish up the more or less exacting duties of the day on the farm, to then hurry by his motor car to the station to catch the night train to the city, wherein he settles himself in all the comforts of the regulation Pullman. In sound and vigorous health he steps from the car in the morning, refreshed and ready for business, for he has already had a hearty breakfast in the diner, attached to the train. Thus, his every moment of business time counts for something. Having closed up his deal and made some needed purchase he takes a night train for home. The following day finds him actively employed on his farm. Certainly the additional expense of traveling in comfort on a night train was nowhere equal to the value of his time in the management of a large estate.

Now that reduced rates have gone into effect on Pullman cars in almost every part of the country, there is a stronger argument presented for increased use of the service. The public had repeatedly demanded that the upper berths in cars be sold at a less rate than the lower berths, as in fact they should be. The agitation became so general that an investigation of the alleged enormous profits of the corporation resulted in a strong demand for a reduction also of the lower berths. The pressure finally became so heavy on the company that it voluntarily reduced all rates about 20 per cent which, although not so sweeping as many persons demanded, will effect a large saving in travelers' expense. The new schedule went into effect on Feb. 1, and it is yet too early to gauge the public's attitude toward it. It is certain, however, that

many persons will take an upper berth from preference, especially as there is now a differential in its favor. The upper berth is fully as comfortable as the lower berth, the occupant has "more air," as ventilation is much better, but to offset this there is the inconvenience of climbing and the added difficulty of disposing of one's effects for the night.

There are some travelers, of course, to whom the upper will never recommend itself. Imagine, if you can, a portly person of either sex, trying to mount the unsteady stairs, and, perchance, having reached the upper regions of the car, divesting day clothes for those of night. The upper is likewise unsuited for old people, invalids and children, while some super-sensitive persons, from real or imagined reasons, will shun the delightfully ventilated upper story. A few argue that the lower berth is safer in case of accident, especially when the car rolls over two or three times in finding a resting place at the foot of some embankment, but the fellow in the upper, if he can only grasp the rail above him in time, can do the swing act as the car goes over. In collisions the upper berth is unquestionably as safe as the lower, and there is less danger of cuts from flying glass in the former. I remember well a transcontinental journey some years ago in which an upper berth was the only accommodation I could get, and, as I was in a hurry and could not wait over a day or two, I had to make the best of it. I had the upper four nights in succession, and slept well each night. The only discomfort experienced was but momentary and was due to the change of altitude. During the second evening the train was speeding over western Kansas in a summer climate, but early the following morning had climbed to the summit of Raton Pass, which was buried in ice and snow. I awoke to feel the chilling blasts from the peaks blowing through the ventilators, and to hear the hiss of steam in the heater. A blanket was a most welcome covering. By noon the train was once more in a warmer clime, but still not beyond the mountain ranges, and that night I was prepared for sudden changes of temperature.

There was no dining car service in those days, but at the regular supply stations where engines and crews were changed, the regulation eatinghouse supplied travelers with the inner needs of man. The fare was seldom good but the tariff was as high as the service would stand. The person was indeed lucky who could get a square meal served and eaten, in any degree of comfort, in the thirty minutes allowed for the stop. But for all this and the slow time, and uncomfortable cars bumping along over rough tracks, the traveler took it all as a matter of course and wondered if there would ever be better service. Now all this is changed and, although the improved service came very gradually, a person can dine in a modern dining car in all the comforts and leisure of a first-class hotel. As a first consideration the diners, with their huge six-wheel trucks, running on smooth and well balasted tracks even at a mile a minute speed, are attractive places to spend an hour or so of a long journey in the enjoyment of a well-cooked and tastefully served meal. No matter how quickly a person has a dinner set before him in a city cafe, the service in these days of rush and push is never too prompt to suit him. But in a dining car, with his destination several hours ahead, unless he is very hungry indeed, a wait of a half hour before being served seems nothing. He is comfortably settled in an easy leather-upholstered chair, before a snow-white coverlet, set with real silver and cut glass, and adorned with dainty candle shades and real flowers. The surroundings are most inviting, too, and are suggestive of the furnishings of a high-class cafe. Instead of the old-fashioned rigid seats used in the diners of long ago, and which gave an impression of the car having been changed over from a sleeping car, there are the movable chairs just mentioned, and the tables are arranged to give more space for the waiters in serving. To this end the tables are longer and more roomy on one side to accommodate four persons, while on the opposite side there are single tables for two. The woodwork of the car is of rich mahogany, beautifully finished, and devoid of unnecessary moldings which catch dust and render the service less sanitary. The fussy draperies overhead and at the windows once so generously used in the diners, are now tabooed, much to the satisfaction of travelers of today. The old oil-burning lamps above have given way to neat domes diffusing the soft rays

of electric light, while the car is heated evenly by live steam from the locomotive.

The kitchen and pantry arrangements of a modern diner are wonderful things to the average housewife, accustomed as she generally is to having an abundance of room in her own house. It is indeed surprising to look in upon the busy chef and his assistants and note the quantity of food prepared with his highest skill, and served with all the suavity and attentiveness of well-trained waiters. The space given over to the kitchen is only about 5½ by 16 feet, fully half of which is taken up by the ranges, steam tables, and wash basins, so that the chef has few steps to take in managing his important department. Adjoining the kitchen at the extreme end of the car is the cold storage room, with its refrigerator full of choice meats and other delicacies in season. In noting how compactly every item is stowed away to leave no waste space, and the absolute cleanliness of every surface of metal and woodwork, one realizes that here the culinary art has reached its highest plane. At the other end of the kitchen is the buffet from which the tempting viands are served. Both sides of this are shown in the views reproduced upon another page. Although the modern dining car seats only 30 to 36 persons, from 100 to 150 travelers are frequently served at dinner or a full-course meal. Only recently 206 persons were served at breakfast in one of the crack diners running on a "limited" between Chicago and the East. This is a record feat, although the morning meal is always a short one, since many persons only want a cereal and coffee, or an egg, toast and coffee, rapid work was necessary to accomplish it. On this train and many others, the linen is changed for each diner, and particular care is given to the silver and tableware.

As to the approximate range of charges for a good meal, and for a lunch, on the modern diners, a study of the menus served on some of the leading lines of the country shows that the traveler can get a good square meal, and a dinner at that, for a dollar; or, if he is not very hungry, he can get a tasty luncheon for 60 to 75 cents, while just a "bite"—a sandwich or two and coffee—will cost him 30 to 40 cents. These prices may seem extortionate to some of us, who have not given the subject of operating costs a thorough study, but when it is considered that there is much waste of supplies and loss of ware from breakage and other causes, and include the wages of the chef and all attendants, and the conductor's salary, to say nothing of the cost of hauling the car, and its heavy cost of upkeep in first-class condition, together with interest on the investment, we can see that the cost of meals is not out of proportion to the expense of furnishing them, at least in comparison with the service and tariff of the best cafes.

The subject of operating costs for a modern limited train is one little thought of by the average traveler, but when he delves into it he is pretty likely to find many surprising things. Take, for instance, the eighteen-hour limiteds running between New York and Chicago. For each of these operating daily each way, four full and complete trains are required for the service, and at least eight and possibly ten of the most powerful speed locomotives are in constant use to haul them. Leaving New York in the middle of the afternoon the train arrives in Chicago at about nine the next morning, with visible dust in the rugs, scattered portions of newspapers littering the floor, and other evidences of the fast run of nearly 1,000 miles in only eighteen successive hours. To clean this train and make it ready and inviting to particular people who patronize it and are willing to pay an excess fare for extra speed and perfect accommodations, requires more than one day and the work of nearly fifty scrubbers and cleaners, and mechanics, too, who go over and examine every piece of running gear and air-brake equipment. So it is sidetracked and another complete train takes the run that day to the eastern metropolis. The engine and crew, however, which brought it over its last stretch of 150 miles, is ready for the return the same afternoon, and delivers the fresh and renovated train to its first relay of the long journey. During the cleaning of the train, after the dust has been blown out by jets of air forced through the cars, mattresses are beaten, sheets and pillow slips are renewed, blankets aired, rugs cleaned, all woodwork gone over and the polishing process continued to the last piece of metal and finished surface of wood.

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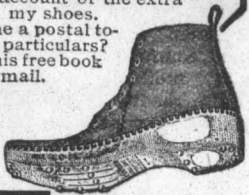


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A JOKE THAT PROVED A BOOMERANG.

BY MRS. D. B. LYONS.

Paul Pry, as he was called by his brothers and sisters, and whose real name was Paul Parker, was at his usual task of ferreting out what plan was being formed by his older brothers and sisters. The fact that there was something being planned was plainly visible to him, as his bump of observation had been sharpened by much usage.

It was during the summer vacation, when most children find that time hangs rather heavily on their hands occasionally, but the fertile minds of the Parker children were usually bursting with ideas regarding strange and new amusements. There were four of these children whose ages were not so far apart but what they were companionable, but poor little Paul Pry was three years younger than any of the rest, and was considered too much of a baby to be taken into their plans if they could possibly keep him out of them.

So they would meet in some remote place where he could not find them, and discuss their plans freely. This time it was to be in the loft of the horse barn. Paul knew there was something on hand for he had seen some whispering going on, and he forthwith resolved to keep his senses sharpened to see if he could not catch some hint of their rendezvous. So, assuming his most innocent aspect, and completely disarming them of any idea that he might be suspicious, he went to playing around, apparently not having any ideas outside of his own pursuits. It was noticeable, however, if anyone had thought of it, that he always stayed very near one of his brothers or sisters.

His vigilance was soon rewarded, for as he was romping with his dog within a few feet of Mary, who was sitting on the lawn, John came by and said her mother wanted her to come in the house and work for a little while, and then he added in a lower tone, "Be sure and get away as soon as you can and come to the horse barn."

Still apparently unconscious, Paul romped on with the dog. But his runs became longer and longer, until they took him to the door of the horse barn, which was on a side not visible from the house. Into this he cautiously slipped, and then he began to wonder what part of the barn they would meet in. Soon deciding it would be the hay loft, he went up there and looked around for a proper place of concealment. It looked rather unpromising at first, but finally he wriggled down into a depression between the hay and the side of the barn.

He had hidden himself none too soon, for shortly after the four conspirators began dropping in, one after another, each having taken a good look before leaving the house to be sure they were unobserved by Paul Pry. Not seeing him

audience in the hay barely suppressed a snicker.

"Yes," said Lyle, "it makes me feel kind of sneaky, running away from him so."

"Oh, well," said Ruth, the youngest member of the quartet, and who was but three years Paul's senior, "it is no fun to have such a baby as him along."

Being called a baby, and by her, was almost more than he could bear, and he could scarcely repress a like retort at this insult. The other three looked at each other and smiled a little, for up to the beginning of the present vacation Ruth herself had been considered a baby, and they had been dodging her as well as Paul. Nothing was said to hurt her feelings, however, as she was now a regular member of their band, and they were bound to stand by each other and further each other's motives.

"Hurry up, John, and tell us your scheme," urged Lyle. "I'm just dying to hear it."

At this Paul involuntarily raised his head to peer at them. Fortunately for him (if not for them) they were looking so intently at their chief that this indiscretion passed unnoticed.

As Paul drew his head back a wisp of hay tickled his nose, and, try as he would, he could not repress a sneeze. Too scared to breathe he awaited the result of this untimely event. No suspicions were aroused however, as all noises in barns can usually be laid to rats.

"Well," began John, "you know there have been some robbers working in the larger towns near here, and some people are afraid they will begin operations in our village. Nobody with any sense would expect robbers to work in a little backwoods place like this, but as long as they do expect them, it is too bad to have them disappointed. So I propose that we go to town nights for a while and leave a few burglar indications around, so as to let people have a little excitement. We can leave boxes under windows, and jab up the woodwork a little so it will look in the morning as if someone stood on the box and tried to pry the window open. There are lots of indications we can spread around town. Now how do you like my scheme?"

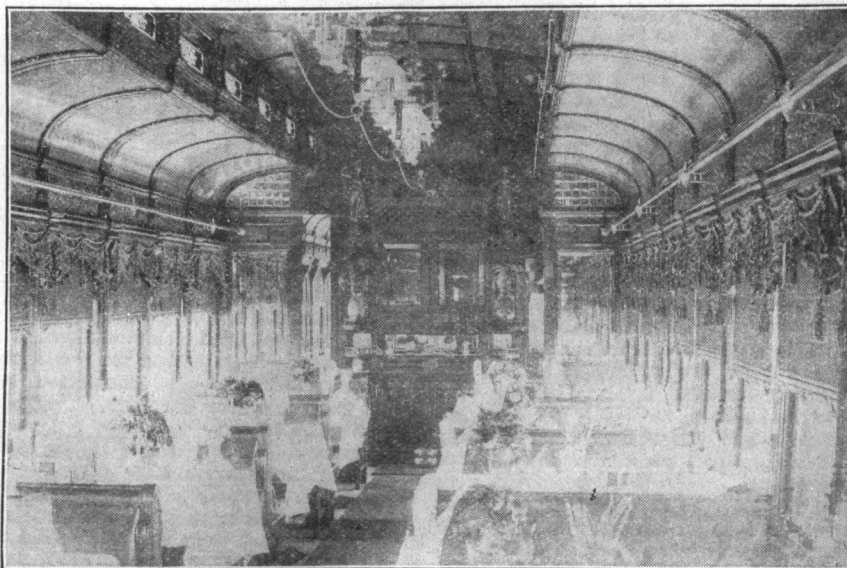
The scheme met with assent. Where most children would not have dared to try such a risky plan, the Parkers were not awed a bit, for they had carried through so many brilliant plans that this one seemed quite simple.

It was finally arranged that the first night their parents were away they would make the first move in their plan, and go and leave "indications" around the house of Mr. Barnes, a man of excitable and gossip nature whom they knew

back home again without their parents knowing it.

The children could scarcely wait until their parents would announce that they were going away some evening, and the time dragged very heavily; but a few evenings later, Mr. and Mrs. Parker announced that they were going for a drive, and they took Paul with them. At first they thought they would not take Paul, and the other children fairly trembled for fear they would not, but Paul teased to go, so they took him. Paul had a special object in wanting to go. He knew they were going to terminate their drive with a long call in town, and his little mind was trying to invent some scheme for getting it back on the others for leaving him out of their plans and calling him a baby. He felt that the most dire vengeance would not be strong enough to avenge this last insult. He had a plan

The box was placed in position, the gashes made in the sill, and John was just stamping a few good footprints into the ground, when they distinctly heard somebody moving inside the house not far from the window. Before starting to dash up the street they first cautiously peeked around the corner of the house and were dumfounded at seeing some men on the sidewalk not far from the house. Hastily turning they now darted for Mr. Barnes' woodshed, a rickety building which was detached from the house and whose door stood open. Their trip was impeded by John falling headlong on account of the unaccustomed weight of his father's shoes, and the same impediment hindered him from rising readily. Seizing him by the arms his comrades dragged him the few remaining feet into the shed. Assuring themselves that their flight had not been detected by



Interior of Old-style Dining Car—Stationary Seats and Dust-catching Trimmings. (See "The Comforts of a Hotel on Wheels.")

roughly mapped out which he hoped to be able to follow, and which we may have unfolded to us later on.

"I guess all we will need to take with us is a box to leave under the window, and a chisel to make a few gashes in the window sill," said John, and they departed for the home of Mr. Barnes. He lived in a rather lonely part of the village, where passersby were infrequent, so they easily completed their work, taking a few chips from the wood around the window. They had also thought of the brilliant plan of having John wear a pair of his father's largest shoes, as the soil under that particular window was clay, and still damp from a recent rain. They thought it would be more realistic to have some good big boot marks left in the mud under the window. It was rather late

the men on the sidewalk, they now watched for them to pass the house and come in sight. They did not come in sight, however, and they finally arrived at the conclusion that they must have turned and gone back.

The fugitives were about to emerge from the shelter and start back when they heard a scraping noise that caused them to look at a window near the one where they had been, and which they now noticed was open. While they looked, a foot emerged from the window, and then another foot, and a man dropped to the ground. With a furtive look around he started for the street. When he reached the sidewalk he turned and dashed back straight for the alley, and in a few seconds around the corner of the house ran three men in pursuit, calling for him to halt. They also fired at him twice, but without effect.

As soon as the noise of running had died away, four trembling young people emerged from the woodshed and started homeward. They were none too soon, either, as the aroused occupants of the house now began to strike lights and make a great commotion.

"Well, what do you think of that?" gasped Lyle, speeding along as fast as his legs would carry him.

"I think," said John grimly, "that that man is a bona fide burglar, and that we had better hike right home and go to bed, and not know anything about tonight's doings."

This most excellent advice was carried out to the letter, and without having a single light they sneaked into bed. They were not much too soon, as very shortly after this their parents arrived.

It is needless to say that the sleep of the two older children at least was not very sound that night.

The next morning, when putting on his shoes, Mr. Parker remarked upon the fact that they were plentifully bedaubed with clay and he wondered where he could have gotten it. There may have been members of his household who could have enlightened him, but if there were any they did not take it upon themselves to do so.

At the Parker farm nothing was heard about the episode of the night before until about ten o'clock, when Mr. Barnes appeared at the Parker residence and requested a private interview with Mr. Parker. It is needless to recite all that passed during this interview, but the gist of the matter was that Mr. Parker, much to his surprise, was charged by Mr. Barnes with having unlawfully forced an entrance to his house the preceding night,



Glimpses of the Kitchen in a Modern Dining Car, where the Utmost Economy of Space is Demanded. (See "The Comforts of a Hotel on Wheels.")

they had come to the conclusion that he would make the most of any suspicion of burglars, however faint it might be.

"Well," said John, after the last member had straggled in, "we succeeded in shaking Paul this time." The invisible

when they were doing their work, nearly eleven o'clock. They knew they had plenty of time as their parents would not be back until twelve anyway. They preferred to do it late so as to have less danger of interference.

The Parkers were farmers and lived half a mile from the little village of Mereton, which distance made it easy for the plotters to skip into town and then

this statement being supported by the fact that a box, having Mr. Parker's name on it, had been found under one of Mr. Barnes' windows.

Mr. Parker had not lived long in that part of the country, and nothing was known about him up to the time he had bought a farm and moved there. He was popular, and considered upright and honorable by all his acquaintances, but to one of Mr. Barnes' suspicious nature this did not keep him from immediately suspecting Mr. Parker. He believed in the theory that everyone is guilty until proved innocent. Mr. Barnes suggested that there was one way in which Mr. Parker could prove conclusively whether he was or was not the guilty party. The stiff clay mud still held the imprints of the intruder's feet, and he suggested that Mr. Parker to go with him and see if his shoes fitted the marks.

His smiling and ready consent to this somewhat staggered Mr. Barnes' assurance, but when they reached the latter's house and Mr. Parker put a foot into one of the prints, and found it to be an exact fit, Barnes was indeed triumphant. "And now that I look closer," he cried, "I see there is dried clay on your shoes, and, if I remember right, clay is not very abundant on your farm."

Mr. Parker now inquired as to the time the intruder was in the house. He found it was eleven o'clock. He knew he could prove a perfect alibi from ten until twelve. And as he was as ready for a good piece of fun as his children, he resolved to go to jail and get what fun he could out of the village marshal, not producing his alibi for an hour or two. It is to be seen from this trait of his character how the Parker children came to have such a propensity for playing pranks.

Mr. Parker also thought it a good time to play a joke on his wife, as they were always playing jokes on each other. He received permission at the jail to telephone his wife that he was arrested and at the jail, also telling her the evidence that had been brought against him. She was not much alarmed, however, as she rather scented a joke. She told the children what had been said and a more scared lot of children were never seen. That is, all but Paul. He was not scared, oh, no! He knew whose fault it was, and that they would have to confess, and was filled with great glee at the prospect.

I may as well explain right here how the marshal and his deputies came to be watching Mr. Barnes resident the night before. Paul had studied out a rather clever scheme while with his parents in town, and managed to get away from them on the plea of going to play with some other children. Then he immediately went to the house of the marshal, rushing in, apparently very scared and out of breath, and informed him that he, with some other children, had been playing up and down the streets, when he had seen a man prowling around Mr. Barnes' house trying to pry up a window. This was purely a fabrication on Paul's part, but this was the hour when his brothers and sisters were scheduled to be there and he wanted to catch them in a trap. He builded better than he knew.

The marshal was an old man who felt very important over his office and was very anxious to make an arrest, as he had never had an opportunity. Having been expecting burglars to strike the town, as they had been working in the surrounding towns, he did not stop to doubt the words of his young informant but immediately rushed out of the house to follow up the clue.

After hearing the dreadful news of their father's arrest, the children, with white, scared faces, withdrew to their retreat in the hay loft for another consultation. They were all upright and honest and did not consider for a minute not owning up to their folly in order to save their father, although they did not know what dire results might come to them afterwards. At the least, they expected to be arrested for a short time. As they were all of the same opinion as to the plan they ought to follow, they soon concluded their discussion and, receiving permission from their mother to go to town, they immediately started for the jail.

Upon arriving they found their father, to their surprise, laughing and joking and apparently in the best of spirits instead of the worried and humiliated person they had expected to find. In fact, his friend upon whom he had been calling the previous evening, during the hour of the attempted robbery, had heard of his plight and hurried to the jail to clear

him. This had just been accomplished, to the great humiliation and disappointment of Mr. Barnes, when four scared looking children sneaked in.

John, being the elder, was spokesman. "Father, it was us that put that box under Mr. Barnes' window and made the marks with your shoes so he would think burglars had been trying to get into his house. Then after we had got through we saw the marshal and his men down the street and we hid in the woodshed, not knowing who they were. While we were there a man jumped out of the window and started away, and then those other men chased him past the woodshed and down the alley. Then we hurried home and went to bed. We were not going to say anything about it, but when we heard you were arrested we knew we must own up and tell how things were so they would let you go."

The listeners were thunderstruck. Then, after a minute, to the children's great surprise and relief, they began to laugh uproariously. Then they all began to question the children as to the burglar's appearance, but they could say nothing about this as the night had been so dark they had not been able to see the man's face. All of the men present came to the same conclusion that it was the presence of the children and the noise they had made that had alarmed the burglar and caused him to leave before he had secured any valuables. Mr. Barnes felt so grateful to them for this that he united with the marshal in begging Mr. Parker not to punish his children for their prank. This latter view entirely overcame any natural indignation he might have felt over the pranks they had played upon him.

So four very relieved and happy children filed home after their father, who did not punish them but only exacted a promise from them to confine their jokes to his own premises in the future, unless they had his permission to do otherwise.

Another meeting was soon called in the hay loft, at which it was unanimously voted to admit Paul as a member of their company, as anyone with such an active mind as his would plainly be of value to them.

SMILE PROVOKERS.

Robbie ran into the sewing room and cried, "Oh, mamma! There's a man in the nursery kissing Fraulein."

Mamma dropped her sewing and rushed to the stairway.

"April fool!" said Robbie gleefully. "It's only papa."

As a train was approaching a station, it parted in the middle, and the communication cord snapped, the end of it striking an old lady on her bonnet. "What is the matter?" she exclaimed. "The train is broken in two," replied a gentleman opposite. "And no wonder!" responded the old lady, looking at the broken cord. "Did they think a bit of pudding-string like that would hold a train together?"

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J. Cook has ordered his 6th gross. He says, "I can sell as many each day as I can carry." We want a few good agents. Write quick for terms. A postal will do. Get busy. This is easy money.
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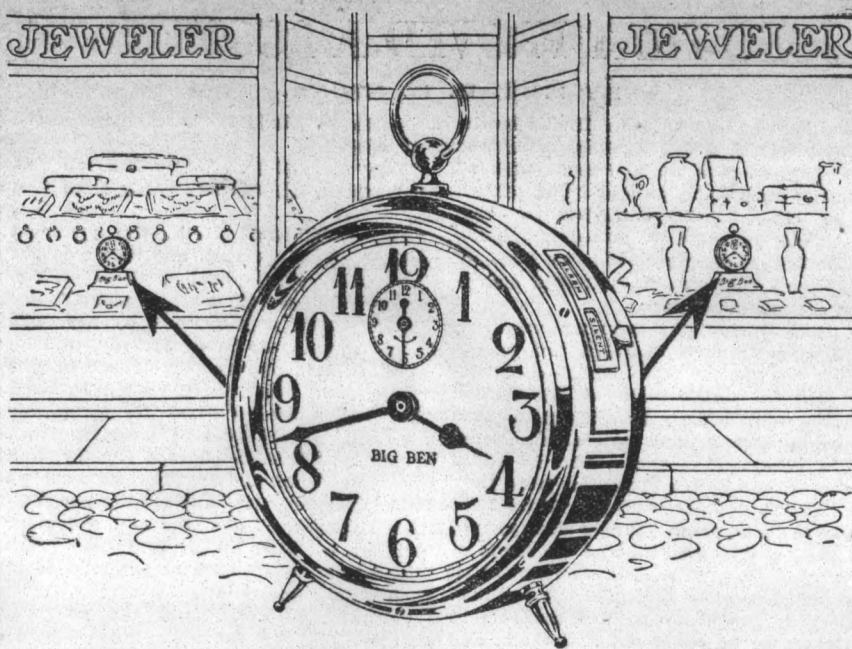
WANTED FOR U. S. ARMY—Able-bodied, unmarried men, between ages of 18 and 35; citizens of United States, of good character and temperate habits, who can speak, read and write the English language. For information apply to Recruiting Officer, 222 Griswold Street, Detroit, Michigan; Heavrich Block, Saginaw, Michigan; Corner 1st & Saginaw Streets, Flint, Michigan; Dwight Building, Jackson, Michigan; corner Huron Avenue & Quay Street, Port Huron, Mich.

