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Concrete Construction

IN making preparation to use concrete for construction considerable importance must be attached to the character and proportions of materials used. Poor construction of this material is almost worse than none. On the other hand, it is a waste of material to put into a wall or foundation the workmanship or material that would be necessary for a water tank or floor. It is well to consider also that construction of this material is of the most permanent kind when properly done. For this reason a great deal of care should be exercised to make this construction of the most approved kind. To make a mistake in building a straw shed is of no great consequence for it is soon torn down or replaced, but to build a barn basement wall of concrete and fail to leave openings for sufficient lighting is to leave behind a record of lack of knowledge and foresight. This fault, too, would become more glaring with time.

I have attempted in the following to give briefly the specifications of good materials for concrete as well as a few requirements of good construction.

Cement.

Cement should be of a quality which will pass test by the American Society for Testing Materials. Most cements are of this grade when leaving factory. It must contain no lumps which will not break up easily when removing from bag. New cement has a smooth, velvety feeling. It should be kept dry in the warehouse and before using.

Sand.

The grains of sand should be of a size which will all pass a sieve having four meshes per lineal inch. It should be clean, sharp and graded in size from the smaller to the larger sizes, preferably more of the larger. A sand containing a large per cent of very fine sand should be avoided.

Gravel.

The material which will not pass through a wire screen of $\frac{1}{4}$ -inch mesh is called gravel. It should range from this size to that which will pass a $1\frac{1}{2}$ -inch ring. For foundations and like work larger stones may be used but they should be clean and preferably mixed with the concrete where possible.

Bank Run Gravel.

The mixture of sand and gravel as it comes from the bed or pit is called bank run gravel. It often contains too much fine material. Where strength is desired or to effect a saving of the amount of cement used it will sometimes be found profitable to screen the bank run gravel and remix it in the proper proportions.

Testing Materials.

No simple, reliable test has been found which can be recommended in all cases for the strength of cement. The reliability of the factory or dealer must be depended upon to a large extent where only small lots are used. Where large quantities are used careful scientific tests are made. Sand and gravel may be tested for cleanness by placing about four inches of the material in a glass jar, filling it nearly full of water, shaking it for five minutes and allowing to settle. If a layer of more than a half inch of clay is deposited in settling it should be considered unsatisfactory and should be discarded or washed. Bank run gravel may be tested for proportions of sand and gravel by screening a quantity through a quarter-inch screen. In any case, it would not be economy to use it where the volume of the sand screened out is more than three-fifths the volume of the gravel.

Proportions.

The relative quantities of cement, sand and gravel used for concrete are nearly

always expressed in terms of three parts as 1:2:4, meaning one part cement, two parts sand and four parts gravel. Proportions should be used according to the requirements of strength and watertightness of the work to be done.

The following proportions have been recommended:

- 1:1½:3 for work especially smooth and watertight.
- 1:2:4 for tanks, cisterns, silos, fence posts, anchor posts, steps, thin walls and all reinforced work.
- 1:2½:5 for heavy walls, floors, sidewalks, and foundations.
- 1:3:6 for heavy foundations and piers.
- 1:4:8 for very heavy footings for walls

sand and gravel separate, and bank run gravel.

Sand and Gravel Separate.	Bank Run Gravel.
1:1½:3	3.6
1:2:4	4.5
1:2½:5	5.4
1:3:6	6.4
1:4:8	8.3

From the above it will be seen that where a 1:2:4 mixture is recommended with the sand and gravel separate a 1:4½ mixture of bank run gravel should be used, providing, of course, it may be obtained reasonably well graded in size of pebbles from fine to coarse.

Mixing.

A mixing-board will usually be found advantageous. It should be about 10 feet

Where possible a wet mixture, i. e., one on which the water will come to the surface, when tamped, should be used. A wet mixture will insure a more dense mixture and is more easily compacted by shaking or quaking with a spade or wooden rammer than the dry mixture which requires careful tamping.

Estimating Quantities Required.

Rule, divide 11 by the sum of the parts used. This will give the number of barrels of cement required for each cubic yard of concrete. Example: $11 \div (1+2+4)$ or $11 \div 7 = 1.57$ barrels of cement required for each cubic yard of poured concrete, assuming proportions of 1:2:4. If, then, a wall were taken nine feet long, nine feet high and one foot thick, it would contain 81 cubic feet or, dividing by 27, three cubic yards. Then, since each cubic yard requires 1.57 barrels for a wall of the dimensions taken, there will be required $3 \times 1.57 = 4.71$ barrels. From seven-eighths to the same volume of gravel may be taken as the space to be filled and the sand one-half as much. In the example taken above three yards of gravel and one and one-half yards of sand would not be greatly in excess of that needed. For bank run gravel the space to be filled with concrete should be figured and the same volume of gravel taken. To compute the amount of cement in this case, figure on the same basis as if a three-part mixture were used.

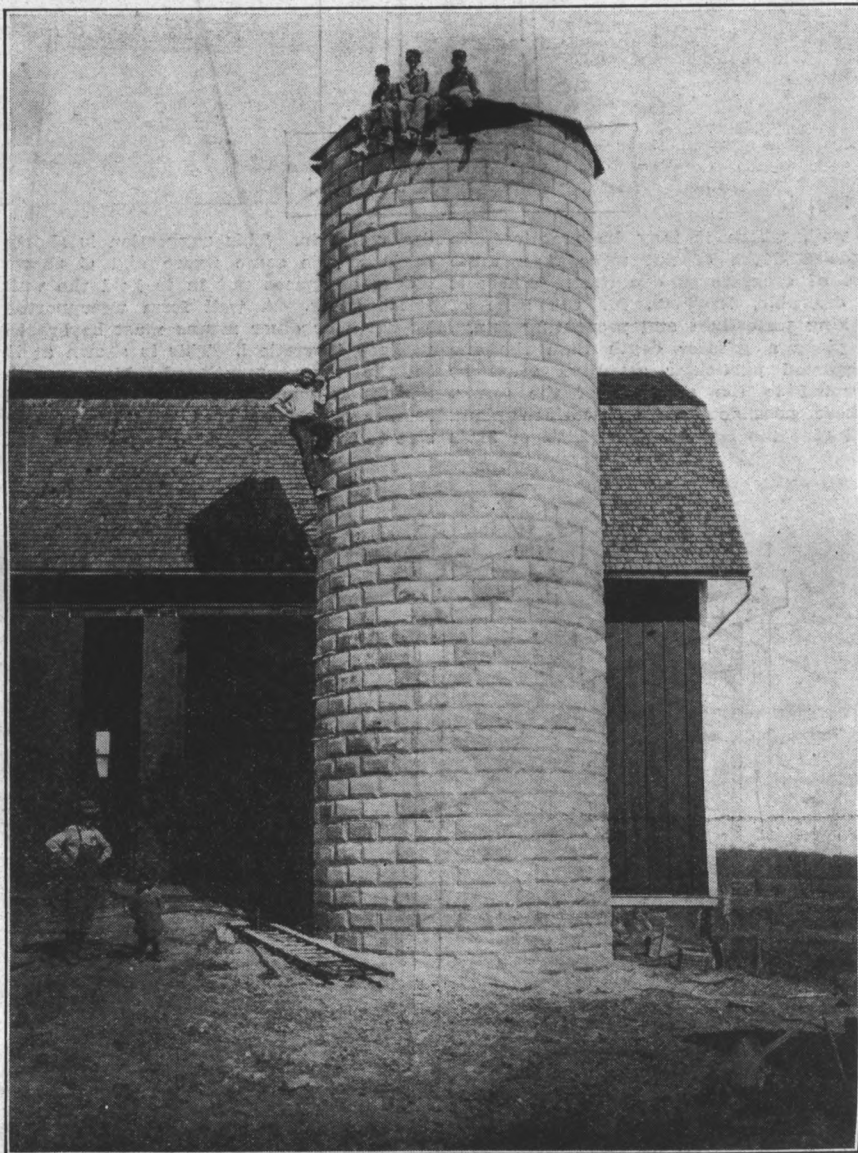
Permeability.

With a concrete of proportions 1:2:4 of properly graded material, work may be made reasonably waterproof. Compounds are recommended for waterproofing but these are not infallible and should not be used without judgment. Plastering a clean concrete surface before completely set, on the side next the water or dampness will aid very materially in waterproofing. Washing a cleaned surface with cement and water wet to the consistency of cream will also help out in this respect. Neither plastering nor cement painted on should be allowed to dry for a few days or until the process of setting is well undergone. Plastering, especially to remain permanent, must be laid on a thoroughly clean and well-wet surface and be kept damp for a period of three days at least. To clean an old surface it should first be washed with a dilute solution of hydrochloric acid (muriatic acid) and water, and afterward washed with clean water before applying the plaster.

Following will be found specifications for a few types of concrete construction.

Drain Tile.

Especially care is necessary in the manufacture of drain tile. This work requires attention to details and failure to observe any one of several rules may result in an unsatisfactory product. Poor materials, methods and care in packing, and forming, and neglect in curing may all result in worthless tile. Perhaps no detail of construction of the tile needs to be emphasized more than curing. In a foundation a poor product from lack of water may not be so glaring because the outer part only of the wall may dry before the inner part has time to set. With tile, however, the walls are relatively thin and consequently dry out very quickly. Water is absolutely necessary to complete the process of setting and it is, therefore, necessary that the tile be kept damp for a period of ten days. With regard to the porous walls of the tile made in packing or forming, it was formerly thought by some that this was an advantage in so far that the water would pass more readily through the tile walls. Recently it seems to be shown that some soil waters have a deleterious effect upon the tile, and that the porosity of the



Concrete Block Silo Recently Built on the Farm of Wm. Wilson, Montcalm Co.

or where a large mass of concrete is used.

Where bank run gravel is used the quantities are expressed in terms of sand and gravels, as 1:4½. It must be recalled that 1:4½ bank run gravel corresponds to a 1:2:4 mix where the sand and gravel are taken separately. In the latter mixture the interstices between the pebbles are filled by the sand and consequently the resulting mixture takes up little more space than the gravel. For convenience the following table is given showing the corresponding proportions of

square and of wood which will not easily sliver. Concrete is sometimes mixed on a smooth earth surface but this will not generally be found satisfactory because concrete cannot be mixed as wet as is desirable for most purposes. Then, too, without considerable experience in mixing, considerable earth will be found to be mixed with the concrete in the process. Other tools and equipment needed will be square, pointed shovels, wheelbarrow, rake, water barrel, buckets, sand screen and sometimes hose, where water pressure may be had.

tile which will permit water to pass directly through the walls is not desirable on this account. The deleterious effect above mentioned is manifested by a crumbling of the tile walls after a period of time. So far as evidence points, this seems to be more particularly true of peat soils where there seem to be unsatisfied compounds which break down the cement which form the binding properties in the tile. Failures of tile have been reported but it has been difficult to say at this time whether in every case the cause has been improperly made tile or the deleterious effects of the soil. At any rate a tile as nearly impervious to water as possible should be insisted upon.

The recommendations of the Interstate Cement Tile Manufacturers' Association for the manufacture of cement tile contain some valuable suggestions for those unacquainted with practice in tile manufacture. A very careful selection and proportioning of the materials or aggregates somewhat along the lines suggested above is recommended. Where the materials are not carefully tested, a mixture not lower than one part of cement to three parts of sand is used. The mixing is to be done in a dry state until the cement is thoroughly distributed, after which water is added to secure the proper consistency and the mixing is completed until the mass is uniform in color. Machine mixing is also recommended as being best. The consistency of the tile is considered important and should be made wet enough to show web-like markings on the surface of the tile when the forms are removed. The concrete should also be used within 30 minutes after mixing and should not be remixed with water and used after it is partially set. The packing of the tile is also important and should be of such uniformity as to prevent layers or planes of weakness in the walls.

Probably curing is the most important factor in making concrete tile and it is well to note what is required in this respect. In the first place, the factory-made product is to be protected from drafts and drying out. After hardening sufficiently to permit the tile shall be sprinkled at least three times a day for a period of six days, after which they are piled in the yard for 24 days.

Posts.

A great many claims have been made for concrete posts. Some have proven unsatisfactory partially because not properly made of good materials, and partially because too much has been expected. Concrete posts cannot be expected to have the strength of wooden posts, though if properly made their permanence will be superior to that of wood. It will be more advantageous in some cases to remove an occasional broken concrete post than to replace an entire line of wooden ones. The cost of good concrete posts, labor included, will not be less than 25 cents apiece. The simplest shape of post consists of a square section five inches square at the base, and three inches square at the top, and the desired length. No provision is made for fastening the fencing to the post other than by a piece of No. 12 wire passed around the post with each end wrapped around the line wire of the fence.

It is necessary to reinforce concrete posts. This is done by placing a No. 6 wire with the ends hooked one in each corner from one-half to three-fourths of an inch from the outside of the post. It will be seen that this requires about three pounds of reinforcing per post, and it is not considered advisable to use less than this. Posts should be made of a 1:2:4 mixture of cement, sand and gravel, or 1:4½ of cement and bank run gravel. Owing to difficulty in placing around reinforcing gravel containing pebbles larger than one-half to three-fourths inch cannot well be used. Posts may be made with wet or slush concrete and may be compacted very well by jarring or shaking the mold. A form is very desirable in which the reinforcement may be held in place while the concrete is being put in.

Anchor Posts.

These may be about 10 inches square at the top and 12 to 16 inches square at the base. They should be built in place of course, on account of the weight. Reinforcement may consist of half-inch rods placed, one in each corner of the post about one and a half inches from the outside. Provision should also be made for fastening gates where this is to be done. The forms in which the posts are poured may extend to the footing of the post. This arrangement economizes on the amount of concrete necessary to use and gives a good broad footing to the

post. The accompanying cut will give suggestions of methods of attaching both gate and fence.

Walls.

In erecting wall forms great care must be exercised to secure rigidity and strength. The outward pressure due to a depth of several feet of fresh wet concrete is enormous and for that reason it

pose of convenience in twisting up these wires it is common practice to make walls not less than 12 inches thick. This enables a man to get between the forms if necessary to do the work. For a thinner wall another plan is suggested by which the wires may be drawn up from outside the forms. By using this scheme a tie wire for a six-inch wall may be

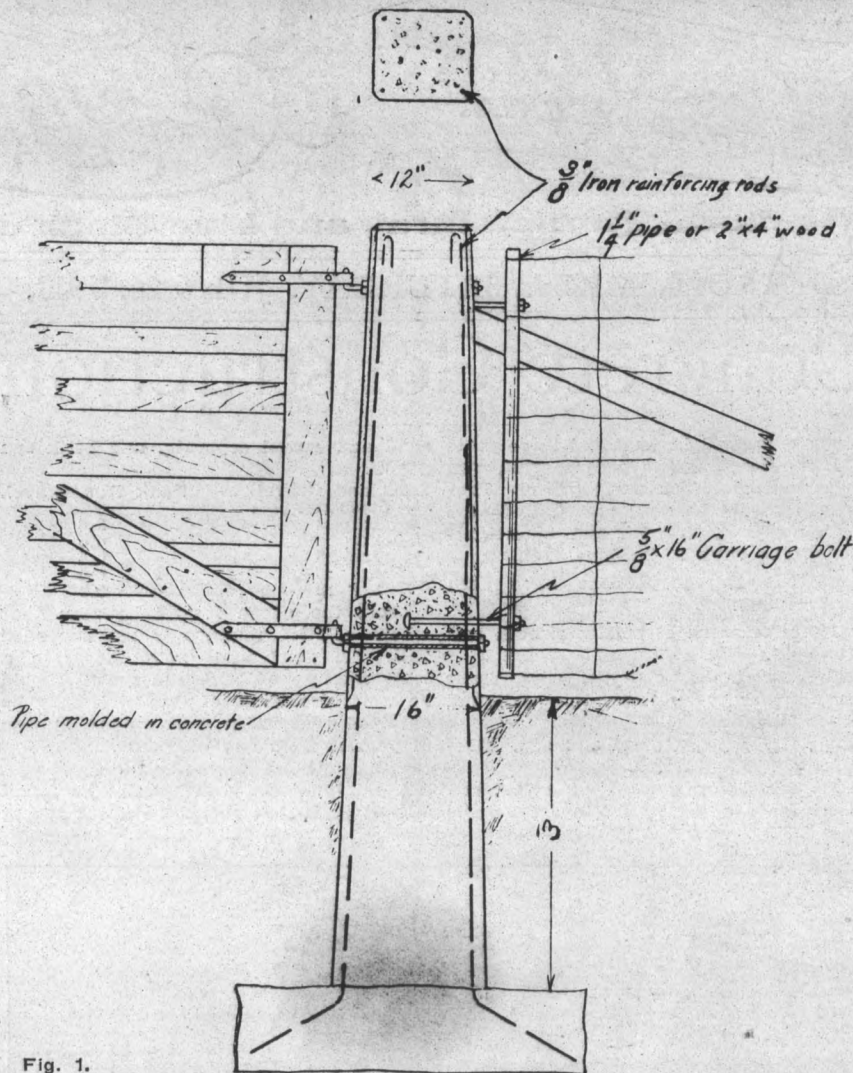


Fig. 1.

is well, where it may be practiced, to place a depth of not more than three feet of concrete at one time. Where it is desirable, however, for the sake of making watertight and preventing joints, to place a greater depth than the one suggested particular attention must be directed to the strength of the forms. Where possible to use, two-inch plank will give the least trouble; 2x4's or 2x6's

are easily put in. This suggestion is shown in B in the same figure and C shows blocks or spaces put in to hold the wall forms apart. A wall form unsupported by earth or other means must be braced to keep it vertical. This is shown at D in the figure mentioned. If a smooth surface is wanted to the wall, matched lumber should be used with the smooth side to the wall. Spading or pushing back

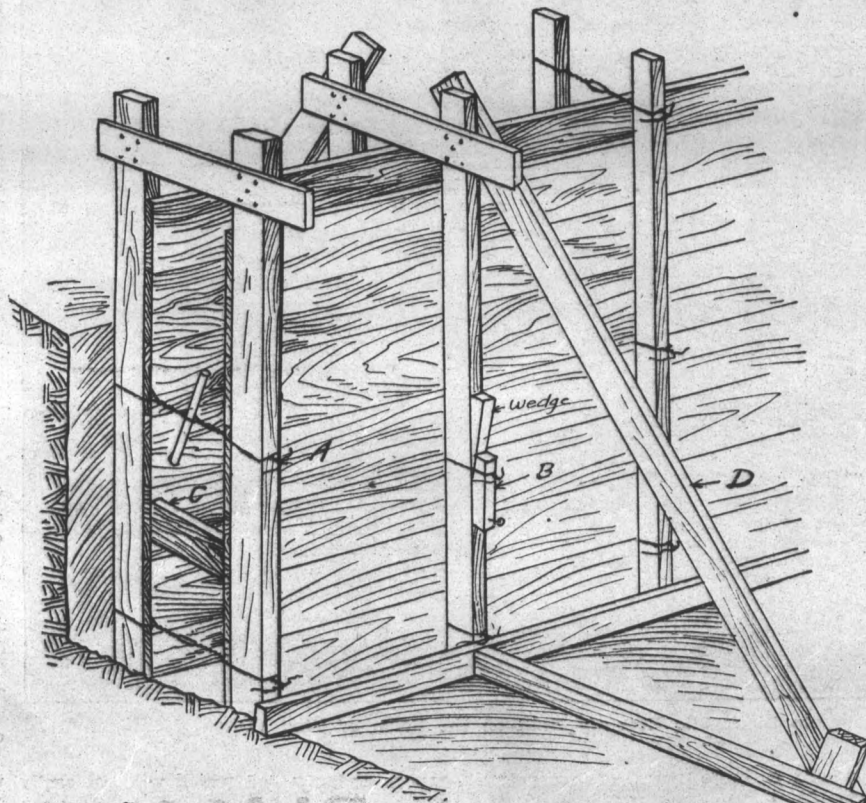


Fig. 2.

are spaced opposite each other and outside the boards which constitute the forms. When inch-boards are used for forms these studding should be set not more than two feet apart. Tie wires consisting of No. 9 wires are then looped around these studding and twisted as shown in A in figure 2. On each piece of studding these tie wires must not be spaced more than two feet apart if the depth of concrete laid at one time is to be more than three feet. For the pur-

pose of convenience in twisting up these wires it is common practice to make walls not less than 12 inches thick. This enables a man to get between the forms if necessary to do the work. For a thinner wall another plan is suggested by which the wires may be drawn up from outside the forms. By using this scheme a tie wire for a six-inch wall may be

Tanks.

Water or stock tanks on the ground are easily made. A word of caution is timely, however, in their construction. The greatest danger to such tanks comes from frost heaving them and cracking

the concrete. For this reason it is best to place them on a bed of porous material such as sand, gravel, or cinders, and then provide drainage for this bed. By using sufficient reinforcing, however, the effect of frost may be overcome in small or medium-sized tanks. Reinforcement is well made of three-eighth-inch iron rods, spaced about one foot apart in, and running horizontally, with an occasional vertical rod which may be tied to the horizontal rods with small wires. Care should be taken to have the reinforcing extend around the corners of the tank as this is the weakest place. The concrete for tanks should be poured in one day, if possible, to prevent the formation of seams and cracks between the old and new concrete. As soon as the forms are removed the tank should be washed on the inside with cement wet to the consistency of cream. The above rules for reinforcing will not apply to tanks larger than four feet high and ten feet on the longest side.

Silos.

Concrete silos give good satisfaction. It is not advisable for the inexperienced to attempt to build a solid silo of concrete. Cement blocks also make a good silo and may be laid up by the local mason. Blocks may be made on the farm for this type of silo. In the silo, reinforcing is of prime importance, as concrete is not of sufficient strength in tension to withstand the outward pressure caused by the weight of the silage. No. 3 wire, which is about one-fourth of an inch in diameter, laid in the mortar joint, is frequently used for reinforcing. The number of wires to be used in each mortar joint will be determined by the distance from the top of the silo, the greater number being required at the bottom where the heaviest pressure comes.

Farmers' Bulletin No. 46 (The Use of Concrete on the Farm), prepared by the Office of Public Roads in the United States Department of Agriculture, gives information in regard to concrete construction. Address Division of Publications, United States Department of Agriculture, Washington, D. C.

Mich. Ag. Col. H. H. MUSSELMAN.

FARM NOTES.

Fertilizer for Alfalfa.

I am going to put in 12 acres of alfalfa and want to fertilize it. What should I put on? This is a light soil. Oakland Co. J. S.

The very best fertilizer to use as a preparation for alfalfa is stable manure, particularly on land which is deficient in its content of vegetable matter, as it improves the mechanical or physical condition of the soil as well as increasing its plant food content, and at the same time tends to sweeten it and make it a more suitable home for the bacteria peculiar to the alfalfa plant and which must be present in the soil for its success. Undoubtedly, however, a liberal application of mineral fertilizer will aid in getting a good stand of alfalfa and help future yields not a little. Also a little nitrogen will help to give the plants a rapid start until the bacteria develop in the roots. Four or five hundred pounds of a good grain fertilizer could be profitably applied where no stable manure is available, but a liberal application of stable manure, supplemented by commercial fertilizer, would be still better as a preparation for alfalfa.

Eradicating Bindweed.

I am mailing under separate cover a sample of a vine, which I find growing in a young orchard on my farm near Paris, Mich. The orchard is planted to beans this year. This vine appeared last year, and has spread out and covers a larger space this year. None of the farmers living near this place seem to know what it is. I would be pleased to have you advise me through your valuable paper what this vine is, and the best method to eradicate same from the soil, as I am desirous of getting rid of same. One party advises me to put the bean straw back on the field this fall, and next year summer-fallow instead of putting in a cultivated crop. Mecosta Co. H. J. H.

The specimen enclosed is undoubtedly Convolvulus arvensis, L., a member of the morning glory family, known by various names, such as field bindweed, small bindweed, hedge bells, bearbind, bellbine, corn-bind, lap-love, sheep-bine, etc. This is a very persistent weed and difficult to eradicate, particularly in sandy or gravelly soils. It is a perennial with a very extensive creeping root which penetrates far into the soil. It is readily spread by means of these roots, any piece of which having one or more buds is capable of starting new plants.

For this reason ordinary cultivation is of little avail in its eradication, as it is further scattered rather than destroyed

by ordinary methods of cultivation in an effort to eradicate it. While it is easily spread in this manner when once established it may be often introduced as an impurity in seed grains or grass seed.

The methods more generally advised for its eradication include the frequent introduction of well cared for hoed crops in the rotation, making the rotation a short one. If some late planted crop is used and the ground is kept thoroughly cultivated with a broad shovel cultivator or one equipped with thistle sweeps which will cut off the plant just below the surface of the ground, this treatment will greatly assist in subduing the weed. In Ontario where it is troublesome, one treatment recommended is after such preparation of the soil as is above advised, to sow rape in drills about the first of July, keeping same cultivated, and hand-hoeing if necessary. This rape is pastured off in the fall, and where the weed is bad the land is planted in corn or some other hoed crop the following season.

Where summer fallowing is practiced, which is quite common in the eradication of this weed, the use of the broad-shared cultivator or thistle sweeps is quite essential. In some cases buckwheat is sown on a summer fallow after a period of cultivation and plowed under when in full bloom, similar cultivation being used after plowing.

This would hardly be suitable for a young orchard, however, where it would be better practice to leave a late sown cover crop in the ground over winter. It would probably be quite as good a plan as any to put this bean straw back on the field or the manure which is made from it and summer fallow during the fore part of the season, using a late sown cover crop or a late planted hoed crop as desired, as a means of finishing the process of eradication.

Clipping a New Seeding of Alfalfa.

I have ten acres of alfalfa that was sowed the last of May and ranges from one to six inches in height. Would like to know if it will need clipping this year, and if so, what time will be best?

Charlevoix Co. J. M. F.

The best and only real good time to clip a new seeding of alfalfa is when the new shoots have started out from the crowns of the plants to make a second growth. Clipping at other times may have a deleterious effect upon the plants and should not be practiced unless same is necessary to keep down the weeds in the stand, in which case the weeds should be clipped as high as possible so as to leave some foliage on the alfalfa plants, provided they are not at the particular stage of growth above described when clipping becomes necessary. Clipping should not be practiced too late in the fall for best results in the survival of the stand of alfalfa over winter.

Sweet Clover.

Will someone with experience please give me some facts regarding sweet clover? For what is it valuable? What time of year should it be sown for best results, and how much seed per acre? Does it inoculate the ground sufficient for the successful growing of alfalfa. If so how long is it necessary to let remain in the ground before breaking up to seed ground to alfalfa, and when broken up should ground be thoroughly worked one summer before seeding to alfalfa? Any other information regarding sweet clover as to when it goes to seed, etc., will be greatly appreciated. I am particularly desirous of preparing the ground for alfalfa.

Wexford Co.

A. G.

While sweet clover has been very generally regarded as a weed, its adaptation to useful purposes has led up to its cultivation in some sections of the country. It is said by those who have given it a fair trial, that it can be profitably utilized as pasture, as a soil improver for ensilage or for hay. Probably its most useful purpose in our agriculture, however, would be as a soil improver. Like other leguminous plants it has the power to appropriate nitrogen from the air, which aids in its own growth and the crops which follow it as well. In addition to that, its vigorous habit of growth insures a large amount of vegetable matter to plow down to improve the humus content of the soil where a successful stand is secured.

It is best sown in the early spring, as under normal conditions that is when the seed germinates most freely. It should however, be seeded on land which has not been freshly plowed, as it requires a firm seed bed for best results. It may be seeded with a nurse crop of spring sown grain or even sown later in the season with fair results. One difficulty in securing a stand is owing to the fact that many of the seeds are known as "hard seeds," that is, they have such a hard, thick shell that the moisture cannot

penetrate it easily to cause germination. Some experiment stations advise soaking the seed in commercial sulphuric acid for a half hour, then washing quickly, using running water, and using as large a volume of water as practicable in order to prevent burning of the seed, then getting it dried as quickly as possible. Where this is not done 20 to 30 pounds of seed per acre is advised. Such treatment is said to have increased the percentage of germination 40 to 45 per cent in tests made by the Department of Agriculture. As great care must be used in this treatment, however, it is doubtful whether it would be advisable for any except large growers. If so treated it should be done just before seeding. This method of handling the seed may be said to be still in the experimental stage.

Almost any reasonably well drained soil will grow sweet clover, although it, like other legumes, grows better on an alkaline soil, a fact which can readily be seen by a little observation. Sweet clover will generally be found growing luxuriously along the side of the road where gravel has been applied, the gravel doubtless containing pebbles of limestone which have been ground up and distributed along the roadside in the form of dust.

If a soil needs lime for alfalfa, as most sandy soils apparently do, it would be better to apply the lime before the sweet clover is sown if it is to be used as a preparation for alfalfa. As to the advisability of sowing sweet clover as a preparation for alfalfa, this will depend not a little upon the physical condition of the soil. It is not at all certain that it would be much, if any, easier to get a good stand of sweet clover than of alfalfa, but if the soil is deficient in humus, and a good stand of sweet clover is secured, this difficulty would be remedied more quickly than in any other way and the soil would at the same time be inoculated with the bacteria peculiar to alfalfa, which is said to be the same as that for which sweet clover is the host plant. However, if this bacteria is not present in the soil it might be necessary to inoculate for the sweet clover in order to get a good stand quickly. Sweet clover is a biennial, seeding and completing its life cycle the second year; consequently it should be plowed down the second season to secure a maximum of benefit from the crop as a soil improver. If this is done before the plant seeds it will not remain as a weed, but it will not be troublesome in this respect in a cultivated field.

Like other new crops with which we are not wholly familiar, it is probably better to experiment with it on a small scale at first, although its possibilities as a soil improver make it well worth our consideration, notwithstanding its unsavory reputation.

An Uneven Growth of Alfalfa.

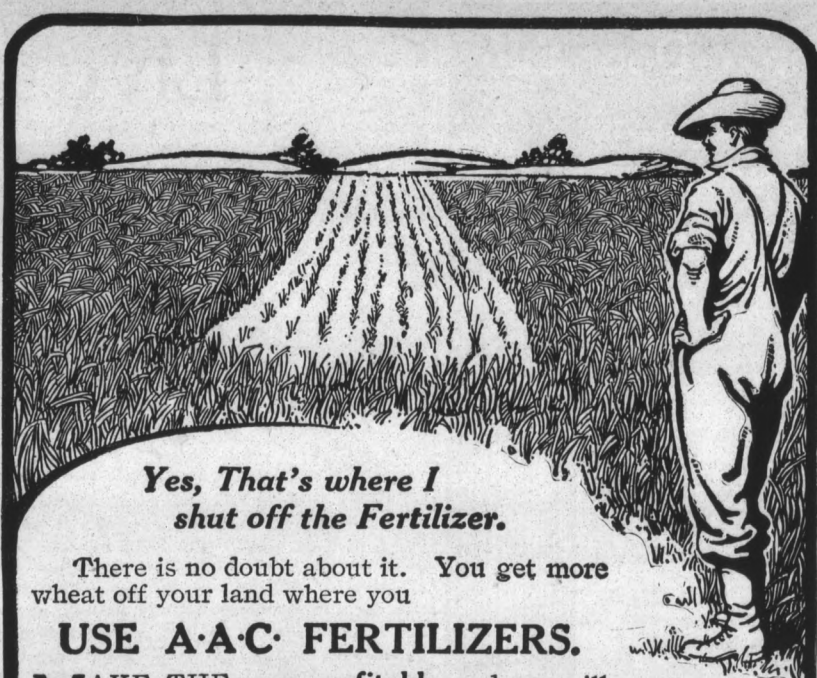
Will you please tell me what is the matter with my alfalfa? There are places where the alfalfa is eight or ten inches high, and in spots not over ten feet away there is scarcely any, and that not more than one inch high. I did not inoculate the seed or test my land for acid. It is a heavy clay soil. It was in oats last year, was plowed last fall and disked and sowed again this spring and is sowed with 40 quarts of oats to the acre. I drilled the oats in and then sowed the alfalfa and dragged it in with a spike-tooth harrow. Alfalfa is something new around here but quite a number of farmers tried it this spring.

