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ORCHARD COVER CROPS.

OF the different methods of caring for the orchard soil, we can mention three as being common. That system which either includes a program of total neglect, or one where mulch is occasionally or possibly systematically applied but which maintains a permanent sod over the orchard is perhaps most popular with the rank and file of farmers. A second system of culture consists of merely plowing the orchard ground in spring or fall and sometimes harrowing it during the summer. Cultivating during the early part of the growing season and then seeding the soil to some crop to be occupied by it till the following spring, constitutes a third method, the one most popular with those growers who are taking from their orchards the maximum of profit consistent with the permanent producing powers of the soil. It is of a part of the latter system that we are to speak in this discussion.

Cover crops plowed under is green manuring, and green manuring is the cheapest method of supplying vegetable matter and plant food to the soil. Dr. Hopkins, of the Illinois Experiment Station, says that one ton of clover hay turned under is worth four tons of manure. This fact suggests how easily the orchardist can feed his orchard.

Ordinary manuring is an expensive method of fertilizing and should be done only where it is impossible to get some legume started and then for the purpose of assisting in getting a catch of some legume. Rarely is farm manure necessary in an orchard when the cover crop question is properly understood, as any soil that will grow a fruit tree will grow some one of the legumes.

As the use of cover crops is a method of fertilizing the orchard the kind of cover crop to use will depend upon the soil, the kind of fruit and even the variety of fruit grown. Too frequent use of legumes will produce an excess of nitrogen in the soil, an excessive growth of wood that does not ripen or harden thoroughly and the bearing of fruit will be curtailed. Peaches are quite susceptible to an excess of nitrogen caused by setting in too rich a soil or by too frequent use of a legume. Northern Spy apples will often not bear until very old if fed nitrogen too freely, and pears often blight from the same cause. Young trees of all kinds, and especially the peach, are very susceptible to an over feeding of this element. After a tree has got to bearing it

is less apt to make an excessive growth of wood that does not properly mature. The growth of the tree is the best index as to what cover crop should be used. A young tree should not have more than a foot and a half to two feet growth in a season. As the trees get older the growth should be less. The season's growth on a peach should be slightly more than other fruits.

With the control of the humus of the soil and the plant food element, nitrogen, through the use of cover crops, we practically control the fertilizing of the orchard. Nitrogen is the element of which the soil is most easily depleted and is the most expensive to buy in commercial form. The other food elements are most always in sufficient quantities in the soil for the orchard. The enormous root sys-

tem of a tree gives it a large soil feeding surface. Mineral foods not within the reach of ordinary plants are brought up from the depths by the roots of the tree.

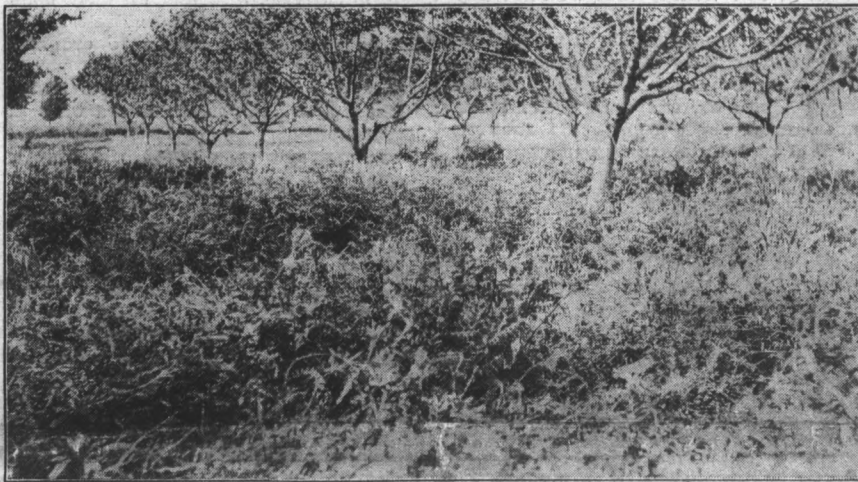
The humus content of the soil is important in the orchard. The right amount of humus assists in the conservation of the moisture, and the aeration of the soil. In the decomposition of the vegetable matter there is produced an acid condition which makes available mineral foods for assimilation by the tree.