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I will furnish the advertising, matter and the plans. I want one sincere, earnest man in every town and township. Farmers, Mechanics, Builders, Small business man, anyone anxious to improve his condition. Address Commercial Democracy, Dept. D 30, Elyria, Ohio.

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Look for me in a jeweler's window. You can't miss me. I've a smiling, sunshiny face; big, plainly read figures and a "well made appearance" that distinguishes me from all other alarm clocks.

I shouldn't really be called an alarm clock for I never "alarmed" anyone out of bed in my life.

I look like a *big watch*. I'm practically *handmade* like a watch and I keep *watch-time*. I've got a regular *watch escapement* and the *escapement* is the *heart of every watch*. I tick lightly and fast like watches do—not

heavily and slowly like common alarm clocks.

I must run for six days, under inspection and *keep accurate time* all that time before I leave the factory.

I've an inner casing of steel, so I'm dust-proof and ox-strong.

I've a handsome triple-plated non-rustable case—"thin model" style, like the newest watches.

Hear me ring the "National Call to Breakfast"—at intervals for fifteen minutes or steadily as you choose. Note how *cheerfully* my breakfast bell rings out. Then hand the jeweler \$2.50 and take me home.

I'm sold only at jewelers.

If you want to be "first in the field" have me—Big Ben—wake you in the morning.

BIG BEN

Care of WESTERN CLOCK CO., La Salle, Ill.

(21) If your dealer doesn't sell me I'll come express prepaid on receipt of \$2.50

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Safety Razor \$

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The best shave of your life.
ENTIRE OUTFIT \$1.
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FREIGHT PAID To Any Station East of Rocky Mountain, except Texas, Colorado, New Mexico, N. Dakota, S. Dakota, Wyoming, Montana. Special prices to these states on request.

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PATENT your invention. Free preliminary search. Booklet free. **MILO B. STEVENS & CO.,** Estab. 1864, 601 F. St., Washington; 376 Monadnock Bldg. Chicago

WANTED—Farm Work BY EXPERIENCED **YOUNG MAN.** Address J. SUTTON, 1209 Cass Ave., Detroit, Mich.

20,000 Reasons

Why You Should Buy an E-M-F "30"—\$1,000

TWENTY THOUSAND OF THEM, a composite, living, overwhelming argument. Each reason—reason enough, convincing and satisfying, yet, were it possible for you to investigate, question, prove each separate reason, you would probably find some new point of interest to rivet your attention and create in your mind a like desire to own the car that could stir up such enthusiasm and scatter broadcast such satisfaction.

IT IS EASY TO WRITE UPON PAPER mere statements, to waste the public's time and abuse its patience by wearisome reiteration of platitudes that have been dished up in rhetorical display over and over again, talking the merits of this and that car, with the same old jaded adjectives. But, in the name of the great Automobile Industry, let us get down to the tangible, living thing that has the red blood of sincerity in it, the personal, gripping interest that shines in the eyes of men as they talk face to face about the great thing they have put their hearts and faith in.

REASONS CLOTHED IN FLESH AND BLOOD. And there is no argument like unto this argument—produce any man, no matter what his birth or breeding, whether he moves in high society or not, so long as he be honest in his opinions, strong in his convictions, has stood the test of experience and found out that it is infinitely better to "know" than to "believe;" that man has a right to stand upon his feet and have his say, and what's more to the point, the world will surely listen.

PROUDLY AND CONFIDENTLY we introduce you to twenty thousand such men. In a moment, as it were, we can usher you into the charmed circle of a great living friendship that with twenty thousand tongues will affirm one concrete absolute fact, in twenty thousand different methods and words of expression, each and every one enthusiastically endorsing the same truth—a unity of "reason why" such as the commercial world has never before seen.

TWENTY THOUSAND E-M-F "30" OWNERS. They are our reasons. Each one a thinking, separate personality—each one with likes and dislikes that differentiated him from all the others, for no two out of that immense number approached the question of "shall I buy" or "I will buy" an E-M-F "30" from quite the same reasoning point. One, had to weigh carefully the question of first cost; another, the "after buying" cost of upkeep. One, never considered price, but was attracted by quality; another, having a bent toward mechanics, saw quickly the perfect chassis. One, considered the financial stability of the Company behind the product; another that same Company's good faith and so on—ad infinitum.

BUT THEY ALL REACHED THE SAME CONCLUSION. There was some unanswerable argument presented, some fact of mechanical supremacy that could not be denied, some record of enduring quality that appealed, some enthusiastic owner that "boosted," which compelled each and every one of these 20,000 men to buy an E-M-F "30." Through the maze of all other rival cars for sale they found their way to the one car that expressed to them in terms of power, speed, reliability, comfort and serviceability the "ideal" each and every one possessed. That in buying an E-M-F "30" they proved their judgment to be correct, is now a matter of record.

THESE MEN ARE REPRESENTATIVE of all that is best and constructive in our great commonwealth. E-M-F "30" owners form a democracy of varied interests, among them being *Bankers* who know the value of money and its purchasing power—*Lawyers* who are skilled in discovering the weak points in any argument—*Tradesmen* who know how to buy for profit—*Farmers* who, as a class, are the most careful purchasers of automobiles—*Business men* in the most populous centers, who had every opportunity to draw comparisons and weigh the merits of rival cars—*Doctors* who demand the kind of car that must be always ready—at a moment's notice—to go anywhere over any kind of a road—every trade and profession—millionaires and men who live upon modest incomes are all represented in the great army of E-M-F "30" owners.

BUT THERE IS ONE REASON why you should buy an E-M-F "30" that is greater and more convincing than any one of those 20,000 reasons that made men choose an E-M-F "30" rather than any other car at any other price. And this, what we call "the unanswerable reason" has been getting stronger and bigger every day, from the time the first E-M-F "30" passed into the hands of the first owner, until this very moment; in fact, now, it is like some irresistible power, moving all over the land and sweeping everything before it; we call this invincible "reason" by a simple name everybody knows.

"SATISFACTION." That's it. *Each and every man who owns an E-M-F "30" is satisfied.* They are all subscribers, as it were, to the enthusiasm and interest about that proved, enduring quality and record-breaking price, which have made the E-M-F "30" the most talked of automobile in America, perhaps, in the world, because, and we say this without fear of contradiction, there is no car made upon which so many men absolutely agree. These 20,000 satisfied owners will tell you one story, simple and convincing, that they own a car they are proud to drive, to "boost," to endorse; a car, that not only backed their judgment, but above all, taught them the lesson—that it isn't necessary to decorate a check book with a lot of fancy figures and rob a bank balance to buy an automobile whose quality is in the chassis, where it belongs.

THE HISTORY of this universal satisfaction which, by the by, will sell another 20,000 E-M-F "30" cars this year, is the history of the E-M-F Company, an organization that revolutionized the automobile industry, not alone in values, but in methods of manufacture; that gave the buying public a car which has literally defied competition and sold itself. The E-M-F Company has always been a year or two in advance of the times. We make practically every part of our car, cast our own cylinders, forge, stamp and heat-treat our own steel and make our own bodies. Mr. Flanders' forecast, published in March, 1908, that "we can manufacture more automobiles of a better quality at a lower cost than any other concern now in existence," was a prophecy that has been magnificently fulfilled.

WHY? Why was Flanders' prophecy fulfilled? Ask any one of the twenty thousand owners of an E-M-F "30." He will show you his car and say, "There is the reason." So you look at it, examine it, ride in it, listen to the

owner recounting its prowess, its mileage, its speed, what it has done and the magnificent way it has stood the "gaff." Because an E-M-F "30" is such a glutton for service, it sort of lures a man on to give it hard usage. Automobiles have their particular kind of personalities. You get to "know" a car. What may be expected of it under certain conditions and an element of pride and friendship is established. So when Mr. Flanders' determination "to make a better quality car at a lower cost" than any other concern made or sold, took shape in an E-M-F "30," then also was created the "reason" of the enormous sales and colossal growth of the E-M-F Co. *The car fulfilled the prophecy.* That's why you can't purchase a second hand E-M-F "30." Men don't sell "automobile satisfaction" when they "know" they own it.

WE WILL EXPLAIN IT FOR YOU.

There it stands! A five-passenger touring car, graceful in body lines, with that "straight away look" which is a symbol of strength, and comfort. Not a fad or fur-below to cumber it with useless appendage. Under the hood, a 30 horse power noiseless motor that has won distinction upon race track and road. A motor so perfectly adjusted in power, weight and balance to the rest of the chassis that it creates an absolute unit of mechanical efficiency. To the expert engineer the chassis of an E-M-F "30" suggests the limit of scientific construction: to every owner it has proved it—proved it by enduring service, for no E-M-F "30" has ever been worn out. The ninth car built, shipped by us a little over two years ago, has travelled some 73,000 miles, which means nearly 15 years of actual life crowded into the thirty months of its existence, and it is mechanically ready for 73,000 miles more. The life story of "Bullet," this famous car, can be had for the asking. When you buy an E-M-F "30" the confidence you put into your purchase is returned to you a hundred-fold.

THE INVESTMENT OF \$1000, in an E-M-F "30" will be the wisest expenditure you ever made, whether you own an automobile or not. The most you can get for your money would be 6 to 8% interest. But here is the car at the price any man can afford. And to own a car is the ambition of every man. The automobile is a tremendous factor in our everyday life. Aside from its utility there is the pleasure it freely gives, the sense of freedom it imparts. It brings the country to the city, and makes every dwelling place a country home. At a moment's notice it is ready to whirl you and your family upon the sunlit, open road into the world of green fields—the country's life-giving "out of doors." It means health to the wife and children, and binds the family in closer ties. It is a tonic, nerve builder, it trebles the value of time; it means recreation, the banishment of the doctor and capacity for the duties of the day—in short, it is a necessity. An E-M-F "30" will meet this necessity and excel any expectation you may now possess in the purchase of a car.

THE OTHER DAY, we read an advertisement that "you can buy a real automobile now for as low a price as \$1500." We can take \$500 off that price and say the same thing, for you can buy an E-M-F "30" five passenger Touring Car, standard equipment, which means *Magneto included*, for \$1000 and that's the "realist" automobile value you can buy anywhere.

The Strongest Guarantee Ever Placed on an Automobile Is Given With the Purchase of Every E-M-F "30"

The E-M-F "30" Five Passenger Standard Touring Car \$1000. Roadster "30" \$1000. Detachable Demi-Tonneau "30" \$1050. Coupe "30" \$1450. Another E-M-F "30" Masterpiece. The New Fore-Door 5-Passenger Touring Car with Full Vestibuled Body \$1100. Write us for detailed specifications—Booklet No. 11.

THE E-M-F COMPANY, Automobile Manufacturers, DETROIT, MICH.

THE HOME-COMING OF THE BIRDS.

BY DORA H. STOCKMAN.

They have left the reedy rice-swamps
Where the fertile rivers flow,
Passing fields of cane and cotton
Where the sweet magnolias blow;
Broken up their winter quarters,
On some tropic island shore,
Leaving surfs and screaming sea-gulls,
And the sea's incessant roar.

They are winging, winging, winging,
By compass true and straight,
Back to the Northland homing
Where I expectant wait.
Robin, jay and bluebird,
The vanguards, first appear,
Bold prophets of the spring-time
With their ringing notes of cheer;

Song-sparrow, thrush and peewee
Come with the April showers;
Oriole, wren and gold-finch
Herald the wildwood flowers.
The saucy wren is renting
My bird-house 'neath the eaves,
Cleaning, chattering and singing
Of birdlings and budding leaves.

The catbirds out in the garden
And the bluebirds in the pines
Are discussing summer prospects
Of berries, bugs and vines;
The blackbird follows the furrow
Showing only a shining crest,
While oriole gathers horse-hair
To repair her last year's nest.

Bird-friends, we bid you welcome.
You serve the farmer well.
Thy happy matins teach us,
Thy sunset vespers tell
Of Him who notes the sparrow,
And guards each tiny nest—
He will guide us to a Homeland
Of love and work and rest.

THE EARLY BIRDS.

BY Z. I. DAVIS.

Among the first of the birds to return
from the south are the bluebird, the robin

red, while his tail and wing feathers are of a brownish gray shade. The feathers on his head are black, and when he is aroused to anger he ruffles them up so that they have the appearance of a top-knot. During his courting days he is very gallant toward the lady bird of his choice.

There is no prettier sight in the spring than that of a pair of devoted young robins building their nest. They are fond of making the apple tree their home, perhaps because of the wealth of bloom during the lovetime of the season. Those who study their habits cannot fail to be benefited thereby. They never hurry about their work, but sing and twitter in a most cheerful way, picking up a straw, examining it, trying it and dropping it for another if it does not suit.

After awhile the nest is full of hungry little birds. How many worms, bugs and beetles it takes to "fill the bill." They seem to be all mouth, but the wise old robins never find fault with their appetites. Woe to the soft-footed pussy that ventures up the tree too far. All the birds of the neighborhood will flock to protest with claw and beak and Pussy will have to retreat if she does not want to lose her eyesight. Who is not familiar with the comical sight of a young robin, as large as the parent bird, following the mother robin around to be fed with worms which it looks abundantly able to find for itself.

Happy is the farmer who has many song birds on his place. If he is wise, he will protect them from the thoughtless hunter, knowing that they are his best insect destroyers. Crows, quail, black-birds and hawks usually appear at an early date. They all deserve credit for



The Bluebird—An Unfailing Harbinger of Spring.

and the phoebe. The male of the bluebird is a very sweet singer and begins his song early in the morning, with but short intervals of rest throughout the day. As he pauses at noon in a tree, atilt like a blossom among the leaves, his clear, high notes may be heard at a long distance reverberating through the valleys and over the hills like a liquid river of music. With his breast of the hue of Roman gold, and his coat of royal blue, he looks like a bit of rainbow released from its moorings, as he flashes through the air in his blissful liberty. His mate wears a more modest suit, having the appearance of being gowned in the "faded coat of blue." The reason that females are less marked and pretentious in coloring is because, when they are hatching their eggs, they will be less likely to be discovered by their natural enemies, and therefore not so liable to be disturbed. They prefer to build their nests near a dwelling house, and appear to enjoy being noticed and admired.

Every year a pair of bluebirds build their nest in our peach orchard. During the brooding season the male perches on a limb near the window and begins to pour forth his soft, delightful melody. It is amusing to see him turn his dainty head every little while to learn if he is being observed. When given a word of encouragement or cheer his song grows louder and clearer, as if he were determined to do his best.

Robin redbreast and his mate are as welcome as the sunshine. They are fond of the habitation of man, and are much more plentiful in the village than in the country. The fact that they are protected by law has helped to make them fearless. The breast of the male is a rich

destroying injurious parasites, and deserve to be recognized as the farmer's friends.

WAS NOAH THE FIRST APRIL FOOL?

BY EVA RYMAN-GAILLARD.

The playing of practical jokes on April-Fool's-Day dates back so far that no authentic history of the origin of the custom can be found, but in an old issue of The Public Advertiser, (April 13, 1767), there is a story that makes it appear that Noah was the original April Fool when he made the mistake of sending the dove from the ark before there was a place where it could alight.

Some antiquarians claim that "All-Fool's-Day" was so named to burlesque "All-Saint's-Day" of the Roman Catholic church, while others advance the more probable theory that the day was first observed during the middle ages, when ignorance and superstition were rife, and that the jokes played were to remind people of the insults and mockery to which Christ was subjected. The sending of people on bootless errands was in imitation of Pilate sending Christ to Herod, and Herod sending Him back to Pilate.

This theory seems to get confirmation from the fact that the expression, "Sending a man from Pilate to Herod," was commonly used when a person was sent on a fruitless errand of any sort.

The Hindoos celebrated the Feast of Huli on the 31st of March. The pranks played were not unlike those played at the present time and it seems probable that our "Fool's-Day" is an outcome of their "Huli-Day," brought from Asia by the Romans and carried wherever they went.

Mayer's SPECIAL MERIT SCHOOL SHOES

These shoes are built exceedingly strong. The leather is tough and the soles are selected from the best wear-resisting hides. They are the only school shoes made with two layers of leather over the tip.



"WEAR LIKE IRON"

MAYER SPECIAL MERIT SCHOOL SHOES

outlast average school shoes two to one and cost no more. They are good looking shoes, built to fit and comfortable to wear.

The Genuine Special Merit School Shoes have the Mayer Trade Mark stamped on the sole.

FREE—Send us the name of a dealer who does not handle Special Merit School Shoes, and we will send you free, postpaid, a handsome picture of George Washington, size 15x20.

We also make *Honorbilt* Shoes for men, *Leading Lady* Shoes, *Martha Washington* Comfort Shoes, *Yerma* Cushion Shoes and *Mayer Work* Shoes.

F. Mayer Boot & Shoe Co., Milwaukee, Wisconsin



Will You Write a Postal For These FREE Books Telling Furnace Facts That Make Us Warm Friends?

Investigate This Farm Home Furnace For Any Kind of Fuel

Let us send you this Home Heating Book, with other booklets and prices first—Now's the time to investigate—Think it over. We will save you first cost and lasting economy and reduce your fuel bills $\frac{1}{2}$ to $\frac{2}{3}$. Find out about the experience of thousands of satisfied owners of Hollands—Double Grate Surface—Patented Cored Air-admitting Double Firepot, burning fuel from sides and top, nature's way, for greatest even heat. Consumes gas, soot and clinkers with least smoke. No explosions. Book tells all improved tested points, convenience and satisfaction of the Holland. Unlike others. Less joints. No bolts. Simpler and easier and cleaner to run. Ideal damper arrangement. Consumes less fuel. Gives longest service from construction and double materials used where strains are greatest. Save money with

Holland Gas and Soot Consuming Furnace FREE



Years of experience in the heating business has taught us that the strain in any furnace is from the fire line up and that is why the combustion chamber of the Holland Furnace is over an inch thick at the top where our patented radiator is placed. Radiator is cast in one piece and altogether from the base to the top, our furnace has but five joints. Burns any fuel—soft coal—slack screens—hard coal, lignite, or wood with least waste. Smoke travels twice as far, no heat wasted. Equal heat all through the house in all pipes. Special Double Guarantee. Book has many other points to tell you.

Save $\frac{1}{2}$ to $\frac{2}{3}$ on Fuel

Our fuel-saving claims for the Holland have been proven by thousands of satisfied owners. You be the judge. Just send name on postal for our Big Catalog—Free with other Home Heating Booklets and prices. Who's your dealer?

Holland Furnace Co.,
Dept. 6
Holland, Mich.

CLOTHCRAFT

Clothes that Assure Women's Approval

EVERY man, whether he knows it or not, is to some extent affected by woman's quick judgment of the fabric, fit and fashion of his clothes.

That's a good reason why you should investigate Clothcraft Clothes. At \$10 to \$25 they give you tasteful all-wool fabrics, thoroughly shrunk; correct style; a fit that's really remarkable—and they save you from \$5 to \$10 a suit. To illustrate:

A man whose wife was critical of his clothes announced to her that he was going to try a Clothcraft suit. She demurred. His high-priced custom clothes were often unsatisfactory, so what chance was there for Clothcraft? Nevertheless he bought a Clothcraft suit and wore it home. His wife at one quick glance noticed the tasteful all-wool cloth, the close-fitting collar, the full, smooth coat-front, the heel-hugging trousers. Then came her verdict: "That's the best-looking suit you ever had on!"

Before you obligate yourself to buy Clothcraft you can test the fit and see the fashion and fabric. For the hidden quality you have the protection of the definite Clothcraft guaranty, backed by dealer and maker—absolutely all-wool fabric, first-class trimmings and workmanship, non-breakable coat-front, lasting service and satisfaction.

Go to the nearest Clothcraft store, or write to us direct. We'll gladly send you the Clothcraft style-

folder for spring, and a booklet picturing the clean, light shop where Clothcraft Clothes are made, together with the name of the nearest Clothcraft dealer.

THE JOSEPH & FEISS CO.

Founded 1850—Oldest American Manufacturers of Men's Clothes
623 St. Clair Ave., N. W. Cleveland





Woman and Her Needs

At Home and Elsewhere



Factors in Determining Different Fabrics.

(Paper read by Miss Kate Coad, Instructor in Domestic Science at the Michigan Agricultural College, at the recent Round-Up Institute).

IN this age when the accumulation of wealth seems to be the dominating thought of men, honesty appears to be a forgotten virtue. Men do not nowadays adopt the advice of Burns and "Gather geer by every wile that's justified by honor." On the contrary, dishonesty, fraud and adulteration in everything we eat or drink have become so open and shameless a fact that congress at the demand of a cheated and indignant people enacted the "Pure Food Law" which has, in part at least, remedied the matter in things we eat. People are rejoicing over the results of that act, the increased sense of protection which it gives from impure and cheapened foods. It came at an opportune time for the advances in prices of household commodities made it doubly hard to be obliged to buy adulterated articles. But there is still much to be done in the same direction along this and other lines.

It is a great debt which the American people owe the magazines of this country, the magazines which dare to expose and fight against corruption, falsity and danger from unsuspected quarters. Recent investigation into the many little devices and means used to cheat the buyer would, if published, open your eyes to the shameful way in which American housewives have been and are being wronged and cheated, in such small ways that they seem insignificant but which mean to manufacturers and their victims hundreds of thousands of dollars. As an example, manufacturers of berry baskets make their products so much smaller than the supposed capacity requires that they hold from one-fourth to one-third less than they should. They do this because packers require these baskets to measure according to their estimates of sizes. Many such instances might be cited in which the home-maker of today is being shamelessly defrauded.

And why is it? Because she does not know it or at least did not a few years ago. Is it worse today than formerly or are we merely stirring up matters a little more vigorously? There is little doubt that dishonest representation of staple articles and of those commodities bordering on luxury are at the present time more in evidence than formerly, in food, furniture and clothing. There are good reasons for this. People nowadays live in better homes; have better furniture, that is, more of it and at higher prices; have better food, more of it and at greater prices; they have more clothes, a greater variety of cheaper materials and at higher prices than a few years ago. These times are witnessing a mild panic in clothes and food. Emulation and desire for display are rampant and combined with the general ignorance of women as to quality and appropriateness of articles are factors in the new and alarming cry of "High Cost of Living." Food and clothing are more in demand, advertising has become an act whereby the desire for things is created, and modern methods of manufacturing and preparing make it possible to supply that demand.

So much for the manufacturer and the advertiser. Between the merchant and customer stands the salesman, and the successful salesman of today employs methods. He is a trained man. There are being established schools for the education of clerks along their particular business lines. They learn how to study their customer, how best to approach him, what line of attack will be surest, how to satisfy his real wants and how to create others. Merchants are demanding more of their employees and are putting their relationship on a business footing. They are given advances in wages and percentages of their sales as their money

value to their employer increases. Consequently it is to their interests to make sales and many an unscrupulous one does so at the expense of veracity. He regards a prospective customer in the light of a venture and he is working for his own interests. He studies his customer, notes the effect of this argument and of that and in a business-like manner follows up the signals and sells the goods. This is not arraigning salesmen's methods. If he can persuade his customer to purchase an article that she does not want—that a piece of goods is "all-wool" when it is three-fourths cotton—that another material is 36 inches wide when it is in reality only 33 or 27 inches wide, then she must expect to be the loser. How many women stop to reckon what they lose in that way? Suppose that a 33 inch piece of goods is represented to you to be a 36-inch piece. With a 10 yard purchase you are paying for nearly a yard which you do not obtain. Suppose the scale of measures on a clerk's table is short an inch, as it has been found to be again and again by late investigators? With a 10 yard purchase you are paying for nearly one-third of a yard which you do not receive. Little things? Of course, but to what do they lead? If it pays the merchant to save that inch it will pay you. But some women seem to feel it beneath their dignity to purchase a cheap article or to find flaws in the wares displayed. Along with good articles are inferior ones and the difficulty lies in the fact that so few buyers know values. This situation, then, can be remedied only by meeting it in an equally business-like manner, until national legislation has been enacted in the way of standardization of textiles.