Delta Co.

I. C.

There is probably no doubt that this variation in the appearance of the alfalfa is due to imperfect inoculation. This can ordinarily be readily told by the appearance of the plants, not only as to size but as to color, the inoculated plants being of a much darker green color and much more thrifty in appearance than the uninoculated. It is, however, an easy matter to determine this to a certainty by taking a spade and digging up some of the plants and being careful not to strip the nodules from the roots if any are present, in getting them out of the dirt.

Heavy clay soils are not so apt to need lime as lighter soils, although in many cases they do need it, but if there is apparently good inoculation in spots the bacteria may spread to the other portions of the field. At least unless lime is needed there will be no difficulty in getting a stand on this field the next time it is sown if the present seeding does not develop satisfactorily. First experiences in growing alfalfa are sometimes discouraging until we become acquainted with the requirements of our soils for success with the crop, when it is quite as easily grown as are the clovers.



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Live Stock.

WHY EVERY STOCK FARMER SHOULD GROW ALFALFA.

FARMERS are mighty slow in taking advantage of the possibilities of growing alfalfa. It has been demonstrated time and again that this plant can be made to thrive and produce profitable yields in a greater variety of climates and soil conditions perhaps than any other crop. It is grown successfully in the north, the south, the east and the west and has adapted itself to all these varying conditions when given the proper start.

The reason why more farmers do not try the crop is because they do not appreciate its value and great worth. The growing of alfalfa can be made to solve the feeding problem on our farms, making it unnecessary to buy a pound of expensive concentrated feeds to balance the ration for our live stock. It makes an ideal combination with silage for cows, is the most economical roughage for fattening cattle, is fine for sheep and also is recommended for horses. Its feeding value not only is greater than that of other hay, but the yield per acre when once established, being an average of about five tons, is two or three times as great.

The value of a roughage for live stock is not in the quantity of its bulk but in its quality and pounds of digestible nutrients—protein, carbohydrates and fat—contained. In this alfalfa is the equivalent of wheat bran and equal to more than two tons of timothy. The value of different food nutrients as given by the United States Department of Agriculture is: Protein, .067 a pound; carbohydrates, .006 a pound; fat .01 a pound.

Using these figures as a basis for calculation, alfalfa hay is worth \$20.16 a ton for feed while timothy has a value of only \$9.44 a ton. It is three times as rich in protein, the most expensive part of any cattle feed, as ordinary hay and it contains practically the same amount of carbohydrates, the cheapest portion. The value of the food constituents of oats at the above prices is \$19 a ton, there being 184 pounds of protein worth \$12.84 at 6.7 cents a pound, and 1,140 pounds of carbohydrates at 0.6 cents a pound worth \$6.84.

Two tons of timothy is considered a good yield. Soil that will produce this will grow five tons of alfalfa under average conditions. The feeding value of an acre of timothy would be \$18.88 while the feeding value of an acre of alfalfa would be worth \$100.80. In other words, it would require more than five acres of timothy to equal one acre of alfalfa and then one would not have the right proportion of protein to the carbohydrates. This means that four acres of alfalfa will produce nutrients having a value for feed of 20 acres of timothy.

With the alfalfa no concentrated grains will be necessary in order to feed a balanced ration. No matter how much timothy or silage is on hand, one must buy expensive grain feeds for balancing the ration. Alfalfa, containing about seven per cent digestible protein, will furnish all that is necessary.

After the crop has been grown the average cost to produce it is about \$3 a ton, seldom running more than \$15 an acre. For this reason alfalfa is a stupendous boon to the live stock industry, when a farmer can raise for a cost of \$3.00 a ton alfalfa that will take the place of a ton of bran which would cost about \$24. Instead of having to spend all of one's profits of several hundred dollars to buy grain, this money can be added to the profits of the farm.

The fact that a few farmers have succeeded in growing it proves what can be done when proper conditions are provided. Many have tried it as they would oats, wheat or corn and when it fails, they give up, concluding the crop is not adapted to this section. While alfalfa is a vigorous crop when once established, it is absolutely essential that right growing conditions be provided at first. To neglect any one of these essentials may mean failure.

Penn. L. J. HAYNES.

PROFIT IN SHEEP RAISING.

That farmers may derive handsome profits from sheep raising if they will but give their flocks the necessary care, is

the opinion of Frank Kleinheinz, shepherd of the flock of the College of Agriculture of the University of Wisconsin. Because of the constantly increasing demand for mutton and the corresponding increase in the price paid the farmer for his sheep, this well known flockmaster is confident that the man who has a well-drained farm and properly manages a flock of sheep of good mutton type and conformation will be well satisfied with his returns. At the same time he will know that his farm is being freed of weeds and that his fields are steadily becoming richer. The farmer who keeps a decidedly inferior flock of sheep and largely as scavengers is wasting his feed and can not expect to realize satisfactory profits. Well-bred and well-built sheep will require no more and even less feed than those inferior in character.

INCREASING THE LIVE STOCK SUPPLY.

Our population is rapidly increasing, while our live stock supply is constantly decreasing.

We have solutions for other problems, and I believe there is a solution also for this. I think all agricultural papers should encourage farmers to keep more live stock. We know that the Michigan Farmer is doing its duty along this line. If the Department of Agriculture would issue special bulletins, and distribute them widely, which would advocate the maintenance of more stock on the farm; if lecturers at farmers' institutes, and at Grange and Farmers' Club meetings would impress farmers with the same idea, there would, no doubt, be produced beneficial results.

Farmers, too, ought to be encouraged to keep pure-bred, or good grades of general purpose cows, something in which there is a combination of dairy and beef qualities.

If the slaughtering of all female calves was delayed until they were at least two years of age this would enable their owners to discover, somewhat, their breeding qualities, and if thought desirable be allowed to take the place of the "star boarders." Marketing more mature cattle means a greater beef supply. Many farmers think we could not produce and procure enough feed, but I believe we could by the following methods:

First, by building silos on all farms, with the exception of the very small ones. The silo stands today without an equal, for the economic production of roughage. The corn silage which can be produced from an acre of corn goes on an average five or six times as far as the cornstalks which could be grown on the same acre. Besides silage is so much more palatable, and its succulency assists to digest other feeds more thoroughly, so that its full value is hard to estimate.

Second, by practicing soiling, especially on farms which are too small for silos. Cattle waste more feed than they consume. It does not pay to pasture them, unless there is land too rough for tillage. Third, by the raising of more legumes, the most important of which are alfalfa and red clover. They are not only the cheapest source of protein, but having an excess of alkalies they are splendid correctives of the excess of acids in other feeds.

Fourth, by raising, on small farms without silos, root crops. Roots furnish succulency, and besides having an excess of alkali, they produce very beneficial results on some of the other feeds.

The production of more milk and alfalfa opens a channel for raising more hogs. Alfalfa is the ideal pasture for swine, and should not be pastured by any other animal. A greater production of mutton, rather than lamb, should also be encouraged. There are many acres naturally adapted to sheep raising.

More live stock, rightly handled, must also mean a fatter pocketbook or bank account, and also it not only maintains, but should increase the productivity of our farms, which means better crops, and still more live stock. And lastly, but not least, the home butcher would be furnished by the farmer, with the different kinds of live stock, instead of getting it from the large packing houses, thus saving the consumer at least two or three profits, without any loss to the producer whatever.

New York.

W. D. KORB.



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Self-Feed Hay Press Bales with least labor
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Attachment with Corn Harvester cuts and throws in piles on harvester or winrows. Man and horse out and shocks equal with a Corn Binder. Sold in every state. Price \$20.00. W. H. BUXTON, of Johnstown, Ohio, writes: "The Harvester has proven all you claim for it; the Harvester saved me over \$25 in labor last year's corn cutting. I cut over 500 shocks; will make 4 bushels corn to a shock." Testimonials and catalog free, showing pictures of harvester. Address **NEW PROCESS MFG. CO., SALINA, KANSAS.**

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LAKE SHORE STONE CO., Milwaukee, Wis.

Sweet Clover—Direct from grower to condensed biennial varieties. Prices and circular how to grow it FREE. John A. Sheehan, R. 4, Falmouth, Ky.

Wanted—Stump puller, either "Hercules or Steelyard" with cables and chains. Write full particulars and price. Geo H. Carpenter, 805 Ford Bldg., Detroit, Mich.

When writing advertisers please mention The Michigan Farmer.

Inbreeding or In-and-In Breeding.

WHEN line breeding is carried to its limit it involves the breeding together of individuals closely related, and when it goes so far as to include the breeding together of sire and daughter, dam and son, or of brother and sister, it becomes inbreeding, or what is sometimes called breeding in and in. Some would say that the breeding together of cousins or grandchildren would be in and in breeding, but this is not so considered.

Strictly speaking, there are only three forms of inbreeding possible among animals, namely:

First, breeding the sire to his daughter or daughters successively. In this instance the first offspring would have three-fourths of the blood line of the sire, and if carried to his daughter again by this union the offspring would have seven-eighths of the blood of the sire. And if this line of breeding is followed for any length of time it results in but one line of ancestry, thus practically eliminating the blood of the dam. Therefore, this line of breeding is only practical when the breeder wants to preserve and perpetuate the blood of an exceptional male.

Second, breeding the dam to her own son or sons successively. This practice makes the most of the blood of the dam and practically eliminates the blood of the sire. Either system is necessarily limited to the lifetime of an individual. By using grandson or granddaughter either system may be approximated, which would be called inbreeding, but relationship more remote would generally be regarded as line breeding.

Third, the breeding together of brother and sister. This form of breeding does not intensify blood lines but simply preserves the blood lines of both sire and dam in equal proportion. It is inferior to either of the other systems as a means of strengthening blood lines, but is employed when the combination has proven successful, thus establishing the new type. It has all the dangers of either system and in a larger degree.

Among plants there are two forms of inbreeding:

First, when the fertilization is by pollen from another flower on the same plant, as corn, melon, strawberry, etc.

Second, where the pollen for fertilization comes from the same flower, as wheat, oats, etc. This, being hermaphroditic, is the closest imaginable inbreeding and exceeds anything possible with animals.

Advantages of Inbreeding.

Nobody claims advantages in inbreeding for itself, but it is the acme of line breeding. It is the most powerful method of making the most of excellent individuals, and is a practical way of preserving a fortunate "nick."

The breeder expects in the mating of animals that like will produce like with variations. If like simply produces like we make no improvement. If, however, the variation of the unlike is better we wish to preserve and perpetuate it, and the best known way is by inbreeding. In the formation of new breeds inbreeding has been resorted to always with intensity. It is possible that a new breed or type might in time be formed by simply selecting the best individuals without inbreeding, but the great breeders of history recognized the importance of fixing and perpetuating the blood of excellent individuals by inbreeding.

Pedigree of Chas. Colling's Shorthorn bull, Comet:

Comet	Favorite	Bullingbroke	Hubback
		Phoenix	Habback
	Young Phoenix	Favorite	Bullingbroke
		Phoenix	Phoenix
		Phoenix	Hubback
		Dam of Favorite.	

As an illustration take the methods used by the Colling Brothers. In the formation of the present great breed of Shorthorn cattle. Mr. Charles Colling noted that his great bull, Hubback, had the prepotent power of producing excellent heifers, and to preserve and perpetuate this prepotency of power of this bull, Hubback, he resorted to inbreeding in the highest degree. A son and daughter, Bullingbroke and Phoenix, were mated together to produce the great Shorthorn bull, Favorite. Then Favorite was bred to his own dam, Phoenix, to pro-

duce Young Phoenix. And now Favorite was again bred to Young Phoenix, his own daughter by his own dam, to produce the great bull Comet, the bull that sold at the dispersion sale of Charles Colling for \$5,000, the highest price up to that time ever received for an animal.

It would be reasonable to suppose that an inbred animal would be enormously more prepotent than any other, and such has always proven to be the case. Inbreeding is recognized as the strongest of all breeding, giving rise to the simplest of pedigree. A simple pedigree is recognized at once as a great advantage in the law of ancestral heredity. In this respect there is much greater possibility than in simple line breeding.

Disadvantages of Inbreeding.

The trouble with inbreeding is that it affects all characters of the individual, bad as well as good. The breeder intensifies the characteristics which he has, be they good or bad. It is like a double-edged sword, it cuts both ways. Hence, while the practice of inbreeding is to produce the greatest of results in perpetuating the blood and fixing the type of individuals, thus forming new breeds, on the other hand it has produced the greatest disasters that ever befell the breeding industry. Flocks and herds have been ruined time and time again by the practice of inbreeding. This, of course, has been the result only in the hands of ordinary breeders, but in the hands of the best judges of animals inbreeding is not necessarily disastrous.

The most common defects or results from in and in breeding are lack of vigor and low fertility, and this is undoubtedly because vigor and fertility are commonly defective characters. These defects are quite liable to occur even in cross-breeding. It is certainly not uncommon to find these two defects somewhat common in any kind of breeding. Hence, when this result is produced by in and in breeding it is not because this line of breeding was practiced but because not sufficient consideration was given in selection. Had proper judgment been exercised in selecting the individuals to be inbred, individuals which did not contain these common defects, the probability is that the result would not have been so disastrous. When more attention is given in the matter of selection to vigor and fertility and minor things or less important points not kept so common in mind, such as color or style, or action, etc., there will be less evil results caused from inbreeding. It can be safely said, therefore, that the practice of inbreeding with a novice or beginner will probably result in failure, but this failure is not inevitable. It goes without saying that there is not nearly so much need of in and in breeding at the present time than there was formerly in the formation of new breeds or new types of individuals. Breeders today are not trying to form new breeds. They may aim to modify type somewhat but they do not attempt to form new types. That had to be done in the beginning, consequently it is not so essential to breed together animals of such close relation. The necessity for inbreeding occurs now when the carefully observing breeder notes a superiority from certain matings, or a sport, if you please, and he wishes to preserve the superior characteristics of this animal. About the only way he has of accomplishing this is by inbreeding, thus eliminating the blood of all other animals as much as possible, except the individual which he wishes to preserve.

It can be readily seen that there occurs two situations where inbreeding is very common.

First, grading by the use of pure-bred sires. Here it is the co-operative judgment of the best breeders that inbreeding can be practiced almost with impunity. If great care is taken in the selection of a sire, if we are sure that he possesses marks of constitutional vigor, the results from inbreeding are much more liable to be successful than otherwise. Where the farmer has stock of any kind of miscellaneous breeding, cattle, horses, sheep, or swine, and he wishes to improve these by grading up by the use of a pure-bred sire it would seem to be a desirable practice to breed the daughters of the sire back to the sire, and if favorable results are evident it might be advisable to use the sire on the next generation of daughters which would intensify the blood of the sire. Then, by line breeding, selecting a sire of the same family of the previous sire

and carefully mating, nothing but the best of results should occur.

Second, where the breeder finds himself in possession of a small amount of superior blood, where he has made a happy "nick" in the mating of purebreds, it is advisable, and in fact is practically the only way that he has of preserving this excellence in his individuals. If he mates this with outside animals whose breeding characteristics are practically unknown he is liable to make exceedingly poor progress in perpetuating the excellency which has resulted from his happy "nick." But on the other hand, if he resorts to inbreeding he has a means of intensifying the blood of this individual to such an extent that he can preserve the superior characteristics and perpetuate them in the future progeny.

Many breeders, farmers in particular, seem to have a horror of in and in breeding. It is largely because they do not understand the laws of heredity and the laws of breeding. They seem to have an idea that incestuous breeding, or the breeding together of closely related animals, is wrong in itself and that the results are bound to be bad. But the history of breeding shows conclusively that bad results which had been accomplished by in and in breeding do not come because of the fact of inbreeding, but because of the fact that proper selection was not made of the individuals. They forget that inbreeding perpetuates bad as well as good qualities, that inbreeding is, as it were, a double-edged sword that cuts both ways, and if one wants to avoid disaster in in and in breeding he must select perfect individuals, individuals that do not have at least constitutional defects, otherwise these will be intensified and perpetuated, and the results will be disastrous.

PRIZES FOR SHIRE HORSES.

The Bureau of Animal Industry of the United States Department of Agriculture is informed by Mr. J. Sloughgrove, secretary of the Shire Horse Society of England, that the council of his society, desiring to encourage the owners and breeders of Shire horses in America, have resolved to offer ten gold challenge cups, valued at \$250 each, from the year 1913 to 1917, inclusive.

Two of these gold cups will be annually awarded to representative American shows in rotation during the five years that the scheme is in operation.

The council have selected the International Live Stock Exhibition at Chicago for their offer in 1913, and the gold cups will be awarded (a) for the best registered Shire stallion, (b) for the best registered Shire mare, duly certified by the official veterinary officer as sound and free from hereditary disease.

Horses entered for these cups must be registered or eligible for registration in the American Shire Studbook.

Breeders of English Shire horses in the United States will no doubt be interested and encouraged by this recognition of Shire breeding in the United States by the results will be disastrous.—Paper read at the Eighth Annual Meeting of the Alumni Association of the Grand Rapids Veterinary College, by Colon C. Lillie.

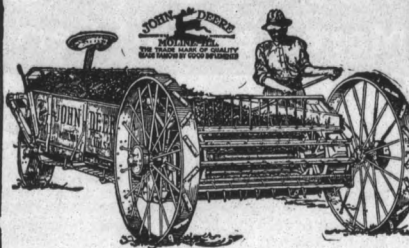
RETURN FROM USE OF MANURE.

The net return realized from a ton of yard manure under general farming conditions depends upon the soil, method of cultivation and crops grown. The Ohio Experiment Station has obtained an increase amounting to \$4.69 per ton from yard manure used at the rate of eight tons per acre in a five-year rotation of corn, oats, wheat, clover and timothy; four tons being applied to corn and four tons to wheat, this return being the average for the third five-year period; the average return from yard manure used in all tests in which rotation is practiced has been \$2.97 per ton for the whole time.

Cattle have not been marketed recently as liberally in Chicago as a few weeks ago, and this has helped to bring about better conditions for sellers, but it cannot be said that the consumption of beef is showing any signs of increasing. Hence, it is of the utmost importance that the receipts of cattle be held down to moderate proportions in order to hold prices where they are. Distillery-fed steers are being marketed rather freely, and grassy cattle are comprising an increasing percentage of the receipts, with especially large numbers going to the Missouri river markets. Kansas and Oklahoma pastures have been carrying a good many cattle, and when the dry, hot weather prevailed for weeks, many droves of cattle had to go to market while far from fat.

John Deere Spreader

The Spreader with the Beater on the Axle



The Low Down Spreader with the Big Drive Wheels

Here's your chance to get a low down spreader in which the advantage of big drive wheels has not been sacrificed for the low down feature.

The John Deere Spreader has revolutionized the spreader business. It is as much an improvement over the ordinary manure spreader as the modern binder was over the old-style reaper. Some of its good points are:

The Beater

And all its driving parts are mounted on the rear axle. Power to drive it is taken from the rear axle through simple gears like those that have been used on horse-powers for many years. This construction is patented. You cannot get it on any other spreader.

Only Hip-High

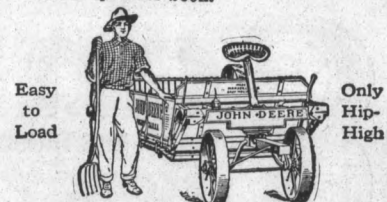
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Clutches, chains and adjustments; in fact, some two hundred parts in all, are entirely done away with. To throw the machine into operation, move the lever at the driver's right back until the finger engages a large stop at the rear of the machine.

Roller Bearings

Together with the simplicity of the machine itself, make the John Deere Spreader light draft. There are many more reasons that have helped to make the demand for John Deere Spreaders greater than all those interested in the spreader business thought possible. These features are fully discussed in our spreader book.



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It tells how John Deere Spreaders are made and why they are made that way. It contains illustrations and descriptions of working parts and colored pictures of the John Deere Spreader in the field. It also has valuable information regarding the storing and handling and applying of manure to the land. Get one of these books free by asking us for our spreader book, Y 5

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(What you got.) Registered Percheron Stallion, black, 17½ hands high, weighs 1800 lbs. This horse is sound, good style and a colt getter. No use for him. He will make you good money. Come quick. J. C. BUTLER, Portland, Michigan. Bell Phone.

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Sound and right in every way. Also a 3-year-old JACK. Or will trade for other live stock and real estate. Address W. G. Himmelwright, Frankfort, Ind.

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The Siloed Yellow Pine Saginaw

A Siloed Yellow Pine Silo has five years of service for every one of the ordinary type of silo, and costs nothing in time and money to maintain. Silo permanently preserves the wood—prevents shrinking and swelling of staves. Saves the heavy expense and labor of painting. Never evaporates or dries out—cannot wash off or blister. Our Siloed Yellow Pine Silos keep silage sweet and pure. They are giving wonderful satisfaction to their thousands of owners. Think of it! Hoops never need tightening!

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The Saginaw is not a common stave silo, but a "steel-built" stave silo with a solid, rugged, all-steel frame like a skyscraper. Has the patented Angle Steel Rib, the All-Steel Door Frame, the Saginaw Base Anchor and the Saginaw Inner Anchor. Our chain of five factories insures prompt service to silo buyers. You order today—we ship tomorrow.

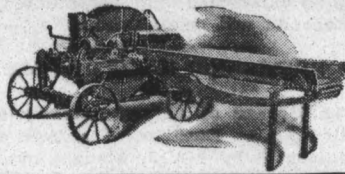
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The Whirlwind Silo Filler

can fill your silo in record-breaking time. Can fill every silo in the neighborhood and not break down. Can operate at maximum speed with minimum power. Get extra teams hauling corn; you'll need 'em to keep a Whirlwind going. The strain distributed evenly to all parts of strongly-braced, understrutted frame is one of the reasons it is so dependable a machine at all times. The heavy, solid cutter and blower-head is one of the reasons it is so powerful and absolutely safe. The mounting of the main shaft and four wide-apart bearings is one of the reasons it is so true running, with least vibration. The few gears—only five—and few sprockets—only four—is one of the reasons it is so easy running. The perfect knife and cutter-head adjustment is one of the reasons it is so simple to operate. The Whirlwind Silo Filler is a mechanical masterpiece.

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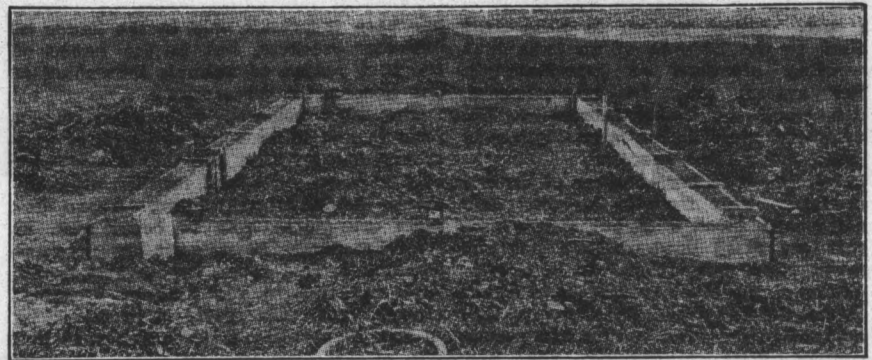
CONCRETE FOUNDATION FOR POULTRY HOUSE.

A good foundation is one of the essentials in poultry house construction, one that is proof against water, cold air and rats or other burrowing animals being desirable. For an ordinary house, a concrete foundation 4 in. wide and extending 6 in. above and 12 to 16 in. below the surface will prove satisfactory. The accompanying illustration shows a board form for such a foundation, filled with a concrete mixture. A number of bolts inserted in the concrete before it has set will make it possible to securely attach the sills for the building, which may be of very light timber. Where the surface is so flat or level that surface water will not readily drain away from the building it is best to extend the concrete wall to the height to which it will be necessary to grade to give proper surface drainage. Building the foundation in this way also makes the construction of the poultry house floor an easy matter if the work is done before the house is built. Filling the space enclosed by the

rob. They find honey when other races gather none, and the time of robbing is when there is no gathering. This may explain the above peculiarity. The last, and I think sufficient reason for preference, even if it stood alone, is that Italian bees are more amiable. When removing honey in the autumn other races are furious, seeking whom they may devour, and this, too, despite the smoker, while the far more numerous Italians are safely handled without smoke.

The advantages of the Italians, it will be seen, are more than sufficient to warrant the introduction of them into the apiary. Truly, no one should need coaxing to adopt a course that adds to the ease, profit and agreeableness of his labors.

The queen is the mother of all bees and is fertilized but once during her life of usefulness. Hence, to Italianize or change the race, all that we have to do is to procure and introduce a queen of the race we wish. By having a colony Italianized, we may commence the next spring and control the rearing of drones and queens and, before the season is



Concrete Foundation for Poultry House as Built at the Indiana Station.

walls with ashes or gravel until even with the top of the foundation when tamped down thoroughly, makes a very satisfactory floor. However, a few inches of concrete may be laid on top of such filling if a concrete floor is wanted.

ITALIANIZING BEES OR CHANGING THE RACE.

The viciousness of bees has often caused the exclamation, "I wish I had gentler bees," or, "I wish they made more honey." This is an easy thing to remedy, and it is a profitable and wise thing to do it. No need of keeping anything except the most profitable race and the one that is gentlest and easiest to handle.

This brings up the question of which is the best race. Queen breeders praise their Syrians, Cyprians, Carniolans, or Italians, but from actual trials by able apiarists who are almost unanimous in their conclusions, there no longer seems any doubt that the Italians are much superior to all others. There are two redeeming characteristics about the native or black bees—they will go into the sections more readily and will cap their honey whiter than the other races. This is because of the cappings being thicker, with wider space between cappings and honey. This can be largely overcome with Italians and the proper manipulation of the supers.

Briefly, the Italians possess the following points of superiority: They possess longer tongues, and so can gather from flowers which are useless to the black bee and to other races. They are more active, and with the same opportunities will collect a good deal more honey. They work earlier and later; this is not only true of the day but of the season. They seem better able to protect their hive against robbers. They are proof against ravages of the bee moth larvae and nearly so against bee diseases. Other races are very susceptible to moths and diseases. These are very great advantages. The queen is decidedly more prolific. This is probably due to greater and more constant activity on the part of the workers. They are less apt to breed in winter, when it is desirable to have bees very quiet. The queen is more readily found, which is a great advantage in performing the various manipulations of the apiary. Where time is money, this becomes a matter of much importance. The bees are more disposed to adhere to the combs when handled. They are less inclined to

over, have only the beautiful, pure, amiable, and active Italians. In making this change we add dollars to the value of the colony and I know of no way to make money more easy or pleasantly.

I advise the purchasing of queens, which may be done through the advertisements in bee papers or bee supply catalogs, although the apiarist may have fairly good stock. A change of blood is an excellent thing. Next week I will give directions for introducing queens where it is desired to Italianize colonies. Shiawassee Co. N. F. GUTE.

THE WORTH OF EGGS AS FOOD.

A great many persons do not use eggs, even during the months when they are quite cheap, as extensively as beef. To most people eggs are not so satisfying. The reason for this is that their nutritive value, pound for pound, does not compare favorably with beefsteak. Often people tire of them, or do not relish them. Sometimes this is due to consumers being furnished with stale or unwholesome eggs, and especially during the period of incubation and broodiness.

The real value of eggs, as compared with round steak, can only be ascertained by taking into consideration their analyses. An average dozen of eggs weighs about 27 ounces, and therefore contains 3.5 ounces of protein, while good round steak contains 3.2 ounces of protein per pound. In this market, at present, the retail price of eggs is 24c per dozen, and that of good round steak 22c per pound. It will be observed that in either case the protein costs approximately 7c per ounce, if fats and other elements of nutrition are not considered. Hence, to be more economical than beef, we should be able to obtain a dozen of eggs for about the price we pay for round steak, per pound.

Of course, where there are hens to keep up the egg supply for the good housewife, she saves the profit of the middlemen, and that certainly seems good. Furthermore, eggs are generally more easy for her to procure than beef, and make quite a palatable change. All in all, they may be considered a very valuable article of diet.

New York.

W. D. KORB.

Poultry raising is what you make it. Lots of people make it drudgery by the attitude of mind rather than the amount of work they do.

The Market Milk and Cream Trade

THE marketing of dairy products is undergoing an evolution. One who has never witnessed the unloading of long trains of specially constructed cars that, at certain hours of the morning, land thousands of cans of milk and cream on the platforms in large cities, can not conceive of the broadening outlet in the marketing of milk and cream. The rapidly growing cities throughout the intensely populated dairying communities are constantly reaching out further and further for their supply of milk and cream. This increasing demand for milk and cream, together with the development of the condensed and powdered milk business, is driving many creamery and cheese factory owners out of business. In many instances these large cities are securing their daily rations of milk and cream from centralized stations five or six hundred miles away. Hundreds of creameries now ship the bulk of the milk and cream to the city trade, making butter only from the surplus not wanted by the city trade at certain times of the year. By owning a controlling interest in these plants the city dealers find it easy to regulate their supply of milk and cream from day to day according to the demands of their trade, because what is not wanted in the form of milk and cream can be made into butter and cottage cheese and sold at remunerative prices. Obviously, this increasing demand for milk and cream is going to put the price of butter and cheese beyond the reach of the great mass of consumers unless dairy farming is developed more extensively throughout the western and southern states.

The advance in the price of grain feeds during the past ten years has markedly increased the cost of producing dairy products in the east and middle west. In many instances the cost of a suitable milk producing ration has increased fully 35 per cent more than the same ration cost ten years ago. Yet during this time the wholesale price of milk and cream has not advanced more than 12 to 16 per cent. The condition of the feed market, together with the increase in the price of labor, makes dairying a business that requires the closest study and the most skillful management, if satisfactory profits are to be made by the farmer.

With butter selling at 40 cents a pound and upward, and milk retailing at from eight to 10 cents per quart, any marked advance in price is sure to be followed by a falling off in sales. Until the time when milk producers can organize to control the regulating and marketing of the supply, and thus gain a larger and fairer share of the consumer's dollar, it seems to me that the dairyman's chief problem is one of cutting down the cost of production.

So much non-essential and confusing advice has been given the farmer about producing market milk that he is often puzzled to know what he ought to do. It cannot be denied that the farmer owes many obligations to the persons who consume the milk he produces, but it is unreasonable to expect him to establish an extensive plant and produce a germless milk for 15 cents per gallon.

In discussing the production of market milk the term good milk is pretty elastic. It ranges all the way from efforts to keep the cows and surroundings cleaner, up to the production of milk under conditions that approach the ideals of the sanitarian. In the minds of the great mass of consumers, good milk is milk to which nothing is added and from which nothing is taken, and which contains nothing harmful to those who use it. Milk inspection, properly conducted, concerns itself with two things—namely, the food value and the sanitary or health value. It is right that the consumers should be guarded against adulteration of the product as well as against the danger of contracting infectious and contagious disease through milk. Good milk may, therefore, be defined as containing about four per cent of butter-fat, having a low bacterial count, and free from odors and flavors caused by feeding or other deleterious influences.

Sanitary surroundings and clean methods can do much to insure a better quality of market milk. This cannot be done without adding something to the cost of production, because sanitary surroundings mean better stables and equipment and clean methods mean better help, higher wages and more time. It is folly for men to claim that good milk can be

produced as cheaply as bad milk, or that it should be sold for the same prices as the poorer grades. Many dairy farmers have refused to sell their milk to the city trade because of the many restrictions and regulations put upon their work and because of the increasing cost of cows, feed and labor, and yet those who have been in the game for years seem to think that they can realize more money from selling the milk than by patronizing a creamery or making butter on the farm. The requirements to successfully operate a dairy farm where milk or cream is produced for the city trade should be based on the following essentials:

1. A veterinarian's certificate that the animals are healthy and no animals purchased unless accompanied by a certificate of condition.
2. Buildings of concrete or impervious construction, troughs and gutters the same, to prevent absorption and permit flushing. A system of ventilation independent of windows and abundant light and air.
3. Grooming and aseptic precautions for the milker and for the cows in milking.
4. Modern utensils which lessen exposure to air and dirt.
5. Immediate cooling and emptying into sealed containers for retail consumption.
6. Ice and steam.
7. The adoption of a standard container for wholesale shipment which should be limited to wholesale consumers, such as hotels, hospitals, ice cream manufacturers and similar places.
8. Clean and intelligent milkers and attendants.