The kinds of cover crops in use are numerous. The more common ones are common red, mammoth, and crimson clovers, winter and spring vetch, Canadian field peas, cowpeas of the legumes and oats, rye and millet of the non-legumes. Occasionally sowed corn is used and a few growers use weeds to advantage where a certain weed, such as chick weed makes a good stand and where other weeds are about.

Crops that do not live through the winter, called catch crops, as they serve the purpose of catching the leaves in autumn, have certain advantages. Cowpeas, spring vetch, Canadian field peas, and oats, belong to this class. Some growers use these altogether so that they can disk the orchard readily in spring instead of plowing it. They can be used to advantage where the soil is fertile and has already sufficient humus. Canadian field peas and oats make a good combination for this purpose.

For general purposes the best way to use a cover crop is to combine a regular cover crop and a catch crop. The cover crop generally makes a small growth in the fall which is not sufficient to cover the ground and catch the falling leaves. The catch crop will produce growth in fall and will serve as shade for the cover crop. Oats is the best catch crop known and it can be used very well with the clovers or winter vetch.

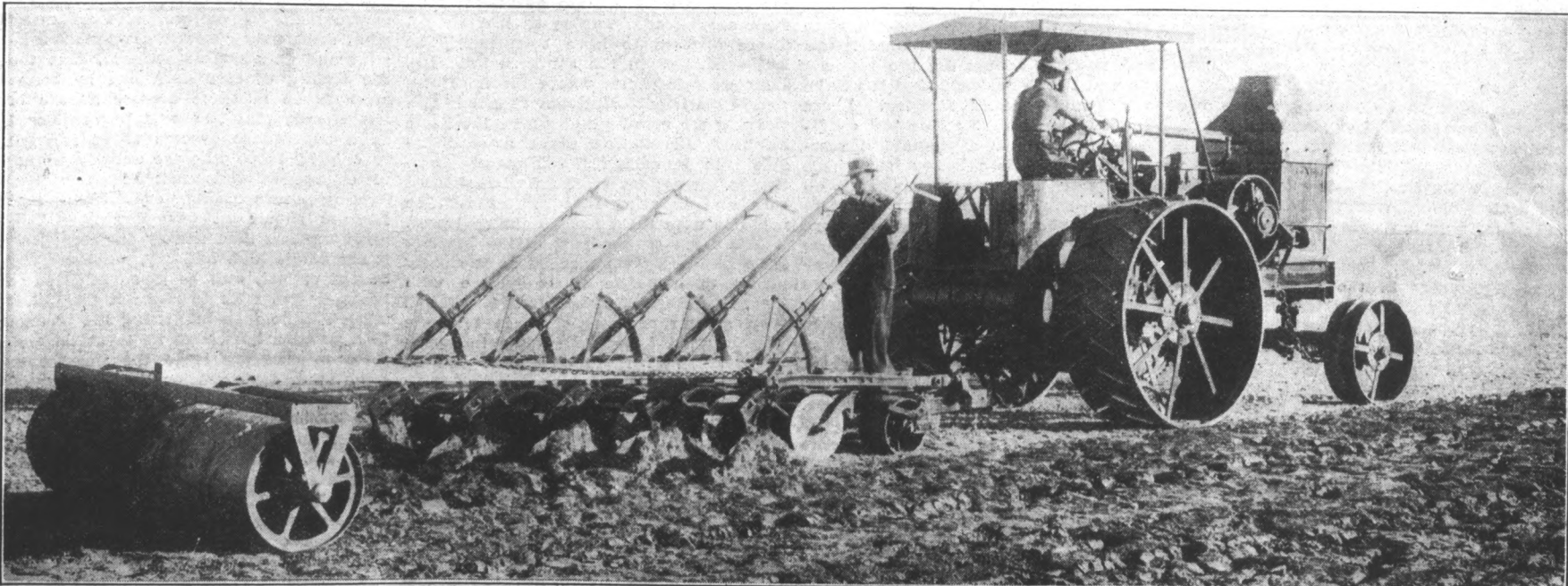
The peculiarities of the different crops fit them to special conditions. Vetch is an ideal cover crop for sandy soils as it will do well on soils too light for clover. It produces an abundance of green vegetable matter to be turned under and be converted into humus which is generally lacking in these lighter soils. On the heavier soils the clovers are good, either the common red or mammoth varieties. Crimson clover is not as good to use as the others as it does not make the growth and often kills out during the winter in the northern states. Cowpeas are used