Now a word as to "bargains." As a rule, articles bring what they are worth and there usually are a few "leaders," consisting of good articles mixed in with cheaper ones. If the purchaser can discriminate, it is all right. But be quite sure that when goods are very cheap, they are either inferior or else damaged. The real bargains are usually found at the close of a season when the high-priced pieces or extreme one-season articles are marked down. Medium grade goods seldom change much in price. The great secret of bargain day to the merchant is that customers are persuaded by that something electric in the atmosphere, generated by flamboyant placards and staring advertising, to purchase more than they anticipated or wanted.

Ordinarily the purchaser does not object to paying a good price for things, if she could be reasonably sure of receiving good value; but today there is no longer certainty of that. And this is a question in which women are vitally interested for they buy the clothes, the carpets, the linen for the family. They purchase 90 per cent of the enormous output of textile fabrics in this country.

On the other hand, it is not always necessary to buy the higher-priced materials. There are stores whose clerks loftily inform one that they carry nothing cheaper than 25c and if you prefer to buy the name of the store with the purchase, very well. But the majority of customers find it more satisfactory to buy the same article at a less exclusive establishment for 15c. Also, the cheap article must not be maligned because it is cheap. Inexpensive fabrics in the many pretty weaves, patterns and colors are a great advantage for the purchaser of moderate means. And with the ever changing fashions in fabrics and costumes it is not essential that our clothing last as did the beautiful old brocade of our grandmothers. But this is the point. That these materials stand for what they are and that we honestly receive that for which we pay. With the wonderful new weaves on the market, the cheap may easily masquerade as the expensive, the false as the real.

Women have of late grown away from a knowledge of fabrics and are at the mercy of the manufacturer. Before the

invention of power looms, women handled the textile fiber from the raw state to the finished thread. They knew the feeling of a line thread and of a woolen yarn. They were judges of the fabric which grew under their own hands, its weight, feeling and appearance. Later, they began buying these things and gave their time to other interests, so much so that they became unfamiliar with fabrics and it grew easier and easier for manufacturers to dispose of adulterated materials for the price of the real thing. This is a wrong condition of affairs for women have the portioning of the family income and should certainly have some knowledge of what they should buy and what its cost should be.

The schools of home economics have as one of their interesting fields of work, the study of textiles. Girls are being taught concerning the different kinds of cloth; their tests and the ways of adulteration; the original textile fiber and the processes through which it passes, thus adding to its usefulness and beauty or lessening its strength; the chemical agents used in bleaching and dyeing and their effects on fiber and fabric. It is a valuable training for girls who must become buyers for themselves and others. It is such work as this that will, before long, help to revolutionize these wrong phases of textile production.

The home buyer must deal with the fabric and not the fiber. She cannot nowadays watch the processes by which the flax and cotton fibers, the silk filament from the cocoon and the wool from the sheep's back become the spun thread and yarn. So she is handicapped at the start.

To distinguish between linen and cotton in a fabric is a difficult matter. The original fibers differ much in appearance but after spinning and weaving the characteristic spiral twist of cotton is partially lost and the linen has acquired a curl. Now linen, perhaps more than any other fabric, should not be adulterated. No other materials can acquire so white and fresh an appearance. If cotton is mixed with it the cloth will become fuzzy with wear. The cotton fiber is only about an inch long while the flax is from 10 to 12 inches. Rub linen between thumb and finger to detect a tendency toward that. New methods are being constantly evolved whereby the cotton is made to look like wool or feel like linen. The little lumps which characterize linen are cleverly imitated in cotton. Mercerized cotton, a chemically treated cotton, with the luster of linen, is by itself a valuable material but it is sometimes sold as pure linen. Also refuse flax is spun into thread and these short ends do not wear well.

There are many home tests for cloth but these are not infallible. The surest test for a mixture of linen and cotton is to immerse the fabric in concentrated sulphuric acid for two minutes. Then wash cloth in water and then in dilute ammonia. The result is that the cotton is dissolved and the linen unaltered.

The glycerine or olive oil test is simple and not so reliable. A drop is placed on the mixed cotton and linen fabric; the cotton threads become white and opaque while the linen, due to capillary action, become translucent.

As a reminder of those early years when women knew fabrics, we have the magic terms of "all-linen" and "all-wool" to which many a purchaser owes her undoing. It will win over a customer eight times out of ten and she accepts the statement with an unquestioning faith. As a matter of fact, it is difficult nowadays to find an all-wool article, and mixtures of other materials are resorted to and the use of cheap products. Cotton is often used with a little wool wrapped around it or laid along the threads. Sometimes they are merely pressed onto the surface of the cloth. Shoddy wool and wool obtained from old, worn-out garments or rags are also used. So it is that, though the world's supply falls far short of the demand, yet there is always wool.

The best test for wool and a vegetable fiber mixture is to boil the material for



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Cleveland, O.

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Send your money by mail, express or money order. Remember that your money will be refunded if the plume is not entirely satisfactory.

New York Ostrich Feather Co., Dept. p p, 513-515 B'way, N. Y.

five minutes in a five per cent solution of caustic soda. The wool will dissolve and the adulterant be left.

Silk is chiefly cheapened by "weighting" or "dynamiting," as it is called. The thread is treated with different substances, chiefly mineral salts. This swells the threads, giving them more body and weight. It is the presence of metallic substances which by friction cut the threads and cause the tiny pin holes which appear so soon in many silks. When burnt, silk should char and leave little ash. If there is much weighting, there will be considerable ash. A fairly reliable test is that a good quality will not tear nor split when pulled in the

fingers but will pucker instead.

Silk may be chemically treated with caustic soda (10 per cent solution), which will dissolve it in 12 minutes. The residue will be foreign matter.

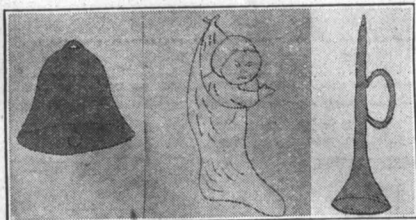
These brief suggestions show how really serious the condition of affairs is. The buyer does not receive what she pays for, is misled by appearances, prices of goods are higher, manufacturers' guarantees often stand for nothing.

What is to be done? Cannot the people appeal for protection, as they have in drugs and foods, until the matter is given legislative consideration and some standard is set according to which materials will be made and sold?

POSTER PLACE CARDS—By GENEVA M. SEWELL.

IN even simple entertaining the place card occupies a prominent part in the decorative scheme of the table. Poster place cards are especially suited to children's parties, though they may be quite appropriately used for "grown-ups" or for any occasion.

One advantage of the poster place card is that it may be made in the school or class colors, thus making it especially adaptive for use by teachers of Sunday school or day school classes. They may be made in either one or several colors for the picture part, and one or more colors for the mat part. They are very simple to make. Decide the scheme of color to be used, then the subject. If you



No. 2. No. 3. No. 1.

are not an adept at drawing or free-hand paper cutting, choose some picture or object in good silhouette and outline it on a piece of paper, tracing in the character marks dimly, then with a pair of sharp scissors cut it out and paste it to your mat, then when perfectly dry follow the outlines with very black ink and run in all character marks with black ink.

In figure one the class colors were yellow and white, the horn was made of yellow paper pasted onto a white mat, it was all outlined with black ink and character marks run in with black ink. The result is an effective bit of color that the young people will be glad to place on the wall of their rooms as a souvenir.

Number two, colors crimson and pale blue, the bell is a suitable reminder of a class party or a party during Christmas holidays.

Number three, class colors pink and pale blue, picture part a Christmas stocking with the Esquimaux sticking out. The character lines make this very effective. It is about four by eight inches in size and may bear the name at the bottom. It is large enough for an effective wall poster.

Number four, class color pink and green, poster part a stocking with a brownie policeman head sticking out. This and number three could be used for a mixed party of boys and girls, giving the doll for the girls and the policeman for the boys.

Number five, class colors crimson and grey, subject a rabbit. This is suitable for an Easter card. The character lines are laid in deep and strong, making this very effective. This one will please the children every time.

Number six, yellow and pale blue. This quite rightly represents "Mary quite contrary," and her wateringpot. This is a good one for girls, while number seven is used for boys. It is lavender and white or blue and white, and may rightly be called "Little Boy Blue" for he is blowing his horn.

In all of the above we have used the simpler styles, using only two colors, one for the poster and one for the mat, and they are very effective, but in number eight we have a more elaborate style. This may be used for a place card and also for a bonbon dish to hold the little table candles or cherries. It makes a very showy appearance on the table. It is made from a little boat folded out of paper as the kindergarten children fold them, then the pennants and sails are fastened on toothpicks and stuck in place, and the whole is pasted to the mat, and a standard pasted at the back

so that it will stand upright. It is better to fasten this standard to all poster place cards for they are more showy and are out of the way more when so arranged.

As all of you may not know how the little kindergartners make a paper boat I will give a few simple directions. Take a piece of paper six by four inches, fold in the middle, making a piece three by four inches, and double. Find the center of the folded edge and mark it "A" at both top and bottom, mark right and left hand corner of fold "B." Take one corner marked "B" and bend it at "A" letting the corner "B" follow the line marked "A." Repeat with other corner and fold one of the flaps at the bottom of the figure up on each side, open the figures and slip the corners of the flaps under each other. You now have a soldier's peaked cap; fold the two points together and you have a square; open the square and fold one of the loose points up on each side, this makes a cap again, only smaller, fold the points of the cap together, making another square only a smaller one; take one of the loose points at the top of the figure in each hand and pull away from the center, this opens up the figure and makes the boat.

FIRMNESS IN DEALING WITH CHILDREN WILL PREVENT "NERVOUS WRECKS" IN GROWNUPS.

IS there any more desirable trait in woman, or man either, for that matter, than poise? And is there an attitude so seldom seen? In this hurrying, bustling, nervous age, how few we meet who are absolute masters of themselves, who keep calm, self-possessed, sane, no matter what the circumstances. Yet, if we only could learn the art we should accomplish vastly more with less wear and tear to the system, nervous and muscular, and probably with longer life as a reward.

Women ought to know that giving away to "nerves" never gets them anything but a weakened body and mind, a few more wrinkles, premature gray hair, and, if their "nerves" take the form of temper, a decided loss of the respect of their associates. Yet most of us pride ourselves on our nerves and encourage them in our children. How often we hear a mother say,

"Mary is just a little bundle of nerves," and when "Mary" gives way to a fit of

by limiting her diet to plain cereals, milk, eggs, simple vegetables, beef and mutton, and last, but by no means least, by good, judicious, maternal discipline and direction.

A mother of my acquaintance has worked that last idea out beautifully. She had two boys to bring up, the older, the proverbial bundle of nerves, who had been sickly and pampered for the first two years of his life, the younger a stolid little fellow who had never been ill a moment and apparently hadn't a nerve in his body. The mother had all her life long been subject to nerves, she had "enjoyed" two attacks of nervous prostration and the child's aunt was an hysterical creature who fainted at the sight of blood and wrung her hands and wept if she had an earache. "Nerves" as an excuse for every sort of foolishness in woman, was pretty well implanted in the mother's mind, but somehow she hated to see it develop in a man.

Her boy screamed and roared and fought if he was asked to take even the pleasantest tasting sort of medicine. He jumped up and down and wrung his hands if he got a tiny sliver in his finger and the mother suggested a needle. If he had nose bleed he cried and roared until he was exhausted. No matter what ailed the lad the uproar he made would suggest a madhouse, and everyone in the house was upset if he only stubbed his toe. Of course, "nerves" were blamed, the shattered systems of mother and aunt pointed out, and the influence of heredity talked about in gloomy tones.

But the mother didn't like it. She didn't believe in hysterical men and the thought of her boy growing up into such a being "got on her nerves." Finally she had a great light. She realized suddenly that nerves are creatures of habit, in fact, that it is by means of the nervous system that habits are formed, and she saw that her boy was forming his lifelong habits now. She decided as suddenly that he should form habits of self-control instead of self-indulgence, and that, from his mother at least, he should get no more encouragement in giving way to tears and hysterics.

Next day Johnnie got a sliver in his finger, and true to habit, he began to scream and kick. The usual procedure on such occasions was for mother to hold him in her lap and coax him to be good, while grandma came with a needle and aunt stood in the background with a piece of candy as a reward. This time, however, there was a decided change. Mother led Johnnie to her own room and closed the door, then sat Master Johnnie in a chair and commanded him, decidedly but pleasantly, to stop crying at once. He was so surprised that he actually stopped and looked up at her in astonishment. Then she told him firmly and quietly that she was going to take the sliver out of his finger, that it might hurt a little, but that if it was not removed pus would probably form and it would hurt him a great deal worse. She also told him that crying and screaming would make it hurt worse, because he would have less strength to stand the pain, and that she intended to take the sliver out no matter how much he screamed so he might as well keep still and bear it like a man. There was no

to keep still, and made to obey. Once or twice he has tried his old tactics, but as the mother had learned that it was because of temper and not sickness, she turned him over her knee and applied the proverbial slipper. Of course, grandma and aunt exclaimed at her hard-heartedness and plead for moral suasion, but the mother held grimly on her way. The result has more than justified the experiment. From being a bad tempered, hysterical, trying youngster Johnnie is fast becoming a manly little fellow. He is learning his lessons of self control, and his mother no longer dreads the thought of his becoming a weak-willed, flighty man.

The same discipline might well be applied to girls. There is many a nervous, hysterical woman today who might be self-controlled had her mother not encouraged her in giving away to her feelings in her childhood. DEBORAH.

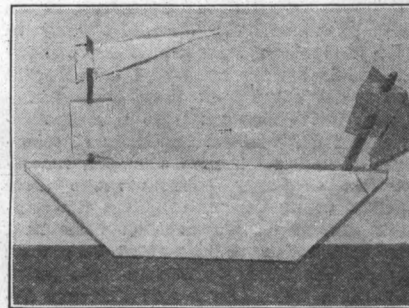
THE COUNTRY GIRLS' CHANCES IN TOWN.—No. 5.

Domestic Service.

BY HILDA RICHMOND.

ONLY a few of the many occupations open to girls have been mentioned in this series, but the ones spoken of are representative ones, and domestic service is mentioned last, because usually it is the last thing to enter the mind of the country girl as an occupation. "If I want to work out, I can find plenty to do around home!" snapped out a young girl when a city lady spoke to her about this branch of work. The country girl had been telling her aims and ambitions to the city guest, and when questioned as to what she could do, it developed that she was fitted for very few positions either in city or country. "I don't have to be anybody's slave. What I want is something nice and easy."

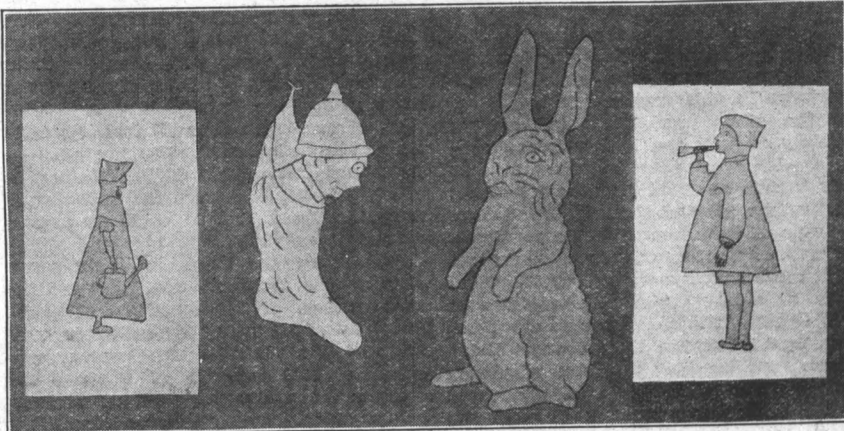
As a matter of fact domestic service in a city has charms that other places



No. 8.

can not boast, though it has its drawbacks. The great objection to young girls going to cities is that they barely keep soul and body together in many cases, because wages are low and expenses high, but in the case of maids all this is turned about. The "hired girl" of the country and small city does work that her city sister would not touch, and the wages in the city are about double what they are in the country. To be sure, expenses are higher as regards clothes, but the city girl has the advantage of bargain sales in the great stores, and time enough to do many little tasks for herself. Conditions are improving all over the country for helpers in the home, simply because good workers are very difficult to find and they must be treated with consideration or they will leave, but particularly in cities do the maids demand and receive regular hours and good pay with some time for themselves. While the clerk is earning from \$5 to \$8 with one afternoon and evening out, no washing and ironing and every other Sunday to themselves. To be sure, the clerk has every Sunday to herself but often she has no evenings, and the work is more wearing in the store than in the house since housework is changing constantly. Of course, there are inconsiderate mistresses and poor places, but no girl need stay in a home where she is not treated with consideration, since there are so many, many weary housekeepers crying out for help.

"Servant," that is the word that stands in the way of young girls wanting to be housekeepers and second girls and cooks in city homes. In the country home the hired girl is one of the family, but in the city the maid must create her own little world. But she is no more alone than is the clerk or stenographer, though the latter plume themselves that they are miles above the servants. Indeed, many a servant's room in the larger and better houses is far more comfortable than the room in the boarding house occupied by



No. 6. No. 4. No. 5. No. 7.

temper or hysteria, "Mother" says, in the child's hearing, "She just can't help it, it is her nerves."

If that is true, that the child is actually so nervous she can not control herself she should be in some sanitarium under the constant care of a specialist and trained nurse. I am of the opinion though, that Mary's nerves would be greatly improved by regular hours for sleep, say from half past seven at the latest, until six o'clock in the morning;

mention of reward if he was good, no threat of punishment if he wasn't. But Johnnie seemed to grasp the idea that he had better be quiet and submit to this new form of treatment. The sliver was extracted without fuss, and Johnnie seemed quite pleased to think he could act like a man.

Since that day the same method has been followed. Johnnie is not allowed to give way to "nerves," otherwise to screams and fighting. He is told quietly

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the teacher, the clerk or stenographer, and the food is far above the average boarding house fare. After all, what does it matter to the young business woman whether she goes in at the back or front door? Why should she feel insulted if she is not taken into the bosom of the family and treated as a guest? Her employer is not paying her to be a companion for his wife and daughters, but to do his work. Where is the clerk who is on visiting terms with the family of her employer in a large city? Of course, the girl who is unwilling to accept the conditions of domestic service in cities should stay where she is, for she will fail utterly.

More than in any other employment there are openings for maids in the cities. The trim housemaid with light duties and good wages, the nurse girl in her cap and apron, the mother's assistant who mends and dusts and looks after the children, the parlor maid with her dainty look and clean apron, and all the other well paid workers of the city are drawn from the farms year by year. Many a girl without an education, but with an intelligent mind and desire to please, has prospered and lived a healthy, happy life in a well ordered home while her sister in some more "respectable" occupation has lost health and spirit under the burden of long hours and poor fare.

And the beauty of domestic service is that from the very first the country girl is self-supporting. She has no need to look up a cheap boarding house and pass through a period of waiting or merely paying expenses, but at once is in a position where good food, good wages and a clean room are at her command. Much has been said about the way maids are used in some homes, but the average woman who employs a helper is forced to feed and lodge her well and refrain from overworking her in order to keep her. In many homes the country girl who has been well brought up, and who is refined and intelligent, really does become a sort of companion where the master and mistress of the home are aged and depend upon the only young person in the home to bring in a little of the outside world. Case after case might be mentioned where the girl from the country became the confidential manager of the household at a good salary, and enjoyed almost as many privileges as a daughter or niece, aside from the allowance such a relative might receive. An ignorant, untrained foreign girl could never reach such a place, but a bright country girl has it in her power to rise even in domestic service.

So the girl who does not look upon housework as drudgery, or the position of maid as degrading, will find many doors open to her in the city. And though they be back or side doors she will find them leading to honest employment, good pay and in many cases a comfortable room. It all depends upon the girl herself what she can do. There are countless multitudes of openings even for slatternly, inefficient, ignorant workers in domestic service, and weary housekeepers everywhere are crying out for competent workers. They are willing to pay well for intelligent, honest service, and not only willing but anxious, since they are forced to pay well for careless, indifferent service. The girl who is careful with china, can cook well, is trustworthy to care for children or can do fine laundry work and is neat and cheerful and knows how to keep house need not fear that she will ever lack employment. There are thousands of homes waiting for the bright, healthy, careful young country girl, and in them the girls will find chances to advance, to save their money and to make themselves indispensable to the tired and discouraged city housewives.

THIS MAY HELP YOU PLAN YOUR MEALS.—No. 38.

BY MRS. ALTA L. LITTELL.

What to serve with what, that is, what vegetables to serve with a given cut of meat, is a question which often puzzles the housewife. Next time you have roast beef, try Franconia potatoes with creamed onions, or cabbage, parsnips or lima or string beans. Any of these vegetables will go well with the meat. The Franconia potatoes are simply pared and baked in the pan with the roast, after parboiling five minutes in salted water. Cream of horseradish sauce is good with the meat as a change from the usual French mustard. To make the sauce, make a simple white sauce and add one-third cup of grated horseradish. If you

want it extra fine, add also a quarter cup of hot cream.

With porterhouse steak have mashed potatoes, fried bananas and tomato or mushroom sauce. Cut the bananas in four pieces crossways, melt two tablespoons of butter in a frying pan, add a tablespoon of Worcestershire sauce, and fry the bananas in this until a golden brown, rolling them over and over so they will be alike on every side. They are nearly as good without the sauce. Of course, you will salt them. For the tomato sauce, cook together a cup of tomatoes, a bay leaf and two slices of onion until soft enough to go through a strainer. Put through the strainer and add to a pint of white sauce.

With your roast pork, make a bread dressing, seasoned slightly with onion. Serve with apple sauce, brown gravy, mashed potatoes and tomatoes, fresh if you can get them, if not, stewed. Pork chops, breaded, with tomato sauce and escalloped potatoes make a fine meal. Pork tenderloin is delicious baked with a bread stuffing. Make a gravy in the pan after removing the meat, and serve with creamed onions, new beets, or spinach, creamed or sweet potatoes.

Fried ham and eggs, with fried apples and potatoes boiled in jackets form a satisfying meal for many. Bacon and liver, cooked with just enough onions to flavor, in the oven, are also good served with fried apples. A lettuce salad helps to give the required acidity to the meal.

Roast veal always needs a couple of slices of fat pork on top to give a bit of flavor. Make onion dressing for this, and serve with peas, onions, or macaroni and tomatoes. Veal cutlets should be breaded like the pork chops and served with celery sauce and tomato salad. To make the celery sauce, boil a cup of celery until it can be put through the sieve. Then add to a pint of white sauce made with a cup of milk and a cup of the water in which the celery was boiled.

Lamb chops, which are about the most expensive meat known to man, are delicious served with little new peas and mashed potatoes. Of course, roast lamb or mutton takes mint sauce. Peas go with the roast, too, or spinach, string beans or creamed celery. Caper sauce is usually served with boiled lamb or mutton, and is equally good served with boiled fish.

Of course, we are never at a loss what to serve with fowls. Our turkey always has cranberry sauce, baked squash, celery, and tomatoes. Goose calls loudly for apple sauce and creamed onions. Duck is good with onions, too, or with cauliflower, creamed celery or creamed beans. Chicken, either fried or roasted, will take tomatoes in any form, or peas, cauliflower, cabbage or rice, the cabbage, of course, being creamed.

Fish, if fried, should always be dipped first in flour. Large fish are better baked. Corn, asparagus, carrots or tomatoes will go with most fish, and cucumber salad, or cucumbers sliced in vinegar give a zest to the meal.

Salmon is best in a salmon loaf. Bone and flake the fish, and arrange in alternate layers with cracked cracker crumbs in a baking dish. Dot each layer with butter and sprinkle with salt and pepper. Bake a half hour. Rice, creamed celery, peas or corn, mashed or creamed potatoes and tomato salad finish out a meal with salmon.

THE LETTER BOX.

The Up-to-Date Woman is Broadminded. Deborah's editorial in The Farmer of March 11 on "Charity Covereth a Multitude of Sins," is one of her "best evers," and that's saying a lot when she never misses her mark, no matter what her subject.