One of the most encouraging features of our present day dairy situation is the large and increasing demand for cream from large hotels, ice cream manufacturers and private families. This particular outlet for dairy products is broadening more rapidly than any other. The growing demand for cream is seen in its increased use on the bills-of-fare of hotels and restaurants and the growing popularity of ice cream.

Cream is considered a necessity in many hotels, restaurants and in private families, where twenty years ago it was classed among the luxuries. Cereals and fresh fruits served with cream and cream for coffee afford very palatable and nourishing foods. Ice cream eating is also possessed of much merit. Ice cream is not only a popular confection and dessert, but it is a highly nutritious food, containing, as it does, three times as many solids as milk, a quart of which is rated as being equivalent to a pound of beefsteak. Many physicians recommend ice cream in certain forms of illness, and by such means ice cream finds yearly a widening field of usefulness. As a dessert, it is one of the most appreciated that can be served, and also one of the most economical, for where can you get so much in the shape of dessert for the money? The cost of materials in the common dessert, that requires an hour or more to prepare, is generally more than ice cream that comes ready to serve.

In many parts of the country farmers here and there are going into the production of fancy cream as a special line of production. This business is especially valuable for those dairymen who breed and rear registered stock, because it leaves the skim-milk on the farm to feed the calves. This is of great importance to the breeder of pure-bred cattle, for no substitute has been found for skim-milk as a food for calves during the first six months of their lives. Those who have no facilities for raising calves may profitably utilize the skim-milk for feeding pigs and poultry.

The Babcock test has introduced many possibilities into the production of cream. It has made it possible to standardize and grade the cream according to its value. Years ago much of the cream sold was little better than an ordinary grade of milk. Even today there is no fixed standard for cream; however, by the use of the Babcock test one can know what grade of cream he is buying and pay according to the amount of butter-fat it contains. In general market cream is classified as "light" and "heavy." The so-called light cream contains about 20 per cent of butter-fat, while the heavy runs about 40 per cent. The light cream is usually preferable for table use, although many prefer to buy the heavy

(Continued on page 81).

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1st If you are still using some gravity or setting process of creaming—

Because your waste is greatest and quality of product poorest in mid-summer, when the milk supply is greatest.

Because time is of greatest value on the farm at this season and the time and labor saving of the good separator counts for most.

Because the skim-milk is poorest without a separator in hot weather and often more harmful than helpful to calves and young stock.

Because the work of an improved De Laval Cream Separator is as perfect and its product as superior with one kind of weather as with another.

2nd If you have a very old De Laval or an inferior separator of any kind—

Because the losses of the poor separator from incomplete skimming and the tainted product of the difficult to clean and unsanitary separator mean most when the bulk of milk is greatest.

Because of the great economy of time at this season in having a separator of ample capacity to do the work so much more quickly.

Because an improved De Laval separator is so much simpler and more easily handled and cared for than any other, and you cannot afford to waste time these busy days "fussing" with a machine that ought to have been thrown on the junk-pile long ago.

Because the De Laval separator of today is just as superior to other separators as the best of other separators to gravity setting, and every feature of De Laval superiority count for most during the hot mid-summer months.



These are all facts capable of prompt and easy demonstration, whether you have a poor separator or none at all. The new De Laval catalog, to be had for the asking, helps to make them plain. Every De Laval local agent stands eager to do so with a machine itself, with no obligation on your part to buy unless he does—and that to your own satisfaction.

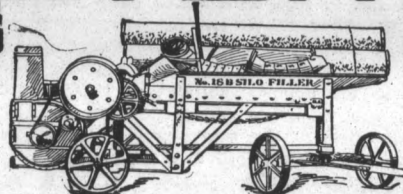
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DETROIT, JULY 26, 1913.

CURRENT COMMENT.

In the Farmers' Club Land Title Registration. Department of this and the two previous issues has appeared an exhaustive article on the subject of land title registration in Ohio. This article was written by an attorney who has made a careful study of the comparative merits of the two methods and stated facts and conclusions in such a plain manner as to make them easily understood by the layman who has had no experience of account in the matter of examining land titles.

This subject is one which some years ago attracted the serious consideration of one of the leading farmers' organizations of the state. For some years the State Association of Farmers' Clubs devoted considerable attention to this subject and made a campaign in the Michigan Legislature for the passage of a bill which would provide for an optional change of property owners from the present system of land title registration to the so-called Torrens system, which is described in detail in the article above referred to as developed in Ohio.

With the passing of the years the matter of land titles becomes a more vexed and complicated one and there is no question but that ultimately Michigan will fall in line with other countries and many other states in adopting a more simple and satisfactory system. To the end that there may not be needless delay in the accomplishment of this desirable end we believe that the farmers' organizations of the state could take up no more profitable subject of discussion than the best means to the end of securing the passage of a law in our own state similar to that which has been enacted in Ohio after a campaign of some ten years.

The sooner we begin to make an earnest effort in this direction the sooner will we reach the stage of actual accomplishment. The only interests which the people of the state would have to combat in securing the passage of such a law are the interests of the people at present in the abstract business in the various counties and the attorneys who profit from the necessity under which the average man labors, of being obliged to secure the services of a competent title specialist in order to be even reasonably certain that he secures a satisfactory title to real estate purchased or accepted as the basis of a loan. Under the so-called Torrens system this necessity is obviated and real estate transfers can be made with the same safety and dispatch that ordinary property can be bought and sold.

In an early June issue we commented under the head of "Size of Farm vs. Profits." this head upon an interview with Dr. Spillman, agriculturist in charge of the Bureau of Farm Management of the Department of Agriculture, published by a well-known Washington newspaper correspondent through a Michigan daily paper, in which Dr. Spillman was made to say that the smallest sized unit of land for profitable agriculture was 160 acres.

This interview was referred to Dr. Mumford, in charge of Farm Management work in Michigan, whose qualifying statement in connection with same was published in the comment. Through, Dr. Mumford we are in receipt of a letter from Dr. Spillman in which he repudiates the statement accredited to him in the interview, and on this subject of the relation of the size of the farm to the profits derived from it makes the following statement:

"I have never made the unqualified statement that it took 160 acres of land to make a profitable farm in Michigan. I have made the statement frequently, and we have plenty of data to show that it is true, that in the corn belt states a farm based on the general field crops of that country, in order to be most profitable, should be at least as large as one man with a four-horse team could manage; but if it is large enough to keep a man with two horses thoroughly busy during the cropping season the farm may be made fairly profitable.

"In that section of country there is room for a small number of farms of a more intensive type, and these farms may be much smaller and still be profitable. It is important to remember, however, that there is not room for an indefinite number of these small intensive farms, based largely on fruit and truck crops, over the country generally. In the vicinity of large cities a considerable number of such farms is perfectly legitimate; but there are very few localities where the amount of fruit and truck crops produced is not approximately equal to the demand for such products under our present conditions of marketing. As our cities grow there will be room for an increasing number of these little farms, but I do not look with favor on the effort to increase their number indefinitely. I think that for many years to come the majority of farmers in the middle west will, of necessity, confine their attention largely to corn, oats, wheat, hay, and the common types of live stock; and where these enterprises form the basis of the farm business the farm needs to be large enough to keep the members of the average farm family fairly busy during the working season in order to return them a satisfactory income."

One phase of Dr. Spillman's statement should not fail to attract the attention of every thoughtful reader, and that is his reference to our present conditions of marketing as a handicap to the most profitable general development of the small farms devoted to special lines of production. Undoubtedly the small farmer has more need of co-operation with his fellows than has the man who conducts a more extensive business, and as Michigan is a state of comparatively small farms, as well as a state in which many special lines of production have been highly developed, it should be a most profitable field for the development of co-operative selling enterprises through which these special products could be marketed with greater facility and increased profit to their producers.

Better Roads Cheaply Secured.

In a middle western state an experiment was conducted to determine the cost of keeping earth roads in the best possible condition by the use of the King drag. It was found at the close of the season that the stretches of road so used had been maintained at about one-half the expense put upon a similar mileage of other roads and with far better results.

With the general interest which is being awakened in the good roads propaganda for both increased state and national aid for permanent road building, local highway officers have developed a greater interest in the maintenance of earth roads in many sections of Michigan. Doubtless the educational work carried on through the state highway department also had an influence in this direction, but it is certain that more township highway commissioners have introduced the use of the King drag this year than ever before, and with excellent results in the improvement of road conditions in many sections of the state.

This kind of road improvement which gets the best results for the least money on this large mileage of roads which must be maintained, is of far greater interest to the average farmer than is the building of trunk highways at large cost, although the latter will be better appreciated by those who live upon them or those who have occasion to use them frequently.

However, the great bulk of our immense road mileage cannot be perma-

nently improved for many years, if ever, hence the desirability of maintaining it in the best possible condition at the least cost and the use of the King drag or light scraper in many sections of the state the present season has demonstrated that this is an efficient and economic method of securing the desired results. This example should be emulated in other sections of the state in succeeding years.

DOUBLE RESPONSIBILITY.

When you buy an article, what is your first thought?

"Am I getting my money's worth?"

You don't care so much whether it is the cheapest article of its kind, but you do like to feel satisfied that you are receiving honest value for what you have paid.

The dealer may assure you that you are, but the dealer does not manufacture the merchandise, and sometimes he is deceived.

When you buy an article with an advertised name, you have a double guarantee behind it—of the dealer who sold it and of the manufacturer who made it.

Insist on double protection by giving preference to advertised goods.

HAPPENINGS OF THE WEEK.

National.

In accordance with the new state law which provides that all of any audience room in which moving pictures are exhibited must be on the first floor, or main floor of the building, officials of the state fire marshal's office have ordered three Detroit moving picture theaters located on the second floor to close.

Credit is given Mrs. J. Borden Harri-man, of New York, who is at the head of the Women's Welfare Department of the National Civic Federation, for starting the movement toward mediation which averted a general railroad strike on eastern railroads. It is stated that she advised President Wilson that a strike was imminent unless mediation could be secured and that as a result of this action a plan was developed which averted the impending walkout.

Pursuant to the White House conference relating to the mediation of the pending railroad strike on eastern roads, Congress passed and the President signed last week a law creating a board of mediation and conciliation, headed by a commissioner, to which the eastern railroads and employees' brotherhoods declared their willingness to submit the wage dispute on which 80,000 conductors and trainmen voted to strike. This speedy enactment of a new law in the interest of mediation in disputes of this kind will provide machinery for averting future strikes as well as the settlement of present difficulties.

Michigan brokers who deal in stocks and bonds are objecting strenuously to the provision of the new blue sky law, which provides a 30-day period for the investigation of securities which they have to offer, which will become effective August 14. It has been decided by the securities commission that all will have to be treated alike under the law and that it will be necessary for the sale of approved securities offered by reputable firms to be delayed for the 30 days, the time which is given the securities commission for investigation. This will give salesmen in this line an enforced vacation for one month after August 15.

Detroit Garment workers, who have threatened to strike on account of wage dispute, have appointed a committee of 25 to act for them on a proposition to arbitrate the differences as submitted by the manufacturers.

A fire was started in a peculiar manner in Detroit last week when a heavy rain falling upon lime stored in a leaky shed by a contractor, generated sufficient heat through the slaking of the lime to burn the building.

A new plan of dealing with paroled prisoners has been adopted at the Jackson prison. It has been found that when a paroled prisoner is turned loose with the money which represents his savings he is likely to get into trouble. As a first friend and employment are pre-requisite to the parole of the prisoner, the plan of withholding the savings until the time for which the prisoner is sentenced is up and then paying them over with interest has been adopted.

The cost of caring for Michigan's insane patients for the past year was \$1,386,984.79, as shown by the annual report of the state treasurer for the fiscal year ending June 30. The same report shows the cost of the recent legislative session to have been \$178,713.90, which item includes the cost of printing and other incidentals. The amount received for specific taxes from Michigan corporations was \$5,903,524.96, of which \$5,471,198 was turned into the primary school fund.

While trying to release some wires which had blown into a tree in front of his home, Cleo Ford, of Hartford, Mich., 17 years old, grasped a live wire and was killed.

Judge Frank E. Knappen, of the ninth judicial circuit, died Thursday, July 17, at his home east of Kalamazoo. He was one of the most popular and well-known men on the Michigan bench.

State Immigration Commissioner Carlton is planning for the establishment of an office in New York city to supply Michigan with farmers and farm hands from among the better class of immigrants coming to this country. The last

legislature made an appropriation for this purpose which will enable the carrying on of this work which has been previously tried out on a small scale. The program will include the advertisement of Michigan agricultural advantages in Germany, Holland and other countries of northern Europe.

In attempting to steal a ride on a Grand Trunk train near Port Huron, Roy Willings, 15 years of age, was decapitated.

Foreign.

Mount Vesuvius, of Italy, is growing more active. The noted volcano which showed activity for the first time last March since 1906, now emits quantities of vapor. The eruptions usually occur every seven years.

The United States is now facing a serious international problem precipitated by the action of the foreign ministers of European nations in Mexico, who recently dispatched identical notes to their respective governments declaring that this country by its refusal to recognize the Mexican government is directly contributing to the increasing disorder in that country. These representatives of European countries urged that their governments call upon the Washington government either to recognize the Huerta government in Mexico or undertake the task of restoring order in the Mexican republic. This places our government in an unenviable position, as a change of policy at this time would be difficult, and there are indications that the Mexican situation cannot be ignored until the Mexican elections in October, at which time it has been hoped that a new government would come into office which the United States could consistently recognize.

OAKLAND COUNTY HORTICULTURAL SOCIETY.

The regular meeting of the Oakland County Horticultural Society will be held at Karl Tibbitt's fruit farm near Farmington on Saturday, August 2, commencing at 10:30 a. m., standard time. The morning will be largely given up to a discussion on the "Advantages of Our Markets," led by Mr. Karl Tibbitts. At 1:00 p. m. Prof. L. R. Taft, State Orchard and Nursery Inspector, will give a talk on "Orchard Soils," and "Storing Winter Fruits." Conveyances will meet the guests at Stevens Corners at 10:00 a. m. Take Oakland Lake Division of the Northwestern car lines.—S. E. Sly, Secretary.

CROP AND MARKET NOTES.

Lapeer Co., July 19.—Timely rains make the growing crops look fresh and fine. Farmers putting in their time attending to the harvesting of wheat and rye. Lots of haying to attend to yet. Corn not up-to-date in growth. The general complaint about fields of potatoes is a poor stand, i. e., so many missing or vacant hills—seed did not all come. Bugs numerous—very bad; Paris green and other poisons fail to kill them—some bean fields on low land show a few yellow leaves. A good show for oats; hay crop light. Some farmers behind in cultivating; weeds getting bad. Apples and other fruit short this season. Wages very high and farm help impossible to secure, so that farmers, by the help of machinery, have to do their work practically alone.

Gratiot Co., July 18.—The drouth, which began to look serious, was broken Wednesday last about 4:30 p. m., with a heavy downpour. That same night a heavy rain, with a goodly display of electricity, soaked the ground to a good depth. Hay may be said to be all up, though a little is still standing. The quality is excellent, as fair weather prevailed all through haying. The crop is 50 per cent heavier than was expected, though not a big crop. All farm crops are promising well. Plenty of apples are set for a heavy pick. Early potatoes have been slow in coming on but the outlook for late ones is encouraging.

Branch Co., July 16.—Nice showers on Sunday and Monday nights have relieved suffering from drouth. Haying well along, crop rather light owing to drouth. Wheat cut and in general a fair crop. Some seeding killed by drouth. Corn and beans looking fine. Early potatoes light crop with local demand at \$1.25 per bu. Not as many potatoes out as last year, but larger acreage of beans. Oats short and light. Drouth will make many light oats on lighter soils. Very few apples and all kinds of small fruit hurt by drouth. The following prices paid for produce: Wheat, \$1; corn, 60c; oats, 33c; butter, 22c; eggs, 16c.

Hillsdale Co., July 15.—Up to this time the season has not been very favorable for good crops, in this section. A drouth early in May was followed later by a killing June frost which was succeeded in turn by a destructive June drouth. Hay, as a rule, except alfalfa, was a light crop. The wheat crop, now nearly harvested, is also very light. Owing to drouths oats will be little better than a half crop, and the new seeding has been greatly injured by the dry weather and, in some instances totally destroyed, making a light hay crop next year seemingly inevitable. Frost and drouth nearly ruined early potatoes which earlier promised a big yield. The one promising crop now is the corn crop which is really the most important. Owing to the fact that cultivation has held the moisture in the corn fields, the drouth has not injured the corn and the showing at present is fine for a banner crop. Late potatoes, too, need only plenty of rain to make them a success. Frosts and drouths proved very destructive to strawberries and raspberries.

Mecosta Co., July 10.—The latter part of June and up to the present for this month has been ideal growing weather and the crops are all looking fine. We (Continued on page 85).

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION



The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

When Brady Was On The Map.

By ANNA GIRMUS.

IT was spring, early spring, so early that the ground was still brown and gray with little promise of its later fruitfulness. It was also early in the morning, so early that the sun had not yet had time to penetrate the thin crust that the frost had formed over the road during the night. It was Sunday morning and the citizens of Brady were still dormant.

Here and there smoke arose in curls from a chimney and, if one had listened at the back of the house he might have heard the rattle of various pots and pans, the presager of breakfast. These earlier risers were mostly the church goers of Brady, and they were not in a large majority.

Suddenly the Sabbath quiet was broken by the sharp click of steel on steel, and the corner of Main street and River road became the scene of earnest activity. A dozen Greeks, under the supervision of Murphy, were at once busy in raising the grade, placing ties and spiking rails down River road, toward the bridge.

A half hour later, when Jane Carey opened her store for the accommodation of the few improvidents who had forgotten to lay in a supply Saturday night, the work was well under way. "The miserable wretches," she muttered. "So they are going to steal our streets and put in that Y without any franchise, and we can do nothing. It wasn't enough to slight us. They must kick us, too."

"Hey. What you fellows, doin'?" demanded Jim Green as he stopped on the corner to watch proceedings. "You haven't any right to put a track there," he expostulated, but no one heeded his remonstrance. "Don't you blamed idiots know that no one wants your blamed cars runnin' down this street and scarin' the farmers' horses off in the river." He placed himself in front of the graders.

The foreman spoke to the laborers. They dropped their shovels and picks, lifted Mr. Green bodily and placed him to one side, paying no attention to his scrambling. Then they calmly proceeded with their work.

In the meantime, the sun mounted in the sky, smoke appeared in the remaining chimneys, and gradually more men gathered on the corner, muttering and using uncomplimentary terms, but it was a helpless crowd.

"No one can get out an injunction today, of course," growled Joe Smith. "They sure seem to be bound to rub it into us. Someone ought to let Hi Perkins know, he being highway commissioner. Not that he could do anything."

"I'll go tell him," volunteered Fred Grey. "He may be able to do something."

"No, he can't," insisted Joe, "but we ought to let him know, anyway."

Fred was already half way down the village street. "Hope he can do something," he muttered. "Old Joe Smith always knows everything. Then they have played us dirt."

The A. & Z. electric road had recently passed into new hands and had been opened to Z— only the previous week. The people of Brady had eagerly welcomed the change in proprietors, as the new owners promised to be more progressive than the old management had been and the day that the first car came from Z—the town donned gala attire. That is, flags floated from the schoolhouse and town hall. Nick Brady had decorated the post-office with red, white and blue bunting, and Si Alexander had added several small flags to the geraniums in the window of the Square Deal saloon. The ladies had prepared an excellent lunch at the town hall where all expected to meet the magnates of the new road, who were to pass through on that first car.

But "the best laid plans, etc., etc.," that car passed right through Brady, never even slackening speed, the magnates not even stepping out on the platform. There was the supervisor, with the entire town board and every citizen of prominence, and several of no prominence, waiting on the corner to welcome the dignitaries. For fully a minute they stared at each other after the thing whizzed by.

"That can't be it," Joe Smith tried to deceive himself. "They sure would stop here."

"But they didn't," snapped Hi Perkins. "Of course that was it."

The men stood about as if stunned by the calamity. That they would be so thoroughly ignored seemed incomprehensible. Some still tried to think that it was not the car.

"That was it all right," announced Fred Grey, thus destroying this last

bath was too much for even the philosophy of the Bradyites.

Hi Perkins was out feeding the calf, and the miserable, contrary little cuss had spilled the milk all over Hi's new corduroy pants. Hi liked his corduroys. He'd sent for them to the mail order house. The whole suit, pants, vest, coat and cap, cost \$5 and it did not improve his naturally choleric disposition to have his purchase deluged with milk. He listened to Fred's account of proceedings with increasing ire.

"So we wasn't good enough to stop and talk to, and now they start to steal our road."

"But you can't get an injunction," insisted Fred.

"And they hain't got a right of way, either," Hi countered.

"But how'll you stop 'em?"

"We'll see after we get there." Hi Perkins did not dislike a fight, but he

out of the buggy and walking the rest of the distance to church almost before Murphy heard the request and Jim drove the old gray almost onto the Greeks.

The foreman gave an order. A laborer stepped forward and reached up to take the old gray's bridle. Every man on the walk grinned. The son of Greece gave one prolonged whoop and landed over on the village green which was not at all green. The grins on the walk grew to big laughs.

Murphy spoke to another of his men, but this one shook his head and did not stir. The big burly Irishman began to storm.

"Oh, shut up!" jeered someone from the walk. "You big coward, why don't you do it yourself?"

The foreman tried another man with the same result. And truly it was no wonder, for the old gray was enough to discourage anyone. Ears back, mouth wide open, eyes protruding, she inspired a just meed of respect.

The jeers on the walk increased. For a while Murphy looked as if he intended to make the venture. Then a better plan occurred to him. "Hey there, Paul!" he called to the man on the green. "Go over to the power house and tell the rest to come."

In a few moments his force was doubled. With a dozen of his men he surrounded the buggy and began to push on the box and turn the wheels.

At first the old gray braced herself nobly against the attack but, as the force increased, she was compelled to move forward slowly. However, as soon the the pressure was removed she backed to the old place and the Bradyites applauded vigorously.

Their triumph was short lived, however. Murphy and his men again pushed forward until the hind wheels were removed far enough to permit the men to proceed with the work. Then twelve of the Greeks made a human brace of themselves against the wheels and bed of the vehicle, and work on the Y was resumed.

Such was the condition when the last straggler passed on his way to church; although the collection had already been taken, every person in the church, minister included, knew how matters stood before the text was announced.

The sermon was well along when Jed Hopkins lumbered down past the church. Jed would weigh at least two hundred when in ordinary condition—tall, big, a little fat but not very, good natured, with a deep rumbling voice. Of course, he stopped at the corner.

After watching proceedings awhile, a quick gleam came to his eyes. He made his way to Hi Perkins, who was still alert, still not willing to give up, but who could see no way out of the difficulty. Jed had not uttered twenty words before the highway commissioner was listening eagerly. "It won't take long. We brought her in late last night and she's still warm. Want me to bring her?" inquired Jed.

"You bet, if you can get here before they get too far."

"I'll try mighty hard, and, say, you keep Murphy busy talking when you see me coming so that he'll not suspect too soon. We'll show them that farmers can take care of their rights."

In the church the minister was exhorting his listeners, "after having done all, stand." Down at the corner they seemed to literally hear and heed his injunction. Mills' old gray still stood bracing back in the shafts and the men on the walk kept their places; although the feeling of the vanquished was strong within them.

In the meantime Jed hurried back home. Aside from the minister and the

Blackberry-Time—By Adela Stevens Cody.

You feel the gypsy's wanderlust surge swiftly thro' each vein
Long ere the dawn, and shut your eyes to see a winding lane,
With broken fences, luring you to thickets left to shield
The crops the fences guard no more round many a fertile field.
Blackberry vines sprawl o'er the posts and bend the wires down,
Dangling the jewels Nature sets upon her floral crown.
There dewdrops swing, like crystal bells, tho' noiseless is their chime,
To call you out to field and grove because it's berry-time.

'Tis useless quite to snuggle down and woo reluctant sleep—
You hear the purl of fern-edged brooks, their cascades' laughing leap.
You revel in the music of the birds' songs, far and wide,
When comes that call to vagrancy which will not be denied.
You thirst to taste the water from some moss-embroidered spring,
And risk your neck by swaying in a treacherous grapevine swing.
You long to skirt the boulders, where the tangled briars climb,
For summer's restless spirit stirs your blood at berrying time!

Like ghostly banners flying, by poetic vision seen,
Spiced shrubs and flowers wave perfumes from ramparts clothed in green.
They beckon you to marches where at last you hope to find
The care-free joys of childhood which so long you've left behind.
The chanticleer is crowing! You are up and dressed and gone,
Your berry-bucket flashing in the rosetate gleam of dawn!
To scorn the voices calling, "Come!" would surely be a crime
When Nature sets a feast at large and says "Blackberry-time!"

gleam of hope. "I telephoned to find out. They stopped at Granger and at Epsomville and all the other places, even Scotts Corner."

Then the stunned feeling gave place to righteous or some other sort of indignation. There was language not fit to report. At last Joe Smith remembered the lunch. Joe has a weakness for good things to eat.

"Well, boys, let's not disappoint the women entirely," he advised. "Let's go up and eat that lunch. It may not be good enough for the little gods of the A. & Z., but every one of us know that it's about as good as is found anywhere on this green earth."

The others followed him, still grumbling, but as soon as they entered the hall they tried to stifle their growls.

"No, they didn't stop," Joe answered Mrs. Gale's inquiry. "Guess they were in a hurry to reach A—. They probably have a board meeting or a champagne lunch waiting for them."

Then to have the same vipers appropriate that piece of road the very next Sab-

wanted to see clearly what he was fighting before he butted in. Then he did not allow feelings to rule. He knew that he must find some other means beside just a row. That would mean arrest and accomplish nothing. He was trusting to find the means after reaching the scene of conflict.

The first church bell had stopped ringing and the pious were on their way to worship when the two men reached town.

Hi observed the workers from a distance. The foreman, who knew that he was highway commissioner, watched him closely while directing the work.

"Hey there!" Hi called suddenly to Jim Mills who had just arrived from the country. "Drive over here a bit will you?" He indicated a point just beyond where the Greeks were working.

Every church goer turned his or her neck and walked slowly. Even the Rev. Mr. Blue allowed his mind to wander from his sermon that he might observe the troubles of his fellow townsmen.

"All right," drawled Jim, who perceived what was wanted. Mrs. Jim was

laborers, he appeared to be the one active person in the community.

The sermon ended. The last hymn was sung and the children slowly gathered for Sunday school. "They're half way across," announced Jimmy Green, Jr., "and they can't stop 'em."

It was a hard day for the Sunday school teachers. The superintendent recognized the futility of prolonging the session. After a remarkably short lesson period, and the singing of "Onward Christian Soldiers," the school was dismissed just as Jed Hopkins steamed past with his largest traction engine. Jed owned several threshing outfits. This morning he had the engine which in winter he used in sawing lumber and he had nothing attached to it. He was managing it himself.

Straight down Main street he puffed at such a rate of speed that not even the Sunday school boys could keep up with him.

In the meantime Hi Perkins had called to Mills to drive off with his old gray. "It does no good," he explained.

Murphy grinned at this admission of defeat.

"Grin, you Irish sucker," stormed Hi. "I would never call myself a man or expect to be treated like a man if I sold myself to steal for any corporation."

"It's a thafe you'd be calling me, would you?" answered that individual, the taunt stinging. "I haven't the toime to settle with ye today, but I'll see to it that ye'll take back every one of those thirty words."

MARRIAGE CUSTOMS AMONG THE BALKANS.

BY CHARLES H. CHESLEY.

Western civilization has not been felt to any great extent in the Balkan villages, where, among the poorer classes, many curious and interesting customs still prevail. Particularly is this true of the ceremonies connected with betrothal and marriage. The young people themselves have very little to do with the choosing of their life partners, and love and sentiment, so large a consideration in western marriages, must be an after product if at all a part of the pact.

The parents do the choosing and perhaps some will argue this as a reason for so little unfaithfulness and so few unhappy unions. In Servia the boy of 18 is considered to have reached a marriageable age, and often the father of a boy will have begun his search for a suitable daughter-in-law even before the son has reached that age. It is the duty and privilege of the Servian to choose for his children, and the children themselves consider such a course an institution ordained of God. The full ceremony of a Servian marriage is rather costly, therefore it not infrequently happens that a runaway match is arranged by the parents. Generally, however, the Servian peasant is proud to see his son married in full national style.

The father of a boy, having decided it is time his son should marry, begins to make careful inquiries among his friends for a girl possessing the required qualities. To this end he dresses himself in his best and attends all the merrymakings and watches the girls at their dancing. He makes discreet investigations concerning families in distant villages who have marriageable daughters. The unattached girls usually wear red feathers in their head dresses, or some other distinguishing mark, to indicate that they are willing to receive formal proposals.

When a choice has been made, and the lucky one is almost always two or three years older than the prospective bridegroom, the father tries, by confidential inquiries through mutual friends, to ascertain if the parents of the girl are agreeable to the match. Having received an encouraging report, he invites two or three friends to accompany him to the home of the maid. He carries with him a flat wheaten cake and a bunch of flowers, and the arrival is so timed that they may reach the house just before the supper hour. As they enter the house one of the party shuts the door to indicate that there is no escape for the girl. They are invited to sit at the supper table, the father of the girl and perhaps a brother or older male relative being seated with the visitors. After considerable feasting the best speaker of the party makes known the object of the visit, and the father of the boy places on the table the cake and the bunch of flowers, together with several gold or silver coins. These are his first presents to his future daughter-in-law.

"Take back nothing. A man that'll steal from his fellow workmen to help the rich grow richer is too big a coward to make anyone take back anything."

Murphy threw down a pick and started for Hi. The men stopped work to watch the threatened battle.

At the same moment Jed reached the corner. "Here Joe," he called to Joe Smith, handing him a chain and another to Jim Green, both of whom were standing near the newly laid rails.

Two minutes later the engine gave an extra grunt, there was a creaking of spikes and the sound of splintering timber. Murphy turned from Hopkins to see the entire work of his crew following that engine up River street. He stared in astonishment.

The villagers fairly danced in their joy of victory. "Oh, we're a lot of fools. We need a guardian to protect our rights," they jeered.

The fight left Murphy. He knew that so far as the Y was concerned, he was defeated, and he cherished no resentment against Hi, for he realized that all of those slurs were only a ruse to draw his attention.

That afternoon reporters came from both Z- and A- to find out all about the affair and a little more. Monday's papers in each town gave it a two-column write-up and mention in the editorial department. Even the papers of the larger cities dignified the affair by devoting to it a paragraph of their valuable space. For once in its history Brady was on the map.

ter-in-law. The father of the girl thereupon goes out and returns leading his daughter by the hand. She bows and kisses the hand of her future father-in-law and all the other guests. She is then led back to the father of her prospective husband, who presents her the cake, flowers and coins; and from that moment she is an engaged girl. At this point in the ceremonies one of the relatives will rush out of the house and fire several pistol shots to announce to the village that another girl is engaged. The father of the boy then places another coin on the table which is called the "present to the house." Before the wedding day he must give presents to all the bride's relatives, and it is the unavoidable rule that he buy the wedding dress.