Winter Vetch in Peach Orchard. Photograph Taken Late in May.



Mammoth Clover in Peach Orchard. Photograph Taken Late in May.



The Gasoline Tractor is Becoming a Factor in Michigan Agriculture as well as that of the West. A 15-30 Horsepower Tractor at Work.

very little in this latitude on account of their susceptibility to light frosts. They are popular in the south. Generally rye should not be used as a cover crop as it makes a quick rank growth in spring that draws strongly on the soil moisture and gets too high to plow under. Buckwheat is only used occasionally when a non-leguminous crop is wanted. The usual method is to sow it with oats.

It is a good policy to use a legume cover crop and catch crop some seasons and only the catch crop for the remaining years. The growth of the trees should determine the frequency of the use of the legume. Such a system if intelligently followed serves to balance the food elements in the soil better than the continuous use of the same crop or crops each year.

The time to sow the cover crop should be somewhere between the first of July and the middle of August. If the season is dry and the trees have made little growth it need not be put in until the middle of August. If there has been plenty of rain, the trees have made much growth and they do not appear to stop, the crop should be put in early. The orchards of young trees that have not come into bearing should be seeded first. Under normal conditions from the fifteenth of July to the first of August is the best time for seeding the orchards.

Van Buren Co. F. A. WILKEN.

LILLIE FARMSTEAD NOTES.

My plans have miscarried I think more this year than ever before in the history of my farming. I am not doing things at all as I would like to, I am simply doing the best I can under the circumstances. I knew I was going to be up against it this spring when we had such wet weather last fall that it was impossible to do any fall plowing. Our farm has been increasing in size of late years and it is absolutely impossible to do all the plowing in on time. Some of this work should be done in the fall to help out, but it could not be done last fall; the land was soaked with water. It was all that we could do to save our crops and we had to work in the mud to do it. Being so far behind with the work I conceived the idea that it would pay me to buy a gasoline traction engine to do the heavy tillage with. I studied the proposition as best I could from all quarters, and finally gave an order for one. The first order given was for a 25-horsepower engine and a four-bottom gang-plow. We put in 60 acres of oats and oats and peas with this engine. None of this land, however, was plowed; it was disked with a big heavy engine disk made on purpose for an engine, a double-action cutaway that cuts ten feet wide. Then we drew a spring-tooth harrow behind this the most of the time, part of the time a leveling harrow. We could fit the land as fast as the team could drill it and when the land got dry enough so that we could work, it didn't take long to put in the oats, but as everybody knows, it was an exceedingly late spring, it was way along towards the last of April before we could do anything at all. When we did start we were bothered considerably by wet places which bothered the engine. I got the oats and peas all in with the exception of a portion of a field of about four or five acres on Friday night. We would have completed this by Saturday night, but Friday night we had a heavy rain, and it continued to rain before it would dry off enough so that we could work, so that we never turned a wheel for nearly three weeks. This, of course, was serious. I knew it at the time. Here were three weeks just in the heart of the spring when we ought to be plowing for corn and beans and getting our sugar beets in and everything of that sort, when we could simply do nothing. Now the result is that all of our land is late plowed, and since that spell of wet weather it has been exceedingly dry. In fact, we are having a June drought. One of the worst kind of droughts. To have exceedingly dry weather early in the spring, April for instance, is not so bad because then it gives the farmer a chance to prepare his land and get his crops in and then comes rain and brings them up. To have a drought in July is not so bad because the crops are all well started, the corn is cultivated, it is a nice time for haying and harvesting and that sort of thing. But to have a June drought when you want everything growing is the worst of all, but we have got it this year, and my hoed crops don't look very promising. Only about half of the sugar beets have come up as yet; I planted some dwarf lima beans for the canning factory, with