And that old, old "charity covereth a multitude of sins" is a precept that can never be too often repeated nor too firmly impressed upon the mind. Nothing so much distinguishes the up-to-the-moment woman as her broadmindedness, and the same applies to men. The point of view of a generation or two ago is no where better illustrated than in Kate Douglass Wiggin's "New Chronicles of Rebecca," where she makes "Candace Milliken," the deacon's daughter say at the meeting of the children's missionary society, "Foreigners' religions are never right—ours is the only good one." The writer can well remember when in her own rural vicinity the different religious denominations no more affiliated socially than they had been caste-bound Hindus. And, as in the instance cited by Deborah, women who danced, played cards or attended the theater, were called frivolous

How to Stop Pimples

In Five Days You Can Get Rid of All Skin Eruptions by the New Calcium Sulphide Wafers.

Trial Package To Prove It Sent Free.

Any man or woman gets awfully tired going around with a pimply face day after day. And other people get awfully tired, too, seeing them go around with faces full of disgusting pimples.

If you are one of the unfortunates who can't get away from your pimples, and you have tried almost everything under heaven to get rid of them, take a few of Stuart's Calcium Wafers every day. Do that steadily for a few days, and in less than a week look at yourself in the mirror.

You will then say that Stuart's Calcium Wafers are a wonder in getting rid of the eruptions.

These wonderful little workers contain the most effective blood purifier ever discovered, calcium sulphide.

No matter what your trouble is, whether pimples, blotches, blackheads, rash, tetter, eczema or scabby crusts, you can solemnly depend upon Stuart's Calcium Wafers as never-failing.

Stuart's Calcium Wafers have cured boils in three days and the worst cases of skin diseases in a week. Every particle of impurity is driven out of your system completely, never to return, and it is done without deranging your system in the slightest.

Most treatments for the blood and for skin eruptions are miserably slow in their results, and besides, many of them are poisonous. Stuart's Calcium Wafers contain no poison or drug of any kind; they are absolutely harmless, and yet do work which cannot fail to surprise you.

Don't go around with a humiliating, disgusting mass of pimples and blackheads on your face. A face covered over with these disgusting things makes people turn away from you, and breeds failure in your life work. Stop it. Read what an Iowa man said when he woke up one morning and found he had a new face:

"By George, I never saw anything like it. There I've been for three years trying to get rid of pimples and blackheads, and guess I used everything under the sun. I used your Calcium Wafers for just seven days. This morning every blessed pimple is gone and I can't find a blackhead. I could write you a volume of thanks. I am so grateful to you."

Just send us your name and address in full today, and we will send you a trial package of Stuart's Calcium Wafers, free to test. After you have tried the sample and been convinced that all we say is true, you will go to your nearest druggist and get a 50c box and be cured of your facial trouble. They are in tablet form and no trouble whatever to take. You go about your work as usual, and there you are,—cured and happy.

Send us your name and address today and we will at once send you by mail a sample package free. Address F. A. Stuart Co., 421 Stuart Bldg., Marshall, Mich.

Rider Agents Wanted

In each town to ride an exhibit sample 1911 bicycle. Write for special offer. **Finest Guaranteed \$10 to \$27** 1911 Models with Coaster-Brakes and Puncture-Proof tires. **1909 & 1910 Models \$7 to \$12** all of best makes.... **100 Second-Hand Wheels** All makes and models, \$3 to \$8 good as new..... **Great FACTORY CLEARING SALE** We **Ship on Approval** without a cent deposit, pay the freight, and allow **10 DAY'S FREE TRIAL.** Tires, coaster brake rear wheels, lamps, sundries, parts and repairs for all makes of bicycles at **half usual prices. DO NOT BUY** until you get our catalogues and offer. **Write now, HEAD CYCLE CO. Dept. 8.77, CHICAGO.**



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and scandalously worse by the "prunes and prisms" sisterhood. Yet some of these women were always first when there were any "ministering angel" roles to be filled.

Undoubtedly isolation has in the past been the prime cause for the narrow-mindedness of the average country woman, but in this day of telephones and rural mail delivery that excuse is not a valid one. The old "what's good enough for me is good enough for anybody" attitude should give way to an appreciation of the fact that, as no two human beings are created in exactly the same mould, no two people can have the same tastes and preferences. Nowhere has this fact been more impressively illustrated than by Judge Rentoul, speaking before the famous Bartholomew Club, of London, when he enumerated the "fourteen errors of life:"

To expect to set up our own standard of right and wrong and expect everybody to conform to it.

To try to measure the enjoyment of others by our own.

To expect uniformity of opinion in this world.

To look for judgment and experience in youth.

To endeavor to mold all dispositions alike.

Not to yield to unimportant trifles.

To look for perfection in our own actions.

To worry ourselves and others about what can not be remedied.

Not to alleviate if we can all that needs alleviation.

Not to make allowances for the weaknesses of others.

To consider anything impossible that we can not ourselves perform.

To believe only what our finite minds can grasp.

To live as if the moment, the time, the day were so important that it would live forever.

To estimate people by some outside quality, for it is that within which makes the man.

The Bible repeatedly emphasized that the greatest of virtues is charity, meaning not the giving of alms but of love; the love that forgives 70 times seven times and looks for the mote in its own eye before criticizing its neighbor. And finally—

"There is so much good in the worst of us

And so much bad in the best of us That it doesn't behoove any of us To talk about the rest of us."—Embers.

The Primary School Fund.

Editor of Household Department:—I should like to call to the attention of your readers to a movement supported by the leading educators of the state in various forms in educational administration.

This has resulted in the drafting of the commission form of school board bill (now before the house at Lansing), and also the movement for cheaper and better text-books, on which subject such an able report was presented by the committee on education of the State Grange, 1907.

But more vital to the interests of rural districts than any of these is the movement for the re-distribution of the primary school fund. This fund is derived, as many are aware, from the sale of land and a proportion of certain taxes set aside by the government for the support of schools, with the proviso that it be used to pay teachers' salaries only.

The distribution is made on the basis of the number of children of school age in each district, based on the school census of the previous year. The direct consequence of this is that, in populous districts, the higher valuation of land and the greater number of children, insures a larger sum than is necessary for the purpose designated. This surplus not being available for other purposes, goes on accumulating year after year.

On the other hand, in sparsely settled districts, where land valuation is low, and children of school age are few, (in some as few as 18), almost the whole upkeep of the school has to be drawn from direct taxation, which makes a heavy burden on the few inhabitants. In fact, the taxation for education is out of all proportion heavier in thinly settled districts than in populous ones.

This is not as it should be, and to remedy the present state of affairs, the excellent suggestion put forth by L. L. Wright, seems on the whole, to make for a wiser and more equitable settlement.

The McNaughton Constitutional Amendment already passed by the house, and soon to come up in the senate, would shut off from all districts having a sur-

plus sufficient to pay two years' salaries in advance all further payments from the fund until required, the money thus withheld to be given to those districts having the greatest need of it. In any case, something must be done. The present state of affairs which allows one school district to keep up a surplus, while in another district of the same state children are growing up with little or no education simply for lack of funds, cannot be allowed to continue. Let us all enlighten the senators from our own districts as to our views on the question and if this does not meet with the approval of the majority, then let us get to work and frame one that will.—H. S.

Teaching Girls Neatness.

Editor Household Department:—Will you allow me to add my mite to your advice to Mrs. F. L. S. in regard to having her two daughters do their work properly. When your girls do not do their work the way it should be done, you can make them do it over and also deprive them of some coveted pleasure, as a trip to town with father, a visit to grandmas, or some playmates or, what appeals to their pride, the joy of wearing a new dress.

I remember once with my own girl. I was making a new dress and, although she was small she could do errands for me. She took the notion that if mamma wanted anything she could go and get it for herself. As a consequence the new dress was folded up and wasn't finished for a couple of weeks. But it taught the little miss that when she wanted something for herself she must do something in return.

And as to making them do the dishes nicely, try appealing to their pride and if that won't do, why try the plan I have suggested, and if you secure results, let us know. Most girls have a spark of neatness somewhere if you can find it.

Wishing you all success in teaching your daughters the right way.—Mrs. D. C., Tipton, Mich.

MICHIGAN FARMER PATTERNS.

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



No. 4593—Children's One-piece Rompers.—Three sizes, 1, 3 and 5 years. For 3 years it requires 2½ yards 27 inches wide. Price 10 cents.

No. 5191—Having Ten Gores.—Pattern cut in 6 sizes, 22 to 32 inches waist measure. Width of lower edge for 24 waist is 2½ yards and requires 3½ yards of 44-inch material. Price 10 cents.

No. 4132—Ladies' One-piece Kimono or Dressing Sack.—Seven sizes, 32 to 44 inches bust measure. For 36 bust it requires 3½ yards 27 inches wide. Price 10 cents.

5371—Ladies' Waist, Closed at Back.—Cut in 6 sizes, 32 to 42 inches bust measure. Size 36 requires two yards 36 inches wide, ¾ yards insertion. Price 10 cents.

4597—Boys' Suit.—Four sizes, 4 to 10 years. For 8 years it requires 3¼ yards 36 inches wide, 1 yard contrasting, 27 inches wide, ¾ yards braid. Price 10 cents.

For scalds and burns raw potato acts like magic. Pare and scrape the potato and apply directly to the scald or burn. It will afford almost instant relief and the part will quickly heal.—Mrs. H. G.

To keep the starch from sticking to the iron, and also to produce a nice gloss, drop in a pinch of paraffin.—Z. I. D.



Comfort for Old Age

Most heating systems simply heat the air. It is not comfortable warmth—it saps your energy—makes you feel dull, lazy, drowsy. If you want comfortable, energizing, stimulating and truly healthful warmth install a

Jewel WARM AIR Furnace

All sizes—for homes, churches, stores, schools, etc. The Jewel system takes fresh air from the outside, heats to the proper temperature and circulates through the building. Requires less fuel—less attention—gives better and more healthful heat than any other system. Costs less to install and is worth more. Is by long odds the best warm air furnace in the world.

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It tells all—proves by scientific investigation that warm air heating is the most healthful and economical and the modern method. Tells why your choice should be a "Jewel" Warm Air Furnace. Describes its superior construction in detail—gives new building plans, methods of installation, prices. Send for it.

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Built up of extra quality Soft, Light, Airy Cotton sheets giving the Worthmore Mattress that Extra Thickness, Extra Softness and Springiness—not found in any other Mattress, regardless of make or price weighing only 40 to 45 lbs. We Use Best Quality Satin Finish Dust Proof Ticking At No Extra Cost. Tufted and stitched all by hand. Worthmore Mattresses will not lump up, get hard or wear into hollows. Never requires "making over." An occasional sun bath keeps them fresh and clean. Two Months Free Trial Right In Your Own Home. If not entirely satisfactory we will promptly return every cent you paid us. So send us the measurements of your bed, attach check, postal or money order and we'll send your Mattress the same day. Full size Mattress (4-ft-6) cost \$9.85. Smaller sizes proportionately low prices. SEND FOR FREE TICK SAMPLES AND ILLUSTRATED FOLDER.

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your name or town greetings in gold or each.
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(Continued from page 388).

The bill was agreed to by the house in committee of the whole, without a word of dissent, and Woodworth expects similar consideration when it comes up for final vote on Wednesday.

HAPPENINGS OF THE WEEK.

National.

The ten-story Asch building at Greene street and Washington place, New York city, burned Saturday, and in the fire 146 lives were lost and several others who are now in hospitals will die. The building was occupied by a shirt waist manufacturing company and most of the employees were girls. There were no fire escapes and many were killed by jumping from the top story to the ground or down the elevator shafts. Life nets caught and saved a few of the unfortunates. Like the terrible Iroquois theatre fire of Chicago and the Slocum steamer disaster, this fire is likely to lead to reforms in the equipment of manufacturing buildings wire fire escapes, and it is reported that this sacrifice of girls has already started a movement in that direction.

Rumor has it that a competitor of the steel trust is being planned with Duluth men at the head of a merger which will control, steel iron ore and vessel property.

The will of Mrs. Eddy, mother of the Christian Science movement, is being contested by her son and grand children, who maintain that the instrument was drawn while the testator was unduly influenced by the board of directors of the institution. Several million dollars are involved.

Notice is being taken of the migration of Japanese from the interior states to the coast at San Francisco. Every second class train carries a large number and all have tickets to the California city.

The new house rules are being considered by the democratic committee of the house, and it is expected that the members will be busy every day till the special session opens, April 4.

Fire destroyed the milling plant of the Schmied-Sisman Company, of Detroit, on Sunday morning and did some damage to surrounding property, the estimated loss being \$80,000.

Judge Morse Rohnert, one of the circuit judges of the Wayne county circuit court, died in Rochester, Minn., where he had gone to undergo an operation.

The senatorial contest is still on in New York state, to select a man to succeed Senator Depew in the United States senate.

The condition of Ex-Mayor Tom L. Johnson, of Cleveland, continues to be very serious.

Foreign.

There appears to be a critical situation developing between Russia and China. Several ultimatums have been delivered to the Chinese government at Peking by Russia and each has been granted by the celestial rulers with the hope that it would be the last and bring peace; however, the situation is now more acute than ever. Russia appears to be seeking an opportunity to occupy Chinese territory in northern Manchuria, and in case any of the ultimatums are not allowed she will use the refusal as an excuse for invasion. To this program Japan is alert, and while quiet at present, will in all probability make claim to the southern part of Manchuria should her late foe attempt to occupy the northern part. France, England and Germany are restless lest they fail to secure their share of the spoils.

The Spanish parliament will debate this week the question of the execution of Prof. Ferrer the noted anarchist, and there is much concern regarding the outcome of the argument, many of the members opposed to the action protesting against the death of Ferrer having been threatened by letters from unknown sources. Extraordinary precautions have been taken for their security.

The cabinet of President Diaz, of Mexico, has resigned and a new advisory body is now appointed. They consist of Francisco De la Barra, minister of foreign affairs; Jose y Limantour, minister of finance; Demetrio Sodre, minister of justice; Manuel Marroquin y Rivera, minister of fomento; Vera Estanol, minister of public instruction; Norberto Dominguez, minister of communications; Gonzales Cosio, minister of war and navy. Limantour and Cosio are the only two members of the old cabinet. The purpose of resigning was that a change of cabinet members might afford an easier course toward securing peace. It appears, however, from the dispatches received that the revolutionists are not satisfied with the new list of ministers. A conference has been arranged for between De la Barra, who has been minister of Mexico at Washington, and Madero, leader of the revolutionists at St. Louis, to frame, if possible, tentative terms of agreement between the government and the insurrectos.

The report that the United States would hold navy maneuvers on lake Michigan this summer has aroused for discussion at Ottawa, Canada, the matter of bringing certain classes of war vessels upon the lakes. The report indicated that ships larger than the class licensed by the terms of agreement between this country and Canada, were to be used in the practice.

The president of the Russian duma has resigned his position and that body is taking a three days' recess.

The attempt to cross the Atlantic ocean in a dirigible balloon planned by Germans, has been postponed from this spring until next fall.

Twenty persons are believed to have drowned when the steamer Sechelt sunk in a gale off Beachy Head, British Columbia, last Friday.

Emilio Estrada has just been elected president of Ecuador to succeed Gen. Alfaro. The term of office is four years.

CROP AND MARKET NOTES.

Osceola Co., March 23.—The first half of March was fine, but after the middle of the month it has been quite stormy. A blizzard raged the 15th and the mercury dropped to near zero, and today there is a high north wind with some snow. The old snow nearly all gone, only a little along fences and some places in the roads. The roads are very bad. No farm work done yet excepting hauling manure. Potato market remains quiet at 25c for white; not many marketed now on account of bad roads. Live stock looking good but beef cattle are very scarce, because most farmers had to dispose of them pretty close last fall on account of scarcity of feed. Hay is selling at \$18 per ton. Rye, 70c per bu; oats, 30c; corn, 30c per crate; butter, 20c lb; butter-fat, 24c; eggs, 14c doz. Considerable real estate is changing hands this spring.

Cass Co., March 22.—This has been a good spring for the making of maple syrup and sugar. The former sells at from \$1.25 to \$1.50 per gallon, the latter for 22c per lb. The present prospects for wheat and hay are poor. The roads are good for this time of year. If the weather remains as at present the fields will soon be ready for the plow. Horses are selling high this spring, several pairs have sold between \$450 and \$600. Corn has sold as high as 57c at sales. A good many car loads have been shipped in from the west. Seed corn is scarce and not of the best quality. There was but little first-class corn raised in the county last year. The ice is all out of the lakes. The wind blows, almost daily, strong from the west. Several inches of snow fell on the 12th. Hay is selling at \$10; eggs, 15c; dairy butter, 20c; creamery, 25c.

Livingston Co., March 20.—The weather thus far this month has been all that could be desired and farmers are very busy getting ready for spring work. Wheat and clover have suffered the past month on account of there being no covering of snow, though wheat the heavy growth it made in the fall, will probably be all right on account of Farmers are very uneasy on account of the proposed reciprocity agreement with Canada and many are selling their stock and grain, fearing lower prices should the agreement be ratified. Prices are: Wheat, 84c; rye, 80c; corn, 50c; oats, 28c; potatoes, 30c; beans, \$1.55; butter, 20c; eggs, 14c.

THE BETTER FARMING INSTITUTE TRAIN.

The Better Farming Institute train is meeting with great success. We have spent four days upon the Grand Trunk and the attendance increased until at Coopersville we not only filled the three coaches for the addresses, but were obliged to have a large overflow meeting for those who could not get inside.

Upon the Pere Marquette the general attendance has been even better and overflow meetings have often been necessary. The attendance has been largely of farmers but at many places the high schools have been dismissed and a large number of young men and women have been present who have shown much interest.

After spending five days upon the Pere Marquette, going as far north as Petoskey, the return trip will be upon the Grand Rapids & Indiana Railway, going as far south as Sturgis, then to Lansing from Vicksburg on the Grand Trunk. The last part of the trip will be as follows:

Saturday, April 1, Stanwood, 8:00 a. m.; Morley, 9:30 a. m.; Howard City, 11:00 a. m.; Sand Lake, 1:00 p. m.; Cedar Springs, 2:30 p. m.; Rockford, 4:00 p. m. Monday, April 2, Carlisle, 8:00 a. m.; Moline, 9:30 a. m.; Wayland, 11:00 a. m.; Shelbyville, 1:00 p. m.; Plainwell, 2:30 p. m.; Cooper, 4:00 p. m.

Tuesday, April 3, Kalamazoo, 8:00 a. m.; Vicksburg, 9:30 a. m.; Mendon, 11:00 a. m.; Nottawa, 1:00 p. m.; Sturgis, 3:00 p. m.

Wednesday, April 5, Pavilion, 8:00 a. m.; Scio, 9:30 a. m.; Climax, 11:00 a. m.; Bellevue, 1:00 p. m.; Charlotte, 2:40 p. m.; Pottsville, 4:00 p. m.

L. R. TAFT,

Supt. of Institutes.

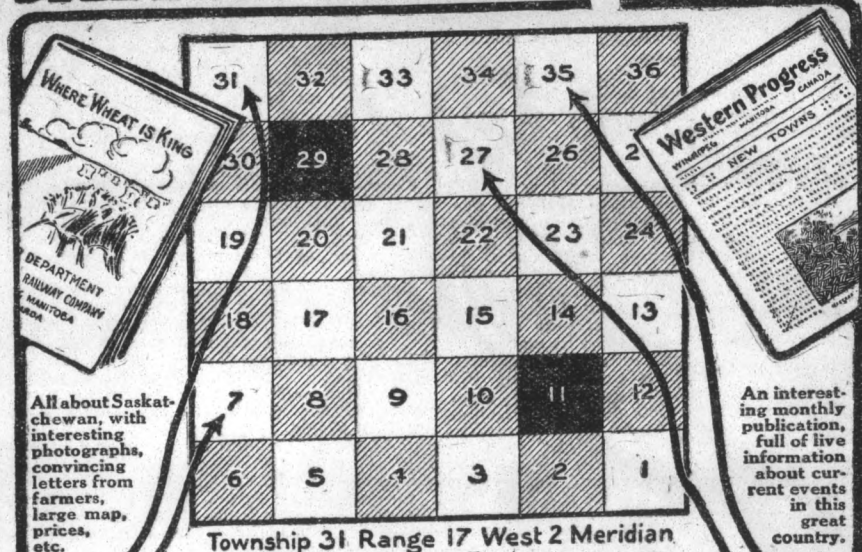
BOOK NOTICES.

Hunter's Essentials of Biology. By George William Hunter, A. M., Head of Department of Biology, De Witt Clinton High School, New York City. This first-year course treats the subject of biology as a whole without regard to the formal divisions, botany, zoology, and physiology. Instead of discussing plants, animals, and man as separate forms of living organisms, it treats of life in a comprehensive manner wherever found, and particularly in its relations to the progress of humanity. Cloth, 8vo, 448 pages, illustrated. Price, \$1.25. American Book Company.

School Hymnal. By Hollis Dann, Professor of Music in Cornell University. This song book for high schools, normal schools, and colleges includes only texts and music which are suitable and worthy. It is the result of a wide experience in directing the teaching of music, from the kindergarten to the university. Cloth, large 8vo, 191 pages. Price, 50 cents. American Book Company.

English Composition, Book One. By Stratton D. Brooks, Superintendent of Schools, Boston, Mass. This book meets the high school requirements for the first two years in composition and rhetoric. Both in the oral and in the written work, emphasis is placed on the thought side of composition, to which form, although shown to be important, is made secondary. Cloth, 12mo, 294 pages. Price, 75 cents. American Book Company.

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Act quick if you want one of these choice remaining 160 acre home farms. They are going fast. Every farm is near a railway and in settled conditions. Every one a money-making farm—every one a genuine snap. The same soil that produced the wonder wheat crop of the world.

A few choice Saskatchewan Snaps are described below. If none of them is exactly what you want, tell us what you would like, and we will direct you where to find it, and if on inspection it doesn't suit, we will show you something that will. We can give you every advantage; schools, churches, good roads, good neighbors and good railway facilities. Hurry up and write. You have something to make and nothing to lose. Tell us what you want and all the resources of the great Canadian Pacific Railway will work for you.

NORTHWEST QUARTER OF SECTION SEVEN. 160 acres. Soil, an easily worked clay loam on rich clay sub-soil. Undulating to slightly rolling. Some small poplar and willow bluffs. Quantity of hay could be cut. 80 acres can be cultivated at once. A good tract for general farming. 10 miles from station of Candahar. Price, \$13.00 per acre. Easy payments.

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SOUTHWEST QUARTER OF SECTION THIRTY-ONE. 160 acres. Soil, a rich dark chocolate clay loam on deep clay sub-soil. Gently undulating prairie with splendid growth of upland grass. 155 acres suitable for immediate cultivation. 6 miles from Candahar Station. Would make an ideal farm. Price, \$20.00 per acre. Easy payments.

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MARKETS

DETROIT WHOLESALE MARKETS.

March 29, 1911.
Grains and Seeds.