The wedding day is one of elaborate ceremony. First there is feasting and music at the home of the groom, after which a procession is formed which proceeds to the home of the bride, everybody shouting, jesting and firing revolvers and rifles. At the bride's home there is also a numerous company assembled. When the bride is ready, she is led out to get her first glimpse of her future lord and master, if, as often occurs, he is from a distant village; thereupon the whole party, with much noise, proceeds to the church for the formal ceremony. The party then returns to the home of the groom, where the bride steps from the carriage or from her horse upon a sack of oats and from that to a plow before reaching the threshold. There a woman places a baby in her arms, and, having kissed the child, she returns him to its mother. Next a loaf of bread is placed under either arm and a bottle of wine in each hand. With these emblems of prosperity she enters her future home. Having kissed her husband's parents she is led three times around the hearth by her mother-in-law. A banquet follows, at which there is much wine drinking and noise, usually lasting until the next day.

In remote parts of Greece and Macedonia a professional matchmaker assists the parents in making arrangements for the ceremony. The dowry of the bride plays an important part, and it is hard for a father to find a husband for his girl unless he can pay the groom a tidy sum. This may be a hundred dollars and, among the better classes, a thousand or even two thousand dollars. It is paid in cash, contracts being signed by both parties. After this preliminary arrangement, the second engagement is enacted, the bride's father or other male relative offering the corresponding relative of the groom some sweet basil and saying three times: "Accept the betrothal of my daughter to your son." If acceptable the groom's relative returns a like offering. Then the groom is presented a glass of wine, a cake and a spoon. He drinks the wine, drops a coin in the glass for the bride, eats half the cake and gives the other half with the spoon to the best man. The best man then proceeds to put the shoes provided by the

groom on the feet of the bride. She then steps forth into the street, walking through water poured in her path by her mother. She is followed to church by the entire party, where her future mother-in-law greets her with the question: "Bride, hast thou shoes?" Having received proper assurance, the religious ceremony is performed. The bridal banquet follows at the home of the bride.

When she departs for her new home a loaf of bread is divided and she takes

half to her new home. On the following morning the young couple is serenaded by the neighbors and invited guests, and the best man arrives with the half-cake and spoon given him the day before. The bride uses the spoon to commence her first meal in her new home and eats the half-cake. The rest of the day is spent in feasting and drinking, after which the young wife becomes a part of the household and shares in the duties of her mother-in-law.

The Awakening of Hilary Dore.

By LAWRENCE C. WOODMAN.

THE sun was sinking behind the college chapel on that chill November afternoon. Mid-term examinations would be held the following week, and, among many others of the Freshman class, Hilary Dore was worried. That could be seen by a single glance at his face, already showing traces of care and lack of sleep. When he was back on the old farm at Harrington he had been obliged to get up promptly at five o'clock to milk the cows and help do the rest of the chores before breakfast. Of course, he had complained at times, but never had he appeared listless and careworn as now.

The "fellows" had just left his room, some to attend recitations, others to take a trip "down town" or to visit some other "good fellow," whose room served as a rendezvous at all hours of the day and night.

Since his arrival at college some two months before, the days and nights had faded away in rings of cigarette smoke, which so regularly had ascended to grace the games of "pitch" and to weave around them a closer bond of fellowship, as it seemed. The pleasures of life had been many and varied, while the serious side had always been denied. But now, since mid-term examinations were beginning to cast a darker cloud over the light and happy atmosphere of their lives, even Hilary Dore, who so heartily had entered into the maelstrom of "college life," was beginning to see the serious side of things.

Sitting down at his desk, he snatched up a Livy and tried to translate some of the review, which, in reality, was nothing more nor less than "sight translation" to him. Soon seeing the impossibility of covering sixty pages of "sight" in so short a time he threw the book aside in dismay. Then he opened an algebra, tried a problem under "Variation," and got hopelessly muddled. Giving this up, he tackled a problem under "Determinants," but with no better results. Then, throwing the algebra on the nearby table, he rose from his chair and began to stride up and down the room.

Suddenly, there was a rapping on the door, and, as everyone acquainted with dormitory life knows, this little ceremony never is indulged in by any of the college fellows. Hilary was naturally aroused from his reverie. And such a half-hearted rap, rap, rap. It could not be any member of the faculty. At any rate, he hoped it could not.

In answer to his curt, "Come in," the door shyly opened and a well-known voice turned its tone of inquiry into a hearty, "Hello, Hilary, I'm right glad to see ye. How air ye boy?" And Simon Dore entered the room.

Hilary had scarcely dreamed of anything quite so serious as a visit from his father, whose uncultivated speech and manners, together with his ill-fitting clothes, had made him conspicuous even in Harrington, for he knew that the old farmer would not be content to go back without first seeing how things were conducted in a college.

Simon Dore was a specimen of the New England farmer of the good old-fashioned type. Like his father and grandfather, he had worked hard to keep a large family clothed and fed, and, like them and many other men, seemed fated never to become any "better off." He had lived all his life on the same little farm on which he had been born and, like his father, had spent many a day, when the farm work was not too pressing, in trying to clear it of rocks and bushes. Although yet strong and healthy, about six feet in height, with broad shoulders and ruddy complexion, a change could be noted in the man. The accustomed, good-natured smile and cheery disposition were still there, but his

neighbors had begun to observe a slight stoop in his shoulders, a more serious expression about his rather sensitive face, and that the heartiness seemed to have gone out of his laugh.

The boy noted the changes but failed to consider their significance, so wrapped up was he in his own troubles, and, after greeting his father in a half-hearted manner, he lapsed into a moody silence, broken only when occasion demanded, and then with a monosyllable.

Mr. Dore, after a few words about the folks at home and a few questions about his son's two months at college, expressed his reasons for the unexpected visit. "We hadn't heard from yew fer some time, 'nd so yer ma and me reckoned that I'd better come down 'nd see 'f ye wuz all right, 'nd try ter cheer ye up a bit. Don't seem jest like ye ust tew, boy; seem troubled 'nd worried 'bout sunthin' 'er other. S'pose ye feel homesick down here 'mongst strangers studyin' so hard." Then, glancing around the room, he asked: "Wher'd all them segarette stubs come from? Hain't taken up smokin' 's yet I hope?"

"No, father," cheerfully lied the son, "those were left here by some of the fellows who don't seem to be very particular about things. They smoke, and swear, even; so we don't associate with them any more than we can help. Why, they haven't got hardly a friend in the hall—except their own crowd."

"Steer clear of sech as them, Hilary. I'm glad I've got a son as knows right from wrong," said the old farmer with an odd note in his voice. Then, casting another glance around the room littered with books and papers, he continued, "Yew don't keep things slicked up so well's I expected. Have tew much studyin' ter do I s'pose. Well, never mind, sonny, do the best yew can, 'nd everything 'll come out all right in the end." The son breathed easier. He felt that thus far everything was all right, but his optimism was destined to be of short duration. For, after a short space of time, Mr. Dore expressed his desire to see the buildings and hear the classes recite. Finally, he electrified his son by announcing his intention of calling upon the president of the college.

The boy, thinking of his father's rude speech and manners, and filled with a sudden false shame of the coarse, ill-fitting clothes, vainly tried to invent some excuse, in order that he might dissuade his parent from taking such action. At last, in his desperation, suddenly, an idea came to him.

"But, father, the president is ill, dangerously ill, and cannot receive any visitors."

"Yew don't say so," exclaimed Mr. Dore, filled at once with such sympathy as only country people feel. "What seems tew be the trouble with him? Don't know?" in response to a shake of his son's head. "Well, I'll go right over 'nd try to cheer him up a bit. I know what 'tis tew be sick, 'nd how glad I used to be when the neighbors stepped in."

"Oh, don't go, please don't go," begged the half-repentant, very worried youth; "it will only make him worse, and he will be mad with he for telling you about it." This was the first truthful thing the boy had uttered.

Up to this point he had been simply trying to keep his father indoors, for he had feared that his own standing among his friends rested upon his ingenuity and ability to accomplish this purpose. Now his very college career was in grave danger of coming to a sudden end!

If his father should visit the president, his falsehood would be exposed, not only to the president and faculty, but also to all the "folks up home!" If he should confess and tell his reasons for inventing such a falsehood, he would forfeit his father's confidence in him; and then, he

(Continued on page 77).

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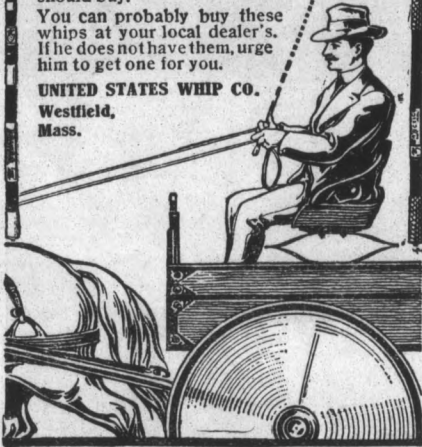
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all sorts of pretty house-tricks, too. She would jump through a hoop formed by Dorothy's dimpled arms, and when bidden she would run up on Dorothy's shoulder and make a graceful little leap to the top of her head, where she would crouch until her little mistress said "Down Fluff," when she would leap to the other shoulder and so run down to the floor, and all so lightly and gently that Dorothy never felt a prick of the sharp claws folded under the pink satin toes.

Sometimes after supper, especially if she had eaten a good deal, Fluff was quiet and apparently affectionate, and would come of her own accord and nestle against Dorothy, and allow herself to be taken up and held in her mistress' lap, purring contentedly as Dorothy soft-

ly stroked her, rocking meantime in the little splint-bottomed chair that had belonged to Grossmutter's own little girl who was now Dorothy's mamma.

Once the family thought that Fluff was ill; she would not eat her supper and she would allow nobody to touch her, but she sat all the evening in the darkest corner of the big parlor with her ears sharply pointed and her yellow eyes gleaming out of the shadow like spots of fire.

The next day she ate and played as usual, but after that evening she would sometimes stop in the midst of a game and go to that corner to watch and listen. We knew then what was the matter, for Emma, the waitress had told Dorothy that on the day when Fluff was so queer she had caught a mouse,

and the first mouse is a great event in the life of a kitten. She had had such a long chase, and such a delightful and exciting frolic after she had caught the poor little mouse—who wasn't at all in a frolicking mood—and then she had had a delicious meal, that ordinary amusements, such as yellow worsted balls and affectionate caresses, seemed very tame indeed by comparison; and so she watched in that shadowy corner, hoping for a renewal of the enchanting sport, for Fluff was still, after all, only a kitten and had the faults of her kind.

At last the happy summer was over and it was time for Mamma and Dorothy to go back to Germany. Grossmutter decided to close her house and go with them. And now what was to be done with Fluff? (Concluded next week).

MUD PIES.

BY FLOY SCHOONMAKER ARMSTRONG.

When Carolyn and Rose Marie, And Flossie, May and I, Were playing house out by the road And making fine mud pie, Most everyone who came along Had something smart to say, As if they'd always been grown-up And never liked to play.

The great big boys—they think they're cute, And try to be so pert— Called: "Oh, you kids! You'll all get spanked For playing in the dirt." And then some ladies came along And said, with awful frowns: "You children ought to be ashamed To soil your nice clean gowns."

But we just stirred and mixed and stirred— Oh 'tis such jolly fun To make mud pies, a great big lot, And bake them in the sun. And then an old man came along, The white-haired, smiley kind, And with him such a dear old wife, But them we didn't mind.

They stopped right short and laughed out loud, But almost any dunce Could tell that they were lovely folks And had been little once. "Look, father, do!" the lady said, "Twill rest your tired old eyes To see these still are little girls Who love to make mud pies."

ALL MADE OF BARRELS.

BY GEO. E. WALSH.

"Empty-Barrel John," a man who gained this name because he was the first to see the value of empty barrels, and who made a fortune by gathering them after they had been emptied of their contents of sugar, flour, oil, molasses or other food products, once said: "The most useful thing in the world is an empty barrel. If I was going to be cast away on a desert island like Robinson Crusoe, I'd want as many barrels as I could get. I'd let the boxes and crates go, but I'd save the barrels, and I'd make a boat, house, tent, and wagon out of them in short order."

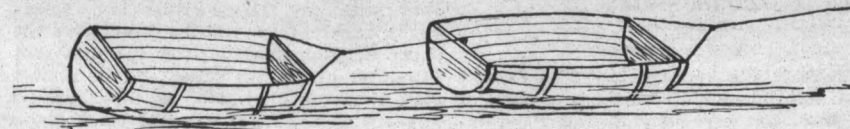
Perhaps "John" was a trifle too enthusiastic over the barrels which had made his fortune, but there is a good deal of wisdom in what he said nevertheless. The barrel is really of great value when its contents have been taken out, and the boy who gathers them should put them to much better use than feeding a bonfire on election night.

In particular are the empty barrels of use in the summer time when camping and boating are in order, and if you can save up a few in advance of the season you will find that a lot of fun and use can be obtained therefrom.

First of all, we can make the camp out of the barrels as shown by the illustration. Get good stout barrels, such as

ed side up. This will shed water and make an excellent protection from the rain and sun. By joining a series of several half barrels together you get quite a tent. By tacking pieces of canvas on the sides you can make the barrel top spread itself so that you have a veritable tent at little or no cost.

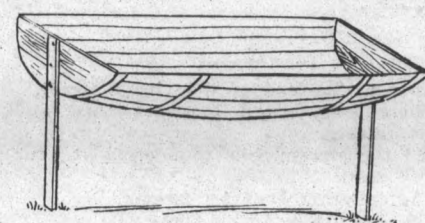
Such barrel tents can be used in the woods, the backyard or anywhere simply for protection from the sun. A series of



several of these give the effect of a small settlement of huts. Each barrel furnishes the tops for two tents.

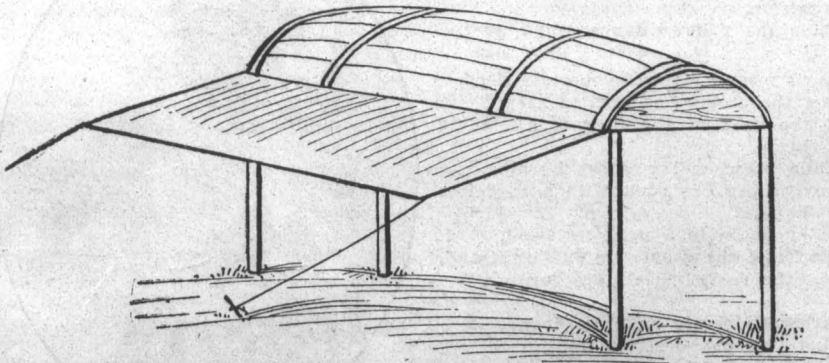
While in camp other barrels can be put to almost equally good use. Likewise they can be utilized in the backyard or in the garden. The upturned half of a barrel makes, for instance, an acceptable holder for flowers, or it can be swung on the piazza as a cradle for little ones. A barrel-stave hammock is a simple affair and one that has often been illustrated. Perhaps many boys have made them for their camps. By taking the staves apart, boring holes through the ends and threading them with stout rope you have a most convenient camp hammock to swing between the trees. By boring the holes with a bit and brace before you leave home, and then packing the barrel with camp utensils, the hammock can be made easily after you reach the camp. In this way it takes up no room in the transportation of the goods.

Another use of the barrel while in camp is to take one-half and place it upside down on stakes placed in the ground at either end. If securely fastened there the half-barrel will always



be handy for holding anything from wet bathing clothes to canned goods. You can pack a lot of things in such a raised receptacle and ants, worms, bugs and small animals will not get at them while you are away from the camp.

But before you go to the camp, whether it is by foot or boat, you can utilize the barrel in many ways. If the barrel is cut in halves and handles are attached to either end, one-half of it makes a convenient carry-all. For this purpose



those in which oil or molasses come, and saw one in half lengthwise. Perhaps you will need to strengthen the hoops a little beforehand by driving a few nails in them. Now fasten four stakes in the ground and nail the tops to the four corners of the half barrel, with the curv-

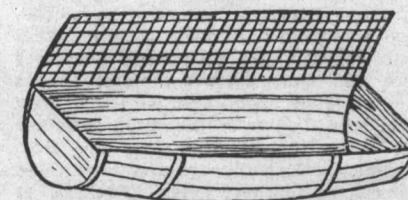
select a light barrel, such as used for flour or sugar, and use pieces of rope tacked on the ends for handles. You can pack more articles of a light nature in such carry-all than in baskets or boxes, and it will be more convenient to handle. Each boy takes a handle, and you

can walk abreast or in Indian file as you go through the woods. When you reach the camping-place the carry-all can be used for a hold-all by nailing upright sticks in place of the handles and inserting them in the ground.

But perhaps you wish to reach your camp on some island by canoe or row-boat, and you have very little room for the baggage. Then take half of an oil barrel, or any other that is water tight,



and use it for a pack boat. The barrel is very buoyant and sits lightly on the water. It will carry an immense amount of material before it sinks within two or three inches of the water. You can load it down and then fasten it to the stern of the boat for towing. Several of these half barrel scows can be hauled behind by one boat. In this way you are relieved of all crowding in the row boat or canoe. It is one of the safest and simp-



lest ways of packing your camping material up a river or across a lake.

Finally we can use the half barrel for a bait box by placing it in the water and covering the top with a wire screen. A water-tight barrel is not necessary for this purpose. If not too loose in the seams, the barrel will float on the surface half full of water, and all live fish may be kept in it for days and weeks. Sometimes when you make a good catch of fish you don't want to eat them right away. If put in the bait box at once they will live and be ready for eating any time needed.

It may be seen that the barrel is really of great use either in playing or for service. One does not have to go to a distant camp to use them, either. Barrels can be used for the play camp in the back yard or near the house in the woods, and if there is a stream of water nearby you can play packing things up stream the same as they do in canoes in the wilds of the north. In fact, you can bring all the pleasures and experiences of camping right to your back door if you utilize barrels and half barrels for all they are worth.

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WHEN THE WIND PLAYED TAG.

BY L. D. STEARNS.

The wind was playing tag about the chimney. When it howled little Golden Locks called it wolves, and when it whined low she said it was a poor little dog or a lost kitten, and when it gave a long, deep blast she clapped her hands gleefully and cried it was a lion.

On the rug beside her Carlo sat gravely blinking into the fire, and Fluff purred softly by his side. Her book of animals lay, face downward, where it had slipped from her hand.

"Oh!" she sighed, "I do wish a fairy would come."

The words were hardly out of her mouth when straight from the coals stepped the tiniest, strangest little man, all dressed in red and green, with a high peaked cap that shone and glistened like gold, and a long, bright stick in his hand. "And what would you like him to give you, little lady, he questioned.

Golden Locks gave a squeal of delight and began to jump up and down delightedly. Her curls bobbed and danced about her head until they seemed all alive. "Oh! Oh!" she cried, "are you a fairy?"

He touched his cap. "The Fairy King," he replied. "I rode down the chimney on the wind, and saw the gold of your curls shining so brightly I stopped to see what I could do for you."

She clapped her hands. "My name's just Dorothy Gray," said she; "but mamma says God put the gold in my hair, so she calls me Golden Locks; and papa says he wants me to remember a golden heart is the best thing in all the world, so he calls me Golden Heart."

"And now, Miss Dorothy Golden Heart, can I please you this night?" asked the elf.

Just then the wind gave a great howl. "That's the lion," said she. Then, "Oh! I'd love to see a real lion, and a peacock, and a—a-hyena, and all the rest."

The little man waved his stick and said some strange words Dorothy could

not understand, and suddenly she found herself in a great square, inclosed by a high fence, full of tents and trees. On all sides were animals, stamping, growling, chattering and jabbering.

She was frightened at first, but the little man kept close beside her and every animal obeyed his slightest word or motion, so that in a minute or two she forgot her fears.

Lions paced majestically back and forth, lashing their sides with their tails exactly as her book had pictured them. Bears sat stiffly on their haunches, growling fiercely. Elephants stalked lumberingly about, swinging their huge trunks from side to side; and camels loped awkwardly along, here and there. Hyenas, panthers and soft-eyed wildcats patted softly about with shrill cries. All kinds of beautiful birds, from the tiny, graceful canary to the solemn-eyed owl, flitted through the trees; strange little foreign ones that he had never even read of flashed here and there like quick darts of light. Peacocks strutted proudly up and down. Monkeys chattered and jabbered, swinging from bough to bough and tree to tree; and the most beautiful horses and dogs pranced and frisked all about.

At a signal from the little man the lion and the bear danced a jig; the elephant stood on his head and a full half-dozen showing their teeth, and turned somers of the hyenas came out, grinning and saults again and again.

The dogs leaped to the backs of the horses and rode around the ring. The peacock shook hands with her gravely, and hundreds of the most gorgeous birds, all sizes and colors, formed in line before her and began to strut up and down.

Then, suddenly, things began to waver and disappear. She rubbed her eyes, opened them and looked about. On the hearth, the fire still crackled merrily. The wind still howled.

"Poor little Golden Heart!" cried papa. "Sound asleep before the fire!" and picking her up in his strong arms he carried her off to bed.

THE AWAKENING OF HILARY DORE.

(Continued from page 74).

did not like to remind his father of the lack of education which he knew he felt and would always feel. But something must be done, and that quickly. Simon Dore, always a man of his word, was already putting on his overcoat.

Realizing the situation in which he had placed himself, the boy yet hoped to win by one last desperate cast.

"Wait a minute, father," he exclaimed hurriedly, "the president is not sick. I told you that because well—because I wanted you to stay here and talk with me, and tell me all about mother and the children, and—and all the rest of the folks. It is so good to talk with someone from home, you know!"

The father now detected the lie in his son's speaking. All along, he had suspected against his will. He saw the confession changed into equivocation. Then, in a harsh, strained voice, he said: "So that's yer excuse fer tellin' me that the president was sick. S'pose yew didn't get the last letter yer mother sent ye, tellin' ye all the news. Ye didn't answer it, anyhow. Well, what's yer excuse fer tellin' me erbout them segarette stubs? That's so flimsy, I've fergot that. But never mind tellin' it again, yew couldn't improve on it. But, they's one thing that I'd like to ax ye, Hilary," and the old man's voice dropped from its strident tone to one of mild reproach, and his clenched hand sank to his side only to rise slowly again in a gesture of impressive appeal, "do yew think that yew air doin' jest the right thing by yer ma and me, who's working' our finger nails off tew keep the family in bread and butter, and tew send yew tew college? Do yew think that all yew come here fer," and the old man's voice rose again, quivering with emotion, "is tew larn tew smoke segarettes, 'n lie, 'n fergit them as would risk their chance of Heaven fer ye? Are yer college friends so much more tew ye that ye can fergit tew write tew the old folks? If they be—yew can keep on the way yew have begun."

There was an awkward pause, and then—"I thought as how things must have changed," and the old man's voice was now low, tremulous, ever changing, "that's why I come down today." Then, in a still lower, calmer tone, he added sadly, "Yer mother will never know of the mortgage so long as I can scrape together enough tew keep things up at home, sech as they be—but I—I shall allus remember, tho' I shall allus try ter fergit—if yew will try with me. I shall

allus help ye all I can, boy, if yew will try—but yer mother and the little ones come first!"

With this he picked up his hat and coat and left the room; he found his way down the four flights of stairs, across the campus, and out onto the sidewalk to which his feet were so unaccustomed.

The boy went to the window and, standing there, half-leaning against the window-frame, watched the dim form of his father groping its way as in a dream; watched it cross the campus and go out into the gathering night.

The boy stood at the window he knew not how long. Suddenly he started from the trance that had wrapped itself around him. Stooping, he picked up a newspaper from the pile which lay in the corner where they had been flung. Hastily turning the pages, he found the column, "Help Wanted," and attempted to read. Realizing that it was too dark, he snapped on the electric light and began to scan hurriedly the different notices. At last his eye rested upon the following:

WANTED:—Young man to work evenings and Saturdays in apothecary shop; college student preferred.—Smithson & Rowe, Druggists, 262 Franklin St., City.

He threw aside the paper and, seizing his hat, sprang hastily down the stairs and out of the hall. The "fellows" wondered "what had got into Dore," for never had he been seen hurrying in such a manner before. At length, considering the problem too deep for them, they dropped it and turned wearily to their books to "stuff" and "cram" for the coming examinations.

Two weeks later Mrs. Simon Dore received a letter. The writer informed her that he had passed the mid-term examinations, was getting along "all right," and was coming home for Christmas. Furthermore, it stated that they need not send any money for carfare, and the whole letter seemed to express a great longing for the time to come when they might all be together again. No one was forgotten in the letter.

In silence, Mrs. Dore passed the letter over to her husband. With happy countenance, and with eyes dim with the mist of joy, he slowly read to the end, and, as his wife watched the great changes of expression in his kindly face, which had seemed so worried and had grown so much older during the past few days, she could not understand them; so, with a pleasant little shake of her head, she dismissed all doubt of the matter with the simple thought, "Good Lord, how strange men be!"

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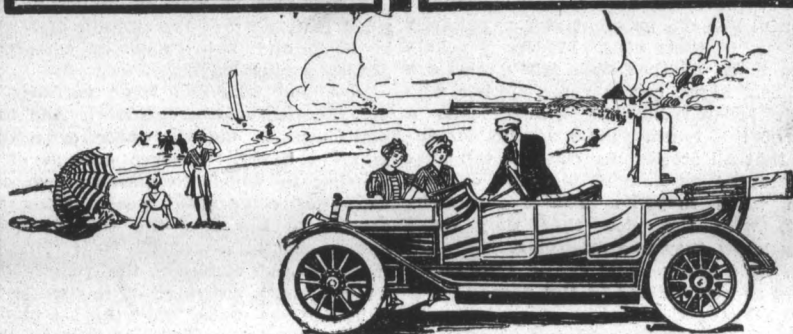
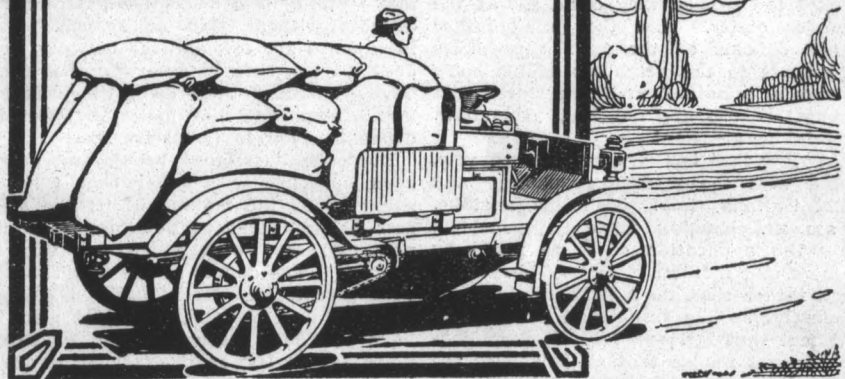
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Woman and Her Needs

At Home and Elsewhere



Common Sense vs. Overmuch "Child Study."

ALTHOUGH that immortal story of George and the cherries has been attacked by profound thinkers and pronounced a mere figment of some history faker's brain, yet there is much food for reflection in the tale for the parents of modern American youth. The legend tells us that when George chose the truth and a threshing rather than a falsehood and an immunity bath, his father clasped him to his bosom and declared that he would rather lose his whole orchard than to have his son tell one white lie. Truth was the supreme thing with Washington pater, a virtue more to be desired than rubies.

Methinks the modern parent and the modern small boy would act differently. The average small boy of today would look his father in the eye and stoutly declare that he saw the hired man do it. Or if that personage stood by, he would say Fido gnawed the tree down or the robins attacked it in swarms and pecked it down so they could get at the cherries easier. And the proud father would chuckle at the lad's shrewdness and boast to the neighbors of his son's powers of imagination. Those stories that youngsters tell are not lies, you know. Merely imagination!

At least that is the way many parents, dosed with the modern psychology and child training, talk. Make no mistake. I am not blaming modern psychology, only the application of it as made by fathers and mothers who buy books and read rather than do a little thinking for themselves. The trouble all arises from the fact that Mr. and Mrs. Modern Parent do not realize that all principles are general and must be adapted to individual needs.

Our forefathers and mothers branded as sinful lies the innocent stories children make up in their play. Modern psychologists teach us that such fairy tales are not lies. Along comes some mother who hasn't learned how to think, reads a part of the truth, jumps at the conclusion that all stories her children tell must be accepted as imagination, and excuses them when they lie to escape punishment, with the plea that they don't really know they are falsifying.

Oh, child study, child study! How many crimes are committed in thy name. Froebel speaks of the beauty of spontaneity, the joyous, natural, unchecked playfulness of childhood. The mother, possessed of the one idea of doing her best by her children, interprets this to mean unbridled liberty and instead of spontaneity we get lawlessness. Even the most learned of kindergartners would not permit children to race through the rooms, slamming doors, throwing hats, knocking furniture about, and even skating on roller skates, as some mothers do under the mistaken notion that the child must have perfect freedom in order to develop.

The old method of exacting obedience without giving reasons, of insisting that children be seen and not heard and of frowning on childish peccadilloes rather than excusing them, may have been harsh. But the children it produced were not intolerable nuisances as are so many reared by superior modern methods. Too many parents in trying to steer clear of the one extreme have rushed to the other. They forget that too much liberty is worse for humanity than too little, and instead of being masters of the situation in their own homes, they soon find themselves mere onlookers.

Common sense is the best guide in bringing up children, as well as in other walks of life. But in looking over the field it sometimes seems as though that valuable asset flies out of the window with the arrival of the first baby. It is well to remember that the men and the women who write such learned treatises on bringing up children are as often as not childless old maids and bachelors, who have nothing to go by but theories. Instead of being guided by what some book

says about child training, think for yourself. Remember that the future both for yourself and your child is to be founded on the todays, and act accordingly.

DEBORAH.

ONE WAY OF MAKING BREAD.

BY ANNE H. WOODRUFF.

Often in reading recipes of various kinds of vegetables, one is exasperated to find that important details have been omitted—details familiar to the writer, who seems to think that they will present themselves in orderly arrangement to the mind of the reader through some instinctive acrobatic performance of the imagination.

There are "born cooks"—at least we have heard so—who do not find it necessary to follow rules. All they have to do is to "throw in a little of this," and "add a little of that," and by some incomprehensible legerdemain transform the raw material into delectable gastronomic delights without plan or system. But such cooks are few and far between. Indeed we are safe in asserting that they have a plan of their own, which is no less a plan that they make no effort to define it, even to themselves.

Everyone likes good bread, and every good housekeeper has her own way of going about the making of it; the success being dependent upon the faithfulness and care with which this way is followed. The details of one way is here-with given.

In the first place it is a good plan to have the flour warm. A pan of sifted flour may be left on the radiator at night in the winter time, or may be heated over the stove.

A half-pint of wetting makes a good-sized loaf, part of sweet milk and water is best, and two cakes of compressed yeast to four loaves.

Peel and boil two large potatoes and put them through a colander. Add to the potato-water enough water or milk to make a quart. Reserve enough of the wetting in which to dissolve two cents worth of compressed yeast, being very careful to see that the temperature is not above luke-warm. Heat kills the strength and virtue of the yeast.

Keep out a half-pint of the water and milk and set aside. Add the mashed potato to the remainder, and heat until almost scalding hot—not quite—and stir in enough flour to make a stiff batter. When luke-warm add the dissolved yeast and beat briskly until the yeast is thoroughly mixed with the batter. Set in a pan of warm water, cover with a blanket and keep in a warm place until light. A tin bread mixing-pan, with cover, is a desirable article to have. Bread made with compressed yeast should be made in the morning, as the sponge is quick in rising.

When the sponge is nice and light, put a quart of flour in the kneading-pan, add a tablespoon of salt, and the same of granulated sugar, and also a lump of lard about the size of an egg. Heat the half-pint of water that had been set aside, until it boils, and stir into the mixture until the lard is melted and the flour scalded. This scalding of a small portion of the flour gives the bread a sweetness very pleasant, and keeps it moist.

The sponge is then added, stirring in afterward what flour can be mixed in that way with a long-handled spoon, then kneading in what more is needed with the hands. A nice, elastic dough will make nice moist bread; if too stiff it is apt to be dry and hard.

Set the kneading-pan holding the dough in warm water, and when the dough has risen to twice its original size, knead down and let rise again, when it may be moulded into loaves and placed in tins which the loaf half fills. When risen to the top of the pans, bake in a hot oven three-quarters of an hour. Sometimes

it will be necessary to leave longer in the oven, if the heat has not been strong enough.