a very poor stand. I put in some early peas for the canning factory, with a very poor stand owing to the dry weather, or dry ground, for instance. We have got the ensilage corn all in and got the potatoes planted earlier this year than we have before in a number of years, but unless a good rain comes within a reasonable length of time the majority of the ensilage corn and the potatoes will never come up. It is too dry. I am running a risk in putting some of the seed into the ground because it is too dry to germinate, and yet haying is coming on, in fact it is on. We have already begun haying and have eight acres of alfalfa and orchard grass cut and mostly in the barn, and the red clover is ready. Consequently it is necessary to get these planted crops in and out of the way so that we can give our attention to the haying, and I am simply running the risk and planting the crops and praying for rain.

The stand of corn in this vicinity is exceedingly poor, I think the poorest on record. A great deal of the corn planted was not good prime seed and much of it did not germinate. As for myself, I had good seed because I took care of it early last fall before the rains came, and fire-dried it and kept it in good condition. But mine is not all going to germinate because some of the land is too dry, and that is the case with some of the neighbors also. Now taking these two causes together, the June drought and the poor seed, I think we have the poorest stand of corn in this vicinity that we have any record of.

Oats are a good stand. Until within the last week they were promising, although they were put in late. That cold wet spell gave the oats a good fair start. Now, however, the drought is showing its effect and they are beginning to roll up and show the lack of moisture. Nothing but a good soaking rain will save the crop.

This vicinity has a splendid hay crop. I never saw a better crop of red clover. I think I have 40 acres of red clover that will go two and a half tons to the acre easily. It is just getting in nice shape to cut, in full bloom, and, of course, if this weather continues we can get it up in good shape. However, the probability is that a rain will come which other crops need which may interfere with the haying. Wheat has improved in the last week or two and looks much better. We have only a fair crop, however.

The Gasoline Traction Engine.

As stated above, in the first place I ordered a 25 horsepower engine but I have become convinced that the work that I wanted an engine to do, I needed more power, and so I exchanged and got a 45 horsepower engine, instead of a four-bottom plow, a six-bottom plow. Perhaps I made a mistake, the 25 horsepower will do a lot of work. If I had got the right plow with the 25 horsepower engine perhaps I never would have made the change, but I don't think I will be sorry, because I think we will all agree that we never saw any too much power. It is a better plan, as I figured, to have a little power that you don't need than to need some that you haven't got, and if you can draw more than six bottoms you can pull a pulverizer behind, and that is the time to pulverize. At the present time we are plowing heavy sod a good depth and drawing a 24 double-action cutaway disk harrow behind, and the engine does the work nicely. The longer I use the tractor, the more used we get to it the more we know how to run it, the more we find out what it can do and what it cannot do, the better I like it, and I am convinced that it will be of great assistance in farming. I am further convinced that under my conditions it is going to be a profitable investment, although it is a heavy investment for a farmer. Yet, when you want to do something you can. I may have to change my plans a little and do more fall plowing so that I won't have to do so much early spring plowing for fear it will be a wet spring so that I can't use the tractor to advantage early enough, but if I only have the power to do the plowing in the fall I would prefer to do it then for it lessens the risk of loss by drought the following spring, should there be a deficiency in moisture. I would prefer fall plowing, I think, for every crop except potatoes. This crop don't want the soil settled too firmly. However, one could always find a time in the spring to plow the potato ground. With a little experience in planning the work for the tractor I am confident that it is going to be very helpful and profitable.