Wheat.—The continuance of conditions favorable for the new crop of wheat and for spring seeding has discouraged the bulls who allowed prices to decline steadily since last week to a new low point. The cash trade is dull and, while on occasional days there appears to be a slight revival, it is generally held that flour is as slow as ever; hence, millers see so little opportunity ahead for better prices and for disposing of the manufactured article that they will not purchase wheat to grind. The wheat districts of the country promise a good crop in so far as experts can judge; if they are correctly reported, and brokers are making the most of the situation to get values down. While crop news is so dismal at home, abroad there seems to be a clearer sky, Liverpool being firm at a slight advance and the continental markets, though not so bullish as the English port, dealing on a steady to firm basis, with the restricted marketing of Argentine and Australia wheat to support this tendency. Some of the cause for Liverpool's better prices is attributed to the fact that the city has been slighted of late as the destination of cargoes, and that better prices have come as the result of an effort to get more wheat to that point. We were paying \$1.17½ per bu. for No. 2 red wheat one year ago. Quotations for the week are:

	No. 2	No. 1	Red.	White.	May.	July.
Thursday	88½	86¼	86¼	89	89¼	90¼
Friday	87½	85¼	85¼	88	88¼	89¼
Saturday	87	85	85	88	88¼	89¼
Monday	86½	84¼	84¼	88	88¼	89¼
Tuesday	86¼	84¼	84¼	88	88¼	89¼
Wednesday	85¼	83¼	83¼	86	86¼	88

Corn.—The downward pull of wheat prices was too much for the corn deal this week and succeeded not only in checking the upward climb of prices for maize but actually carried the level to a lower basis. A little excitement was caused by the shipment of cargoes abroad and upon publishing that information a firmer tone took possession of the trade, but it being later learned that the grain was bought during the late low sag in prices, the effect of the news was soon lost and the bearish situation continued. In all probability this trade would fluctuate on the present standard of prices but for the influence of wheat which in its downward movement is likely to take corn lower. Feeders are finding it profitable to feed the cereal at present prices of stock. One year ago the price for No. 3 corn was 61½¢ per bu. Quotations for the week are:

	No. 3	No. 3	Corn.	Yellow.
Thursday	47½	48¾	47½	48¾
Friday	47½	48¾	47½	48¾
Saturday	47½	48¾	47½	48¾
Monday	47	48	47	48
Tuesday	47	48	47	48
Wednesday	47	48	47	48

Oats.—There is nothing to be said about this deal. Prices remain on last week's basis and the demands upon the trade are normal, with the supply so well accounted for that dealers are not taking much chance on being found short, hence obviating the possibility of making runs, or swelling values to any considerable extent. One year ago the price for standard oats was 47½¢ per bu. Quotations are as follows:

	Standard	No. 3	White.
Thursday	33	32¼	32¼
Friday	33	32¼	32¼
Saturday	33	32¼	32¼
Monday	33	32¼	32¼
Tuesday	33	32¼	32¼
Wednesday	32¾	32	32

Beans.—The report of a few calls being made a week ago for May beans was but the forerunner of increased demand this week when the market found little or no beans on hand to fill orders, which had the immediate effect of putting quotations on a higher plane. The calls are for May goods, although cash goods enjoyed an advance. Quotations for the past week are:

	Cash.	May.
Thursday	\$1.88	\$1.90
Friday	1.90	1.92
Saturday	1.90	1.94
Monday	1.90	1.94
Tuesday	1.96	2.00
Wednesday	1.96	2.00

Clover Seed.—All through the past week the seed market has been active and much seed is moving to the country for spring seeding, local elevator men getting ready for the last call from farmers. Prices are steady with last week. Quotations are:

	Prime.	Asike.
Thursday	\$8.75	\$9.00
Friday	8.75	9.00
Saturday	8.75	9.00
Monday	8.75	9.00
Tuesday	8.75	9.00
Wednesday	8.60	8.75

Rye.—In spite of the downward movement of prices for other cereals the shortage of rye is compelling dealers to put the figure for it higher, and during the past week an advance of a cent was made over the increased quotation of a week ago, the price for No. 1 rye now being 91¢ per bu.

	Visible Supply of Grain.	This week.	Last week.
Wheat	34,902,000	36,562,000	36,562,000
Corn	11,744,000	12,535,000	12,535,000
Oats	13,761,000	14,500,000	14,500,000
Rye	136,000	160,000	160,000
Barley	1,345,000	1,361,000	1,361,000

Flour, Feed, Provisions, Etc.

Flour.—Market continues slow with prices unchanged. Quotations are:
Clear \$4.25
Straight 4.65
Patent Michigan 4.90
Ordinary Patent 4.90
Timothy Seed.—This deal is steady with a week ago, the quotation now standing at \$5.25 per bu.
Hay and Straw.—Values are unchanged. Quotations on baled hay in car lots f. o. b. Detroit are: No. 1 timothy, \$16.50@17; No. 2 timothy, \$15.50@16; clover, mixed, \$15; rye straw, \$7@7.50; wheat and oat straw, \$6@6.50 per ton.

Feed.—Prices are steady with a week ago. Carlot prices on track are: Bran, \$27 per ton; coarse middlings, \$26; fine middlings, \$28; cracked corn, \$22; coarse corn meal, \$22; corn and oat chop, \$20 per ton.

Potatoes.—The demand for potatoes shows improvement and while values are reported the same as last week, the market is firmer and more active. In car lots Michigan potatoes are selling at 35@40¢ per bushel.

Provisions.—Family pork, \$19@20; mess pork, \$18.50; medium clear, \$17@18.50; smoked hams, 13@14½¢; briskets, 10½¢; shoulders, 11¢; picnic hams, 10½¢; bacon, 15½@17¢; pure lard, in tierces, 9½¢; kettle rendered lard, 10½¢.

Hides.—No. 1 cured, 9½¢; No. 1 green, 9¢; No. 1 cured bulls, 8½¢; No. 1 green bulls, 7¢; No. 1 cured veal kip, 10½¢; No. 1 green veal kip, 9¢; No. 1 cured murrain, 9¢; No. 1 green murrain, 7½¢; No. 1 cured calf, 15¢; No. 1 green calf, 13½¢; No. 2 kip and calf, 1½¢ off; No. 2 hides 1¢ off; No. 1 horsehides, \$3.50; No. 2 horsehides, \$2.50; sheepskins, depending on wool, 50¢@1.50.

Dairy and Poultry Products.

Butter.—The increase in the consignments of butter to market centers has submerged price levels. While Elgin values declined one cent, prices over the local counters tumbled three cents since a week ago. In Chicago a three cent decline was recorded and in New York the figures are 2½¢ below those of last week. Quotations are: Extra creamery, 22¢; firsts, do., 20¢; dairy, 16¢; packing stock, 13½¢ per lb.

Eggs.—The increased volume of supplies, in spite of the heavy demand, has forced values down, so that now fresh receipts, case count, cases included, are quoted at 14½¢ per dozen, instead of 16¢, the price of a week ago.

Poultry.—While values for some kinds of poultry are down, the demand for fowls and chickens has the usual breadth for this season, compelling a firm market in that line and holding prices at recent figures. Quotations: Dressed—Turkeys, 14@20¢; chickens, 15@16¢; fowls, 15¢; ducks, 17@18¢; geese, 13@14¢ per lb. Live—Spring chickens, 15¢; fowls, 15¢; old roosters, 10@11¢; turkeys, 16@17¢; geese, 11@12¢; ducks, 15@16¢ per lb.

Cheese.—Michigan, old, 15@16¢; Michigan, late, 13@14¢. York state, old, 16@18¢; do. late made, 14@15¢; Limburger, early, 14@15¢; Swiss domestic block, 18@20¢; cream brick, 15@16¢.

Veal.—Market easier. Choice, 10@10½¢; ordinary, 7@8¢ per lb.

Fruits and Vegetables.

Cranberries.—Steady. Quoted at \$3.50 per bu.

Cabbage.—Steady. Selling at \$1.75 per bbl. for new.

Onions.—Higher. Quoted at \$1.10@1.25 per bushel.

Honey.—Choice to fancy comb, 15@17¢ per lb.

Apples.—The demand is active at unchanged prices. Fancy Greenings are quoted at \$5.50@6; Baldwins, \$4.50@5; Steel reds, \$6; ordinary grades, \$3@3.50 per bbl. Western apples, \$2.25@2.75 per box.

OTHER MARKETS.

Grand Rapids.

The strong upturn in the potato market is the feature today. The advance reported about 10 days ago and prices at loading stations as far north as Cadillac have already gone from 20¢ to 30¢, while prospects seem to indicate further advance to 40¢ before the present week is over. Buyers believe that the price to farmers will reach 50¢ before the season closes. This advance in price is making the farmers bullish and for the first time during the entire season many of them are holding back their remaining stock. As to the amount of potatoes still in farmers' hands no one knows. In some sections the bins, pits and storehouses are almost bare while in other sections there seems to be lots of stock in storage. Local dealers are quoting 13@14¢ for eggs, 20¢ for dairy butter and 23½¢ for creamery. Dressed hogs are worth 8¢. In live poultry, spring chickens are still quoted at 14¢, while fowls have advanced to 12½@13¢.

Chicago.

Wheat.—No. 2 red, 88½@89½¢; May, 87½¢; July, 87½¢ per bu.
Corn.—No. 2, 47@47½¢; May, 48½¢; July, 49½¢ per bu.

Oats.—No. 2 white, 31½@32¢; May, 30½¢; July, 30½¢.

Barley.—Malting grades, 90¢@1.11 per bu; feeding, 75@88¢.

Butter.—Extra creamery has suffered a 3¢ decline since this time last week. It has seemed impossible to prevent a heavy accumulation of stock, and with buyers restricting their purchases to their urgent needs the market is now in a congested condition. A comparison of recent receipts with former years throws a strong light on the present situation. The figures show that since Jan. 1 this market has received 158,231 tubs, or nearly 8,000,000 lbs., more than during the same period last year, and 239,970 tubs, or nearly 12,000,000 lbs., more than for the same period two years ago. Dairies are steady at a decline of 2¢. Quotations are: Creameries, 15@22¢; dairies, extra, 19¢.

Eggs.—The situation here is similar to

that in butter. Supplies are accumulating notwithstanding the fact that consumptive requirements are large. Tuesday of this week the receipts were the heaviest of the year and prices were reduced ½¢ in consequence. Receipts since Jan. 1 are 107,663 cases above those for the same period last year, and the market is considered weak. Quotations are: Prime firsts, 15¢; firsts, 14½¢; at mark, cases included, 13½@14¢ per dozen.

Potatoes.—Prices have advanced 8@10¢ the past week and the effect is seen in increasing receipts. Thus far the demand has been sufficient to hold the market steady at the higher range of values. Choice to fancy are quoted at 48@50¢ per bu; fair to good, 45@47¢.

Beans.—Demand quiet but sufficient to absorb the offerings at former figures. Choice hand-picked beans quoted at \$1.86 @1.93 per bu; prime, \$1.76@1.85; red kidneys, \$2.75@3.

Hay and Straw.—All grades of hay firm with tendency toward higher values. Wheat and oat straw freely offered; dull. Market firm. Quotations: Choice timothy, \$17.50@18.50; No. 1 timothy, \$16@17; No. 2 do. and No. 1 mixed, \$14@14.50; No. 3 do. and No. 2 mixed, \$9@13; rye straw, \$7@8; oat straw, \$6@7; wheat straw, \$5.50@6 per ton.

New York.

Butter.—Market continues weak, prices showing another sharp decline. Creamery specials are quoted at 23¢; extras, 22½¢; seconds to firsts, 16@20¢ per lb.

Eggs.—This market is weak and irregular. Prices generally about 1¢ lower than a week ago. Fresh gathered extras, 17@18¢; firsts, 15½@16¢; western gathered, white, 17@18½¢.

Poultry.—Live, steady. Western chickens, 14@15¢; fowls, 16@16½¢; turkeys, 13¢ per lb. Dressed, irregular. Roasting chickens, 15@20¢; fowls, 14½@16¢; turkeys, 16@20¢.

Boston.

Wool.—There is a wide difference in the character of the wool markets on this side of the water and in England. The London sales continued this week with a firm tone, and holders readily disposed of the heavy offerings, largely to continental buyers, while on the local market buyers appear to have the situation quite in their own hands, prices scarcely holding steady for fleeces and dullness evident in every line of the trade. Then, too, brokers are not going after the new clip that is being harvested in the southwest nor are they contracting for wool on the sheep's back. This keeping-hands-off policy is undoubtedly due to the promised meddling with schedule K. at the coming special session of congress. Just what a person having wool to sell, should do, is exceedingly difficult to determine. The shipments of wool from Boston since the first of the year to March 23 were 51,590,992 lbs., compared with 51,254,464 lbs. for the corresponding period of 1910. The receipts for the same time this year were 52,368,711 lbs. and for the same days last year 63,830,588 lbs., thus giving reason for an improved condition of the trade over a year ago, instead of the present inactivity and unsatisfactory situation.

Elgin.

Butter.—Market steady at 24¢ per lb., which is a cent below the quotation of last week. Output for the week, 464,900 lbs., as compared with 447,900 lbs. for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

March 27, 1911.
(Special report by Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of stock here today as follows: Cattle, 155 cars; hogs, 14,400; sheep and lambs, 27,400; calves, 1,700.

With 155 cars of cattle on sale here today, and 17,000 reported in Chicago, our market was about 15¢ higher than last week. The greatest advance was on the good weight heavy cattle; a few loads of the best on sale here today that has been shown in several weeks.

We quote: Best 1,350 to 1,500-lb. steers \$6.50@6.80; good prime 1,200 to 1,300-lb. steers, \$6@6.40; best 1,100 to 1,200-lb. shipping steers, \$5.85@6.25; medium butcher steers, 1,000 to 1,100 lbs., \$5.40@5.80; light butcher steers, \$4.85@5.35; best fat cows, \$4.50@5.15; fair to good do., \$3.75@4.40; common to medium do., \$3@3.50; trimmers, \$2.75@3.15; best fat heifers, \$5.40@5.75; good fat heifers, \$4.90@5.35; fair to good do., \$4@4.60; stock heifers, \$4.25@4.50; best feeding steers, dehorned, \$5@5.25; medium to good feeding steers, \$4.75@5; stockers, all grades, \$4.25@4.50; best bulls, \$5@5.25; bologna bulls, \$4.25@4.75; stock bulls, fair to good, \$3.75@4.25; best milkers and springers, \$45@55; good to best do., \$30@35; common to good do., \$25@30.

Hog market opened rather slow today, with prices generally 5@10¢ lower on all grades except pigs, which sold about the same as Saturday. After the opening trade ruled fairly active at the prices, and the supply was pretty well cleaned up. Pigs sold generally at 7½¢, and the best quality and weight Yorkers, \$7.30@7.35, with a few at \$7.40. Mixed and medium weights sold mostly at \$7.10@7.25, and the heavier grades from \$6.90@7.10. Most of the good quality roughs went from \$6.20@6.25; stags, \$4.75@5; market closing steady, and we think the prospects fair for the balance of the week.

Lamb market opened very slow today; few of the choice handy lambs selling at \$6.75; heavy, \$6@6.15. Look for little better prices the last of the week unless the runs should be heavy. Sheep market was active today; most of the choice ewes selling at \$4.75@5; wethers, \$5.25@5.35. Look for about steady prices on sheep the balance of the week.

We quote: Best handy lambs, \$6.65@6.75; heavy lambs, \$6@6.15; bucks, \$3.25 at this time.

@4; heavy ewes, \$4.75@5; yearlings, \$5.50@5.90; wethers, \$5.25@5.35; cull sheep, \$3.25@4.25; handy ewes, \$5@5.15; veals, choice to extra, \$8@8.50; fair to good do., \$6.50@7.50; heavy calves, \$4@5.50.

Chicago.

March 27, 1911.
Cattle. Hogs. Sheep.
Received today 17,000 48,000 21,000
Same day last year 22,373 23,128 13,996
Received last week 45,844 161,200 64,633
Same week last year 46,632 77,281 49,127

This week opens with an unusually small Monday supply of cattle, and there is a lively demand for pretty nearly everything offered, while prices are fully 10@15¢ higher, following the late rise last week. Butcher stock shares in the advance in steers, and some fat, heavy steers brought \$7.05. Steers would have sold higher last week than they did had any fancy lots been offered. There is a feeling now that better times are in store for sellers, but receipts must be held down to bring this about. Hogs were in good supply, although receipts were much smaller than last Monday. There was an active general demand, and the average decline in prices was not more than 5¢, sales ranging at \$6.25@7.20, compared with \$6.30@7 a week ago. Hogs marketed last week averaged 240 lbs., compared with 242 lbs. a week earlier, 229 lbs. three weeks earlier, 219 lbs. a year ago, 209 lbs. two years ago, 212 lbs. three years ago and 231 lbs. four years ago. Light hogs are selling at \$6.70@7.20; rough to selected heavy packing lots at \$6.25@6.80 and pigs at \$6.40@7.15. Boars bring \$2.75@3.50, and stags sell at \$6.50@6.90, subject to 80 lbs. dockage per head. Sheep and lambs, which declined 10@15¢ last week, changed little today, beyond a fall of a dime in lambs. Woolled lots sold as follows: Lambs, \$5.50@6.50; wethers, \$4.25@5.60; ewes, \$3@5; bucks, \$3.25@4; yearlings, \$4.75@5.85. Breeding yearling ewes were wanted at \$4.75@5. Clipped lambs sold at \$5.25@6.10; shorn wethers brought \$4.25@4.60.

Cattle are not meeting with any large demand at this time, and prices declined 10@20¢ Monday last week, although the receipts were only 23,781 head, which in ordinary times would not be regarded as a liberal supply to begin a week with. After the numerous declines in prices of recent weeks, this additional break made a very unfavorable impression in feeding districts tributary to Chicago, and there was such a marked falling off in the receipts on subsequent days that the drop in values was recovered, buyers taking hold much better, although the requirements of the trade were not perceptibly larger. Beef steers have been selling largely at \$5.50@6.40, the better class going at \$6.25@6.65 and the commoner lots at \$4.85@5.50, a medium to good class bringing \$5.75@6.20. The best support to the market came from eastern shippers, yet they were by no means large buyers, and it was evident that normally large supplies of cattle would have resulted in a bad slump in prices all along the line. Cows and heifers for butchering had a fair outlet at \$3.50@6, while sales were made of cutters at \$2.90@3.45, canners at \$2.35@2.85 and bulls at \$3.50@5.50. Greatly increased numbers of calves were marketed, dairy sections furnishing the principal part of the increase, and bad breaks in prices followed, with sales at \$3@7 per 100 lbs. This movement will be maintained for several weeks more, and low prices may be expected until it stops, most of these dairy calves being inferior in quality, as they are not fattened. Stockers and feeders continue to command extremely high prices, being relatively much higher than beef cattle. They are not offered at all freely, and buyers have to pay \$4@5.65 for stockers and \$5.25@5.95 for feeders, no desirable lots selling anywhere near bottom figures. Heifers were taken at \$4@4.85 for fattening. Milk and springers were in only moderate supply and demand at \$30@60 per head, a few prime Holsteins going around the top figures. Common light milkers and plain backward springers were very bad sellers in every instance.

Hogs have been marketed alternately liberally and moderately in accordance with the character of the demand and ruling prices, plenty of well-matured, heavy swine being ready to ship in whenever the market was in good condition. Monday is still the day selected by country shippers for liberal supplies, and 56,384 swine showed up on that day last week, resulting in a quick break of 15@20¢ in prices, despite a good eastern shipping demand. This decline made smaller receipts later in the week, and this forced buyers to pay some fair advances in prices, especially for the better class of rather light-weight shipping hogs. The heavy packing hogs were slowest of all and the first to decline and last to advance. Great strength in prices for shipping grades was brought about by the wide disparity in prices of light hogs here and at Buffalo, the Chicago quotation for the best at one time being \$7.20, while sales in the east were made at \$7.90. Heavy hogs prevail, and this may be expected to continue unless there is a big break in prices, for farmers have been making liberal profits through feeding low-priced corn to their hogs.

Sheep and lambs have been fluctuating considerably in price for still another week, and although mutton is having a large sale in most places, butchers are always ready to exert their power in forcing declines after they secure fair numbers of sheep and lambs. The market has been in a stronger position than a few weeks ago, however, thanks to improved consumption of mutton in the east, and there has been a lively demand for shearing and feeding lambs to ship to Michigan on a \$6@6.35 basis. The marketings are now running very largely to shorn flocks, these being preferred by most buyers. Prices for sheep and lambs are still much lower than in former years.

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.
March 30, 1911.
Cattle.

Receipts, 853. Market strong at Wednesday's prices. Butcher grades 10@15c higher than last week.

We quote: Best steers and heifers, \$6@6.10; steers and heifers, 1,000 to 1,200, \$5.50@5.75; steers and heifers, 800 to 1,000, \$5@5.50; steers and heifers that are fat, 500 to 700, \$4.50@5; choice fat cows, \$4.50@5; good fat cows, \$4@4.40; common cows, \$3.75@4; canners, \$2.75@3.25; choice heavy bulls, \$5@5.10; fair to good bolognas, bulls, \$4.25@4.50; stock bulls, \$3.75@4; milkers, large, young, medium age, \$4@4.48; common milkers, \$2.50@3.50.

Bishop, B. & H. sold Fronn 4 cows av 965 at \$4.20, 2 do av 890 at \$3.45; to Parker, W. & Co. 4 do av 1,112 at \$5, 11 steers av 1,061 at \$5.85; to Sullivan P. Co. 4 do av 862 at \$5.35, 2 do av 590 at \$4.50, 23 do av 1,050 at \$5.85, 10 do av 930 at \$5.60; to Breitenbeck 8 do av 813 at \$5.20; to Parker, W. & Co. 1 bull weighing 1,130 at \$4.70, 1 do weighing 1,100 at \$4.60, 1 steer weighing 800 at \$5.25, 14 do av 1,008 at \$5.75, 5 do av 736 at \$5.10, 1 do weighing 890 at \$6, 1 cow weighing 900 at \$4.50; to Bresnahan 6 heifers av 566 at \$4.65; to Mich. B. Co. 13 butchers av 821 at \$5.25, 6 cows av 1,038 at \$4, 12 steers av 666 at \$4.90, 1 do weighing 940 at \$5.75; to Newton B. Co. 6 butchers av 1,011 at \$5, 3 steers av 773 at \$5, 1 bull weighing 1,000 at \$4.50, 2 cows av 1,000 at \$4, 2 do av 675 at \$3; to Goose 2 cow and bull av 1,345 at \$5.65; to Sullivan P. Co. 1 bull weighing 1,350 at \$4.75, 3 steers av 1,150 at \$5.75, 9 do av 818 at \$5.40, 3 cows av 870 at \$4.50, 12 steers av 1,120 at \$5.75, 9 do av 653 at \$4.50, 7 cows av 1,143 at \$5, 19 butchers av 820 at \$5.25; to Mich. B. Co. 17 steers av 1,085 at \$6; to Parker, W. & Co. 1 bull weighing 1,580 at \$5; to Bresnahan 15 butchers av 711 at \$4.80; to Breitenbeck 17 steers av 1,035 at \$5.55, 3 cows av 1,123 at \$4.25.

Venus sold Mich. B. Co. 4 cows and bulls av 1,150 at \$4.50.

Roe Com. Co. sold Newton B. Co. 5 butchers av 700 at \$5.10, 11 do av 775 at \$5.40, 2 cows av 960 at \$4, 6 steers av 846 at \$5.50; to Rattkowsky 1 cow weighing 730 at \$3.75, 2 do av 975 at \$4.25; to Sullivan P. Co. 18 butchers av 658 at \$5.10; to Newton B. Co. 1 cow weighing 650 at \$3, 2 do av 985 at \$3.75, 3 bulls av 757 at \$4.50, 3 steers av 1,123 at \$6, 5 butchers av 690 at \$4.50, 19 steers av 871 at \$5.50; to Newton B. Co. 11 do av 750 at \$5.40, 2 cows av 960 at \$4; to Mich. B. Co. 3 do av 843 at \$3.50, 5 do av 888 at \$4, 21 steers av 831 at \$5.65, 1 bull weighing 1,430 at \$5.

Haley & M. sold Newton B. Co. 2 cows av 915 at \$3.60, 2 do av 735 at \$3.50, 1 do weighing 830 at \$2; to Hammond, S. & Co. 20 steers av 915 at \$5.50, 2 do av 850 at \$5.10, 22 do av 807 at \$5.50, 8 do av 743 at \$5.40, 3 cows av 950 at \$4.50, 1 bull weighing 990 at \$4.50, 8 heifers av 761 at \$5.40, 2 bulls av 685 at \$4.35, 1 do weighing 1,480 at \$4.90; to Kammon 14 steers av 918 at \$6; to Lachalt 15 steers av 800 at \$5.40, 1 cow weighing 1,080 at \$3.75.

Spicer & R. sold Newton B. Co. 2 cows av 875 at \$3, 21 steers av 1,127 at \$6, 2 cows av 770 at \$3, 1 do weighing 1,020 at \$3.50, 2 do av 1,015 at \$4.50, 5 steers av 954 at \$5.60; to Sullivan P. Co. 5 do av 866 at \$5.75, 1 cow weighing 1,120 at \$3.75, 1 do weighing 1,280 at \$5, 1 steer weighing 700 at \$5.50; to Thompson Bros. 5 cows av 944 at \$4.75, 1 steer weighing 920 at \$5.40, 6 do av 613 at \$5.10; to Regan 4 do av 467 at \$4.35; to Kamman B. Co. 11 do av 970 at \$5.75, 4 do av 670 at \$5.25; to Bresnahan 6 heifers av 460 at \$4.50; to Sullivan P. Co. 4 cows av 1,295 at \$4.75; to Marx 14 steers av 950 at \$5.75; to Fronn 1 cow weighing 970 at \$3.85; to Hammond, S. & Co. 2 bulls av 1,190 at \$5.

Sharp sold Lingeman 1 bull weighing 1,270 at \$4.75, 6 steers av 1,000 at \$5.75.