An important consideration in bread-making is to keep the dough warm; it should never be allowed to get chilled. And it must also be remembered that to have it too warm is almost as bad as too cool a temperature. A happy medium means success. A piece of woolen blanket used as a covering above a white cloth, will keep in the heat, and should be kept for this purpose alone. Another consideration is that the dough should not get too light. Heavy, clammy bread is bad, indigestible and not at all tempting to the palate, but who has not eaten bread that was white, light and beautiful to look upon that was about as tasteless and nutritious as so much saw-dust, through over-fermentation?

To have sweet, wholesome, toothsome bread, all these details must be carefully observed; and no one need fail in becoming a good bread-maker who faithfully gives her mind to them. There are many excellent methods, and different kinds of bread; and I take pleasure in adding my plan, with all its details, to the number.

Failure in other lines of cookery may be excused by the persons to whom one caters, but the housekeeper is always expected to provide good bread. The "staff of life" should not be metamorphosed in the making into a rickety crutch whose support is doubtful and uncertain. Many and bitter have been the tears shed by young and inexperienced housewives over the problem, how to prepare good things such as "mother used to make," a problem in which the bread question was the most perplexing of all. One can not help sympathizing also with the irascibility and deep sense of injury of the victim, who has been offered in the place of bread a stone.

MAKING SAUSAGE FOR MARKET.

BY MRS. JEFF DAVIS.

"Not soft hands, and soft jobs, but downright service is the end of life."

Many farmers' wives and daughters in looking for a way to make money at home, often neglect one of the most profitable occupations in which they can engage—the making of sausage for the market.

While this is not easy work, it comes at a time when there is little else to claim the attention, and the task is, necessarily, soon finished.

Every housewife, probably, can prepare the sausage meat to suit her own family, but if she is making them for market she must find out what her customers like, and cater to their tastes. If she manufactures a little better product than her neighbors the public soon discovers this fact, and she has no difficulty in disposing of her goods.

Mrs. C. A. Davis, of Brook county, Georgia, has the reputation of always furnishing her customers with first-class sausage. They say that her sausages taste better, keep better, and even look better than any on the market of her home town. The result is, she always has more orders than she can fill long before the time comes for making them. Mrs. Davis' husband makes a specialty of fine hogs, and sells many thousands of pounds of well cured meat every year, so she is fortunate in having plenty of first-class material from which to make her sausage.

Her husband usually slaughters about 40 hogs at one time, and from the trimmings, or regular sausage meat, she makes between 250 and 300 pounds of sausage. This is her way of making it, though, as will be seen, much is necessarily left to the individual taste of the maker.

"To every 150 pounds of the lean pork trimmings from the big meat," says Mrs. Davis, "add 50 pounds of fat jowls. Cut this as fine as the grinder will do the work. Then to every 50 pounds of sausage meat mix one teaspoonful of salt

peter. I think this helps to keep my sausage from getting old. I can not give any exact measure for salt or pepper. I mix the salt in thoroughly until it tastes well seasoned raw. The pepper I do the same, but I prefer my home raised red pepper, and use one-fourth as much of red as black. I add just sufficient sage to barely taste, unless a customer requests this to be left out. I do my own seasoning, in fact, I give every detail of the work my personal supervision. I assist in cleaning the casings, and have them as clear, and perfect as can be made. These are ready by the time the meat is, and are filled with considerable care.

"I keep a record of how many pounds each customer has engaged, and deliver them as soon after making as possible.

"I make from 750 to 1,000 pounds of sausage for sale each season, and have no difficulty in disposing of it at 17 cents per pound. Many people say I could get 20 cents per pound, but I have never charged that much because I usually sell many pounds to each of my customers.

"If my sausage is superior to the general make, as many are kind enough to say, it must be because I strive to give my customers the seasoning they like. I know I do not spare labor or time in the making.

"My advice to farmers' wives is to make good sausage, and the selling will take care of itself."

HOW TO BE "FRIENDS" WITH THE SMALL TOTS.

BY MRS. J. J. O'CONNELL.

Children have a natural aversion to being "pounced upon," but the shyest of them can be won if you will wait a little. Talk to someone else in the room or speak to the child about something of interest to it, and soon you will find that the little one will steal to your knee and offer its confidence.

The people who succeed with children are those who respect the child's individuality and do not take its friendship for granted until they have won it. A child is quick to perceive your interest when it is real, and is quick to respond, but it is confused and repelled by the sudden onslaught with which so many elders greet these little pilgrims of the beginning.

THE WAYSIDE TEA ROOM.

BY CHARLOTTE BIRD.

Mrs. St. John Alexander, of New Canaan, Connecticut, has truly solved the problem of making a good living for herself without leaving home. About three years ago she opened what has since become known as the Greenly Tea Garden. It was designed originally as a place of rest and refreshment for automobile tourists. But from a modest beginning the enterprise has grown till now thousands of people find the spot a delightful resort for an hour on a hot summer day. The hostess' efforts to serve her guests well, has been rewarded by a rich financial return.

"The Spoonery" is a quaint old house set in the midst of most beautiful rural surroundings. In the grove are secluded walks and seats and summer houses and a chorus of bird and insect life add to the poetical spirit of the tired traveler. All about the house vines and flowers abound and the vine-shaded veranda makes an ideal outside refreshment room for hot weather.

Inside the house the rooms are equally attractive for Mrs. Alexander has many antiques and works of art and a taste which promotes the effect of cosy home-making. In addition to the tea garden she maintains something resembling a woman's exchange. To this the owners consign many beautiful pieces of fancy work to be sold on commission. As the patrons of the Greenly Tea Garden are nearly all from the wealthy classes, large sums are often obtained for choice pieces of work. And the commission adds de-

cidedly to Mrs. Alexander's other means of income.

Perhaps there may be other women living in plain old houses off somewhere on country roads where many automobiles pass. Perhaps these women have still to discover the money worth of their capital. The houses must first be made beautiful. But some taste, much labor and two or three dollars' worth of seeds and plants and vines can transform an ugly place into an Eden. And a suggestive sign would attract buyers of ice cream, soft drinks, a regular tea or a full luncheon. The conditions would determine how the business was to develop. In addition to the income and the resulting sense of freedom there would be the joy of living in the midst of lovely surroundings.

NAMING THE BABY.

BY E. J. LYNCH.

The naming of the baby is always an important event in any household, but if one were to judge by the names inflicted by some parents on their helpless offspring, it would seem that a heterogeneous collection of names must have been gathered together on slips of paper and, with closed eyes, one was pulled out and tacked on to the baby.

A boy who was young about 35 or 40 years ago had the appellation "Tiglath Pileser" settled on him for life by his fond and doting parents. At school he got Tig for short, while another boy whose name was Titus was obliged to submit to the unattractive cognomen, "Tit."

From another family came two boys, Cícero and Hezekiah. They went by the abbreviations Sis and Kl.

Zilpha Mapelet soon became plain prosaic Zilly and occasionally "Scilly," while the twins, Tryphena and Tryphosa soon degenerated into "Feen" and "Fose."

Another attractive little girl was burdened with the name Sebuda Izziline. She had a church christening and the perplexed minister, not knowing after hearing the name, whether it belonged to a male or female, proudly decided to be on the safe side and prayed that "It" might be trained to walk in wisdom's ways. Sebuda Izziline died young.

A certain family bearing the surname Rose, pondered long over the question of a name for the baby daughter. Her mother frequently declared that there wasn't any name good enough or sweet enough for her little rosebud. They finally decided on the mellifluous and rather uncommon name of "Wylde" as being most appropriate to combine with Rose. All went well till Miss Wylde Rose fell in love with Mr. William Bull. When after marriage, she was obliged to sign herself, "Respectfully yours, Wylde Bull," the wisdom of the parent's choice of names might be questioned.

A passion for flowers led to the naming of each of six children in one family after flowers. Rosemary and Lillie Bell were passable. Pansy Arbutus was soon shortened to "Bute." Myrtle Verbena in course of time answered to "Bean," Violet Marigold to Goldie, while the only boy escaped with Sweet William.

Biblical names have long been favorites in many families. The Bible probably seems a safe place to go to when in doubt. The three brothers, David Ephraim, Ezra John and Samuel Enoch, perhaps had no just reason to cherish a grudge, since the names, Ephraim, Ezra and Enoch, were promptly dropped when their owners reached the age of accountability, but Elijah found no way of escape and "Lije" he continued to be throughout his natural life.

All the children of Israel have numerous descendants or namesakes with the possible exception of Zebulum, Gad, Asher, and Issachar, but had many of the namesakes been consulted, they would probably have chosen otherwise, while they neither added to nor subtracted from the glory of their illustrious ancestors.

Eliphalet went through life answering to the abbreviation "Lip," while Peleg Sylvester was dubbed by his comrades "Peel" and often "Peeler." Isadora Sybil Moon was a tall gaunt African washerwoman whom no one would ever suspect of having such an airy fairy name, while Junietta Pearl would have been much more fitly named Ebony. Jetret Pera in some unaccountable way degenerated into the prosaic cognomen "Tood."

As is usual in most cases after extremes have been reached, there is a reaction, and the choosing of names is no exception. In the self-same commu-

nity in which a generation or two ago such severely dignified names as Jabez, Aaron, Eli, Jason, Jonathan, Amos, Andrew and Anthony, were common for boys, and Hannah, Abigail, Huldah, Amanda, Zilpha, Susanna, Phoebe and Lydia for girls, all sorts of fanciful meaningless names are now used to designate their descendants, the boys and girls of today. On the school roll one will find plenty of such names as Myrtle, Pearl, Gladys, Vera, Lulu, Viola, Edessa, Ivy, Clarice, Ima, Revella, while about every third or fourth boy is either Norman, Harold or Karl.

Yielding to the influence of a passing fad, not a few girls have failed to appreciate the good sense shown by their parents in giving them sensible names, names which expressed character, and which no girl need blush to answer to or to sign to any document, and have taken the liberty of changing good old-fashioned Caroline, into Carra, or Carolyn, Mary into Marie or Maymie, Edith to Edytha, Minnie to Mynna or Susannah to Susyn. The girl who should have rejoiced in the dignified name of Agnes Jane is now A. Jean; Martha Ann has transformed herself into M. Anna; while Elizabeth Margaret becomes E. Marguerite.

The custom pursued by the Johnsons of Johnstown in naming the twins is as good as any to follow, when it seems impossible otherwise to satisfy the numerous aunts, uncles, grandparents, and inquiring friends. Grandfather Johnson declared the boy ought to be called John because his father and both his grandfathers' names were John and he lived in Johnstown. One grandmother leaned to the names Ernest Martin for the boy, and Martha Ernestine for the girl, while the other grandmother preferred Charles and Charlotte. The mother was torn between two conflicting desires. She wanted the boy to be either Warren Wayne or Elwyn Lloyd, and the girl to be Winifred Margaret or Lois Helen. The father declared there were enough Johns in the family and he proposed to break the John succession. He rather favored the name of Bruce with the mother's name Arnold in connection for his first-born son, and Grace Elizabeth for the little daughter.

For months the discussion of names had gone on, and they were apparently no nearer a decision than they had been the first week. It was finally announced by the mother that on the day the infants were six months of age, they were to be allowed to make their own choice. She said if they were not satisfied when they grew up, they would have no one but themselves to blame. On separate slips of paper every name or combination of names that had been suggested by numerous friends was written, and these were placed in two small boxes. Before the babies were put to bed for the night they were allowed to pick from the boxes the names they chose to wear. It was a solemn occasion. Baby Boy grasped three slips, quickly let fall two, and carried the third to his mouth. When the last slip was finally rescued from that convenient aperture for small things, it bore the name Elwyn Lloyd.

"Thank the Lord its settled at last," remarked the father fervently while the mother clapped her hands.

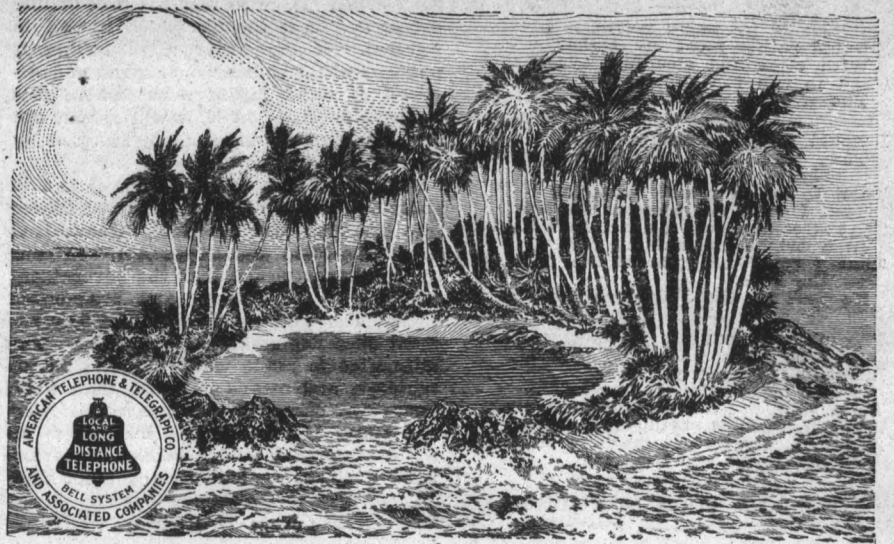
"Its dignified enough for even a state governor or a judge," she exclaimed and yet it isn't out of date nor so common as to be tiresome."

Baby Girl grasped almost the entire bunch of slips in her little fat fist and declined to let go. By degrees when the little tired eyes became heavy, the tight grip relaxed, the slips fell out, one by one, till but one crumpled paper remained. Almost breathlessly the mother slipped it gently out, and passed it to the father.

"She says her name is to be Grace Elizabeth," said the father with a smile. And Grace Elizabeth she was.

HOW TO EXTERMINATE BED BUGS.

Household Editor:—To kill bed bugs get from your druggist 15 or 20 cents worth of corrosive sublimate mixed with wood alcohol. With a feather put this into every crack in the bed and furniture and room. It does not hurt varnished or painted woodwork. Should the house be full, as the one was that we moved into, you may have to apply it a second or third time but it will surely kill them. We found four or five after the first application and none after the second. That was two years ago and since then we have not seen one.—Mrs. J. G. B., Kalamazoo.



Coral Builders and the Bell System

In the depths of tropical seas the coral polyps are at work. They are nourished by the ocean, and they grow and multiply because they cannot help it.

Finally a coral island emerges from the ocean. It collects sand and seeds, until it becomes a fit home for birds, beasts and men.

In the same way the telephone system has grown, gradually at first, but steadily and irresistibly. It could not stop growing. To stop would mean disaster.

The Bell System, starting with a few scattered ex-

changes, was carried forward by an increasing public demand.

Each new connection disclosed a need for other new connections, and millions of dollars had to be poured into the business to provide the 7,500,000 telephones now connected.

And the end is not yet, for the growth of the Bell System is still irresistible, because the needs of the people will not be satisfied except by universal communication. The system is large because the country is large.

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THE MICHIGAN FARMER, Detroit, Michigan.

ASPIRATION.

BY ELSIE DAVIS.

I would rather meet my Maker,
With clear and steadfast eyes,
Than to win the applause of mortals,
Tho it rang unto the skies.

I would rather possess a spirit,
That was brave, and generous, and
right,
Than to be so grossly material,
That I could not perceive the light
That streams straight down from Heaven,
In a bright and shining ray,
That I could not possess the faith and
the hope,
To wait for His Judgment Day.

Tho my sins may all be emblazoned
On a scroll for the world to see,
Instead of discreetly hidden,
'Neath conventional drapery,
Yet I shall not fail in well-doing,
For my will is steady and strong
And He'll give me strength in proportion
As my day is short or long.

KEEPING FOOD IN SUMMER.

The Department of Agriculture has issued the following practical suggestions in regard to keeping food and drink in hot weather, with a view to helping the public to avoid sickness from eating spoiled articles of diet:

While people should be careful about the condition of the food they eat at all seasons of the year, they should be particularly watchful during the summer months. In hot weather, bacteria multiply far more rapidly than in cold weather and produce chemical changes in some foods which greatly lessen their nutritive value and often make them unfit for human food. Unfortunately, there is no quick, absolute, simple, practical way of determining the presence of hurtful bacilli in foods, or of obtaining positive evidence of the existence of ptomaines. The average family does not have the delicate apparatus needed for these tests, nor the skill to detect these micro-organisms.

The housewife will find eyes and nose the safest practical detectives of bad food in hot weather. If any article has any suspicion of an unusual odor or looks abnormal, it should be avoided. People eating in doubtful restaurants should be particularly careful about meats or fish cooked with a highly spiced or aromatic sauce which might disguise a bad taste or warning odor. Only sweet smelling, clean food should be eaten. Spotted, green, slimy, or frothy raw meat, or meat which is soft in spots also should be regarded with suspicion. Taste, of course, is a supplementary test, but one to be used after eyes, nose, and fingers. A mother before she allows her child to eat anything, should examine it carefully in a good light, smell it, and finally taste it.

Milk particularly deteriorates rapidly under summer heat, especially if it already contains bacteria. Housewives, therefore, should see to it that their milk after being left by the milkman does not stand for any length of time on a hot back porch or stoop before it is put in the ice box. Milk bottles should be kept closed, both in the ice box and out of it. If there is any doubt at all as to the excellence of the local milk supply, pasteurize all milk.

All foods should be kept covered or wrapped, and always out of the reach of flies, which are deadly carriers of typhoid. All vessels, pitchers, etc., in which food is to be stored should first be scalded. Food should be handled as little as possible. The ice box, especially its drain pipe, should be cleaned thoroughly and frequently with boiling water and washing soda, and given an occasional airing. A persistent battle should be waged against flies in all parts of the home.

Uncooked foods as a general proposition, should be avoided. Children should not be allowed to eat the skins of fruits, especially fruits which have been exposed to flies or street dirt on unscreened stands or push-carts.

Those who go away for vacation should not get the idea that everything in a summer resort or strange city is necessarily pure and wholesome. The danger of typhoid fever in country resorts is very great. Many of the cases of typhoid fever recorded in the fall in cities where the water is pure had their origin in water or contaminated substances drunk or eaten at some summer resort. Insist on boiled water. If you absolutely cannot get boiled water, make very sure about the reputation of springs, wells, or tap water. Refuse absolutely to take any water that comes from a source near an outhouse or stable, or in a neighborhood where fever is at all prevalent.

Boiled water can be made just as palatable as unboiled water. The flat taste

which boiled water has soon after it has been boiled is due to the fact that boiling drives out of it the air which it held in solution. If the water after boiling is put in scalded shallow open pans and allowed to stand for 24 hours where flies or dirt cannot get at it, it will regain the air and have its usual taste restored by the second day.

Finally it is particularly important in summer that people should not be misled into believing that the label, "Guaranteed under the Food and Drugs Act," on cans and packages means that the government has tested these foods and pronounced them pure and desirable. The government does not make the guarantee. The guarantee is made wholly by the manufacturer, and means no more than when your own corner grocer guarantees that the sugar he weighs out for you is all right. Examine goods labeled "guaranteed" just as carefully as any other kind

HOME QUERIES.

Household Editor:—I have a pair of little light blue kid slippers for my baby. Could you tell me how to clean them? Someone told me to clean them with white of egg, but it makes them look worse instead of better.—D. N.

Ask your shoe dealer to recommend a standard cleaner. As you have already tried egg you may not be able to clean them at all.

Household Editor:—My baby, three months of age, will not sleep during the daytime, and at night won't go to sleep until late in the evening. She has colic a great deal, and is very nervous and fretful. Would like to have you tell me something I could do for her.—A Young Mother.

As she has colic a great deal it is evident her food does not agree with her. Take her to a reliable child specialist and have him prescribe a correct diet.

Household Editor:—I am very fond of reading your magazine and the woman's page. Will some reader please tell me how to clean ostrich plumes at home without injuring them? Also how to transplant strawberries.—J. B.

Ostrich plumes may be cleaned by dipping them in gasoline and drawing gently through the fingers. When all the dirt is removed tie by a string to a line in the yard until all the odor has evaporated. Then curl by holding over a gentle heat, keeping far enough away so they will not scorch. Choose a still day as whipping in wind would break fibres. The operation of transplanting strawberries is simple. Have the land well-prepared, secure the plants with as many roots as possible, and insert in a hole made by stabbing a spade in the ground where the plant is wanted and bending it over to one side—the act of planting being done by taking hold of the top and throwing the roots down into the hole behind the spade. The spade is then removed and with the foot the earth is crowded firmly against the roots and to close up all air spaces. A dibber may be used instead of the spade. Make rows four feet apart and put plants two feet apart in the rows.

Household Editor:—Could you give me a recipe for putting up cucumber pickles, both sweet and sour, like those we get in the store?—C. F. E., Traverse City.

For Sweet Pickles.—Cover one peck of cucumbers with boiling water and add two cups of salt. In the morning drain and wipe the pickles, put in a preserving kettle, cover with vinegar, add one ounce each of whole cloves and stick cinnamon, broken in pieces, and two pounds of brown sugar. Just bring to a boil and seal while hot. Sour pickles, arrange the cucumbers in layers in a jar and sprinkle with salt, allowing a generous cup of salt to a peck of cucumbers. In the morning drain off the brine, scald it to pour over cucumbers again. Let stand 24 hours, then drain, wipe the cucumbers and pour over them scalded vinegar to cover. Add to the vinegar while scalding bits of red or green pepper and horseradish.

SHORT CUTS TO HOUSEKEEPING.

Cold cream is a useful but somewhat expensive preparation. It may easily be made at home at greatly reduced cost. Place together one ounce of white wax, two ounces spermaceti and half a pint of almond oil in an earthenware vessel and put on the stove to melt gradually. Stir with silver spoon. When well mixed, add two ounces of pure glycerine and 12 drops of attar of roses. Stir till nearly cold, then place in small boxes or pots for use.—C. L. C.

A simple yet useful suggestion for the summer season is one to keep ants and other crawling vermin and even mice from getting at food placed upon a stand or table. Place a square of fresh sticky

fly paper sticky side up under each leg. The ants cannot cross it on account of sticking, while mice are too dainty to allow the stuff to get on their paws.—C. L. C.

To clean kid gloves put the gloves in a large stoppered bottle about half filled with benzine, and let stand for several hours, shaking frequently. Remove the gloves, sponge any spots with benzine or ether, and hang up to dry.—Mrs. Z. I. D.

To clean laces get a pan of water and shave a bar of soap into it. Put the laces into the soap and water and wash with the hands until clean. Hang up a clean white blanket and pin every little frill of the lace to the blanket. When the lace is dry it will be the same as new.—Mrs. J. J. O'C.

CONTRIBUTED RECIPES.

Lemon Sponge Cake.

Beat the whites and yolks of six eggs separately. Mix them together with as much sugar as the weight of four eggs, adding the juice of two large lemons. Add flour to the weight of three eggs, beat all until very light, and bake in layers in a hot oven of uniform heat. For filling, take a half-pound of figs, partially cover them with water, and let them simmer on the stove until they boil. Have the well beaten white of an egg ready to add as soon as the fig jelly is cool. Stir it in with a third of a cup of sugar. It is a delicious filling.

Baked Onions.

Boil onions until tender. Place in a baking dish and with a sharp knife make a hole in the center of each, put in a small lump of butter, salt and pepper to taste. Sprinkle flour over the top. Cover with sweet milk and bake one hour.

Chicken Rolls with Peas.

Cut a pound of cooked chicken into small pieces and then run through a meat chopper; season with salt and pepper, also with a little chopped parsley and minced onion. Mix into the chicken two tablespoonfuls of cream sauce, and one egg boiled hard. Spread out on a flat plate for at least an hour, then cover with cooked peas seasoned. Cut into six-inch strips, wrap each strip in puff paste, brush with beaten egg and fry in boiling fat.

FASHIONS BY MAY MANTON.

Our large Fashion Book—containing 92 pages illustrating over 700 of the season's latest styles, and devoting several pages to embroidery designs, will be sent to any address on receipt of 10 cents.



No. 7684—Infant's Bishop dress, one size. This requires 2½ yds. of material 36 in. wide, or 2¾ yds. 44 in. wide, with 1½ yds. of edging.

No. 7683—Combination chemise or corset cover, with open drawers, 34 to 40 bust.

No. 7688—Empire night gown, small 34 or 36, medium 38 or 40, large 42 or 44 bust. With square or round neck, sleeves gathered into bands or plain.

No. 7705—Girl's tucked night gown, 4 to 12 years. With V-shaped or high neck, long or short sleeves.

No. 7706—Child's under coat, 2 to 6 years.

The above patterns will be mailed to any address by the Fashion Department of the Michigan Farmer on receipt of 10 cents for each.

CLOUDED BRAIN

Clears Up On Change to Proper Food.

The brain cannot work with clearness and accuracy, if the food taken is not fully digested, but is retained in the stomach to ferment and form poisonous gases, etc. A dull, clouded brain is likely to be the result.

A Mich. lady relates her experience in changing her food habits, and results are very interesting:

"A steady diet of rich, greasy foods such as sausage, buckwheat cakes and so on, finally broke down a stomach and nerves that, by inheritance, were sound and strong, and medicine did no apparent good in the way of relief.

"My brain was clouded and dull and I was suffering from a case of constipation that defied all remedies used.

"The 'Road to Wellville,' in some providential way, fell into my hands, and may Heaven's richest blessings fall on the man who was inspired to write it.

"I followed directions carefully, the physical culture and all, using Grape-Nuts with sugar and cream, leaving meat, pastry and hot biscuit entirely out of my bill of fare. The result—I am in perfect health once more.

"I never realize I have nerves, and my stomach and bowels are in fine condition. My brain is perfectly clear and I am enjoying that state of health which God intended his creatures should enjoy and which all might have, by giving proper attention to their food." Name given by Postum Co., Battle Creek, Mich. Read "The Road to Wellville," in pkgs. "There's a reason."

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

DAISY FLY KILLER



placed anywhere, attracts and kills all flies. Neat, clean, ornamental, convenient, cheap. Lasts all season. Made of metal, can't spill or tip over; will not soil or injure anything. Guaranteed effective. Sold by Dealers or 6 sent prepaid for \$1.

HAROLD SOMERS, 100 DeKalb Ave., Brooklyn, N. Y.

A Watch To Be Proud Of For Every Boy Who Wants One.



Boys, here is the best chance that ever was offered to get a good time-keeping watch without it costing you a cent. Read this over and then get busy, if you haven't got the watch as good as in your pocket in a couple of hours, it's because you don't want it bad enough.

The watch is the real thing, 16-size, nickel case, stem-wind and set, second hand, fine watch movement, and keeps absolutely correct time. It's fully guaranteed and if you don't hammer tacks with it or take it apart, in fact, if you will treat it as the friend it will prove to you, the manufacturer will keep it in repair for one year without charge. That's fair, isn't it?

Go to three of your neighbors who are not subscribers to The Michigan Farmer, or whose time has run out, tell them that you will have sent to them the Michigan Farmer (the best farm paper in America), every week for a year (52 copies) for only 50 cents. Collect 50 cents from the three of them and send us the \$1.50 you collect, together with the three names and addresses, and the watch will be sent to you at once, post paid.

Easiest thing you ever did. The Michigan Farmer used to be \$1.00 a year and now you only charge 50 cents, (less than one cent a week), and by telling the neighbors that you are after a watch you will likely get the first three you ask.

Start right away, the sooner you start the sooner you have the watch ticking in your pocket and telling you at a glance the hour, the minute, and the second of the day. Send your order to

THE MICHIGAN FARMER, Detroit, Mich.

Farm Commerce.

A Limitation on Co-operation Membership.

IN our last talk we made this point: That men who need to be led into co-operative societies, are the very ones who most need the service, and that it is not in harmony with the spirit of co-operation to in any way refuse such persons, or any who may be helped, the advantages coming from these organizations. But holding ourselves true to the letter and spirit of this conclusion there is nevertheless, a certain limitation to the membership of co-operative societies that we ought to consider.

And to make our meaning clear we need to have in mind the fundamental nature of co-operative institutions. To co-operate implies that two or more persons have work of the same kind that they wish to do together. Ten men in a community have potatoes that they desire to sell. These ten men can co-operate. But if one of these men desired to sell potatoes, another to buy a carload of steers, a third to secure the service of an attorney, a fourth to build a house, etc., it would be almost ridiculous to co-operate in accomplishing these tasks for men endeavor to work together that they may save energy and expense and have the work better done. Now it would be even more expensive, and require as much energy if ten men formed a co-operative organization to sell the potatoes belonging to the one man as it would for that one man to go out and sell them himself; but, on the other hand, if all these men had potatoes to sell and they joined together and had one man sell them then it would take but one-tenth of the time and energy to find a buyer that it would if each man sought his own market. So we must keep the fact before us that it is common work or service that offers an opportunity for co-operation.

With this fundamental principle in mind it is clear that where a society is being organized for some particular purpose the members should be actively interested in that purpose. Where potato growers are organizing to sell their potatoes it should be definitely understood that those taking part be commercial producers of this crop. If later the scope of the organization is broadened then the limitations as to membership should be extended to correspond.

The history of co-operative societies shown this limitation on the membership to be a wise one. And it is reasonable to think it so for if a majority of the members as in the above instance—had no potatoes for sale they would be unwilling to make a serious effort or go to any considerable expense to accommodate the one who had. Where outside men, those with whom the farmers have business relations, join the societies, the purely co-operative features of the society are seriously endangered. Then, too, the interests of those who sell and those who buy being opposite a commercial society including both is quite apt to fail sooner or later because of internal politics. The producers should have control of such societies at all times, since it is an instrument designed to improve their own marketing conditions.

It frequently happens that a broker or commission firm effects a co-operative organization among producers to make it more convenient to handle the product of the community; or bankers and others philanthropic persons may seek to organize the farmers for the general good of the community. Generally these efforts are, at least, temporarily successful, but they seldom are permanently so unless the actual control of the concern lies in the hands of the producers.

In this connection the provisions of the "by-laws" of the California co-operative societies on the qualifications of members is significant in the light of the experience and success of those societies. The following provision is made:

Any bona fide grower of citrus fruits properly tributary to the packing-house of this association, who shall sign the contract hereto appended, may become a member of this corporation by contributing his pro rata share of the operating investment in accordance with the articles of incorporation.

Here it is required that the person seeking membership must be an actual

(bona fide) grower of citrus fruits and must be located within the jurisdiction served by the packing-house. If societies now forming will place a similar restriction on membership they will by that act better secure the permanency of the institutions.

THE STANDARDIZATION OF GRAIN.

For the past six or seven years the Department of Agriculture has been working on the problem of handling, transporting and grading grain. That this work might be made as valuable as possible, conditions have been studied from the time the grain is ready to harvest on the farm until it reaches the final consumer. In the instance of corn, the crop has been inspected on the farm when it is ready to harvest. The methods of cribbing are noted and the means taken by the farmer to see that his corn is marketed in good condition. The inspection has then been continued to country elevators where methods of handling and grading the corn and the state in which it is shipped to the terminal markets are noted. Then, in turn, the questions of mixing and holding at the terminal markets are inquired into. This policy carried out with the several grains in a comprehensive scheme of inspection work has enabled the government to obtain definite information regarding the handling and grading of our grain products.

The study, however, has not been limited to this, but taking corn again as an example, the cereal has been followed across the ocean until discharged at European ports. Eight different cargoes have been accompanied by government men to make note of the conditions at the time of unloading and until discharged abroad. In European ports fully 200 cargoes have been inspected, and by way of parenthesis it might be stated that much of the corn sent to European ports has arrived in very poor condition and this is largely due to the fact that farmers are not particular in the way they fit the cereal for delivery at local elevators.

As a result of this careful study, the government expects to announce about the first of August rules and specifications for the grading of corn, based on the results of the investigations pointed out and on present commercial practices. After these tentative rules are announced the government will give members of the grain trade, farmers, shippers and consumers an opportunity to meet and discuss any changes which they think should be made in the grades.