Robb sold Goose 2 cows av 1,105 at \$4.50, 5 butchers av 534 at \$3.50.

Robb sold Bresnahan 4 heifers av 637 at \$4.25.

Robb sold Hammond, S. & Co. 1 steer weighing 730 at \$5.

Receipts, 592. Market steady at last Thursday's prices; steady with Wednesday. Best, \$7@7.50; common, \$4.50@5.50; heavy, \$3@5; milch cows and springers dull.

Roe Com. Co. sold Newton B. Co. 7 av 125 at \$7, 4 av 140 at \$7.50; to Breitenbeck 18 av 135 at \$7.25.

Bohn sold Bront 4 av 125 at \$6.50; to Robb 3 av 150 at \$7.

Kalaher sold Newton B. Co. 10 av 136 at \$7.

Long sold Burnstine 10 av 140 at \$7.

Walker sold Sullivan P. Co. 3 av 175 at \$7, 2 av 120 at \$5.50.

Bishop, B. & H. sold Burnstine 1 weighing 130 at \$7.50, 6 av 145 at \$7, 6 av 150 at \$7, 13 av 130 at \$7.50, 1 weighing 150 at \$8; to Parker, W. & Co. 5 av 150 at \$7.75, 4 av 100 at \$6.50; to Freeman 3 av 100 at \$6, 2 av 135 at \$7.50, 3 av 140 at \$7.75; to Hoffman 4 av 135 at \$7; to Goose 3 av 190 at \$4.50, 2 av 250 at \$4, 4 av 95 at \$4.50; to Rattkowsky 3 av 165 at \$6.75; to Mich. B. Co. 12 av 140 at \$7.75; to Parker, W. & Co. 11 av 130 at \$7.25, 15 av 115 at \$6.50, 3 av 115 at \$7, 28 av 135 at \$5.50; to Rattkowsky 12 av

130 at \$6.60; to Goose 19 av 140 at \$6.60. Spicer & R. sold Parker, W. & Co. 7 av 135 at \$7, 13 av 130 at \$7; to Mich. B. Co. 16 av 140 at \$7.50; to Golden 7 av 118 at \$6.50; to Brant 5 av 120 at \$6.50, 6 av 165 at \$5; to Barlage 3 av 95 at \$4.50, 6 av 135 at \$6.75.

Haley & M. sold Mich. B. Co. 10 av 138 at \$7.50, 14 av 125 at \$6; to Sullivan P. Co. 3 av 100 at \$6.50; to Mich. B. Co. 6 av 125 at \$7, 6 av 95 at \$6.50, 27 av 135 at \$7.

Sheep and Lambs.

Receipts, 2,155. Market strong at last week's prices and Wednesday this week. Best lambs, \$6.75; fair to good lambs, \$6@6.50; light to common lambs, \$5@5.75; clipped lambs, \$4@4.25; common sheep, \$3@3.25; wethers, \$4.75@5.15; best ewes, \$4.25@4.50.

Bishop, B. & H. sold Sullivan P. Co. 74 sheep av 85 at \$3.50, 60 lambs av 77 at \$6, 10 do av 54 at \$5, 10 clip lambs av 57 at \$4, 36 do av 73 at \$5, 11 do av 70 at \$5, 8 lambs av 90 at \$6.50; to Parker, W. & Co. 224 do av 70 at \$6.65; to Mich. B. Co. 43 do av 83 at \$6.25, 4 sheep av 145 at \$4.25, 33 lambs av 70 at \$6.40; to Street 38 sheep av 120 at \$5; to Hammond, S. & Co. 10 lambs av 73 at \$6.50, 13 clip sheep av 110 at \$3.75; to Fitzpatrick 25 sheep av 120 at \$4.50, 5 do av 125 at \$4.50, 60 lambs av 95 at \$6.75; to Eschrich 10 do av 59 at \$6; to Newton B. Co. 86 do av 110 at \$6.40; to Hammond, S. & Co. 108 clip lambs av 80 at \$5.25.

Haley & M. sold Mich. B. Co. 12 lambs av 110 at \$6.25, 4 do av 50 at \$6; to Barlage 67 sheep av 100 at \$5.25.

Spicer & R. sold Parker, W. & Co. 35 lambs av 68 at \$6.25; to Newton B. Co. 237 av 75 at \$6.70; to Mich. B. Co. 166 do av 78 at \$6.70; to Sullivan P. Co. 62 clip lambs av 75 at \$5.50; to Mich. B. Co. 24 lambs av 68 at \$6.25, 11 sheep av 82 at \$3.60; to Breitenbeck 38 lambs av 70 at \$6. Roe Com. Co. sold Street 18 lambs av 73 at \$6; to Nagle P. Co. 94 do av 75 at \$6.50; to Breitenbeck 17 do av 65 at \$5.

Bohm sold Newton B. Co. 26 clip lambs av 83 at \$5.25.

Miller sold Mich. B. Co. 24 lambs av 77 at \$6.25.

Lowenstein sold same 9 do av 95 at \$6.25.

Bohm sold Hammond, S. & Co. 7 clip lambs av 75 at \$5.25, 6 sheep av 70 at \$3.25, 35 lambs av 77 at \$6.

Robb sold Street 29 clip lambs av 83 at \$5.25.

Weeks sold Thompson 10 sheep av 110 at \$5, 14 lambs av 68 at \$6.50.

Hogs.

Receipts, 3,379. No hogs sold up to noon; will be 10@15c lower than on Wednesday; looks like \$6.90 for best.

Market 40c lower than last Thursday. Bishop, B. & H. sold Hammond, S. & Co. 2,650 av 170 at \$6.85, 200 av 200 at \$6.80, 150 av 225 at \$6.75, 50 av 400 at \$6.40.

Haley & M. sold Parker, W. & Co. 370 av 170 at \$6.85, 215 av 190 at \$6.80.

Spicer & R. sold same 470 av 170 at \$6.85.

Roe Com. Co. sold Sullivan P. Co. 425 av 170 at \$6.85, 225 av 190 at \$6.80, 123 av 200 at \$6.75, 170 av 210 at \$6.70, 32 av 240 at \$6.60.

Friday's Market.

March 24, 1911.

Cattle.

Receipts this week, 1,276; last week, 1,382. Market strong at Thursday's prices on all grades.

We quote: Best steers and heifers, \$6; steers and heifers, 1,000 to 1,200, \$5.50@5.75; steers and heifers, 800 to 1,000, \$5@5.50; steers and heifers that are fat, 500 to 700, \$4.50@5; choice fat cows, \$4.50; good fat cows, \$4@4.25; common cows, \$3.25@3.75; canners, \$2.50@3.25; choice heavy bulls, \$5; fair to good bolognas, bulls, \$4.50@4.75; stock bulls, \$4@4.50; choice feeding steers, 800 to 1,000, \$3.75@4.25; choice stockers, 500 to 700, \$4@4.50; fair stockers, 500 to 700, \$3.50@4; stock heifers, \$3.50@3.75; milkers, large, young, medium age, \$4@5; common milkers, \$3@3.50.

Veal Calves.

Receipts this week, 1,216; last week, 1,090. Market steady with the close on Thursday. Best grades, \$7.50; others, \$4@6.50; milch cows and springers steady.

Sheep and Lambs.

Receipts, this week, 7,161; last week, 4,593. Market steady at Thursday's close. Best lambs, \$6.50@6.75; fair to good lambs, \$6@6.25; light to common lambs, \$5.50@5.75; clip lambs, \$4.50@5.50; fair to good sheep, \$4.50@5; culls and common, \$3@3.50.

Hogs.

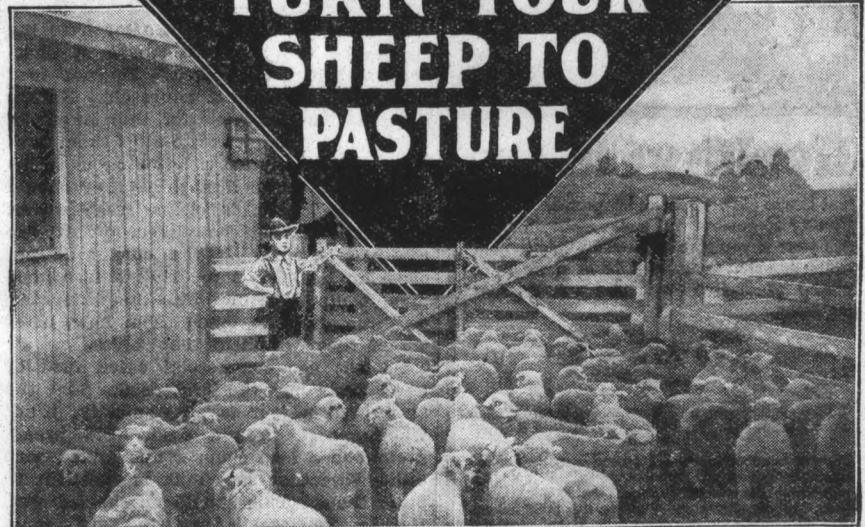
Receipts this week, 6,029; last week, 5,135. Market 5c lower than on Thursday. Range of prices: Light to good butchers, \$7.15@7.20; pigs, \$7.25; light yorkers, \$7.15@7.20; roughs, \$7@7.05.

The western markets have received in recent months large supplies of warmed-up cattle, which were taken out at first for a short feed, and many of the last autumn feeders have been marketed, causing a wide-spread belief that there is going to be a marked falling off in the future beef supply.

In most feeding sections of Michigan, Lenawee county excepted, fat cattle have been mostly marketed, and not many hogs are left. Many flocks of sheep and lambs are being sheared, and this has checked marketing. For new clips of wool bids of 19 to 20 cents per pound are made.

The Chicago and other western packers are endeavoring to have the free use of prod poles, clubs and whips done away with between loading and slaughtering points. Rough usage of this character causes a great many bruised carcasses, and meats that are bruised keep poorly and become quite a risk after remaining in the chill room or storage cellar for any length of time.

BEFORE YOU TURN YOUR SHEEP TO PASTURE



Let Me Rid Them of Worms I'll do it and prove it before you pay. Don't let them infect your pastures and doubly re-infect your sheep this spring. Now is the time to stamp out these profit-eating, sheep killing pests.

No Drenching
No Dosing

SAL-VET
The Great Worm Destroyer and Conditioner

No Handling
No Trouble

SAL-VET will do it and I'll prove it at my risk. I positively guarantee it will rid your sheep entirely of all stomach and free intestinal worms and besides will tone them up and put them in the finest condition possible. It will make your lambs robust, vigorous and positively prevent your usual lamb losses.

Send No Money—60 Day Test Before You Pay

I simply ask an opportunity to prove all the claims I make for "Sal-Vet" absolutely at my risk. If you will just mail me the coupon, I'll ship you enough "Sal-Vet" to last your stock for 60 days, without asking you for a penny in advance. You are not under obligation to pay for it, if "Sal-Vet" fails to do what I say it will do. I just want you to put this wonderful medicated salt within reach of your sheep, cattle, horses and hogs at my risk—then watch them round out, increase in strength and vitality, grow more robust and gain weight—with no more feed than you are now using.

"We have used SAL-VET with excellent satisfaction. It discourages the development of worms, and keeps sheep in good condition. I believe that SAL-VET will repay the user in the results which come from its action in his flock." C. S. Plumb, D. Sc., Prof. of Animal Husbandry, The Ohio State University College of Agri.

Just send the coupon, that is all I ask you to do now. Tear it off—slip it in an envelope and mail it to me.

THE S. R. FEIL CO., DEPT. CLEVELAND, O.
Prices: 40 lbs., \$2.25; 100 lbs., \$5.00; 200 lbs., \$9.00; 300 lbs., \$13.00; 500 lbs., \$21.12.

FARMS AND FARM LANDS FOR SALE OR EXCHANGE

The Best Farms for the money in Michigan. Write stating what you want to E. N. PASSAGE, Plymouth, Michigan.

FOR SALE—320 acres good farm land, 4 miles from Gladwin City. 40 acres cleared. Fair buildings. Will sell cheap or trade for smaller farm. Address: MENNO GROSZ, Gladwin, Mich.

For Sale—Choice Farm, Stock and Fruit Lands in Gladwin and Clare Counties. We have 20,000 acres of fine unimproved lands, also some improved farms. Write us for maps and folders. A. J. STEVENS & CO., Gladwin, Michigan.

FOR SALE—120 acres, 65 acres improved, fenced. House and fair buildings, good water, would make a good stock farm. Price \$2,000. 1 1/2 miles from Wolverine, Cheboygan Co., Mich. Enquire of Thomas Pankhurst.

FOR SALE—233 acres of best Michigan farm land located 4 miles east of Ann Arbor. Large modern house and barns, fine water supply and 20 acres wood lot. Inquire at 424 S. Main St., Ann Arbor, Michigan.

\$6,000 takes 245 acre farm, 3 miles Railroad town, well and spring water. 2-story, 13-room frame house, 2 large basement barns. Buildings first class. Abundance fruit, 1/2 cash, balance time. Write for farm bargains. Valley Farm Agency, Owego, N. Y.

Farms Wanted—Don't pay commissions. We find you direct buyer. Write describing property, naming lowest price. We help buyers locate desirable properties FREE. American Investment Association, 3 Palace, Minneapolis, Minn.

To Sell or Exchange—40 acres first class irrigated lands, near Price, Utah. Permanent water rights. Near railroad and county seat. Will sell for cash at \$100.00 an acre or exchange for Michigan farm land. Arthur H. Ryall, First National Bank Building, Escanaba, Michigan.

FOR SALE 50,000 Acres Good Farming Land in Northeastern Michigan in lots of 40 acres and up. Correspondence solicited. GUSTIN LAND CO., Alpena, Michigan.

Mich. Farms Write for list of STOCK, GRAIN DAIRY and FRUIT FARMS in Barry and Eaton Counties. GOOD SCHOOLS, GOOD ROADS, LOW TAXES and GOOD LOCATIONS. BUCKLES & MATTHEWS, Hastings, Michigan.

Cash For Your Farm or Business. I bring buyer and seller together, no matter where located. If you want to buy or sell, address FRANK P. CLEVELAND, 948 Adams Express Building, Chicago, Ill.

CAROLINA COAST COUNTRY AN IDEAL FARM AND HOME IN THE SOUTH THOUSANDS OF ACRES—Rich, Black Soil; Virgin Farm Lands fronting on the ocean. In the world's finest climate. Nearby markets. Low priced lands. Write us for Free Illustrated Booklet, Maps, etc. Address W. W. CROXTON, G. P. A., Norfolk Southern R. R., Dept. B, Norfolk, Va.

FOR SALE—80-a. 9-room brick house, barn, other outbuildings, fruit and timber, spring and running water. \$6,500. Possession this spring. D. R. REES, 724 Dollar Bank Bldg., Youngstown, O.

125 Acres, \$4,000. Part Cash Stock and Tools Included.

Sec. Wilson of the U. S. Dept. of Agriculture said after inspecting farms in Madison Co., N. Y. "Hereafter when a young man with a few hundred dollars asks where he can engage in farming to the best advantage I shall ask him be directed to the possibilities existing throughout New York State." This fine farm is located in the district to which the Secretary refers; cuts 50 tons hay, pastures 20 cows; cuts 700 cords wood; 2-story 8-room house, big barn, silo, several other outbuildings, fine maple shade, only two miles to creamery, near neighbors, schools, mail delivered; owner going away, includes horse, 13 cows, 4 heifers, bull, 3 calves, 2 shoats, 60 hens, all farming machinery and small tools; price for everything only \$4,000, part cash, full details and traveling directions to see this and hundreds of other profitable-paying farms from \$1,000 up, many with livestock, machinery and tools included, page 16 "Strout's Farm Catalogue 34", the biggest and best farm catalogue ever issued, gives details regarding climate, railroads, markets, schools, crops raised, etc., in all the best farming districts of Ohio, Michigan and the East, just out, copy free. Station 101, E. A. STROUT, Union Bank Building, Pittsburg, Pa.

Too Much Florida Land has been sold to people who have never seen it. Write Brooks-ville Board of Trade for BOOK OF FACTS, describing different kinds of Florida soil. We have no land to sell but want settlers and investors to develop richest district in Florida, according to State Dept. of Agriculture; not pine land; not sand, but high and rolling with rich dark top soil and clay subsoil. No fertilizer, irrigation or drainage necessary. Raised 80 bu. corn per acre. Best for citrus fruits, truck and staple crops. An industrious man, with \$500 to \$1,000 capital can be independent here. 300 feet above sea; no swamps or marshes. Ideal climate, schools, churches, towns, good roads, all conveniences. Home seekers and investors please investigate. We need you and will help you.

Board of Trade, Box 283, Brooksville, Fla.

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



Healthy Chicks

that live to grow up mean big profits. Pratt's Poultry Regulator will make money for you this year if you give it to your chicks right from the start—you will have a flock of plump productive fowls that will begin to lay early.

Pratt's

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is a wonderful tonic for the blood and keeps their digestion in perfect order. Bowel trouble, which alone is responsible for the loss of thousands of little chicks every year, will be prevented by giving the little fellows Pratt's Poultry Regulator every day. The chicks grow faster because they get more nourishment from their food.

You cannot make money with lousy poultry. Start early to dust all the birds with Pratt's Powdered Lice Killer, then spray the walls and hen houses with Pratt's Liquid Lice Killer. Remember Pratt's Remedies are all

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Bees on the Farm "Gleanings in Bee Culture" will help you get more pleasure and more profit from Bee keeping. 6 months trial subscription 25c. Book on Bees and Catalog of Supplies sent free. **THE A. I. ROOT COMPANY, Box 54, Medina, Ohio.**

LILLIE FARMSTEAD POULTRY B. P. Rocks, R. I. Reds, W. Wyandottes and S. C. W. Leghorn eggs for sale, 15 for \$1.25 for \$1.50; 50 for \$2.50. **COLON C. LILLIE, Coopersville, Mich.**

Mammoth Pekin Ducks, R. C. Br. Leghorns. Stock at Detroit, 1911. **CLAUDIA BETTS, Hillsdale, Mich.**

S. C. R. I. Reds of quality. Eggs, first Pen headed by Red Wing \$2 per 15; Range \$1 per 15; \$5 per 100. Any quantity. **Elmer Mathewson, Nottawa, Michigan.**

THOROUGHbred S. C. BROWN LEGHORN Eggs at \$1.00 per 15 or \$5.00 per 100. Stock all sold. **LEWIS T. OPPENLANDER, R. No. 4, Lansing, Mich.**

EGGS: EGGS: EGGS: White & Buff Orpington, White & Barred Rocks, Black & White Minorcas, White & Buff Leghorns, Rose & Single Comb Reds, Houdans & White Crested Blk Polish. H. H. King, Willis, Mich.

EGGMAKERS Strain S. C. Brown Leghorns. Eggs 98c, per 15; \$1.48 per 30; \$3.98 per 100. **WM. J. COOPER, Mt. Pleasant, Michigan.**

EGGS—Barred Rocks & Mottled Anconas. They win. They lay. They pay. 15 eggs \$2. **JAMES A. TUCKER, Concord, Michigan.**

Eggs for Hatching from pure bred Buff Wyandottes. Excellent layers. 15 eggs \$1.25; 30 eggs \$2. **W. J. Ireland, Cass City, Mich.**

Eggs—Light Brahma, White Wyandotte and Barred Rocks. \$1 a setting. \$1.50 for two settings. **E. D. BISHOP, Route 38, Lake Odessa, Michigan.**

R. C. Brown Leghorns—Kulps 242 egg strain, prize winners, farm range, select eggs \$1.00 15; \$3.00 50. **S. W. HENSEL, Basil, Ohio.**

Ringlet Barred Rocks—Large vigorous, well barred. A few choice birds for sale to quick buyers. **R. J. SCHLONER, Pigeon, Mich.**

R. C. B. Leghorn Cockerels—Kulp strain, the best there is, \$1 to \$3. Eggs in season. **C. W. WAITE, Gobleville, Michigan.**

SINGLE COMB BLACK MINORCAS—A few more fine large cockerels. Satisfaction guaranteed. Eggs \$3 per 15. **R. W. MILLS, Saline, Michigan.**

SINGLE COMB WHITE LEGHORNS. EGGS \$1.00 per 15; \$5.00 per 100. Send for circular "World's Greatest Egg Machines." **SNOWFLAKE POULTRY FARM, Route 1, Grand Rapids, Mich.**

Standard Bred R. I. Reds. Eggs good variety, \$1.50 & \$1 per 15. R. C's. at \$6 per 100. Good size, color and great winter layers. Bourbon Red turkeys, show quality, eggs 50c each. World's best Gray African geese, eggs during April at 75c & \$1 each. Address **W. T. FRENCH, Ludington, Mich.**

SINGLE Comb Brown Leghorns—One of Michigan's largest breeders of the Brown Beauty's winning at the leading shows. Send for catalog with prices and photos of my birds. Box 324 D. **Charles Ruff, St. Clair, Mich.**

FOR SALE—S. C. and R. C. Rhode Island Red Eggs. 15 for \$1.00; 50 for \$2.75; 100 for \$5. **BUELL BROS., Ann Arbor, Mich.**

S. C. REDS—Eggs from full blooded, farm raised Rhode Island Reds. \$1.00 per 15. **Mrs. IDA COLE, R. No. 10, Charlotte, Michigan.**

SILVER, GOLDEN and WHITE WYANDOTTES 100 White cockerels at \$2 and \$3 each. New circular after January 15th. **C. W. Browning, Portland, Mich.**

Wyckoff and Blanchard Strain S. C. W. Leghorn. Farm raised, trap nested, heavy winter layers. Eggs 100 \$5. 50 \$3. 15 \$1. **F. E. BOSTEDOR, Eaton Rapids, Mich.**

White Wyandotte and S. C. White Leghorns. Wyckoff, Moore strains. \$1.50 per 15 or \$5 per 100. **WATERBURY, Clarkston, Mich.**

White Wyandottes—Noted for their size, vigor and egg production. Send for circular. **A. FRANKLIN SMITH, Ann Arbor, Mich.**

DOGS.

TRAINED foxhounds and hound pups for hunting fox and coons. Also collies. Inoclose 2-cent stamp. **W. E. LECKY, Holmesville, Ohio.**

YOU WRITE W. J. ROSS, Rochester, Michigan, for those beautiful sable and white Collie Puppies of the finest breeding, and from stock workers.

For Sale—Handsome 10 weeks **Collie Pups** at bargain prices. black and white. **H. M. FERRY 228 Mt. Elliott Ave., Detroit, Mich.**

POULTRY AND BEES

GROWING THE CHICKS.

Feeding chicks too soon after hatching is one of the greatest causes of sickness and loss each year. Do not feed them until they are 48 hours old. Nature provides for the chick for this length of time, and to commence to stuff them with feed immediately after hatching is to invite trouble. The first thing they should be provided with is clean, fresh water. The chill should be taken off if the weather is cold. If the chicks do not show an inclination to drink it is a good plan to dip their bills into the water two or three times to teach them how, after which they will help themselves.

Do not use commercial chick feed or hard grain for the first feed. For the first three or four days give mostly, if not wholly, soft, ground feed. Old bread, ground in a food chopper and mixed with either sweet or sour milk is excellent to start them. This should not be fed wet. Rather, squeeze it dry and give in a crumbly state. It is easily possible to give too much at one time. Never feed more than they will eat up clean. Should any remain uneaten, remove immediately to prevent it being trampled on and becoming soiled and sour. Feed often and sparingly, rather than a full feed two or three times a day. Five times a day is not too often to feed them. They do better in this way, as they are kept in a semi-hungry condition through the day and always on the lookout for feed, which tends to keep them busy, and this is necessary for growth and best results. Feed as early in the morning as possible and as late in the evening.

After feeding for three or four days on the stale bread they may be started on finely cracked grain and ground feed. I prefer to feed, almost exclusively for a week or ten days, pinhead oatmeal instead of prepared or commercial chick feed. This is more expensive, but the good results derived in extra growth and the freedom from bowel trouble is well worth the little extra cost. It is wholesome and nourishing, and will be eaten up clean, with no waste. This should be fed three times a day and soft feed twice a day. It is also a good plan to keep dry bran before them at all times so they can help themselves at will. They like it and it helps to keep the bowels in good condition. After this prepared chick feed may be used.

Conditions Which Promote Rapid Growth.

Cover the floor of brooder or feeding place with black loam to the depth of a quarter of an inch and over this scatter clover chaff or sweepings from the hay loft to serve as litter for the chicks to scratch in. This chaff should be from ½ to 1 inch deep. Scatter the fine grain in this and they will be kept busy hunting for it. Never throw it down in a pile on the floor so they can pick it up with little or no exertion if you expect vigorous, healthy chicks. Have everything clean, and keep the chicks active. You will be well repaid for your trouble.

The ground feed I use consists of equal parts bran, middlings and corn meal, thoroughly mixed and fed in a crumbly state. A little animal meal or fine beef scraps is occasionally mixed in, but too much must not be given in the beginning or bowel trouble may result. Pulverized charcoal can also be mixed in to good advantage. Charcoal, placed in vessels and allowed to stand open, will lose all its valuable properties and prove worthless. If this method must be used it is well to heat the charcoal frequently in the oven, as it will then be as good as when first bought. Fine grit must also be provided. This can be placed in a shallow vessel where the chicks have access to it at all times. Some brands of chick feed contain grit, but I am not in favor of buying this kind as I don't propose to pay chick feed prices for grit that can be bought for less than a cent a pound.

A good disinfectant is invaluable. I find permanganate of potassium one of the best and cheapest. Five cents worth will last a good-sized flock over a year. About a teaspoonful of the powder is dissolved in a pint of water, which is then ready for use. Enough of this solution should be dropped into the drinking water to give it a good pink color. This is excellent to prevent bowel trouble and other diseases. It is placed in the drinking water about twice a week. Should the chicks contract bowel trouble give them boiled rice water to drink in place

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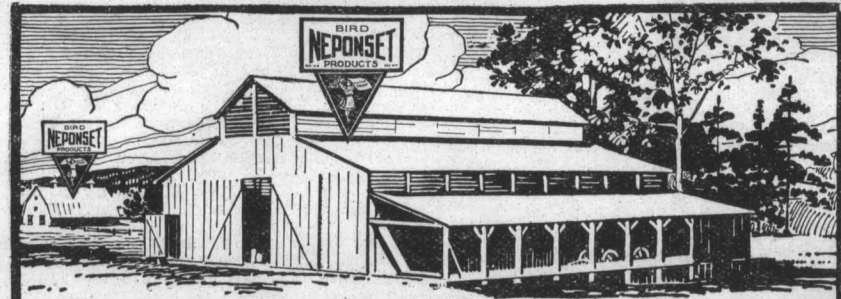
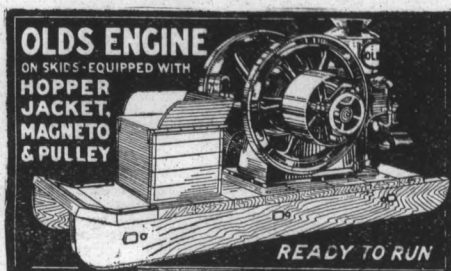
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of the regular drinking water. This I have found beneficial.

Keep the chicks free from lice. They cannot grow well and fight lice at the same time. After they are well feathered out given them a dusting once a month with Persian insect powder, which is a cheap and efficient preparation.

Do not let them out on the cold, damp ground of early spring until they are at least a few weeks old. Keeping them on a board floor in a room into which sunlight may be admitted is far better. Keep them supplied with green feed while confined indoors. Sprouted oats is excellent for this purpose, but under no circumstances give it to them after it has commenced to mold. Alfalfa meal is also excellent. This may be mixed with the soft feed. Onions, chopped fine, are also relished. Raw potatoes, ground fine, are likewise beneficial.

When the chicks are large enough to take whole grain they may be given the scratch feed the same as the older fowls. It is not advisable, however, to feed young and old fowls together, as the older chickens, being larger and stronger, will be sure to prevent the youngsters from getting their share.

The young stock must be kept growing all the time. Equal parts of bran, middlings and corn meal, thoroughly mixed together by moistening with either sweet or sour milk, is one of the best rations to promote growth and frame. Skim-milk kept before them in vessels is also excellent. They like it and thrive on it. It should not be given to the exclusion of water, however, as they must be constantly supplied with clean, fresh water. In warm weather a scum usually forms on the inner surface of the drinking vessels, therefore scald them well several times a week.

O. E. HACHMAN.

UNITING WEAK COLONIES.

In going over the colonies of bees with a view to putting them in condition for the season's work, some weak ones are pretty sure to be found no matter what the method of wintering has been. To bring these up to the desired strength it will be necessary to reduce the number of colonies by so uniting the weak ones as to give each hive retained in the apiary sufficient bees to at least hold out the promise of a prosperous season for each and every colony.

In thus uniting weak colonies two facts must be kept in mind. First, bees have a homing instinct, or an instinct that directs them to their home no matter where they are. If the two colonies to be united are some distance apart in the apiary, one should be gradually moved to the side of the other, a few inches at a time, thus gradually accustoming them to their new location. Or they should be thoroughly smoked and shaken before uniting to cause them to locate their new position. Then after having united them a board leaned over the front of the hive, or brush or weeds thrown in front, for the bees to bump against when leaving will aid in causing them to locate their new position. Second, all swarms have a distinctive hive odor. It is by this means that the bees of one hive distinguish those of another. This smell must be disguised in uniting colonies. This is generally done by thoroughly smoking both swarms while uniting. A little tobacco used with the other smoking material will aid in this, but too much tobacco will stupefy the bees and cause damage.

Kill or remove the weakest queen and unite the swarms as above suggested. It is always safest to cage the queen you retain for a day or two to prevent bees from the other hive from killing her. Another method of disguising the odor is that of placing one of the colonies on top of the other, with wire mosquito netting between, for several days, after which the hive odor of the two is the same. Kill or remove the queen from the upper colony before placing on top and the members of that colony will then be ready to accept the queen of the other. After several days simply shake the bees from the top hive into the bottom one, after smoking both hives thoroughly.

Ogemaw Co. H. B. FULLER.

Diseased Liver.—A Monroe Co. reader reports his hens very fat and dying of liver trouble; he says postmortem examinations show the liver to be twice its natural size and spotted. This case is very similar to one treated in our issue of Feb. 18, in which it was stated that the trouble is due to close confinement and heavy grain feeding. Reduce the grain ration, vary the diet by giving roots and green stuff, and feed some meat scrap, green cut bone or skim-milk to balance the starchy grain food.



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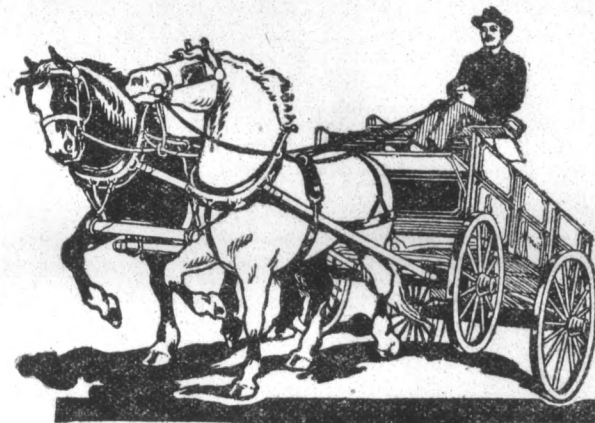
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HORTICULTURE

LAYING OUT THE ORCHARD.

Few planters agree on any one plan of laying out orchards as being the best for all cases, and the opinion of the planter is likely to change as his orchard becomes large unless he is familiar with the orchard operations as conducted in mature orchards set after his favorite plan. There are so many things that enter into the problem that it is useless to lay any hard and fast rule. Some may desire permanent apple trees with filler apples between, some may prefer peaches or plums as fillers, some both filler apples and peaches, some no fillers at all. Some prefer the "square method of setting, some the rectangular, and some the triangular, and there are many modifications of each of these, which when combined with various filler systems make an endless variation of plans and systems. Then again the treatment and culture that is to be given to the orchard and the kind of soil and contour of the surface will have a bearing on the method of planting. A method which might prove desirable with a mulch system might not be best for cultivation. One which would be desirable on a level field might not be best for a side hill. One which would be satisfactory under a method of restriction by pruning might not prove best for trees allowed to grow at will or to attain their fullest size.

There are several objects to be attained in the platting of all orchards, among which are:

1. A distance apart which will give plenty of room for top and root development and convenience in culture, spraying, and harvesting.

2. A plan by which the most trees can be placed on an acre at a given distance apart, and still allow of convenience in orchard operations.

3. An arrangement by which the orchard will begin to produce, in part at least, at the earliest possible time, in other words, a filler system.

As for distance apart, this will depend much upon the soil and the variety, but for such large growing sorts as Spy, Baldwin, Greening, Stark, Russett, King, Snow, and others, I believe that 45 feet is about right. We began planting 36 feet for permanent trees, then 40, and last season adopted 45 feet as the distance apart for large growing permanent trees. This distance is based upon observations in old orchards planted at all distances apart, and we find that 40 feet is not an uncommon spread of branches for a large tree. If all the trees were of this size only five feet would be allowed between branches, which distance is necessary to a proper coloring of the fruit and to economical orchard operations. It is likely that at this distance the roots interlace so the food problem and moisture problem is also pertinent. Smaller growing trees may be planted closer, but as a rule the small growing apples are also early maturing and may be used as fillers between the permanent trees.

As for a convenient plan which will give the most trees per acre at a given distance apart, I will give a specimen of the "square," "rectangular," and "triangular" methods, each arranged for fillers. These plans can be modified both as to distance and kind and arrangement of fillers, or the fillers or at least the secondary fillers, can be omitted in each case if desired.

Fig. 1 is an illustration of the "square" method of setting. Permanent apple trees are indicated on all figures by a large circle, primary fillers by S, and secondary fillers by X. It will be noted that the permanent trees comprise every second tree in each alternate row, and are equal in number to the primary fillers, which may also be of an early maturing, small growing variety of apple, such as Wagner or Wealthy. The secondary fillers, if used, may be peach or plum, and will number as many as the primary fillers and permanent trees together. This plan works out very satisfactorily for a small home orchard and is probably the most common in commercial orchards. It is convenient for cultivation and other orchard operations if the trees are placed far enough apart, but is not as economical of space as the triangular plan. If the permanent trees are placed 40 feet apart, bringing the fillers 20 feet, this plan will allow for about 109 trees to the acre.

Fig. 2 is a plan which might be called

a type of the "rectangular method." The trees are farther apart one way than the other, the intention being to give plenty of room to drive through the orchard one way when the trees are mature. It is advisable to have these wider rows run north and south to allow the sun to get at both sides of the tree. The secondary fillers stand closest to the permanent trees and may come out first. These would preferably be peach or some short lived tree. The primary fillers next to the permanent trees can be removed next, leaving those in the center of the squares until last. This plan allows of three stages of removal of fillers against two for the preceding one. It admits of about 110 trees per acre, about the same as the preceding plan, if permanent trees are placed 45x35 feet apart.

Fig. 3 shows a modification of the triangular plan which we used last year and will use in adding to this orchard this

O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O

Fig. 1. Square Plan.

O	X	O	X	O
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O

Fig. 2. Rectangular Plan.

O	X	O	X	O
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O
X	S	X	S	X
O	X	O	X	O

Fig. 3. Triangular Plan.

O—Permanent Tree.

X—Primary Filler.

S—Secondary Filler.

spring. The permanent trees are 45 feet apart, which brings them about 26 feet from the primary fillers and 13 feet from the nearest secondary filler. The secondary fillers are peach. This is rather close, but if past experience is a criterion there will be no peach trees left in six to eight years as they will go out with the yellows, and as they are 22½ feet the long way they will not crowd in this time. If only apples were to be set the secondary fillers should be omitted. This would then be like a mulch culture orchard we have on a side hill except that the permanent trees are 40 feet apart. The plan as illustrated admits of about 140 trees per acre with permanent trees 45 feet apart. The secondary fillers might have been set in the centers of the triangles which would make them farther from the other trees, but were set in the rows for ease of cultivation, as this gives 22½ foot rows one way and small fruits or hoed crops can be grown in these rows for a few years.

As stated before, there are many modifications of these plans, but they illustrate the three types, one of which in some form should be adapted to the needs of every planter.

Calhoun Co. S. B. HARTMAN.

SOME TIMELY GARDEN QUESTIONS.

I expect to grow tomatoes and string beans for a canning factory and perhaps, sweet corn, cucumbers and cabbage also. If so, space for the home supply

of vegetables will be limited. While we have a variety of soil, we shall have to use for this latter purpose, light sandy ground, and for the most part plant in long rows. (a) for peas would you advise plowing early in March and cultivating each week until ready to sow? (b) Is an old pasture good for carrots and stock beets? How would you treat it? (c) with long rows and only small quantities of certain vegetables required, what will go nicely together? (d) what early vegetables may be planted together, maturing about the same time so that the ground can be cleared for later crops? (e) what vegetables may be grown in an old orchard plot, plowed for the first time last year? (f) what vegetables are unharmed by chickens? (g) what vegetables require well rotted manure, and what will thrive with fresh? (h) are all vegetables benefited by hand-hoeing, and what will thrive by horse cultivating alone? (i) will late varieties of cabbage do for summer use if planted early, and will early varieties do for winter?

Wayne Co. SUBSCRIBER.

(a) Plow just as early as possible and work thoroughly until ready to sow. The warm springlike weather will admit of early sowing, but use the smooth sorts as Alaska, Earliest and Best, etc., for first sowings and the wrinkled varieties for later. (b) The old pasture will doubtless do fairly well for the carrots and stock beets, but ought to be plowed deep and early. Work often up to sowing time then disk both ways and as deeply as possible, finishing off with fine tooth harrow. One year of previous culture and cropping would have been preferable. (c) For early use, lettuce, radishes, onion sets, early beets and turnips, may be planted in same row for late use, beets, carrots, parsnips, turnips and rutabagas will go well together. (d) For this purpose use the quickest growing varieties of peas, radishes, lettuce, beet greens, etc. The peas will require an early start. (e) This question depends chiefly on the condition of the trees. If large and thrifty so that they shade the ground and tax the soil heavily, a paying crop of anything could hardly be expected. If not too shady or heavily taxed a fair crop of corn or potatoes may be grown. Other vegetables in general will not be likely to succeed very well. (f) If you mean small chickens, they will do very little harm to any vegetables. Older fowls will do very little damage after crops are well up, provided they have large range and plenty of grass available. When peas, corn and tomatoes begin to mature they will not be welcome visitors. (g) Generally speaking, well rotted manure is best for all truck crops, but it is not always available. Green manure is unsafe for practically all of the root crops and especially those of deep growth habit. However, all the vine crops, cabbage, corn, etc., will do well, and for mulching in dry weather all crops will be beneficial. (h) There is no truck crop within the range of our knowledge that will not thrive better under a vigorous use of the hand hoe. However, with the weedeaters and wheel hoes started in time and judiciously used much of the hand work will be eliminated from all crops. Corn and potatoes, perhaps, require and judiciously used much of the other crops. (i) You could not depend on late varieties of cabbage for early use for while they will grow all right they will not mature in time. The early sorts, if planted to mature late in autumn will keep all right, but it is better to use each in its regular season.

Some Fruit Questions.

(1) What can be grown in an old pear orchard where more than half of the trees are dead? (2) If currant bushes are moved can the roots be divided? (3) Are grapes self-fertile? A few of my vines do not bear though I see no reason for it.

(1) Grub out the stumps of dead trees and fit the ground thoroughly. Almost any crop will doubtless do fairly well, as corn, potatoes, peas or root crops. I should prefer to plant to those crops that will be rowed sufficiently wide to cultivate with horse. (2) Remove all the dead wood from the currant bushes, and divide as much as possible without injuring the roots. Fertilize with wood ashes or manure of any kind for quick results. Coal ashes or coarse mulching will be good for permanent effect. (3) In so far as I know, grapes are fertile. However, in all plant and vegetable life we sometimes find abnormal specimens or monstrosities that fail to make good. Prune thoroughly and fertilize and if they do not show improvement, I would cut them back next spring to within a short distance from the ground and thus get an entirely new growth of wood. Either that or grub them out next year and replace them with new plants.

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From ground planted secured by use of The KEYSTONE POTATO PLANTER than by any other method of planting. Work perfectly accurate. A simple, strong, durable machine. Write for CATALOG, price, etc. A. J. PLATT, MFR. BOX J STERLING, ILL.



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Nearly Doubled the Crop

One customer writes:

"I have used your fertilizers for the past eight years with good success and consider them the best I have ever used. Have found from repeated experience that when used on corn they nearly double the crop."

Increase your yield of corn. Don't be satisfied if you are not getting 80 to 100 bushels per acre.



will get it for you. The ears will be fuller, the grains better developed.

Write for free memorandum calendar book. Contains valuable information on the scientific growing of grains, vegetables, etc., etc.

THE CINCINNATI PHOSPHATE CO. Cincinnati, O.

Agents wanted in every vicinity. An opportunity to make money during odd hours. Write us.



GAL-VA-NITE ROOFING

Comes in rolls ready to lay. Can be applied by anyone with a knife and hammer. Each roll contains nails and lap cement, with full instructions.

Can be used on either steep or flat roofs. On any kind of a building. Cheaper and easier to lay than shingles.

GAL-VA-NITE is made up of heavy wool-felt, triple coated on both sides with pure mineral asphalt, and finished with a heavy "armor plating" of flaked mica. Needs no painting—no after expense. First cost is last cost.

Get GAL-VA-NITE roofing from your lumber dealer. (Look for the sign "Ford's Galva Knight.")

If he hasn't a stock, write our nearest office and we will send you "The Inside of An Outside Proposition."

FORD MFG. CO. St. Paul Chicago St. Louis

20th CENTURY HOE



EVERYBODY WANTS ONE.

Sells at Sight!

One man does the work of two.

AGENTS WANTED

Write for information and territory

20th Century Hoe Co.

Grand Rapids Mich.

MAYERS PLANT NURSERY—Thousands of vigorous plants. And many varieties. Illustrated catalogue free. Merrill, Mich.

SECURING GOOD SEED.

It has been the writer's experience that seeds bought at a grocery store are often defective in quality; and when bought in bulk, that is, not in any sort of seedman's wrapper or package, they often prove untrue to name, being bought for one particular variety, turn out to be something different. For example, for two successive seasons the rutabaga crop of a certain locality has proved a failure. The first season the seeds sown by a large community of farmers and gardeners failed to come up more than a dozen plants to the square rod. The next season the seeds came satisfactorily, but proved to be the common flat, white turnip. All of these things, trifles though they may appear to others than those most concerned, are of real consequence and often of serious damage to the seed buyer and grower.

The first and most important requisite to success in any undertaking, is to start right, and in any branch of agriculture this means good seed. Then let nothing stand in the way of obtaining it when possible. To be sure, the best of seed cannot produce satisfactory results unassisted; and on the other hand, the most painstaking attention to every detail of planting and tillage, combined with the best of soil and climate conditions, cannot produce the desired result unless reliable seed is used in the beginning.

Then the question arises, how can growers be certain of securing good seed? The writer has always found it perfectly safe to depend upon seeds ordered from a reliable seed firm. Any of those, and there are many, who have built up a business and reputation through years, and perhaps generations, of fair dealing, may safely be depended upon. Those whose advertisements appear year after year in the same home and farm papers, may be trusted for fair dealing.

If you wish to be fair to the seed man and yourself, order early, and order an abundant supply. There are some things beside the early worm, that are secured by earliness. One is the early vegetable; and another is the late frost. Against the later, use all due precautions in the way of care and shelter for the early plantlets; but make sure of landing something, early or late, by having seed in readiness for a second or third sowing if necessary.

It is not necessary to expect all that the seedman claims for the novelties and wonders in plant life. Different conditions tend to different results; and the known and standard sorts are best for a main crop, although a few novelties are worth trying and give an additional interest to the season's work.

If you do not have a hot-bed or cold frame for starting early plants, it is a very good plan to fill several wooden boxes of a convenient size, with rich soil, in a sunny window for starting the early crop of vegetables.

Wisconsin.

G. K. LAMBERT.

GROWING GRAPES ON SLOPE.

Would it be good business, on a slope subject to wash, to terrace and plant grapes? I suppose that if grapes were planted across the lines of slope the tillage would tend to form terraces. If, as in my case, part of the hill land tends to a gravelly clay loam, would that be good for grapes? In general tillage, would it not help materially to retard or prevent washing to draw light furrows across the line of slope every 20 or 30 feet?

Kent Co.

SUBSCRIBER.

Terracing a hillside often is an expensive undertaking. Local conditions would determine the feasibility of the plan. If the slope is rather gentle it can be gradually terraced by careful cultivation across the slope, working the soil so as to form level steps and thereby retard the rush of water down the incline during freshets. The drawing of light furrows across the slope would serve to prevent washing. The plan of cultivation as suggested in the inquiry would conserve moisture by giving it a chance to soak into the ground and there store it for later use by the vines. Gravelly clay loam is not an objectionable soil to grapes, in fact, it is well adapted to their growth.

Judgment must be used in fertilizing the orchard. Where one is using commercial fertilizers and has only a few trees he is apt to over-feed them. Ten pounds of nitrate of soda to an apple tree, (where there are thirty trees to the acre), means 300 lbs. per acre. Amateurs often put on twenty pounds expecting twice as large benefits, but generally they are worse than disappointed.

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We make doubly sure that every roll is perfect. We use the best material that money can buy.

Another detail is the nailing. To avoid any trouble from this source, we provide free of charge, galvanized iron caps which are rust proof, and will last as long as the roofing.

In every way we protect ourselves,

against the possibility of a complaint.

Send for a copy of our Guarantee Bond, and a Sample of Congo Roofing. The guarantee will show you what a real legal roofing guarantee looks like. The sample and the booklet which we enclose with it will tell you more about Congo Roofing.



Fac-simile of 10 Year Bond

CONGOLEUM

We should like to send every reader of this paper a sample of Congoleum. It is fitted for floors and wainscoting in homes, stores, offices, etc. It is a perfect imitation of oak. Its surface has a high polish. Unusually durable. The price is very low. Write for samples.

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Have been growing successfully 8 years producing 3 to 4 cuttings per year 100 lb. sacks at 5c. for less than 1/2 ton lots; 1/2 ton or over, 50c. per 100 lb. sacks. All f. o. b. cars Forest Grove. Can furnish best of reference by my neighbors and others including Colon C. Lillie, also J. Smallegan our Merchant, Hudsonville, Mich. R. F. D. No. 3, G. Yntema, our supervisor, Hudsonville, Mich. R. F. D. No. 3. Send cash with order. Address: A. B. S. R. F. D. No. 3, Hudsonville, Mich.

Trim Your Trees From The Ground.

By using the Ideal draw-cut pruning saw. No Climbing. Great Labor Saver. Leading orchardists use them. Made of the best saw steel, with eight and twelve foot handles. Hon. N. B. Hayes, of Muir, Mich., uses the Ideal Saw in his forty acre orchard and considers them a friend of the fruit grower. IDEAL PRUNING SAW CO., Webster, N. Y., Agents wanted. Write for price and circular. WM. S. SMITH, Muir, Mich. State Agent R. F. D. 26.

The Berlin Quart Our Specialty
A WHITE package which insures highest prices for your fruit. Write for 1910 catalog showing our complete line, and secure your BASKETS, CRATES, ETC., at WINTER DISCOUNTS. The BERLIN FRUIT BOX CO., Berlin Heights, Ohio.

Regenerated Swedish Select Oats and Oderbrucker Barley.

Large, meaty oats, free from rust or smut, not a drop of rain touched these oats after they were cut. Pure, regeneated seed in lots of 3 to 6 bushels, 30 cents; over 6 bushels 20 cents. Oderbrucker Barley is a pedigreed, hardy, heavy yielding variety, \$1.15 per bu.; all sack free.

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Seed Corn and Oats For Sale—Early Yellow Dent Swedish Select, Golden Fleece and National Oats. The best varieties. Write for samples, prices and circular. F. A. BYWATER, Memphis, Michigan.

Gorton's Regeneated Swedish Select Oats are the BEST. 75c per bu. R. J. M. KING, Rural 4, Ypsilanti, Mich.

FOR SALE—500 Bu. choice regeneated Oderbrucker Seed Barley, 500 bu. Green Mountain Seed Potatoes, 500 bu. Silver King Seed Corn, 5 carloads Pure Bone Fertilizer, Grain drills, and corn and potato planters. E. H. Hutchins, Phone 106, Box 108, Clayton, Lenawee Co., Michigan

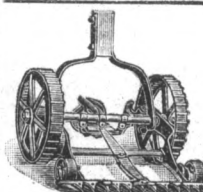
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There are three things that destroy your lawns, Dandelions, Buck Plantain and Crab Grass. In one season the Clipper will drive them all out.