It is the plan of the government to make the grades definite and specific. For every grade there will be a limit of moisture so that any person can determine for himself and know with exactness what his grain should test at the terminal market. The same will be true of dirt and other factors taken into consideration. More will be known, however, about the conclusions of the government inspectors when announcement is made. It is confidentially believed that this work when placed on a practical basis will be of great economic importance to the farmers of the country, as it is surmised that in the process of grading cereals farmers are beaten out of much that should come to them through the shrewdness of unprincipled buyers.

SELLING EGGS THROUGH A CREAMERY.

Here is a plan of disposing of eggs that lends itself particularly to Michigan because of the large number of creameries in the state. The illustration comes from a recent Minnesota bulletin.

In 1908 a private creamery in a town of east central Minnesota began handling eggs in connection with its creamery business. The proprietor established a carton system whereby farmers bringing in eggs were required to stamp each egg so as to show the brand of the creamery and the number of the farmer. The eggs were placed in cartons, or paper boxes, made to hold an even dozen.

These cartons were so shaped that they could be packed in regular egg cases for shipment to the city. Each farmer signed an agreement with the creamery, pledging himself to comply with certain definite rules. Eggs were to be gathered twice a day. None were to be delivered which were more than eight days old. They were to be of uniform size and color, and clean. Until brought to the creamery they were to be kept in a cool, dry place. Besides stamping the individual eggs the carton should also be stamped. All such eggs were to be sold to the above creamery.

During the first year the number of patrons bringing eggs to the creamery varied between 30 and 40. During the last year more than 200 patrons have been selling eggs at the creamery. The number of dozens of eggs purchased and shipped from the creamery has likewise increased during these years. The largest business each year is during the spring months and the smallest, during the fall. The highest point is reached in either April or May, while the lowest has invariably occurred in November.

Where the Money Goes.

Where the local farmer is paid 21 cents a dozen, the local buyer sells in Duluth to retailers for 23 cents. The Duluth retailer pays the express charges, which approximate one cent a dozen. The local margin of two cents consists of one cent per dozen charged by the creamery man for handling and one cent for the cost of cartons and rented cases. The retailer in Duluth buying at 23 cents sells for 29 cents. His margin of six cents includes one cent for express, leaving five cents for handling. These eggs sell in Duluth for five cents more than the market prices during at least nine months of the year.

Besides shipping to retailers the creamery man has also secured a certain amount of first-class hotel trade. During the spring season surplus shipments have been made to eastern markets at top prices.

Farmers Were Paid Cash.

Previous to 1908 whatever eggs were brought to this town were taken in trade by country merchants. Since that time farmers have been receiving cash. Payment is made by checks drawn on the local bank. When the egg buying was first taken up by the creamery the merchants feared that such handling of eggs with cash payment would injure their business and lead farmers to patronize catalogue houses. To allay such fears the creamery men urged patrons to cash their checks at the stores rather than at the bank. Later experience has convinced the merchants that they as well as the creamerymen and the farmers have benefited by the change.

How Egg Quality was Improved.

The main difficulty in this creameryman's experience with the egg business has been to get the farmers to furnish a uniform grade of eggs. With the wide variety of chickens represented in the community, eggs of different sizes and colors are mixed together. In order to encourage uniformity, for a while, one cent more per dozen was paid for white eggs than for brown ones. This induced a number of the farmers to get rid of their old stock and invest in White Leghorns. As a result, the average grade of eggs furnished has been steadily improved.

THE MARKET MILK AND CREAM TRADE.

(Continued from page 71).

cream and use it for whipped cream or reduce it by the use of milk to any richness desired. The light cream cannot be whipped. The same general methods of sanitation should be employed in producing cream as are employed in producing milk—perhaps even greater care, because cream is generally more susceptible to deterioration than milk.

It is a mistake for the dairyman to become careless in his stable and milk room and depend upon the separator to take out all of visible dirt, and leave the bad flavors and bacteria which cause souring. The milk should be separated at once after milking and the cream promptly cooled in large cans by heavy icing. By properly adjusting the thumb-screw on the separator the per cent of butter-fat in the cream can be regulated to within one or two per cent of the grade wanted. Cream should be held at a temperature of about 42 degrees F., until ready for shipment. Heavy cans, protected with thick, padded jackets should be used to hold the temperature down when shipping. The bulk of the

cream used in large cities is shipped by creamery companies, condensary plants and powdered milk factories a long distance from the cities. Such cream does not always meet the requirements of a fancy trade because it must be pasteurized before shipment. Pasteurizing means the heating for 20 or 30 minutes at a temperature of from 140 to 150 degrees F., and immediately cooling to below 50 degrees. Such cream will keep sweet a long time, but it loses its viscosity, or thickness, and cannot be whipped like cream that has not been pasteurized. In many cases pasteurization is used to cover up bad odors and flavors. In some instances, the writer has seen rather poor milk taken in a skimming station 500 miles from large cities and by being skillfully manipulated reach its destination in the shape of cream that was considered of very good quality. After seeing the conditions under which a large part of this pasteurized cream is produced I would be willing to pay one-half more for cream fresh from the farm where the milk was produced and that had not been manipulated by skillful manufacturers and dealers through whose hands it has passed. Some will claim that pasteurizing cream cannot kill bad odors and flavors, but those who have had experience know better.

Providing one can find a suitable market the selling of cream is the ideal of dairy farming. Finding a satisfactory market is less easy than finding a market for milk and butter, principally because the demand for cream fluctuates more from week to week than the demand for milk and butter. Then many of the largest dealers and ice cream manufacturers refuse to buy cream from the producer. It is their business policy to buy milk, separate the surplus in their own plants and turn it into butter or cream as may be needed; however, it is possible to go into cities and find hotels, restaurants and candy manufacturers willing to buy your cream according to their needs, which vary from 10 to 20 gallons a day. To some extent the selling of cream is a special problem. On the other hand, if a good market can be found it will pay better to sell cream than butter. On the whole, therefore, the selling of cream is a more specialized branch of the dairy business than selling milk or butter and, properly conducted, it can be made very satisfactory to the dairyman who values the young stock of the farm.

One successful breeder of registered Guernsey cattle supplies a large eastern hotel with cream and on the menu cards are pictures of his farm buildings and cattle with the information that the cream used at this hotel comes from his farm, where visitors are always welcome and where the best stock in the country is for sale. A few weeks ago I visited his farm and asked him if he found such advertising a benefit to his business. He said that next to one or two farm papers it brought better returns than any advertising he had ever done. He said: "You see it catches a lot of men who are stopping over in the city for a few days on business and having the extra time some of them call me up on the phone from the hotel and come out and visit my farm. As a rule, the men who stop at the very best hotels have money and I have made several very satisfactory sales. The hotel owner likes the attractive covers for the menu cards and it helps to bring customers to my farm. I could mention several instances where men from a distance who had come east to buy stock from other herds have been attracted by my hotel advertisement and visited my herd and made liberal purchases. My cream helps advertise my breeding stock."

Present prices and indications show that there is a demand for ten good cows where one is for sale. Farmers situated where land is cheap and abundant and where they can have skim-milk left on the farm can find substantial profits in buying a few registered cows and a good sire and gradually changing their grade herds into pure-breds. In this way one has an opportunity to study the business while the herd is increasing in numbers and by careful management he can raise and develop a choice herd of registered cattle at a very low cost. By selecting well-bred sires and breeding for some definite object which will add commercially to the value of his stock produced one is nearly sure of success. Some of the best registered herds of the country have been developed along very conservative lines until the owner became fully acquainted with the business.

New York.

W. MILTON KELLY.

Markets.

GRAINS AND SEEDS.

July 23, 1913.

Wheat.—Reports of damage from rust strengthened the wheat market late last week. More recent reports, however, are to the effect that the danger to the crop was exaggerated. The condition of the spring wheat crop is reported as being nearly ideal with the plant filling so rapidly that harvesting will begin this week in Minnesota. The Russian outlook is also reported to be fine. A good export inquiry supported prices fairly well in spite of the bearish crop news. Speculative trading has settled down and fluctuations are narrow and a dull trading market is expected in the immediate future. Primary receipts of wheat were 1,792,000 bushels as compared with 1,006,000 bushels one year ago. One year ago No. 2 wheat sold on this market at \$1.03½ per bu. Quotations for the past week are as follows:

	No. 2	No. 1	Red.	White.	Sept.	Dec.
Thursday	88½	87½	88½	89½	92½	92½
Friday	89	88	89	89	92½	92½
Saturday	89	88	89	89	92½	92½
Monday	89	88	89½	89	92½	92½
Tuesday	89	88	89½	89	92½	92½
Wednesday	88½	87½	89	89	92½	92½

Chicago, (July 22).—No. 2 red wheat, 87½c; Sept., 87c per bu.

Corn.—Corn values have advanced during the past week, quotations on Tuesday being 1½c higher than a week ago. Although predicted showers in the corn belt caused a tendency for prices to decline, this was largely offset by the showing of a general absence of moisture on the weather map. The condition of the growing crop does not affect values as greatly as would be the case were supplies of cash grain more adequate at the present time. Recent widespread showers in Michigan have materially improved the prospect for corn. One year ago No. 3 corn sold on this market at 74½c per bu. Quotations for the past week are as follows:

	No. 3	No. 3	Yellow.
Thursday	62½	64½	64½
Friday	62½	64½	64½
Saturday	63	65	65
Monday	64	66	66
Tuesday	64	66	66
Wednesday	64	66	66

Chicago, (July 22).—No. 3 corn, 62½c; No. 3 yellow, 63½c; Sept., 62½c; Dec., 59½c per bu.

Oats.—This market has been unevenly steady during the week with a slight advance in quotations due to sympathy with other grain prices. The market has displayed no independence, being swayed wholly by the action of corn. Standard oats sold on this market one year ago at 57c per bu. Quotations for the past week are:

	Standard.	No. 3	White.
Thursday	42	41	41
Friday	42½	41½	41½
Saturday	42½	41½	41½
Monday	43	42	42
Tuesday	43½	42½	42½
Wednesday	42	41	41

Chicago, (July 22).—Standard new oats 40½c; old, 41½c; No. 3 white, 40½c; Sept., 40½c; Dec., 42½c per bu.

Beans.—There is practically no change in the bean market, the demand being nominal and the supply rather limited. The new crop is growing well but not far enough advanced as yet to be a factor in the market situation. Quotations are for prompt and immediate shipment, \$2; October, \$1.90 per bu.

Chicago, (July 22).—Another decline is noted in this market during the past week. Pea beans, hand-picked, choice, per bu., \$2.05; red kidneys, \$1.75; 1.90; white kidneys, \$3.

Rye.—This market remains unchanged with small supplies and little demand. Cash No. 2 is quoted at 64c per bu.

Barley.—This market remained unchanged during the past week with prices at Chicago holding a range of 48¢ to 62¢ per bu.

Clover Seed.—This market has made another advance of 10c during the past week, prime spot selling here on Tuesday at \$8.40 with the December option at the same price. October alsike sold at \$10, while sample seed changed hands at \$9.50 per bu. At Toledo prime cash clover seed sold at \$8.30, which is the same as last week's price. October seed sold at \$8.25 and December at \$8.40, which is a decline from last week. October alsike sold at \$9.90, which is 5c under last week's price.

Timothy Seed.—This market eased off a little during the week and consignments of prime seed sold at \$2.50 per bu. At Toledo prime August timothy seed is quoted at \$2.40; Dec., \$2.57½ per bu., which is a fractional decline from last week.

FLOUR AND FEEDS.

Flour.—Jobbing lots in ½ paper sacks are selling on the Detroit market per 196 lbs. as follows: Best patent, \$5.70; second, \$5.20; straight, \$5; spring patent, \$5.10; rye flour, \$4.60 per bbl.

Feed.—In 100-lb. sacks, jobbing lots: Bran, \$21; coarse middlings, \$21; fine middlings, \$27; cracked corn and coarse corn meal, \$22.50; corn and oat chop, \$21 per ton.

Hay.—Prices are up 50¢ to \$1 on most grades. Carlots on the track at Detroit are: No. 1 timothy, \$14.50 to \$15; No. 2, \$11.50 to \$12.50; light mixed, \$13 to \$13.50; No. 1 mixed, \$11 to \$12.

Chicago.—All kinds and grades are 50c higher. Choice timothy, \$16 to \$16.50 per ton; No. 1, \$14.50 to \$15.50; No. 2, \$13 to \$14; No. 3 and clover mixed, \$9.50 to \$12.50; clover, \$8.50 to \$12.50; alfalfa, \$14.50 to \$17.50.

Straw.—Detroit.—Rye, \$9 to 10; wheat and oat straw, \$8 to \$8.50 per ton.

Chicago.—Rye straw, \$7.50 to \$8; oat straw, \$5 to \$6; wheat straw, \$5 to \$6 per ton.

DAIRY AND POULTRY PRODUCTS.

Butter.—Steadiness characterizes the market at all points. Elgin remains unchanged. Locally the demand is good and a better feeling prevails than a week ago. Extra creamery, 26c; firsts, 24½c; dairy, 20c; packing stock, 19c.

Elgin.—Market steady at 26c.

Chicago.—Market practically unchanged from last week although extra quality stock of either creamery or dairy commands a fractional premium. Quotations are: Extra creamery, 26½c; extra firsts, 25 to 25½c; firsts, 24 to 24½c; seconds, 22½ to 23½c; dairy extras, 25c; firsts, 23½c; seconds, 22c; packing stock, 12 to 21c as to quality.

New York.—Steady; nothing but very superior stock commanding an advance over last week's figures. Quotations are: Creamery extras, 27 to 27½c; firsts, 25½ to 26c; seconds, 24 to 25c; state dairy, finest, 26c; good to prime, 24 to 25½c; common to fair, 22 to 23c; packing, 19 to 21½c as to quality.

Eggs.—Offerings continue sufficient for immediate needs and the local market is steady with last week's figures ruling. Current offerings, candled, quoted at 17c per dozen.

Chicago.—Market steady and unchanged. Miscellaneous receipts, cases included, are quoted at 8 to 14c; do., cases returned, 8 to 13½c; ordinary firsts, 14½ to 15½c; firsts, 16 to 16½c; storage packed, firsts, 17c per dozen.

New York.—Somewhat irregular on the whole, but the better grades are steady at unchanged quotations. Fresh gathered extras, 24 to 26c; western gathered, whites, 20 to 25c per dozen.

Poultry.—Liberal offerings and a fairly good demand have featured the local market the past week, resulting in slightly lower quotations all around, broilers suffering most. Quotations are: Live—Broilers, 22 to 23c; hens, 16 to 16½c; No. 2 hens, 11 to 12c; old roosters, 10 to 11c; turkeys, 17 to 18c; geese, 10 to 11c; ducks, 14 to 15c per lb.

Chicago.—Fowls and spring chickens lower. Quotations on live are: Turkeys good weight, 18c; others, 12c; fowls, good 14½c; spring chickens, 19c; ducks, 13c; geese, 10c; guinea hens, \$4 per dozen.

Cheese.—Steady. Wholesale lots, Michigan flats, 14½ to 14¾c; New York flats, 15½ to 16c; brick cream, 14½ to 15c; limburger, 14½ to 15½c.

Veal.—Little doing; quotations largely nominal. Fancy, 13½ to 14c; common, 10 to 11c.

FRUITS AND VEGETABLES.

Apples.—New apples are steady at last week's advanced figures of \$1.75 to \$2 per box, and \$5.50 to \$6 per bbl. Old apples are gone.

Gooseberries.—Not plentiful at \$2.50 to \$3 per bushel.

Currents.—Steady. Ordinary, \$2 to \$2.50 per bu; cherry \$3 to \$3.50.

Raspberries.—Reds fairly plentiful with last week's figures ruling; blacks scarce and higher. Reds, \$4.25 to \$4.50 per 24-qt. case; black, \$2 to \$2.25 per 16-qt. case.

Cherries.—About gone. Quoted at \$3.25 to \$3.50 per bu.

Potatoes.—Market is firm with prices for the new crop ruling higher than last week, they being \$2.85 to \$3 per bbl.

Cabbage.—New selling at \$2.50 to \$2.75 per bbl.

Green Corn.—50c per dozen.

WOOL.

Boston.—Comparatively little improvement in prices or volume of sales is reported in the domestic wool trade. The bulk of recent trading has been in territory stock with some Texas wool moving. Buying in producing sections of the west is slow, some experts maintaining that half of the new clip has been purchased or consigned. Bright fleece wools are in limited demand, some Ohio having sold at 24c.

GRAND RAPIDS.

Local buyers are paying 17c for fresh eggs and 22c for dairy butter. First blackberries are bringing \$2 per crate, red raspberries, \$2.25. Sweet cherries are worth \$2.25; sour, \$1.25 to \$1.50; currants, \$1.15. Home-grown potatoes brought 80¢ @ 1 Tuesday morning and the crop is light owing to the dry weather. Live poultry, delivered, brings 13c. New hay is selling on the market at \$14 to \$17. Grain prices are as follows: No. 2 red wheat, 80c; oats, 43c; corn, 65c; rye, 45c; beans, \$1.60.

THE LIVE STOCK MARKETS.

Buffalo.

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

Cattle.

Receipts of stock here today as follows: Cattle, 150 cars, hogs, 80 double decks; sheep and lambs, 20 double decks; calves 1200 head.

With 150 cars of cattle on our market here today, and 22,000 reported in Chicago, quality considered, all cattle weighing 1,200 and over sold just about steady with last Monday. The best cattle shown here today were not as good quality as the cattle that sold here for the top price last Monday. The butcher cattle sold strong at last Monday's price, and in some instances 10c higher. At the close

about everything sold; prospects steady at present prices.

We quote: Best 1350 to 1500-lb. steers dry-fed, \$8.75 to \$9; good to prime 1200 to 1300-lb. do., \$8.60 to \$8.75; good to prime 1100 to 1200-lb. do., \$8.50 to \$8.75; coarse and plain weighty steers, \$7.75 to \$8; good to choice handy dry-fed steers, \$8.25 to \$8.75; good to choice handy steers, grassy kind \$7.50 to \$7.75; medium butcher steers, grassy kind, \$7.25 to \$7.50; dry-fed steers and heifers, mixed, \$7.80 to \$8; light common grassy steers and heifers, \$6.50 to \$6.75; best fat cows, dry-fed, \$6.50 to \$7.25; best fat cows, grassy, \$5.75 to \$6.25; good butcher cows, \$5.50 to \$6; light butcher cows, \$4.50 to \$5; trimmers, \$3.75 to \$4; best fat heifers, dry-fed, \$7.40 to \$8; medium butcher heifers, grassy, \$6.75 to \$7; light and common grassy heifers, \$6 to \$6.25; stock heifers, \$5.50 to \$6; best feeding steers, dehorned, \$7 to \$7.25; light and common stockers, \$6 to \$6.50; best butcher bulls, \$6.75 to \$7.25; bologna bulls, \$6 to \$6.50; stock bulls, \$5.25 to \$5.50; best milkers and springers, \$6.50 to \$8; common kind do., \$5 to \$6.

Receipts of hogs today about like last Monday, 80 double decks, and market but little changed from Saturday's close. General sales of the mixed, medium and heavy were at \$9.85; some ordinary heavy ends down around \$9.50 to \$9.60; yorkers, \$9.85 to \$9.90; pigs and lights, \$9.90 to \$9.95; roughs, \$8 to \$8.50; stags, \$7.50 to \$8.

The sheep and lamb market was fairly active today, with prices about the same as the close of last week; most of the choice lambs selling from \$7.75 to \$8; yearlings, \$6.50 to \$7; look for about steady prices the balance of the week.

We quote: Choice lambs, \$7.75 to \$8; cull to fair lambs, \$6 to \$7.50; yearlings, \$6.50 to \$7; bucks, \$2.75 to \$3; wethers, \$5.50 to \$6; handy ewes, \$4.50 to \$5; heavy do., \$3.75 to \$4; cull sheep, \$2.50 to \$3.50; veals, choice to extra, \$11 to \$11.50; fair to good, \$9.50 to \$10.50; heavy calves, \$5.50 to \$7.

Chicago.

July 21, 1913.

Cattle. Hogs. Sheep.
Receipts today 20,000 42,000 33,000
Same day last year .. 11,487 42,761 25,414
Receipts last week .. 46,103 125,104 108,858
Same week last year .. 33,041 97,118 97,175

The run of cattle today is not large for a Monday, and the general run is selling at steady prices, while quite a number of the choicer lots are as much as a dime higher. Hogs are active, and while the common and medium grades are quoted off a nickel, the best lots are steady. Hogs received last week averaged 243 lbs., compared with 239 lbs. one year ago, 232 lbs. two years ago, 245 lbs. three years ago and 224 lbs. four years ago. The sheep market is glutted, with heavy supplies of lambs consigned from Louisville to packers and liberal offerings of lambs, yearlings and sheep from Idaho and Montana ranges. At a late hour the bulk of the offerings remained unsold, with prices quoted from 25 to 50c lower. Some choice native lambs were reported sold at \$7.25, and it was thought that prime range lambs might sell around \$7.50.

Cattle sold last week better than might have been expected in view of the materially increased receipts, with the best class of steers and heifers no lower and in excellent demand. The light and medium-weight plain steers met with little favor, however, and sold at declining prices, as did cows and heifers of the cheaper class. The bulk of the steers found buyers at \$8 to \$8.85, the best class of heavy corn-fed steers going at \$8.70 to \$9.15 and the cheaper class of light, grassy steers selling at \$7.10 to \$7.95. Fair to pretty good warmed-up steers brought \$8 to \$8.25, while medium to good steers brought \$8.30 to \$8.65, with common to prime little yearling steers going for \$7.80 to \$9. Butcher lots of cows and heifers found buyers at \$5.20 to \$8.70, with cutters selling at \$4.60 to \$5.15, canners at \$3.50 to \$4.55 and bulls at \$5 to \$7.75. Farmers were too busy harvesting as a rule to pay attention to replenishing their pastures with cattle for grazing, and very little business was transacted in stockers and feeders, the former going at \$5.80 to \$7.60 and the latter at \$7.10 to \$8, with stock and feeder cows and heifers scarce and largely nominal at \$5.75 to \$6.80. Calves of the better class continued their upward course, because of light offerings and a strong demand, desirable light vealers going at \$10.50 to \$11.50 per 100 lbs., while the common to good heavy calves brought \$5 to \$8.25, stock steer calves being worth \$7.50 and over. Milk and springers had a small sale at \$5 to \$8.50 per head, demand being almost exclusively for good cows. The principal feature of the cattle trade of the country is the increasing movement of grass cattle from southwestern pastures, the greater part finding their way to Missouri river markets, and they are weakening the market for common cattle. At the close of the week cattle below good grade were 15 to 25c lower than a week earlier, cow stuff included. Steers selling at \$8 to \$8.40 declined the most.

Hogs continued their upward course for still another week, selling at decidedly the highest prices seen in a long time, with the receipts insufficient to meet the large trade requirements. Increasing offerings of grassy hogs, particularly old sows, tended to widen out the range of prices between the best and the least desirable consignments, and the choicest lots of light hogs commanded a substantial premium over the coarser lots. Hog packing is running ahead of a year ago in western slaughtering markets, but the comparison is made with a year of poor supplies of hogs. Stocks of provisions in Chicago are increasing gradually, but prices are following the same course as hogs, with both hogs and cured meats selling at far higher prices than were current a year ago. There is also a very large demand for fresh pork products, prices in the retail markets of the country ruling lower than for other meats. Not only are hogs selling much

higher than last year, but they are materially higher than in other years and are the most profitable of all farm productions. At the high time last week prime hogs of the lighter weights brought \$9.60, and they closed there Saturday, with sales all the way down to \$8.70 to \$9 for coarse heavy packing lots. Prices were generally \$2.10 higher than in January, when hogs sold the lowest of any time this year. The closing day of the preceding week hogs of the best kind brought \$9.30. Stags sold at the close of the week at \$9.35 to \$9.70, boars at \$4.25 to \$5.25 and throwout packing sows at \$8.25 to \$8.70.

Lambs and sheep made a big high record for themselves last week, moderate receipts and a strong general demand, particularly for lambs, combining to bring about some lively advances in prices. By Wednesday the boom had resulted in bringing in the first big supply of the week, and prices experienced a sharp decline all along the line, the demand failing to show a corresponding increase. Receipts have continued to embrace liberal supplies of southern spring lambs consigned direct from Louisville to Chicago packing plants, and advices from Idaho speak of liberal shipments of range lambs from there in the immediate future. The aggregate receipts of sheep and lambs for the week ran far over the preceding week and the same week last year in volume, and the close saw spring lambs selling at \$5 to \$7.75, after sales had been made at \$8.70 for the best. A week ago the top was \$8.40. Ewes closed at \$3 to \$4.75, wethers at \$3.50 to \$5.25 and bucks at \$3 to \$4. Yearlings closed at \$4.75 to \$6.75 and feeding lambs at \$6.15 to \$6.65.

Horses were in moderate supply and demand last week, the usual midsummer dullness prevailing, and all that held prices was the limited offerings. The cheaper animals went on the basis of \$85 to \$125 per head, while the best heavy drafters were almost nominal at \$300 to \$350, so few were sold. Light chunks weighing from 1,250 to 1,350 lbs. were salable at \$185 to \$250, and extremely few horses went above \$275, livery pairs being held at \$250 to \$350.

LIVE STOCK NEWS.

Within a short time prices for lambs, yearlings and sheep have undergone sharp advances over the figures that prevailed previously, as fewer reached Chicago and other leading markets of the country. Native spring lambs make up a large part of the offerings, the range lambs being rather late in showing up, although on some days the representation of Idaho lambs in the Chicago Stock Yards is fairly large. As a general rule, sheepmen on the ranges are fully aware of the good money to be made by holding their spring lambs until they get good and fat, and as this course promises to be general, the question arises, where is the supply of feeding lambs coming from later in the year, when a big demand is almost sure to prevail? Meanwhile there is a steady call for grazing lambs, as well as for range feeding wethers and yearlings from Oregon and other ranges, and many more than are marketed could be disposed of quickly at firm prices. There is also a growing demand for breeding ewes, but so few are offered for sale that very little business is transacted. This demand will grow as the season advances, for many farmers are known to be anxious to embark in breeding sheep for the market. Unless a severe drouth prevails, there is sure to be a great deficit of feeders, and it is evident that the time has arrived for farmers to go into raising sheep and lambs on their own hook.

The hog market probably was never in a stronger position than it is now, with known serious shortage of swine in the United States as compared with former normal years and the largest consumption of fresh pork ever witnessed in the good old summer time. Ordinarily, people let up in eating fresh hog meats during the midsummer period, but this year conditions are peculiar, with other meats so dear that from motives of economy, if from no other cause, families are eating much less beef and mutton and far more fresh pork chops and roasts. Within a short time hogs have sold at the highest prices recorded in several months, and lard and cured hog meats have also had a great advance in prices, with no break in the former good demand on domestic and export account. While the future is, of course, a matter of some uncertainty, the prevailing opinion is strongly in the direction of further advances.

Prices for the general run of beef cattle, as well as for all descriptions of stockers and feeders, and also for veal calves, continue to rule very much higher than a year ago, even if the top prices for prime beefs happen to be lower than at that period. This applies especially to the commoner kinds of steers, canners and cutters, which have advanced wonderfully, because of a much stronger demand for cheap beef than in former years. Grass cattle from Kansas and Oklahoma pastures are reaching the Missouri river markets in good numbers and are likely to bring about declines in the commoner cattle, although a good demand for such cattle for placing in northern pastures to finish may be expected to lessen the breaks in values. Shipments of feeders from the markets of the country to feeding districts in the corn belt states show a marked falling off during the first half of the year, and many pastures are not carrying their usual numbers of cattle. It is known that cattle supplies available for marketing from the northwestern ranges will be only moderate and much less than last year, and the percentage of feeders is almost sure to be quite limited, there being a powerful incentive for making the cattle good and fat. No considerable marketings of these northwestern rangers are expected before the middle of August.

THIS IS THE FIRST 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.

July 17, 1913.

Cattle.

Receipts, 1816. Dry-fed scarce and steady; all other grades 10@15c lower.

We quote: Extra dry-fed steers and heifers, \$8.25@8.40; steers and heifers, 1000 to 1200, \$7.75@8; steers and heifers, 800 to 1000, \$7.25@7.50; grass steers and heifers that are fat, \$6.00 to \$6.25@7.50; do. 500 to 700, \$6@6.50; choice fat cows, \$6.50; good do., \$6@6.20; common cows, \$4.75@5.25; canners, \$3@4; choice heavy bulls, \$6.50; fair to good bolognas, bulls, \$6@6.25; stock bulls, \$5.25@5.75; choice feeding steers, 800 to 1000, \$6.75@7.25; fair feeding steers 800 to 1000, \$6@6.50; choice stockers, 500 to 700, \$6.50@7; fair do., 500 to 700, \$5.75@6.25; stock heifers, \$5@5.50; milkers, large, young, medium age, \$6@8; common do., \$4@5; extra fancy, \$100.

Spicer & R. sold Mich. B. Co. 6 cows av 1025 at \$6.10, 18 steers av 903 at \$7.40; to Bresnahan 6 butchers av 708 at \$6.50, 2 bulls av 640 at \$5.50, 9 heifers av 777 at \$6.65; to Kamman B. Co. 2 cows av 1090 at \$6.50; to Goose 2 do av 925 at \$5.25, 12 butchers av 385 at \$6; to Hammond, S. & Co. 5 cows av 930 at \$4; to Breitenbeck 10 do av 870 at \$6; to Sullivan P. Co. 25 butchers av 712 at \$6.50, 1 bull weighing 840 at \$5.50; to Kull 5 butchers av 732 at \$5.50; to Rattkowsky 7 cows av 864 at \$5.50; to Thompson Bros. 7 butchers av 774 at \$6.25; to Applebaum 4 cows av 1060 at \$5.10; to Mich. B. Co. 2 bulls av 1360 at \$6.50, 1 do weighing 840 at \$6, 10 butchers av 831 at \$7.25, 11 stockers av 606 at \$6.50; to Goose 2 cows av 1020 at \$5; to Sullivan P. Co. 5 bulls av 574 at \$5.25, 1 bull weighing 1150 at \$6.50, 3 butchers av 683 at \$6.25; to Thompson Bros. 13 do av 807 at \$6.25, 4 do av 680 at \$6, 2 cows av 915 at \$5, 8 do av 906 at \$6; to Breitenbeck 18 butchers av 888 at \$6; to Kull 12 do av 781 at \$7; to Baldwin 10 stockers av 548 at \$6, 5 do av 456 at \$5.50; to Sullivan P. Co. 5 do av 680 at \$5.75, 2 bulls av 1335 at \$6.75; to Sutton 9 steers av 648 at \$6.65, 1 do weighing 740 at \$6.

Bishop, B. & H. sold Kamman B. Co. 10 butchers av 887 at \$7.25; to Parker, W. & Co. 17 do av 813 at \$7.50, 1 bull weighing 1130 at \$6.35, 5 do av 826 at \$6.25, 3 do av 927 at \$6.25, 4 do av 1195 at \$6.65; to Sullivan P. Co. 2 cows av 975 at \$4.25, 3 do av 960 at \$5.50, 3 do av 1023 at \$5.85, 1 do weighing 850 at \$4.50, 1 steer weighing 1050 at \$7, 1 cow weighing 900 at \$4, 2 do av 850 at \$6; to Sutton 18 stockers av 633 at \$6; to Bresnahan 12 do av 555 at \$6.15; to Goose 4 cows av 900 at \$5, 10 heifers av 582 at \$5.65; to Rattkowsky 14 cows av 950 at \$5.35; to Hammond, S. & Co. 1 do weighing 860 at \$4, 2 do av 925 at \$6, 5 butchers av 818 at \$7.60, 1 bull weighing 1670 at \$6.75; to Breitenbeck 10 steers av 950 at \$7.65, 2 butchers av 790 at \$6.50, 5 cows av 1054 at \$6; to Mich. B. Co. 4 cows av 1027 at \$6, 1 steer weighing 820 at \$7, 1 bull weighing 870 at \$6.25, 2 cows av 1155 at \$5.50, 3 do av 963 at \$5.75, 1 bull weighing 1480 at \$6.50, 2 cow and bull av 780 at \$6, 11 steers av 820 at \$7.75; to Mason B. Co. 6 butchers av 800 at \$7.25, 4 cows av 775 at \$4.50, 5 butchers av 660 at \$5.50, 7 do av 857 at \$5.50, 6 do av 631 at \$6.50, 1 steer weighing 1220 at \$7.75.