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Healthy, acclimated, high grade, true to label fruit trees and plants for Northern States at wholesale prices, direct from nursery to planter. Send for catalogue. CELERY CITY NURSERIES, Desk E, Kalamazoo, Mich.

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TRUE CATALPA SPEC. AND BL. LOCUST. \$3 per 1,000, \$25 10,000. All forest trees and evergreens cheap. Cata. T. G. BROSIUS, Tiffin, Ohio.

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Our Strawberry, Raspberry, Blackberry, Gooseberry, Currant, Asparagus and Grape Plants, Heavy Rooted, High Grade Stock. 19th Annual Catalogue Free. A. R. WESTON & CO., R. 1, Bridgman, Michigan.

FOR SALE—50 new Blackberry and B. Cap roots at \$3.00 per M. 1,000,000 Strawberry Plants at \$3.00 per M. W. M. YARIGER, St. Johns, Michigan.

SCHEDULE FOR SPRAYING APPLE ORCHARDS.

To answer a number of queries sent to The Farmer office we publish the following information in reply to same and also for the benefit of a host of our other readers who may be spraying for the first time this year and those who may not have used the spray pump to its fullest possibilities in previous seasons.

First Spray.

This application should be made as late as possible before the buds start, and should be applied thoroughly. Use a strong solution of lime-sulphur wash, either home-made, such as was recently described in these columns, or the commercial solutions which are upon the market at reasonable prices and which are more convenient to handle than the home-made product. This wash is especially desirable if San Jose scale is present as that pest will ruin the trees in a few years unless checked. Also, this spray will control the scurfy-scale.

Second Spray.

The time for this spray is just before the blossoms open, when the pink of the blooms is apparent. Where large orchards are to be sprayed it is necessary to begin on the varieties that blossom earliest, or if all come about the same time to begin just before the ideal time so that the entire orchard is covered before the blossoms are too far along. Use either Bordeaux mixture, made after one of the standard formulas, or dilute lime-sulphur mixtures. Mix a poison with the sprays for controlling the bud-moth and the canker worms should they be known or suspected to be present. The Bordeaux or lime-sulphur sprays are employed at this time for combatting the apple scab, canker, and diseases of the leaves; but some growers find that where they have applied the strong lime-sulphur wash, as directed in preceding paragraph, that this second spray is not necessary; however, if one is out for the best fruit he would be wise to take this extra precaution, especially where the canker-work is present.

Third Spray.

When the blossoms have fallen and the stamens have dried and withered, the third application should be given the trees. Use the same solutions as for spray number two. About the same insects are to be controlled, together with the tussock-moth, codlin-moth and other eating insects which are controlled by the poison incorporated with the Bordeaux or the dilute lime-sulphur solutions. This is one of the most important sprays of the season and should be done carefully.

Fourth Spray.

From ten days to two weeks after the third spray is applied go over the orchard again with the same solution as in numbers two and three, using the poison. The insects and diseases mentioned above are brought into subjection by this spray.

Fifth Spray.

During the early part of August the fifth spray should be given. Confine this spray to fall and winter varieties, the summer apples not needing it. The second generation of the codlin-moth is brooding at this time and the poison spray catches them before they get to working on the fruit, thus preventing a large percentage of the fruit from making second and third grades when in all other respects it is fit for the best grade. This is a very important spray and should be done carefully, using the poison full strength.

PREVENTION OF FROST IN THE ORCHARD.

As often as every second or third year in some states, and quite frequently in others, a cold wave just as the fruit blossoms are opening causes a failure of the crop. A few sheltered orchards or those standing near bodies of water where a mist holds the frost in check, escape and the owner of such orchards reaps the benefit of the scarcity of fruit and sells for a high price. It has been thought by many that trees would not bear every year, that they had to take an off year to recover from heavy fruiting. This has been partially borne out by the experiment of picking the blossoms from trees heavily filled to change the bearing year. They will bloom the following year very full and if they escape a hard frost will set full, unless this picking process is frequently resorted to they will soon be bearing as they were at first. Sheltered orchards bear fruit each year if well fed although the yield following an extra heavy one is usually lighter. That orchards growing near water produce more

and better fruit is demonstrated. One region extending well into Canada and from 25 to 50 miles farther north than my own town, produces excellent apples in good quantity when the crop is a total failure here. Orchards near the small lakes produce when those in the surrounding territory fail.

The question of insect protection has been practically solved and no orchardist considers his equipment complete without a good spraying apparatus. It is also generally conceded that in order to harvest good fruit one must prune, cultivate and fertilize as for any crop, but the orchard men have hitherto been practically helpless against extreme low temperatures. The peach crop in particular suffers from this cause very often.

The building of bonfires has been tried to some extent with success but was inadequate for large areas or long periods on account of lack of fuel and help. As every demand always after a time calls forth a supply the idea of the orchard heater—evolved from the crude attempts to keep the temperature above freezing, appeared. There are now dozens of different makes of these heaters which are a sort of oil, coal or wood stove that can be placed at intervals through an orchard. They burn oil, coal or wood at a cost of about \$2.00 per acre, can be rapidly lighted and extinguished and burn from six to eight hours without replenishing the supply of fuel. Some of these heaters burn coal, some oil and some wood. The kind of heater to buy is the one using the kind of fuel that would be cheapest to obtain and use in any given location.

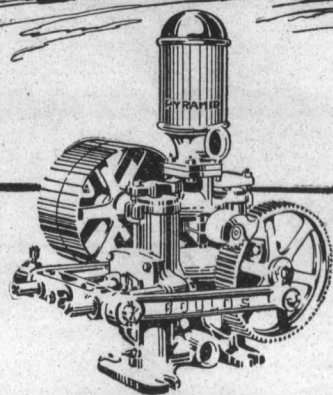
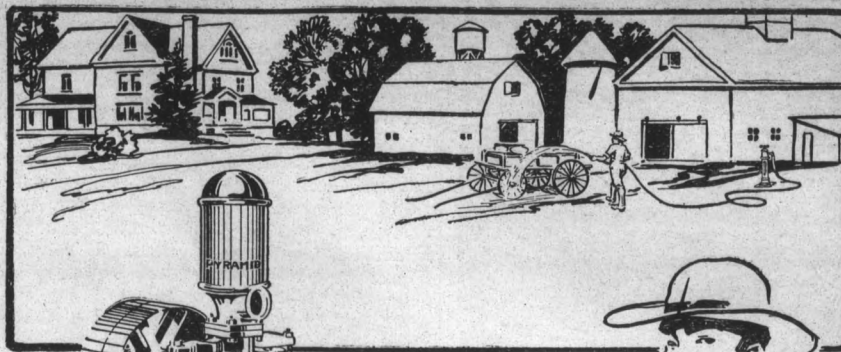
A dense smoke is constantly rising from these heaters into the tops of the trees. This smoke, warm from the heaters, keeps the temperature from falling below the freezing point. Thirty-two degrees is the lowest that orchards just in bloom can withstand and it would in many cases drop many degrees lower than that if no means were used to keep it higher. Already these heaters are being installed in the orchards of the middle west and already since their value is demonstrated they are becoming as much a part of the equipment as the spraying outfit.

The first cost of installing them is considerable in a large orchard but the average cost per bushel yearly is only from five to ten cents, according to the number of nights the heaters have to burn. With apples at the prices of the present year it would take only a small number of bushels increase in yield to pay for them. It is a safe proposition to state that the raising of one crop in this way will pay for the heaters and for fuel to run them for several years. We have to fight a host of enemies to raise any crop. It is wisest to fight to win by using the best weapons possible. The orchard heater will equalize the apple crop more nearly than any other method and prices will be more even year by year. In the protection of small fruits it is just as useful for frost often ruins small fruit as blossoming time. J. W. MATHIE.

DOWN WITH THE SAPSUCKERS.

While woodpeckers are among our most useful birds on account of their destruction of boring and other injurious insects, yet there are three species known as sapsuckers, which, while they eat many insects, more than offset the good they do by boring into the inner layer of the bark of trees for the sake of the sap which exudes from the wounds. These punctures permit the entrance of moisture, bacteria, and fungi, which cause decay and staining of the wood. When the wounds heal, various distortions of the grain are produced, including more or less open knotty checks. The wood of many species is sometimes rendered useless except for fuel. The loss to the timber industry of the United States due to defects in wood caused by sapsuckers, has been conservatively estimated to be at least \$1,250,000 annually. Much pains has been taken by the Biological Survey of the Department of Agriculture to ascertain the principal kinds of trees attacked by these birds and the manner and extent of the injuries inflicted in order to devise protective measures.

Freshly burned stone lime is best for making Bordeaux mixture. Slake it by using just enough hot water to reduce to fine dry powder. Hydrated lime may be used but is less adhesive, not as strong and, therefore, more should be used, and is more expensive than the lump lime. Ground lime is good when fresh but the form in which it comes makes it difficult to determine whether fresh or not.



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will supply all the water you can use at little expense. Don't waste your men's time carrying water from the well for stock or household use. Do away with this drudgery—have running water wherever you need it and fire protection as well.

The "Pyramid" is the highest type of Power Pump for connection to gasoline engines or other forms of drive. It is made of the best materials; every mechanical detail is perfect; solidly and strongly constructed to stand heavy pressure and give continuous service.

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tells all about this pump that every farmer needs. Tells about our many other pumps, including lift pumps and force pumps, single and double-acting pumps, hydraulic rams, etc. The most complete little book issued on the subject of pumps.

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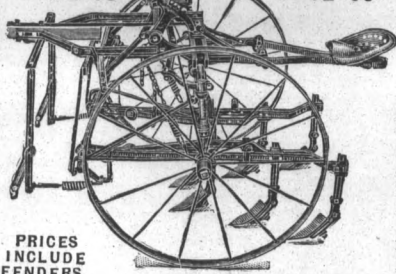
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4-Shovel Pin
Break Gangs,

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R. F. D. No. 6, Box 2, Milford, Ill.
Sears, Roebuck and Co., Chicago, Ill.
Gentlemen:—My Little Jap is far ahead of any cultivator I have ever seen. The seat bar guiding motion is the best thing out, and the advantage of being able to raise and lower the gangs with the balancing lever after having set them to exact depth with the raising levers makes it superior to all others. This is saying a good deal, but it's true. The good features of the Little Jap make me feel like striking out with it and working in fields along the road, so as to convince people of its superiority over all other makes.
Yours truly,
CHARLES TANSEL.

The David Bradley LITTLE JAP CULTIVATOR

is your own idea of what a cultivator should be; the perfect implement you have been wishing for since you plowed your first field. So far ahead of any other that it really should be called by some other name than cultivator. Every other manufacturer hoping for success is trying to copy its exclusive patented features. We only name them here. Our catalog tells all about them.

Pivot Axles and Seat Bar Dodging Lever; easiest, quickest, widest dodge. A clear view of the row at all times. The one successful cultivator for hillside work. No drifting; gangs work parallel and at even depth.
Balance Frame; adjustable for rows of any width. Seat and stirrups adjustable for boy or man, and machine adapts itself to heavy or light weight operator.
Depth Regulating Lever for each gang, and Combined Gang Raising and Balancing Lever that lifts both gangs at end of row without disturbing depth adjustment.

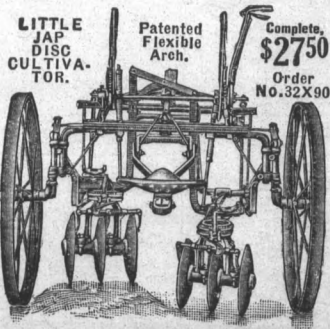
Short Hitch and Direct Draft; easy on team. Draft helps lift gangs, also keeps shovels in ground. Sixteen Styles of Gangs. Pin break or spring trip shovels, surface blades, spring teeth or discs. Levelers, rakes and other attachments. Buy one cultivator and as many kinds of extra gangs as wanted. Wheels 42 inches high; wide tires; staggered spokes; long distance dustproof grease retaining hubs.
Materials throughout the best that money can buy. Highest grade steel and malleables used. \$100.00 couldn't make it better.

Send for our Book of David Bradley Farm Implements, or see our big General Catalog for complete descriptions and prices of all styles of Little Jap Cultivators and special attachments. Other styles of Bradley cultivators from \$9.93 up.

We can always furnish repairs for any David Bradley implement made since 1832 and ship the day we receive the order.

R. F. D. No. 1, Mt. Vernon, Iowa.
Sears, Roebuck and Co., Chicago, Ill.
Gentlemen:—I am fifty-two years old and did my first plowing with a single shovel plow, then the double shovel, next the walking cultivator and then the sulky plow. Have used more different kinds of cultivators than most men, and think I can plow corn as good as any man living, and I must say that the Little Jap is the best I ever used for good work and easy running, both on man and team. It is the only cultivator for the hired man. You regulate it and send him into the field and he has simply got to plow corn.
Yours truly,
A. H. KNAPP.

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

THE APRIL PROGRAMS.

State Lecturer's Suggestions for First Meeting.

"The springtime treasures I bring to you are brightest of all the year."
Song or recitation, "Spring Song."
Home Nursing—First Aid to the Injured.
Music.
Recitation, "Dar's a Warm, Warm Wind."
The "One Improvement Club."
Legislation Favored by the Grange—1. Thus far secured in 1911. 2. Still to work for.
Easter millinery competition.
Closing song.

EFFECTIVE UNITING OF RURAL FORCES.

Through all its history the Grange has sought to utilize every available force in improving the status of the farmer and his family, educationally, socially and financially. The means employed, or the manner in which this end has been sought, have, perhaps, not always been practical or effective, but recent years have seen such co-operation and combining of rural forces as give promise of a distinct and healthy improvement of country life conditions and a material strengthening of the forces involved. Some years ago an effective coalition of the Grange and the more strictly educational forces of an Oceana county community was perfected in what is now known as the Hesperia Teachers and Patrons' Association. This co-operative effort has resulted in annual conferences of educational workers and agricultural leaders which have claimed state-wide attention. Locally these annual meetings have proven immensely popular and have brought a better understanding of the multitude of problems which are inevitably encountered in any campaign waged for the betterment of community conditions. Other sections of the state have been slow in enlisting in this forward movement, but recent activity in this direction on the part of the Grange presages a co-operation of community forces with this organization which cannot but inure to the permanent benefit not only of the agricultural class but of all directly dependent upon that class. Last week we surrendered the major portion of this department to an interesting account of a meeting held at Nunica, Ottawa Co., which resulted in the formation of the Ottawa County Grange, Teachers and Patrons' Association. About ten days later, at a meeting of Manistee Co. Pomona Grange, which was attended by the State Lecturer, Miss Buell, a coalition of Patrons, teachers and business men was effected through the formation of a Patrons, Teachers and Business Men's Association. On the heels of this very successful meeting comes the information, direct from Deputy Master McClure, that in Mason, Benzie, Wexford, Charlevoix, Newaygo and Muskegon counties similar organizations, to be advanced annually, have been organized, and all for the purpose of uniting the forces represented in a co-operative effort to advance the interests of the farm, the home and the school.

AMONG THE LIVE GRANGES.

Weed Law Enforcement was asked for by the members of Benzie Co. Pomona at a meeting held at Benzonia early in March, the resolution adopted reading as follows: "Resolved, That it be the expression of the Pomona Grange of Benzie county, that each township officer enforce all laws relative to the destruction of all noxious weeds in their respective townships, giving more attention to the destruction of noxious weeds on non-resident lands and along highways, and we consider the ragweed one of the worst of noxious weeds." A resolution was also adopted condemning a bill passed by the senate and now before the house in which insurance differences are to be settled by court instead of by arbitration, as petitioned by the State Grange. Bro. D. E. McClure delivered the principal address of the meeting, his subject being "Progress vs. Decadence." A class of eight was given the fifth degree. Next meeting of Pomona will be held with Cherry Grange.

Calhoun County Pomona met with Pine Creek Grange Thursday, March 9. A large attendance made the excellent program more helpful and inspiring. The principal topics of the afternoon were "Reciprocity" and "Temperance." A talk, "Canadian Reciprocity as it Affects the Farmer," was given by Walter Betterly.

The subject called out a spirited discussion, most of the Patrons maintaining that it is rather unfortunate that revision of the tariff should be tried on the farmer. "How local option has worked in Calhoun county," was the subject of a talk by L. E. Stewart, who quoted figures to show that crime has decreased and the number of arrests lessened by half since local option has gone into effect; that general business conditions have improved in every town in the county, and that banks have increased their savings deposits by over \$1,000,000 in Battle Creek alone. In Albion, a city of 6,000, one bank has placed savings deposits to the amount of \$20,000 to the credit of men who never before had their names in bank books. An interesting paper, "One woman's community work," by Miss Alice Cronk, told of the great work of Dr. Caroline Bartlett Crane, of Kalamazoo, and her interest in the general uplift of humanity. Through her efforts, decided improvements have been effected in the civic life of our country and enlightenment brought to the classes held down by poverty. Music and recitations gave a pleasing variety to the program. Plans for contest work were proposed by a committee for that purpose, and the work of the State Grange Alfalfa Club was explained.

Arenac County Pomona No. 69 was royally entertained by Bay Grange No. 597, Feb. 24. Hon. Geo. B. Horton gave a fine address on the Grange and what it stands for; what it has done and what it is trying to do. The address was characteristic of the man, enthusiastic, forceful, eloquent, and rang true as steel. This and the recitations, talks and songs by other members, the session being open to all, whether Patrons or not, was highly appreciated and served to enliven Grange interest in the community. Deputy State Master Fuller was present and gave a short talk and school of instruction. Canadian reciprocity was considered and a telegram sent to Senator Smith, at Washington, asking him to work against it. Four new members were given the fifth degree. Our Pomona is on the upward trend, and we had a good attendance of Pomona Patrons as well as subordinate members.—Master.

COMING EVENTS.

Pomona Meetings.

Berrien Co., with Pearl Grange, Wednesday, April 5.
Allegan Co., Wednesday, April 19.
Hillsdale Co., at Jonesville, Wednesday, April 5. Discussion of Reciprocity, Initiative, Referendum and Recall, and Parcels Post.
Van Buren Co., Thursday, April 13.

FARMERS' CLUBS

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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.

CLUB DISCUSSIONS.

Discuss Parcels Post.—The March meeting of the Ingham County Farmers' Club was held with Judge and Mrs. H. M. Gardner and Mrs. Norris, and they had the happy faculty of making all feel at home and that it was good to be there. After the usual good dinner at the home of Judge Gardner, the members went across the street to Mrs. Norris' home, and President Ives called the meeting to order. Mrs. Taylor then read a communication from Mrs. Green, who wrote of the products around Fernando, Cal., in which she said, "one does not realize when buying the oranges, lemons and olives in the eastern market the labor and capital it requires to put them there." The subject of parcels post was introduced, and from the discussion it was feared it might hinder the growth and sustenance of small towns and it was desirable to preserve these. Express companies and rural carriers oppose it. Carriers say it will make more work, while express companies could not charge as high a rate or would not have so much to do. But it is something the farmers want, and it is not justice to carry packages to foreign countries cheaper than from one state to another. Then by mail we can send but four pounds in the United States. Resolutions of confidence and fellowship were passed in honor of Mr. and Mrs. J. T. Jenkins, who are about to move from the Club community. The next meeting will be with Mr. and Mrs. Alfred Allen and Mrs. Smith at Maple Row Farm. Remember the date and place, and be there.—Cor. Sec.

Hold Temperance Meeting.—The Washington Center Farmers' Club met at Elm-croft, the pleasant home of Mr. and Mrs. George Hill, on March 9. The day was pleasant and the roads were in an ex-

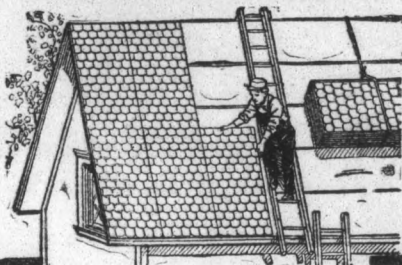
cellent condition. A jolly crowd gathered to the number of 65. The meeting was called to order by the vice-president. The first on the program was singing by the Club, followed by reading of minutes and miscellaneous business. Under this head the secretary read articles on the Canadian reciprocity bill. A motion was made that the reciprocity bill should not become a law. The secretary read a letter from Representative C. J. Chambers explaining the Torrens system of land transfer, and the county road law. The above subjects were talked on by Messrs. Campbell, Brown, Kochensparger and French. This concluding the forenoon session dinner was served by the gentlemen, and it was an excellent dinner. The ladies did ample justice at this hour. The afternoon session was opened with singing by the Club. The roll call, "Name a dry county," was well responded to. The first question was, "Is it safe for the local option people to relax their vigilance?" W. H. Stoneman gave a very good talk on the subject. He said that liquor was one of the greatest monsters of the universe; he said he would like to see the time when mothers would have a chance to vote and help drive the curse from our land. Mrs. C. A. Matthews favored the Club with an excellent recitation, "Is the young man safe?" Then came a talk on temperance, by Rev. C. H. Kelsey, of Perrinton. This talk was grand. He gave some very good thoughts for the voters who were present. The writer wished that every voter could have heard this temperance talk. A good literary and musical program was rendered. The question box contained some good questions and were well discussed by members and others. The next meeting will be held at Old Homestead with Mr. and Mrs. James DeMott, on April 13. The meeting was closed with singing by the Club.—Mrs. Cora Keiser, Cor. Sec.

Discuss Road System.—At the last meeting of the North Shade Farmers' Club L. C. Hull talked on the new road system. North Shade is to vote on the road system in April and the question of whether they shall have county or township supervision will be decided. Mr. Hull is familiar with both systems, and thinks the county system will work out all right. He is well informed on the requirements of the new system, and he is also familiar with all the requirements of a good highway. He said that Michigan has 70,000 miles of highway, 60,000 of which are dirt roads, mostly in poor condition. Emerson township has eleven miles of state aid road, and the farms in that township are priced at \$100 to \$150 per acre. Good roads cost, but in many instances the farmers along whose farms they pass get more for their work on the road than the extra tax is, and the good road adds to the value of their farms. Mr. Hull gave the different plans allowed by the state highway department, and the amount of state aid per mile, given for each. James Stonebrook thinks a lot can be done under the township system as by the county. Mr. Huyck describes the macadam roads he is familiar with, and further discussion indicated that Gratiot will be in the front rank for good roads. This question was made so clear that the farmers of North Shade will know what they are voting for and why, when election day comes.

Corn Contests and the Schools.—County Commissioner, Pike, of Ithaca, was present and gave an interesting talk on Nature Smiles. He says that the best product of the farm is its boys and girls. He sees the boy and girl come from home pure and bright. Contaminating influences sometimes come through the school, and must be overcome by the home. Encourage cheerfulness and optimism in children. Part of Mr. Pike's work is to visit the schools, and he frequently gives a story-telling evening for the school children, at some school house on Friday evening. He tells the story of Enoch Arden, Evangeline, a talk about Lincoln, and the like. Like Oliver Twist, the youngsters clamor for more after they have had an hour and forty-five minutes of it. The corn contests came in for a share of Mr. Pike's attention. Seven counties have been organized in this work, and the results are interesting. Ionia and Clinton are in line, and he hopes to have Gratiot in the list. He showed by statistics that the corn crop of 1910, if loaded into farm wagons with teams attached, would make a procession around the earth 18 teams wide. Surely it would not be difficult to locate the corn belt. Mrs. Bemis discussed the subject, and said that to interest boys and girls in live things and to let them have interests of their own is to settle the discipline of the family. The boy who has a corn field of his own finds few temptations to go astray.

Oppose Reciprocity with Canada.—At a recent meeting of the Maple River Farmers' Club the subject, "Resolved, the placing of Canadian farm products upon the free list as advocated by President Taft is highly detrimental to American agriculture," was ably presented by Theron Gladden, Jr., in a paper that showed the writer had given the matter profound study. That farm products should be admitted in this country free of duty can not do otherwise than cause a depression in the market, consequently lowering the price of American product. That wheat and other grains should be admitted free of duty, and when manufactured into the finished product a high duty be placed upon their admittance is a direct blow to the farmer and a protection to the manufacturer. P. B. Reynolds said that if the present reciprocity measure advocated by President Taft in the McCall bill goes into effect it means a period of agricultural depression. Farmers are just getting to a point where they can do business on a cash basis and now to upset the whole thing is nothing less than utterly preposterous. When the American farmer is not prosperous then all other industries must come to a standstill and hard times, idle labor and low prices prevail.

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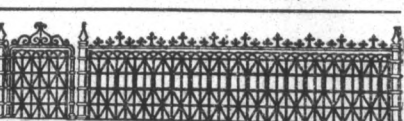
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