Haley & M. sold Mich. B. Co. 13 cows av 988 at \$6, 5 butchers av 736 at \$7.50, 3 steers av 983 at \$8, 9 do av 794 at \$7.50, 3 cows av 857 at \$6; to Sullivan P. Co. 3 steers av 690 at \$6.50, 9 butchers av 993 at \$5.90, 6 do av 791 at \$6.25, 2 bulls av 1325 at \$6.35; to Goose 1 cow weighing 1090 at \$5.40, 2 do av 1052 at \$5.90; to Applebaum 2 do av 1030 at \$5.40, 3 do av 753 at \$4.55; to Kull 2 heifers av 865 at \$7.50; to Converse 4 cows av 1095 at \$5.90; to Rattkowsky 4 do av 1065 at \$6.25; to Lachalt 3 butchers av 911 at \$6.20; to Mason B. Co. 1 cow weighing 1080 at \$6.50, 1 do weighing 710 at \$6, 9 butchers av 628 at \$6.75, 7 do av 636 at \$6.10; to Marx 2 steers av 915 at \$7.25; to Rattkowsky 4 butchers av 727 at \$5.50; to Sweet 11 stockers av 603 at \$6.35, 6 do av 630 at \$6.65, 1 do weighing 560 at \$5.50, 10 do av 613 at \$6.35, 2 do av 545 at \$6.25; to Mich. B. Co. 10 butchers av 856 at \$7.40, 6 do av 635 at \$6, 5 bulls av 818 at \$6, 1 do weighing 700 at \$5.85, 2 cows av 1085 at \$5.85, 4 butchers av 645 at \$6.25, 9 do av 802 at \$6.50, 1 cow weighing 1100 at \$6, 12 steers av 1040 at \$6.75; to Converse 1 bull weighing 670 at \$6.

Roe Com. Co. sold Kamman B. Co. 6 cows av 690 at \$6.50; to Hammond, S. & Co. 21 butchers av 700 at \$6.65; to Sullivan P. Co. 8 cows av 836 at \$7.25; to Goose 2 cows av 1015 at \$5, 4 do av 1220 at \$6.50; to Sullivan P. Co. 2 bulls av 1130 at \$6, 4 cows av 1112 at \$5.65, 3 do av 900 at \$4, 1 do weighing 750 at \$6, 6 steers av 933 at \$7.25; to Gerish Market Co. 22 steers av 1111 at \$8.40; to Mich. B. Co. 30 do av 1246 at \$8; to Rattkowsky 3 do av 833 at \$5.25, 2 do av 430 at \$5; to Hammond, S. & Co. 4 bulls av 955 at \$6.25; to Wyness 6 stockers av 657 at \$5.75, 2 cows av 1000 at \$4.25, 3 stockers av 353 at \$5, 9 butchers av 543 at \$5.75; to Rattkowsky 2 cows av 785 at \$4.50, 3 do av 1030 at \$4.75, 1 do av 1030 at \$6, 2 do av 940 at \$4.75, 1

do weighing 1040 at \$4.50, 2 heifers av 390 at \$5.50; to Bresnahan 1 cow weighing 810 at \$3.25; to Parker, W. & Co. 16 steers av 1053 at \$8.10, 1 do weighing 1100 at \$7; to Hirschleiman 19 butchers av 740 at \$6.85; to Parker, W. & Co. 3 bulls av 827 at \$6; to Thompson Bros. 1 cow weighing 1070 at \$5, 3 do av 880 at \$7.10, 7 do av 1063 at \$6; to Sullivan P. Co. 2 bulls av 1175 at \$6.75; to Thompson Bros. 3 cows av 987 at \$5.25, 1 cow weighing 1400 at \$6.50; to Mason B. Co. 17 steers av 990 at \$7.60.

Milk Cow Sales.

Bishop, B. & H. sold Converse 1 cow and calf at \$100, 1 do at \$60, 1 do at \$58, 2 cows and calves at \$155, 1 cow and calf at \$60, 1 cow and calf at \$70, 1 cow at \$48.

Same sold Hely 5 cows and 3 calves at \$325.

Same sold Bresnahan 1 cow and calf at \$50, 1 do at \$60, 1 do at \$80, 1 cow at \$55, 1 do at \$60, 1 cow and calf at \$70, 1 cow at \$57.50, 1 do at \$55, 4 cows and 4 calves at \$230, 1 cow at \$40.

Veal Calves.

Receipts, 742. Market opened strong, will close trifle lower. Best, \$10.50@12; others, \$7@9.50.

Roe Com. Co. sold Mich. B. Co. 2 av 190 at \$11.50; to Sullivan P. Co. 1 weighing 140 at \$7, 1 weighing 160 at \$10, 3 av 165 at \$11.50; to Goose 3 av 275 at \$9.25; to Mich. B. Co. 7 av 160 at \$11.50, 19 av 150 at \$11; to Sullivan P. Co. 4 av 140 at \$11.50.

Weeks sold Burnstine 9 av 150 at \$11. Sandall sold same 8 av 150 at \$10; 6 av 200 at \$7.50.

Haley & M. sold Thompson Bros. 2 av 165 at \$11.50; to Mich. B. Co. 8 av 200 at \$9, 3 av 160 at \$12, 3 av 130 at \$10, 4 av 150 at \$12; to Goose 3 av 200 at \$11.50; to Parker, W. & Co. 21 av 150 at \$11.50; to Mich. B. Co. 5 av 225 at \$10, 7 av 180 at \$12; to Parker, W. & Co. 8 av 215 at \$10.25.

Sharp sold Mich. B. Co. 11 av 165 at \$11.50.

Sheep and Lambs.

Receipts, 2796. Sheep steady; lambs 50c lower. Best lambs, \$7.75@8; fair do. \$6.75@7.50; light to common lambs, \$5.50@6.50; yearlings, \$5.50@6.50; fair to good sheep, \$4@4.50; culls and common, \$2.50@3.

Bishop, B. & H. sold Sullivan P. Co. 9 lambs av 60 at \$8, 8 do av 50 at \$4.50, 36 do av 70 at \$8.25, 39 do av 68 at \$8.25; to Mich. B. Co. 52 do av 60 at \$8.60, 36 do av 73 at \$8.25, 19 yearlings av 115 at \$5, 29 sheep av 90 at \$4, 42 do av 120 at \$4.50, 27 do av 115 at \$4.90, 69 lambs av 65 at \$8.50, 38 do av 65 at \$5, 48 yearlings av 75 at \$6.50, 22 lambs av 68 at \$8.25; to Hayes 21 do av 60 at \$8, 21 do av 55 at \$7.50; to Kull 13 sheep av 105 at \$4.50, 18 lambs av 60 at \$8.50; to Wasson 21 do av 50 at \$8, 7 do av 65 at \$9; to Parker, W. & Co. 31 do av 70 at \$8.25, 45 do av 65 at \$8.50; to Costello 43 do av 55 at \$8; to Hammond, S. & Co. 13 sheep av 115 at \$4.75; to Fitzpatrick Bros. 10 do av 89 at \$5, 17 do av 120 at \$4.75, 18 do av 80 at \$4.75, 26 lambs av 70 at \$8.25; to Youngs 81 do av 73 at \$8.25, 15 yearlings av 80 at \$6, 11 sheep av 105 at \$4.50; to Sullivan P. Co. 57 sheep av 100 at \$3.50, 11 lambs av 60 at \$6.50, 29 do av 65 at \$8, 41 do av 60 at \$7, 13 do av 65 at \$6, 41 do av 65 at \$8; to Parker, W. & Co. 127 lambs av 67 at \$7.75; to Harland 72 do av 65 at \$8.

Spicer & R. sold Hayes 7 lambs av 65 at \$8.50, 13 do av 70 at \$8.50; to Mich. B. Co. 8 sheep av 110 at \$4.

Roe Com. Co. sold Barlage 9 sheep av 135 at \$4, 27 do av 120 at \$4, 5 yearling lambs av 70 at \$6, 75 lambs av 65 at \$8.25.

Hogs.

Receipts, 1604. Market 5@10c higher than on Wednesday; none sold up to noon; run very light.

Range of prices: Light to good butchers, \$9.45@9.50; pigs, \$9.50; light yorkers \$9.45; stags one-third off.

Bishop, B. & H. sold Hamamond, S. & Co. 715 av 180 at \$9.50, 210 av 220 at \$9.45.

Roe Com. Co. sold Sullivan P. Co. 150 av 180 at \$9.50.

Haley & M. sold Parker, W. & Co. 215 av 180 at \$9.50.

Sundry shippers sold same 140 av 180 at \$9.50, 160 av 200 at \$9.45.

Friday's Market.

July 18, 1913.

Cattle.

Receipts this week, 2031; last week, 1035. Market steady at Thursday's prices. We quote: Best steers and heifers, \$8@8.25; steers and heifers, 1000 to 1200, \$7.50@7.75; do. 800 to 1000, \$7@7.50; grass steers and heifers that are fat, 800 to 1000, \$7@7.50; do. 500 to 700, \$6@6.50; choice fat cows, \$6; good do., \$5.25@5.75; common do., \$4.50@5; canners, \$3@4; choice heavy bulls, \$6.25@6.75; fair to good bolognas, bulls, \$6@6.25; stock bulls \$5@5.50; choice feeding steers, 800 to 1000, \$6.75@7; fair do., 800 to 1000, \$6.25@6.50; choice stockers, 500 to 700, \$6@6.50; fair do., 500 to 700, \$5.75@6; stock heifers, \$5@6; milkers, large, young, medium age, \$7@7.50; common milkers, \$35@50.

Veal Calves.

Receipts this week, 923; last week, 603. Market steady with close Thursday. Best, \$10.50@11.25; others, \$6@9.50.

Sheep and Lambs.

Receipts this week, 3296; last week, 1729. Market steady. Best lambs, \$7.75@8; fair lambs, \$6.75@7.50; light to common lambs, \$5.50@6.50; yearlings, \$5.50@6.50; fair to good sheep, \$4@4.50; culls and common, \$2.50@3.25.

Hogs.

Receipts this week, 2329; last week, 3196. Market 10c higher than on Thursday. Range of prices: Light to good butchers, \$9.60; pigs, \$9.60; mixed, \$9.55@9.60; stags one-third off.

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Regina, Sask.		35.00	30.00	37.50	43.50	37.50	30.00	44.00	34.50
Saskatoon, Sask.		37.50	32.50	40.00	46.00	40.00	32.50	46.50	37.00
Prince Albert, Sask.		37.50	32.50	40.00	46.00	40.00	32.50	46.50	37.00
No. Battleford, Sask.		39.95	34.95	42.45	47.50	42.45	34.95	48.95	39.45
Edmonton, Alberta		46.50	39.50	46.50	47.50	46.50	39.50	50.50	46.50
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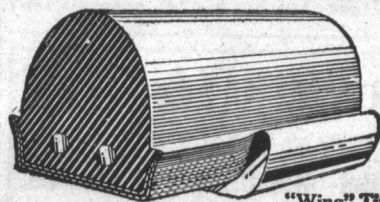
After being in the field for 14 years, Goodyear Tires are now found on more carriages than any other make. Nearly four and a half million have already been sold. And three-fourths of all Carriage builders, knowing the public preference for Goodyears, have adopted these more durable tires. Nor do you find any other tire sold by so many dealers. If at the price of ordinary tires, you want something more than ordinary service, insist on one of these most popular tires:

"Eccentric" Cushion Tire

is especially designed for lighter vehicles—runabouts, etc. Note the wire hole is below the center.

This increases the wearing depth of the tire one-half, and saves you that much money. This tire stays firm in the channel. The high-grade, springy rubber used in the "Eccentric" makes it remarkably easy riding. Always gives satisfaction.

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Our "Wing" Tire

Note this patented "wing"—how it presses against the channel, thus preventing mud, grit and water from getting in and quickly destroying the tire base. This tire remains sound. It won't creep or get loose. Gives utmost wear. Will greatly lengthen life of your carriage. Of tough, springy rubber—exceptionally easy-riding. Send us your name on a postal today for our latest Carriage Tire Circular.

(125)

When Writing to Advertisers please mention the Michigan Farmer.

Practical Science.

THE AVAILABILITY OF PHOSPHORUS IN THE SOIL.

BY FLOYD W. ROBISON.

Soil chemists and physicists have been devoting much time to methods of ascertaining the availability of plant food in the soil. There has not been the difficulty attending the demonstration of the availability of the compounds of nitrogen, particularly the soluble nitrogen compounds, neither has there been so much difficulty with the study of the availability of potash salts in the soil, but there has been from the inception of the use of phosphatic fertilizers a great difference in opinion relative to the availability of the different phosphatic products.

The Laboratory Methods.

The Association of Official Chemists has devoted much study to laboratory methods for determining the availability of compounds of phosphorus but there has not been close co-ordination between the results of laboratory methods up to date and actual practical results as determined by experimenting in the field. The familiar acid extraction method by which it was hoped to duplicate or imitate closely the solvent action of plant roots, together with the combined action of different salts within the soil has not accomplished the results which have been hoped for. It is, of course, very desirable that some quick laboratory method be devised but the action of natural forces in the soil seem to preclude the possibility of finding any method which can be entirely depended upon under all conditions.

Phosphorus Acts Different from the Nitrogen and Potash.

Phosphorus has an entirely different relationship to the soil than has either of the other two important fertilizing constituents. For instance, when a soluble phosphorus compound is placed upon the soil instead of simulating the action of a nitrate or a compound of potassium, the phosphorus at once changes its inherent relationship; it is thrown out of solution, and thus when actually in the soil is in an entirely different condition than that in which it existed as a fertilizer. This is familiarly known to soil experts and has been the one great barrier to the successful exploitation of acid phosphate.

The Soil Water as an Index of Availability.

Some years ago, in studying the constituents of some barren soils in the western part of Michigan, we made use of the water from shallow wells as being our best guide to the actual composition of the soil moisture in that soil. We think by so doing we were not making a gross error although, of course, it may not have exactly represented the available constituents of the soil. Many experimenters, and particularly the Bureau of Soils, United States Department of Agriculture, laid great stress later upon soil solution, as it was called, as furnishing an accurate index of the available plant food constituents in the soil. As we have stated before, these results as well have not given reliable data in every instance.

Ask the Plant.

It seems therefore that the most reliable method of all must revert to the effect upon a crop of that particular soil and while this method necessarily will consume much more time we feel that it is on a much firmer footing than any method which has been heretofore proposed. Of course, even this method will not respond in every instance for a soil may have ingredients which may be available to one crop and not so completely available to another. But it seems reasonable to suppose that the actual solvent action of the plant in a soil regardless of what plant it is will come nearer to showing the actual available material than any other method can be expected to show.

Rhode Island Bulletin.

We are therefore much impressed with the results obtained on a study of the available phosphorus in the soil revealed by Bulletin 154 of the Rhode Island Experiment Station. In the above mentioned bulletin the value of a certain variety of flat turnips is very clearly described. We commend this bulletin to the careful attention of any of our readers who may be interested in the progress by scientists in devising methods

for determining the availability of phosphoric acid in fertilizers. As stated in the summary, the percentage of phosphorus in English or strap-leaved turnips proved to be a better criterion of the availability of phosphorus than any of the common methods of soil extraction by solvents.

Bulletin Summary.

"It was found that in similar seasons the percentage of phosphorus in the turnips from the different soils usually varied in the same direction as the amount of available phosphorus in the soil; and it seems probable, especially under similar climatic conditions, that the relative amount of available phosphorus in different soils may be indicated by the relation between the percentages of phosphorus in turnips grown in those soils.

"The percentages of phosphorus pentoxid in dry matter varied from .27 in turnip roots grown on an extremely deficient soil, to 1.82 in turnips from a soil so abundantly supplied with phosphorus that further manuring even depressed the yield. Practically maximum growth was usually obtained if the percentage was as much as about 1.00, and a fair growth if it were perhaps a fourth less.

"Apart from the fact that marked increases in the phosphorus percentage of turnips were caused by applications of acid phosphate, the following observations were afforded by the work, although the data were meagre in some instances. When grown in a given soil, turnips of the same age but of different sizes contained about an equal percentage of phosphorus, but those grown for a longer time contained a smaller percentage. In no case did liming increase the rate of growth more than the rate of phosphorus absorption; that is, the percentage of phosphorus was not decreased. Applications of muriate of potash appeared to increase the percentage of phosphorus.

"In a pot experiment, three different crops of turnips were grown with a limited amount of phosphorus and two different amounts of water. In no case did the larger amount of water increase the rate of growth more than the rate of phosphorus absorption; the percentage was increased in one crop of turnips, and was practically unchanged in the other two."

DETERIORATED GRAIN POOR FOOD.

Experiments made at the experiment farm of the Bureau of Animal Industry of the Department of Agriculture at Bethesda, Maryland, to determine the value of deteriorated grain as a food-stuff for stock have shown that such grain has more effect on the quantity than on the quality of meat produced. Tests showed that horses and cattle fed on sulphured oats and on corn that had been heated in transit and had changed in color did not gain in weight to the same extent as the animals fed on thoroughly good grain. Several of the animals so fed were slaughtered for food and samples of the meat were used in regular household procedure, but they did not show any noticeable difference in the two sorts of feed.

It was decided that horses fed on inferior grain did not keep up their weight and strength for work purposes. Beef cattle and dairy cattle did not gain weight or produce as well in milk and butter, so the feed was not considered economical unless it could be procured at largely reduced rates.

There has been much speculation for several years on the desirability of using for stock feed grain that would not generally be considered fit for human consumption. Recently there was much discussion by the grain dealers of the United States over the reported attempt of the Agricultural Department to prohibit the use of sulphured oats as stock feed. It is now believed that these experiments will go a long way toward settling the controversy.

WANTED.

At once, a few men who are hustlers, for soliciting. No experience necessary. Good salary guaranteed and expenses paid. The work is dignified, healthful and instructive. In writing give references and also state whether you have a horse and buggy of your own. Address Box J. F., care Michigan Farmer, Detroit, Mich.

Veterinary.

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

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

Umbilical Hernia.—Colt seven weeks old has bunch on navel which came some four weeks ago, but it is not in pain. P. T., Hastings, Mich.—Leave filly alone and she may get well without treatment, or you may apply tincture iodine occasionally, but lightly.

Sprained Stifle Ligaments.—Some two weeks ago my horse went lame in hind leg, cause from sprain or injury to stifle. When he walks stifle joint snaps. This horse is weak and out of condition. F. R., Jr., Vermontville, Mich.—Apply 1 part red iodine mercury and eight parts cerate of cantharides to stifle every ten days and I believe he will recover.

Bunches on Cow's Legs.—On my Holstein cow's leg there is a chain of small soft bunches under the skin and I would like to know if I can cut them out with safety? B. H. F., Leonidas, Mich.—Instead of cutting them out apply equal parts tincture iodine and spirits camphor daily.

Hip Lameness.—One year ago last winter one of my horses injured hip when walking through deep snow; since then he has been lame and I have blistered leg below hock all the way down to hoof. His hip is somewhat sweeneyed and lower than opposite one, and he stands much like a spavined horse. I. W., Clarksville, Mich.—He may have fractured hip and if so he may never travel sound, but go with either a limp or stiffness. Apply equal parts turpentine, aqua ammonia and raw linseed oil to hip three or four times a week.

Surfeit—Impure Blood.—I have a valuable driving mare, nine years old, black as a raven, which breaks out in pimples every June, keeps in this condition until fall, then appears to recover and seems to be all right for winter. Please do your level best to either temporarily or permanently cure her. E. S. D., Grand Rapids, Mich.—Clip her, if she has a heavy coat, give her 1/2 oz. Donovan's solution at a dose three times a day, also apply one part coal tar dip or disinfectant and 30 parts water to sore and itchy parts twice a day. Feed her plenty of grass, and salt her well.

Sprained Hip.—I have a mare that had to be assisted when she foaled, some three months ago; since then she is sweeneyed in one hip. I have applied a remedy our local Vet. prescribed for another horse that was sweeneyed, but she is no better. I forgot to say that she bruised herself a good deal when she had colt. F. M. J., Hastings, Mich.—Apply one part powdered cantharides and 10 parts fresh lard to atrophied muscles of hip every week. This ointment will blister and the hair should be first clipped off before medicine is applied. Feed her well.

Open Joint—Eczema.—My three-year-old colt had a gathering on hock joint; since then we fail to keep it healed. He has been treated by two different Vets. with poor success. The wound has filled with proud flesh or meat like flesh, and I forgot to say that wound heals but don't stay healed. One of the Vets. tells me that it all came from castration, or rather, followed the operation. C. B., Paris, Mich.—I am inclined to believe joint was infected, later sloughed open; however, it may be the result of infection following castration. Wash out the wound with one part bichloride mercury and 500 parts water, ten minutes later apply one part iodoform and ten parts powdered alum twice a day. The wound should be covered with oakum, lightly.

Pigs Have Piles.—Some of our pigs are troubled with piles and I would like to know what to do for them. C. B., Batavia, Mich.—Piles are generally caused from constipation and are best treated by keeping the bowels open and applying astringents. Dissolve 1/4 lb. acetate of lead, 1/4 lb. sulphate zinc and 2 ozs. of tannic acid in one gallon of water and apply to sore and inflamed parts twice or three times a day. I frequently find it necessary to use a clamp then burn off bunches. You may be able to tie off some of them.

Sore Teat.—I have a fine Jersey cow that has one sore teat and I would like to know what can be done for her. The end of teat seems to be withering up and I should like very much to have her treated. J. W., Memphis, Mich.—Apply one part extract belladonna and ten parts vaseline to teat once a day. Hand-rubbing usually gives fairly good results.

Scrotal Hernia.—I have a colt that was born May 30, which has hernia of scrotum and I am advised to have him castrated; others tell me to wait. I want to know what you think should be done with him. B. P., Holly, Mich.—If the colt is free from pain and is thriving, leave him alone until latter part of October or early part of November, then have him castrated, "French Covered Method."

Abscesses in Bear.—For the past two years my collie dog has been troubled with abscesses in ear. When this trouble came on him he had a swelling appear under ear, which some time later broke

open and has discharged more or less ever since. Pus which comes from sore has a rank, bad odor, matter also gathers in eyes. Mrs. M. F. McG., Morenci, Mich.—The most humane way to treat him is to chloroform him, for he will never get well. His ailment is deep-seated and chronic, making it difficult to affect a cure. A chronic fistulous tumor near ear is always troublesome; furthermore if treated at all, surgical work must be done and it requires skill to do it.

Barbwire Cut.—When ready to cut wheat my colt became tangled up with barbwire, cutting hoof and back part of pastern badly. I prize this colt highly, therefore I am anxious to heal wound rapidly. So far as I can tell it is not doing well. W. H., Reading, Mich.—Wounds situated low down on limbs of farm animals never heal without scar tissue or horny tissue filling in gap; therefore direct union or union by first intention without the formation of pus seldom occurs. Apply hydrogen peroxide slowly to clean off pus, then apply one part iodoform and ten parts boric acid covering sore lightly with oakum or a tar bandage. The colt should be kept in a clean stable or allowed to run in pasture.

Loss of Power.—What ails my pigs and what will help cure them? They show symptoms of dullness, breathe fast, refuse food, soon show great weakness in hind legs and die. Have been feeding separator milk and middlings. I failed to state their age is eight weeks old. One of my neighbors lost a few showings much the same symptoms as mine. A. H. W., Paris, Mich.—Change their feed and keep their bowels open. Give each one 20 drops tincture gentian and 10 drops fluid extract cinchona at a dose two or three times a day. They should have outdoor air, sunshine and green feed, but not much corn.

(Continued from page 72).

claim that taken for a period of years we can average as good crops as are grown anywhere. More potatoes were planted this year than for a number of years. Beans also have been planted quite heavily this year. Practically no live stock or poultry for sale here at this time. Haying is nearly over. Wheat rye and oats are a good crop this year while corn looks exceptionally good.

Indiana.
Allen Co., July 18.—All crops are booming in this section. The heavy rains the past week were welcomed by all the farmers, although in some instances damage was done to the crops. Many of the farmers are busy attempting to straighten up the corn that was blown over. Some of the corn would have made 90 bushels to the acre had the storm not damaged it. Threshing is in order with the farmers at the present time. Extraordinary heavy yields are reported. Wheat is yielding a heavy crop this season. New grain was never of better quality. It is believed the prices of grain next fall and winter will not be as high as at other times.

LaGrange Co., July 21.—Farmers in this section are at present stacking wheat and cultivating corn. The wheat crop is good in some places and other farmers report a low yield due to the damage of the Hessian fly. The crop, however, is far ahead of last year's crop. One farmer reported a yield of 47 bushels per acre. Corn will be a good crop, provided no more dry weather sets in. The lack of moisture caused the corn plant to be rather short. It was also the cause of an almost complete failure of the oat crop. Early potatoes are very scarce and are selling at a high price. A poor stand of late potatoes will raise the market price considerably. Hay was short but was of excellent quality. All of the young clover is killed. Potatoes are retailing at \$1.20 per bu; clover seed, \$9@10 per bu; wheat, 80c; butterfat, 24c; eggs, 17c.

Pennsylvania.

Eric Co., July 10.—Weather very warm with frequent rains. Corn looks very good and looks very promising for a large crop. Wheat fine. Oats looking good and favorable for a large crop. Farmers are now making their hay. Potatoes are now looking good. Veal calves, 8c; alive; horses and cows are very high as usual. Strawberries very plentiful, selling at 10c.

DISTRICT AND COUNTY FAIRS THAT SHOULD BE WELL ATTENDED.

The Caro Fair and Night Carnival at Caro, Aug. 25-29, will be the biggest little fair in Michigan, in the biggest little town on earth. Come and see. Kendallville Fair, Sept. 22-26. Different from all others. Novel, new and entertaining. A great combination of agricultural fair, carnival, circus, and stock show. No other fair like it. Write for premium list.—U. C. Brown, Sec.

The plans for the coming Eaton County Fair are along the usual lines of this successful fair. As a successful fair each year it is its own best advertisement. All departments are kept balanced. Efforts are made to encourage all departments in securing larger and better exhibits, and amusements are provided for relaxation. The races are always a strong feature.

The 1913 fair of the Clinton County Agricultural Society, which will be held Sept. 30 to Oct. 1-2-3, will be more than ever an agricultural exhibit. Good-sized premiums have been offered for the best displays by farmers' organizations. An effort is being made to have better and larger exhibits of stock, poultry, grains and fruits than ever before.—C. S. Clark, Secretary.

The fair to be held at Hart, Sept. 23-26, inclusive, to be the best county fair in the state. Free attractions in front of grand stand daily.—S. E. Wyckoff, Secretary.

Cull Beans!

Cheapest and Best Feed for all kinds of farm animals. Contain 22 per cent Protein, while corn, which costs twice as much contains only one-half as much protein. Ask for samples and prices in car lots and less.

BAD AXE GRAIN COMPANY,
Bad Axe, Michigan.

WANT TO BUY Registered Holstein heifer calves of good breeding. W. H. H. WERTZ, Wooster, Ohio.

BREEDERS' DIRECTORY.

CATTLE.

Aberdeen-Angus.

Herd, consisting of Trojan Ericas, Blackbirds and Prides, only is headed by Egerton W. the GRAND CHAMPION bull at the State, West Michigan and Bay City Fairs of 1912 and the sire of winners at these Fairs and at THE INTERNATIONAL, Chicago, of 1912. WOODCOTE STOCK FARM, Ionia, Mich.

Guernsey Bull Calf—Rich in A. R. breeding. Fit to head any herd. A. J. Gee Dandy. G. A. WIGENT, Watervliet, Mich.

GUERNSEYS—Reg. Tuberculin Tested. Windsor Farm, Watervliet, Mich. J. K. BLATCHFORD, Auditorium Tower, Chicago, Ill.

Have 2 Reg. Guernsey bulls left. Ready for service, I the very best breeding, cheap if taken soon. Guarantee satisfaction. John Ebels, R. 10, Holland, Mich.

HEREFORD BULLS FOR SALE Also Poland China Hogs. ALLEN BROS., Paw Paw, Michigan.

CHOICE Bull Calves from A. R. O. dams. Sired by our herd sire whose dam and sire's dam each made over 30 lbs. in 7 days. E. R. Cornell, Howell, Mich.

A FEW CHOICE Holstein Friesian Bull Calves for Sale. A. R. O. Stock. GREGORY & BORDEN, Howell, Michigan.

HOLSTEIN BULLS—well bred, at reasonable prices. Barred Rock Chickens from 15 years breeding. Good layers eggs 15 for \$1. W. B. Jones, Oak Grove, Mich.

"Top-Notch" Holsteins.

Choice bull calves from 2 to 8 mo. old, of fashionable breeding and from dams with official milk and butter records for sale at reasonable prices. McPHERSON FARMS CO., Howell, Michigan.

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The Greatest Dairy Breed
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IMPORTANT TO HOLSTEIN BREEDERS.

If there is a breeder or a community of breeders in Michigan in need of one of the greatest BULLS of the GREATEST breed of Dairy cattle in the world, I wish to call your attention to the fact that I am offering FOR SALE, Pledge Duke De Kol, Welsrip No. 4377. He is a great breeder, a grand individual, bred right, and guaranteed a sure breeder, sound and right in every respect. His dam is Nancy Pledge Princess. Butter in 7 days, 32.39 lbs.; Milk in 7 days, 716.00 lbs.; Butter in 30 days, 152.81 lbs.; Milk in 30 days, 3057.70 lbs.; Come and see him and see his heifers, and be convinced of his worth. L. E. CONNELL, Fayette, Ohio.

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Have for sale several fine young bulls out of cows with high official butter and milk records.

Send for circular.

THIS HOLSTEIN BULL was sired by best son of PONTIAC BUTTERBOY. Dam has official record of 31 lbs. as 1-yr.-old, 90 lbs. milk a day. Price \$100. C. D. WOODBURY, Lansing, Mich.

HOLSTEIN BULLS. 3 to 8 months old, \$75 to \$300. Don't buy until you get our pedigrees and prices. LONG BEACH FARMS, Augusta, Kalamazoo Co., Mich.

REGISTERED HOLSTEINS. HOBART W. FAY, Mason, Mich. Farm right in the city, only few minutes from Jackson or Lansing. Electric cars from both cities every hour.

Young Holstein Bull—Pedigreed. From good for him will sell cheap. For information inquire, Dr. Geo. W. Dunphy, Park Dale Farm, Rochester, Mich.

FOR SALE—On Cornwell Farm, Clare, Michigan. Holstein new milch cows. Also good Dairyman wanted. Enquire of ERNEST PIETZ.

For Sale—2-yr.-old Jersey Bull—Dam's 5-yr.-old record 10551 lbs. milk, 533 lbs. fat, 604 lbs. butter. Sires dam's record—12997 lbs. milk; 600 lbs. fat, 706 lbs. butter. 2-yr.-old full sister's record—8610 lbs. milk, 435 lbs. fat, 513 lbs. butter. All authenticated, kind, sound, sure. Waterman & Waterman, Ann Arbor, Mich.



Butter Profits

You ought to get more butter profits. Jersey Cattle mean more butter profits, because they yield more butter fat at less net cost of keep than any other breed.

THE JERSEY

excels in beauty of dairy type. She is a persistent milker. Jerseys are easily acclimated. They live long and keep healthy. They mean steady butter profits. Write now for Jersey facts. Free for the asking. AMERICAN JERSEY CATTLE CLUB 324 W. 23d St., New York

Lillie Farmstead Jerseys

(Tuberculin tested. Guaranteed free from Tuberculosis.) Several good bulls and bull calves out of good dairy cows for sale. No females for sale at present. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

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

Roberta Farm Jerseys. Two excellent butter bred bulls for sale. Ready for service. Address, Roberta Farms, R. R. 5, Grand Rapids, Mich.

For Sale—Registered Jersey Cattle, tuberculin tested: bulls and bull calves; heifer and heifer calves; cows with Register of Merit and Cow Testing Association records. IRVIN FOX, Allegan, Mich.

Notten Farm, Grass Lake, Mich. A few young Jersey bulls sired by bulls sired by Jubilee of Boisd Arc.

Jerseys—Bulls ready for service, bred for production. Also cows and heifers. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

RED POLLED COWS and HEIFERS—For sale, of good production. Also cows and heifers. John Berner & Son, Grand Lodge, Mich. Route 4.

DAIRY BRED SHORTHORNS—Bates bred bull 7-mo. old for sale. Price \$100. J. B. HUMMEL, Mason, Michigan.

SHORTHORN CATTLE—A few yearling and 2-year-old heifers for sale. Also Shropshire rams and ewes. M. A. BRAY, Okemos, Mich.

Dairy Shorthorns—Large Cattle—Heavy Milkers. Milk Records of all cows kept. No stock for sale at present. W. W. KNAPP, R. No. 4, Watervliet, Mich.

SHEEP.

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS. "the sheep man of the east." I sell and ship everywhere and pay express charges. I will start one man in each twp. Write for club offer and descriptive price list. Shropshires, Rambouillet, Polled-Delaines and **PARSONS OXFORDS.** R. I. Grand Lodge, Michigan.

Reg. Rambouillet Sheep, Pure Bred Poland China HOGS and PERCHERON HORSES. 2 1/2 miles E. Morrice, on G. T. R. R. and M. U. R. J. Q. A. OOK.

SHROPSHIRE & DUROCS
KOPE-KON FARM, Kinderhook, Michigan.

HOGS.

Durocs & Victorias—A Desirable Bunch of Sows of either Breed due April and May. M. T. Story, R. R. 45 Lowell, Mich. City Phone 55.

BERKSHIRES Choice spring boars and gilts, priced to move quick. Farmers stock. ELMHURST STOCK FARM, Almont, Mich.

BERKSHIRE—boar pigs from fine thoroughbred stock FOR SALE. With or without registry papers. Big value for the price. Write for information to D. F. Valentine, Temperance, Mich.

A Yearling Sow—bred for July farrowing, also a choice lot of Spring Pigs for sale. Either sex. A. A. PATTULLO, R. No. 1 Deckerville, Mich.

O. I. C.—Big growthy type, last fall gilts and this spring farrow to offer. Very good stock. Scott No. 1 head of herd. Farm 1/2 mile west of depot. OTTO B. SCHULZE, Nashville, Mich.

O. I. C's—A FEW BRED SOWS FOR SEPTEMBER FARROW. GEO. P. ANDREWS, Dansville, Ingham Co., Mich.

O. I. C's—all sold. Orders booked for April ready. May pigs of the choicest breeding. C. J. THOMPSON, Rockford, Michigan

O. I. C's—Bred sows, March pigs pairs and trios. Bull Rock Eggs \$150 per lb. FRED NICKEL R. 1, Monroe, Michigan.

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

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SOW WEIGHED 932 LBS.
AT 23 MONTHS OLD

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

O. I. C's—We make a specialty of O. I. C. hogs on our farm. Stock all registered in O. I. C. Ass'n. J. R. WAY, Pompeii, Mich.

O. I. C. SWINE—I am offering 200-lb. gilts, bred, due to farrow the latter part of August and fore part of September. All who are interested write me. A. J. GORDON, R. No. 2, Dorrt, Mich.

DUROC-JERSEYS—Fall and Spring boars from prize-winning strains. Sows all ages. SPECIAL BARGAIN in summer pigs. Brookwater Farm, R. F. D. No. 7, Ann Arbor, Mich.

Duroc Jerseys—Gilts all sold. Spring pigs of the large and heavy boned type. Pairs not akin. Satisfaction guaranteed. F. J. DRODT, R. No. 1, Monroe, Mich.

Duroc Jerseys For Sale—Three fall boars, also spring pigs, either sex, of finest breeding and individual quality. John McNeill, Station A, R. 4, Bay City Mich.

Duroc Jerseys—Nothing But Spring Pigs For Sale. CAREY U. EDMONDS, Hastings, Michigan.

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

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Spring bred gilts all sold. Gilts bred for next August farrow. September pigs either sex, pairs and trios not akin. Orders booked for spring pigs. COLON C. LILLIE, Coopersville, Mich.

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Horticulture.

Fertilizing the Apple Orchard

HUNGRY apple trees are too common. They must be fed, for starved trees are as unprofitable as starved cows. There is a variety of ways in which foods may be prepared for apple orchards. A generous amount of work has been done to determine the best methods of serving these trees by the Pennsylvania Experiment Station and because of the comprehensive nature of the undertaking and the care and patience exercised in its execution, the conclusions reached command our respectful attention. In deriving the following deductions, the results of six experiments involving six types of soils, 800 trees, and 11,612 bushels of fruit in the past five years, are used.

The experiments show that the fertility of an orchard may be the most important check on its production. Variations in fertilization alone have resulted in average differences ranging from 50 to 460 bushels per acre annually for the past four or five years, depending on the experiment. These results were accompanied by similar differences in the growth and general vigor of the trees.

The total plant-food draft of a mature and active orchard is greater than that of a 25-bushel crop of wheat in every important constituent except phosphorus. It is practically inevitable, therefore, that sooner or later the output will be reduced or off seasons will be developed in any productive orchard because of a lack of sufficient plant food.

The mineral requirements of wood are comparatively low. This largely accounts for the fact that young trees usually do not make a profitable response to fertilizer applications, although they frequently respond well to manure or to other methods of conserving moisture.

The relative amounts of the various food elements required by the other parts of the apple plant are also of interest, but as a rule they are not especially reliable as bases for making fertilizer applications. The latter are best determined experimentally, as there seems to be very little relation between the response of the trees and their total chemical requirements.

Applications of nitrogen and phosphates and also of manure have been very beneficial in some orchards. In those orchards, potash has been of little or no service. These results are reversed at the present time in another orchard, so far as yields are concerned.

The time required for results to appear has been surprisingly short in all cases where fertilization has proved to be really needed. In such cases, both the value of fertilization and the kinds needed were clearly evident by the middle of the second season, and no material changes have occurred since.

Neither acid phosphate nor "floats," when applied alone, have resulted in any important benefit. We are therefore "completing" the fertilization of their plats by the addition of nitrogen and potash, in order to test further their relative values as carriers of phosphorus for trees. Basic slag was introduced into this comparison in 1912.

Lime also has failed in most cases, though it may have some value in aiding growth. In addition, it may have some indirect value in facilitating the growth of leguminous intercrops, and also in correcting a possible toxic action possessed by the basic radicals of a number of salts, some of which are present in commercial nutrients.

At present the high-grade sulphate in our experiments is showing no superiority over the muriate as a carrier of potash, but the reverse is usually true. The lower cost and easier handling of the latter therefore give it the preference. It is possible that the low-grade sulphate, or the 24 per cent "double-manure salt," as it is often called commercially, may be superior on account of its magnesia content, but this has not yet been fully demonstrated.

The influence of proper fertilization is not transient. The gains from it have been greater in the sixth and last year of some of our experiments than at any

time before. In one case, these gains have exceeded 1,100 bushels per acre. Where the crops of the full years are not too high, the yields usually have been greatly steadied by proper fertilization.

In all our experiments, the action of manure has proved to be practically identical with that of a commercial fertilizer rich in nitrogen and phosphorus. Their successes and failures have coincided with but two exceptions, and in those cases moisture rather than plant food was apparently the controlling factor. The commercial nitrates and blood have acted more quickly than the manure, and the potash in the latter has apparently been less effective than that in the commercial forms.

In general, the influences that have materially increased the yields have also increased the growth. This is true generally, unless either occurs to an abnormal extent. The phosphates seem to be a partial exception to this rule, and mild injuries also may stimulate yield at the expense of growth.

Manure and potash are the only fertilizing materials that have shown a consistent benefit on the average size of the fruit. This is doubtless associated with their favorable relations toward available moisture, which is the chief determiner of fruit size. Above a rather indefinite point, however, the size of the crop on the tree becomes the dominant influence on fruit size. Proper thinning and moisture conservation, therefore, are the most important means of improving the average size of fruit.

The red colors in apples can not be increased materially by any kind of fertilizer applications, though potash and possibly phosphates may be of some slight assistance. These colors are directly dependent upon sunlight and maturity, with the latter occurring prefer-

ably on the tree. Late picking, open pruning, light soils, sod culture and mildly injurious sprays, therefore, tend to increase the reds in fruits, while opposite conditions decrease them.

The retarding influence of nitrogenous fertilizers or manure on color makes it advisable to use them less freely on some of the red varieties, especially those in which the color comes on rather tardily, such as the York Imperial. On the lighter soils, or in localities with the longer growing seasons, this precaution is less important.

Above, it is stated that the fertilizing elements found effective in certain experiments were not so in others. In one of our experiments, no form of fertilization has yet shown a profitable response, and in two others such responses have come only from manure and mulches. It is evident therefore that the actual fertilization of a given orchard is still largely a local problem.

It is possible, however, to indicate the more prominent characteristics of orchards that are in need of fertilization, and to formulate a general fertilizer, based on present experimental results, that may be used in such orchards until more definite local data can be secured.

Present evidence indicates that the nitrates, or other specially soluble plant foods, are best applied somewhat after the fruit has set. In addition to greater effectiveness, this delay enables the rate of application to be varied somewhat in accord with the amount of fruit set, making the applications heavier when the crop is heavy and vice versa. In the long run, this plan should steady the yields and get maximum benefits from the fertilization applied.

The general fertilizer that we are now recommending is a combination carrying about 30 pounds of actual nitrogen, 50 pounds of actual phosphoric acid (P₂O₅), and 25 to 50 pounds of actual potash (K₂O). These are the amounts per acre for bearing trees. Only where potash is known to be needed, should the larger amount be used.

This general fertilizer can be modified and directly adapted to the actual needs of any orchard. Such a test requires some work, but for those whose livelihood depends to a considerable extent upon their fruit, the time thus spent should be most profitable.

MICHIGAN FRUIT PROSPECTS.

The following information from the secretary of state's July report will give readers an idea of the condition of the different kinds of fruit the first of this month.

Apples.

The prospect for an average crop of apples was 58 per cent for the state, 53 per cent for the southern counties, where 133,280 acres are grown, 64 per cent for the central counties, where 48,529 acres are grown, 58 per cent for the northern counties with their 38,732 acres, and 95 per cent for the upper peninsula with its 3,494 acres of the fruit.

Peaches.

The prospect for an average crop of peaches was 53 per cent for the state, 51 per cent for the southern counties with 13,470 acres growing, 51 per cent for the central counties with 6,249 acres growing, 58 per cent for the northern counties with 3,534 acres, and 105 per cent for the upper peninsula with a single acre reported.

Pears.

The prospect for an average crop of pears was 52 per cent for the state, 49 per cent for the southern counties, where 7,787 acres are growing, 56 per cent for the central counties where the acreage totals 820, the same for the northern counties with only 483 acres, and 100 per cent for the upper peninsula's two acres.

Plums.

The prospect for an average crop of plums was 56 per cent for the state, 55 per cent for the southern counties, with an acreage of 2,007, 63 per cent for the central counties, having 1,032 acres, 48 per cent for the northern counties, growing 658 acres, and 86 per cent for the upper peninsula with its 23 acres.

Grapes.

The outlook for an average crop of grapes was 66 per cent for the state, 63 per cent for the southern counties, growing 11,617,515 vines, 68 per cent for the central counties, with 301,745 vines, 73 per cent for the northern counties with 80,629 vines and 110 per cent for the upper peninsula with its 111 vines.

Raspberries and Blackberries.

The prospect for an average crop was

76 per cent for the state, 73 per cent for southern counties having an acreage of 6,362, 79 per cent for the central counties with their 1,760 acres, 82 per cent for the northern counties with 953 acres, and 94 per cent for the upper peninsula with 11 acres.

HEART ROT OF TREES.

The condition of heart rot is common in orchard and shade trees. Apple trees or handsome maples, probably in fine leaf, break easily with ordinary high winds. The cause for this breaking is that the heart wood of the tree, which if sound, would give strength and rigidity to the branches, is decayed. The death of the top branches of trees, especially the apples, causing stag-headed trees, can be traced to the progressive advance of decay.

This decay is caused by fungi, chiefly the toadstools and bracket fungi. These fungi spread by their minute fruiting bodies. The spores enter the heart wood of the tree in the stubs made by careless pruning, in the splintered stubs made by the breaking of limbs in storms or in the wounds which expose heart wood. The spores once started in the wood develop into long threads which grow through the wood, destroying it—changing it into punk.

The decay may be progressing months or even years, before the toadstools or brackets of the casual fungus appear in the trunk. This means that the vegetation part is within, doing the work, only the fungus is not producing fruiting bodies.

To prevent this decay the heart wood of trees must be protected. The breaking and butchering of trees by linemen, of telephone companies must be prevented. When pruning is necessary the wounds should be painted with good lead paint, and this renewed frequently until the wound is healed.

For trees whose wood is decayed, the centers should be cleaned and filled. Prevention of cavities is preferable and by far the cheapest. A tree is well worth good care.

Mich. Ag. Col.

G. H. COONS.



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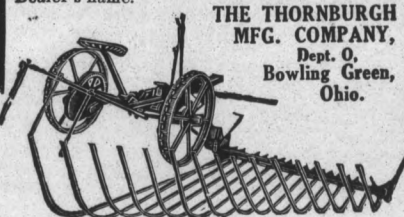
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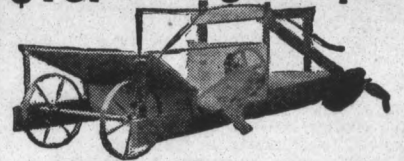
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Kerrick, Ill., Nov. 18, 1912.

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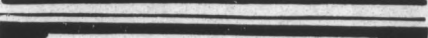
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LAND TITLE REGISTRATION IN OHIO.

(Continued from last week.)

The act provides for the registration of the titles to all lands involved in suits by administrators and executors to sell land to pay debts, suits by assignees to sell land and in partition suits. Lands of decedents do not have to be registered unless it is necessary for the executor or administrator to go into court anyhow and bring a suit to sell the land. Registration can be had in all these classes of suits with very slight additional expense and the purchaser will get an incontestible certificate of title, which fact will increase the selling price of the land many times more than the added costs of registration. It is not generally understood by purchasers at judicial sales (but such is the fact), that the purchaser must look out for himself in reference to the title. There is no warranty or assurance given by the court that the title is good simply because the land is being sold under its orders. A purchaser at private sale originally gets a warranty deed from his seller which protects him to some extent, but a purchaser's deed from the sheriff is entirely without any warranty or assurance as to the title.

The act also provides for a speedy and inexpensive means of determining the heirs and devisees of a deceased owner of registered land and new certificates of titles are issued to such heirs and devisees.

The expenses of registration will be comparatively small and the proceedings short and simple in the great majority of cases. There will not be one case in a hundred where there will be any contest about the matter at all. The costs of registering all property of \$2,000 or less tax value will not exceed \$20 to \$25. This is less than the ordinary fees for making and examining abstracts and obtaining opinions of attorneys thereon and when the title is once registered there will be no further expense of this kind. The title is settled once for all time by the registration proceeding.

Registration will make land a quick and ready asset, easily, expeditiously and inexpensively dealt with. There is no reason in the nature of land ownership which necessarily should make it more expensive, tedious and troublesome to deal with than personal property. If a farmer has a drove of cattle, a flock of sheep or a bunch of hogs to sell, the deal with perfect safety is closed up without the aid of lawyers and with no delay or expense. If a person has stocks or bonds, notes or other securities upon which he desires to borrow money, he executes his collateral note attaching the securities, takes them to his banker and without delay obtains the money. He needs no lawyer to assist him in this transaction. If the title to his land is registered he can perfect a sale or obtain a loan upon it with equal expedition and with practically no expense.

Nearly all foreign countries and nine or ten of the United States now have laws for the registration of land titles, and once the Ohio registration law becomes fully understood so that its benefits will be appreciated, in my judgment it will come into general use and prove a great boon to the real estate owners of the state.

Ohio.

HUMPHREY JONES.

SHOULD THE PRODUCTION OF PURE-BRED STOCK BE ENCOURAGED?

This was the topic of a paper read at the June meeting of the Norvell Farmers' Club, by James Pierce, who said in part: "We are now in one of the greatest ages of stock raising in the history of our country. People have become awakened to the condition of the soil, having exhausted the original plant food and find that there is no other way to maintain fertile farms only by keeping them well stocked. This means that we should grow lots of grass and clover for hay and pasture, so that we may be able to keep the stock, or in other words, raise what we feed, and feed what we raise.

Now as the farmer spends the most of his time gathering feed for his stock and caring for them, his mind begins to wander to this thought: Should we encourage the feeding of pure-bred stock?

"Now the first thought that came to my mind is, what is thorough-bred stock? Thoroughbred stock is a certain breed of stock bred along a certain line or standard for a number of years, using only good specimens of the certain breed carrying the good qualities or points that a typical individual should possess. After years of careful breeding those characteristics become so established that they are certain to reproduce themselves. Men have spent their whole lifetimes breeding a certain breed of stock to a certain standard and for a certain purpose. Now we may again wonder what we have gained by these men being so careful and interested in their efforts of breeding. Do we profit by their earnest efforts? Is our common stock made better in spite of our constant mixed breeding and changing of mind and purpose? Let us look back at the little shabby Texas steer with his long horns and also at the native hog, the razor back of the south. I presume we all remember reading about old Gun Powder, the famous old quadruped that Ichabod Crane rode through the valley of Sleepy Hollow. Don't our farm animals look well-bred by the side of these though they are all sizes and colors of the rainbow? Just a little of all known breeds in every herd and crossed at that. Let us turn our minds to the great International, the greatest thoroughbred stock show in the world. There the finest of all breeds are centered for exhibition, that we may see the results of the efforts of many a careful and interested stock breeder.

"And now as we look on those fine specimens of thoroughbred stock and also those who have experienced the feeding of stock that they were proud of in the feed lot, we are keenly made to feel that we should encourage the breeding of thoroughbred stock and raise it with an object in view and for a purpose."

CLUB DISCUSSIONS.

Children's Day.—The July meeting of the Washington Center Farmers' Club met at the "Welcome" home of Mr. and Mrs. Frank Brown. The meeting was called to order about 2:00 o'clock by Vice-President Mrs. S. Z. Crowe. Music by the Club. On reading, the minutes were approved. Miscellaneous business found an invitation from the president of the Greenbush Club to join with them in a picnic in August. Everyone seemed in favor of the plan, but the motion was left in the hands of the executive committee and they will report later. There were ten children present. The names of the children were taken by the secretary, so they could be called with the roll. Each one answering with their favorite pets, which was very interesting. Some were dogs, cats, lambs, ponies, etc. Marita Toby being absent, music was omitted. Recitation, "What Ailed Him?" by Floy Anna Brown. Dialogue, "Our Flag," by Geo. Cross, Robert and Kathryn Crowe. Recitation, "Dress Making," by Birdie Curren. "Isn't it Awful," by Kathryn Crowe. Select reading, "Alfalfa," by Mrs. Wm. Long. Recitation, "A Time for Everything," by Master Wendell Blair. "Mamma's Little Cook," by Velma Whitaker. Music by the Club ended the program, after which the hostess served plenty of ice cream and cake. Then Mr. Frank Cook informed the children that he would give them an auto ride, which brought applause from them. This ended a pleasant afternoon for the grown-ups, as well as the children, and Mr. and Mrs. Brown proved themselves "Royal Entertainers." —Mrs. B. S. Gilman, Sec.

A Picnic Meeting.—The Wixom Farmers' Club held their Fourth of July picnic at the K. O. T. M. hall and the grove opposite it. Notwithstanding the weather was extremely warm the attendance was large and very enthusiastic; all roads seemed to lead to Wixom. A bountiful dinner was served to about 260 hungry, hearty people. A good lively, up-to-date program was rendered in the afternoon, consisting of music, recitations, flag drill by a class of young girls, a good practical talk by Reo Brass, of Walled Lake, topic, "The home the pillar of the republic." Rev. Faye Cilley, of the Wixom church, also gave an interesting talk, his subject was "Our Country, her Moral Needs." Mr. E. M. Moore gave his talk on "Michigan," in his usual pleasing manner. Comparing the beautiful scenery and large forests with those of other states he said Michigan was ahead. "The Past, Present and Future of Wixom" was presented by Mr. David Gage. He gave us this poem: Our Father's God, from out whose hand The centuries fall like grains of sand, We meet today united, free, And loyal to our land and thee. We thank Thee for the era done and trust Thee for the opening one. O, make thou Wixom through centuries long.

In peace secure, in labor strong, Around our drift of freedom draw The safeguard of our righteous law, And cast in some diviner mold Let the years that are to come shame those of old.

Wixom was born in the fall of 1871. It has had a prosperous past, it has a progressive present and a problematical future. The field sports, consisting of the tug-of-war, standing jump, high jump, running race, sack race, three-legged race by young girls under 14 years, two ball games, under the efficient supervision of Mr. B. A. Holden, was well carried out and furnished lots of fun and satisfaction to an enthusiastic good-natured crowd.—Mrs. R. D. Stephens, Cor. Sec.

Grange.

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

THE AUGUST PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Song, "The Grange is Marching On." Roll-call of officers responded to by each contributing a one-minute entertainment feature. Breakfast, dinner and supper for threshers, by three women and three men. A choice quotation. Good rules for better crops. Discussion. Music by orchestra. The present tariff situation from the Grange standpoint. Quartet, "Keep politics off your farm," No. 144, Grange Melodies. "Making home attractive." Discussion. Song.

Suggestions for Second Meeting.

Song, "Farewell to Summer," No. 132, Grange Melodies. Why does it pay to attend Grange in summer? by four members. Recitation, "A toast to laughter." Can a city man go to a farm in your neighborhood with \$1,000 and make good? How? Character song. A farm girl of 18, with a common school education, wants to go to city to earn more spending money but father and mother object: 1. What advice would you give girl? 2. What would you do if you were girl's father? 3. What would you do if you were girl's mother? Question box. The Grange Ginger Jar, opened by a "Surprise committee." Music by orchestra.

TARIFF SITUATION FROM GRANGE STANDPOINT.

With the above topic suggested for discussion during the coming month, patrons generally will be interested in the attitude of the Grange as expressed in an open letter to Congress recently issued by the National Grange legislative committee. Fundamentally, the Grange has taken the position that so long as protection is the policy of the government, agriculture is entitled to a full share of such protection. For several years the National Grange in annual session has stated its policy, and again last November, at Spokane, Wash., it adopted the following resolution: "We believe that the tariff should be so regulated that it shall not cover more than the difference between the cost of production at home and abroad, and if we are to have free trade for one, we should have free trade for all. And further, that when the manufacture or sale of any article becomes monopolized, the tariff should be removed from such article."

The Grange does not undertake to say whether protection or free trade is the best policy for the government to pursue, because it is a non-partisan organization, but it does believe that the farmer is entitled to as much protection at the hands of Congress as is the manufacturer, and it demands "tariff for all or tariff for none." The legislative committee objects to placing agricultural products on the free list as "raw material." All products as they leave the farm are the "finished products" of the farmer as much as are the output of factories the finished products of the manufacturers, and any and every protection or advantage that is accorded to one should be accorded to the other. "If we are to have free wool, then free woolens; if free raw sugar, then free refined sugar. The proposition to put wool on the free list while a tariff is continued on the goods made from the wool is manifestly unfair as between farmer and manufacturer."

The legislative committee, in closing, informs Congress that the Grange knows the "difference between 'downward' and 'upward,'" and it insists that the farmer be not discriminated against in the letting down of the bars."

UTILIZING NON-TALKERS.

A Maryland patron recently related how her local Grange solved a problem that has puzzled many a lecturer—that of utilizing those members who have perfectly good ideas on practical, everyday subjects but are too backward or diffident to get up and talk. Every Grange, and every other sort of organization for that matter, has at least a few such members. The plan resorted to in this case was that of conducting a monthly Grange paper. An editor is se-

lected each month; usually it is one of the sisters who holds the position. She begins by asking five or six of the members to give her articles on subjects of their own selection. Of course, each one writes what is nearest to him at that time. The editor draws a picture or makes some sort of an illustrated cover for the paper or book. Ordinary typewriter paper has proven very good for the manuscripts, with a piece of heavier paper for the cover. These are tied together to form a book or paper.

One month all the manuscripts were sent to the high school where the articles were used in dictation for the advanced typewriter pupils. The result was very gratifying, the pages coming back neat, clean and perfectly legible. To have the book uniform in size, the editor usually has to copy every page sent in. By doing it in this way, lots of extra labor was saved and the work of reading the book was very greatly lessened.

The editor usually has a good editorial to begin with, then a few pages on politics as affecting the farmer, current topics, a story with some practical point to it and a few jokes. The editor always reads it, half at a time, using a speaker or some music between. A page of advertisements adds to the value of it. Help wanted, for sale and general wants, when sent in, are often of real value when brought before the people in this way.

AMONG THE LIVE GRANGES.

The Married Sisters had charge of Coopersville Grange's last meeting, entertaining the 50 patrons in attendance with a fine program of songs, recitations, and select readings, closing with a short, mirth-provoking dialogue by two ladies. The announcement that an invitation had been extended to this Grange by Nunica Grange to hold another of those joint meetings in their hall on July 26, was received with approval, and it was at once decided to hold the next meeting with Nunica. A committee was appointed to make arrangements for a special car for the occasion.

Ironton Grange, of Charlevoix county, will consider preparations for its annual plowing match at its next meeting. This Grange is planning to build a new kitchen in connection with its hall, bids for same being received at its last meeting. The office of gate keeper was declared vacant and Bro. Albert Charlson was elected to fill vacancy for the remainder of the year. The new treasurer and gate keeper were then installed by Past Master E. H. Clark. One candidate was obligated in the first and second degrees. The lecturer's program consisted of songs, readings, recitations and discussions.

Sparta Grange Plans Contest.—A contest has been planned by Sparta Grange for the young people of the schools represented by the members of that order in Sparta. All the young people in those schools, whether the parents are members or not, may compete. The schools are: Sparta, Kent City, Lisbon, Chalmers, Buck, Morning Star, Spangenberg, Myers, Bass, Block Tavern, Noble, Manchester, White, Hull, Christian Hill and Norton. The work of the contestants is to be ready by the middle of October, when it will be shown at the meeting of Kent County Pomona Grange, at which time the prizes will be awarded. The donor of any prize or prizes will be a member of the judging committee on the entries of that number, the donor of the first prize being the chairman of that committee. Among the products and articles for which prizes are offered are the following: Best 10 ears of named seed corn; best one dozen named potatoes; most complete and neat collection of named weed seeds; best collection of named garden and flower seeds; best loaf of bread; neatest hand-made apron; best made girl's wash dress; best written copy of "America," neatest and most correct map of Kent county; neatest hand-made block for quilt; best 200-word essay on the subject, "The Boy who works is the Boy with a Chance."

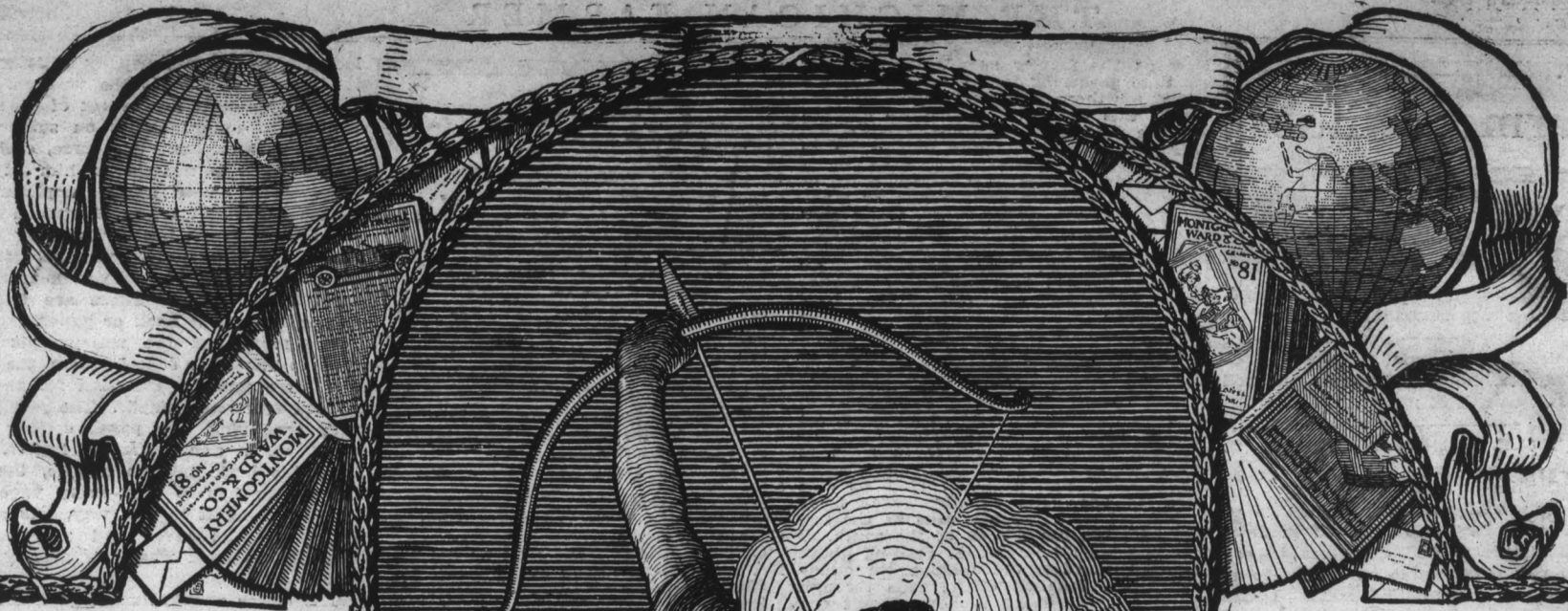
COMING EVENTS.

Picnics and Rallies.

Kent county annual picnic at John Ball park, Grand Rapids, Wednesday, Aug. 13.

BOOK NOTICE.

"Traction Farming and Traction Engineering," by James H. Stephenson, M. E., is a practical hand book for the owners and operators of gas and oil engines on the farm, comprising a full description of the leading makes of farm tractors with directions for their care and operation, also engines for water supply and electric lighting on the farm with a special section devoted to threshing machines and the science of threshing. Every phase of gasoline, alcohol and kerosene engines, as well as the other subjects named, is discussed in a comprehensive manner with many half-tone illustrations, which would give the reader an understanding of the mechanism of the different machines. The book contains 330 pages, 5 1/2 x 7 1/2 inches, published by Frederick J. Drake & Co., Chicago, Ill. Price, \$1.50. May be ordered through the Michigan Farmer.



"Aim Higher—Shoot Farther" has been a favorite maxim with Montgomery Ward & Company.

On this page it is applied in symbol by a great artist who has caught the spirit of forty marvelous years of progress.

Looking through this vista of years, we can see the small beginnings emerge finally into a world-wide expansion which has made the story of this business read as romantic and absorbing as a work of fiction.

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Then the climb from the Valley of Small Beginnings into the Mountain of Big Things—the husbanding of a tiny patronage into remarkable growth and enormous purchases, the storming of the strongholds of the middleman, eliminating him in the price-making. Finally, the reaching the top with the publication of the greatest book of its kind ever issued—the Montgomery Ward & Company's Catalogue of 1913.

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by Earl Stetson Crawford

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