COLON C. LILLIE.

THE FARMER AS A MECHANIC.

Men who study the philosophy of civilization are called ethnologists! And one of these ethnologists refers to man as the tool-using animal. Birds, beasts and fishes have made no changes in nest making nor in habitations. In museums the creators have gone to great expense to surround the different ages of mankind with their appropriate settings of dwelling places, implements of toil and weapons of warfare. Mark Twain, in one of his humorous sketches, tells of the enormous wealth of a polar magnate, as measured by his people, who had nineteen iron fish hooks, while no other member of the tribe had more than three, and corresponding ability of this wealthy man to lay by in store greater quantities of fish than his less fortunate tribesmen.

Agriculture has become largely a matter of machinery, implements and tools, and these require not only skill to operate but ability to maintain up to their standard of efficiency and to make ordinary repairs. Dull cultivator teeth are the cause of much poor corn. A piece of machinery out of alignment is a worry to both man and beast. The going to the blacksmith shop for minor repairs consumes much time and is often neglected until the machine is past its period of usefulness. Solomon's saying, "If the tool is dull put on more strength," is supposed to be sarcasm rather than advice. In actual saving of money it will pay most farmers to be equipped with a forge, anvil, vise, dies and taps for bolts and burrs, a hacksaw, cold chisels and a drill, in addition to the more ordinary tools usually found. A tread power grinder with carborandum wheels is indispensable to sharpen drills and tools in general.

The expenditure of \$30 for repair equipment as above described, will pay for itself in one year's time. The efficiency of machinery can be largely increased and its period of usefulness extended by making immediate repairs when needed. It is also surprising how men and boys, with an equipment to do work, become very good amateur machinists, and take pride in machine maintenance, just as a locomotive engineer does with his engine. Poor machinery and dull tools have been some of the boyhood grievances that have made the farm a matter of bitter remembrances, rather than of pleasant recollections.

With this meager equipment there is not a day of the farming season goes by but what some portion of it is used to advantage. For docking lambs the forge is taken into the barn and the lamb's tail severed with a moderately sharp tool heated red hot and not a drop of blood flows. The veterinary uses the forge for puncture firing in heating the irons. The hacksaw is the solvent for many problems on the farm, and is just as rarely found on the farmer's bench. A long bolt can be sawed the right length and a new thread put on with the dies.

Some enterprising dealer in farm goods ought to make a complete equipment of necessary farm tools for shop use and sell in sets, for one tool almost of necessity demands others to complete any job, and if bought piecemeal are more expensive and less satisfactory.

Shiawassee Co. JAS. N. McBRIDE.

WHY POOR SEED CORN?

It is quite certain that never before in the history of this state has there been such a seed corn famine as last spring. There appears to have been nearly as bad conditions in the southern latitudes, Illinois for instance, where the institutes and experiment stations sounded the warning for months and where the State Bankers' Association spent a considerable sum in calling the farmers' attention to the serious condition of their seed corn and insisting that an ear test be made to save them from immense losses.

This move on the part of the bankers is to be greatly commended as it clearly points to a desire to co-operate with their best class of patrons, yet it will fail to a greater or less degree in that the way has not been made clear in which a repetition of these conditions can be averted.

It has been clearly understood for some time by the closest students of grains and their successful growth that the present infertile condition of the soils of Michigan has weakened them to such an extent as to seriously handicap their reproductive capacity.

When thinking of a product my mind invariably turns to the conditions surrounding its production. If the condi-

tions throughout the state are truly represented by my own vicinity or county as regards the prodigious waste of its manures it is truly marvelous that the farmers can continue to grow corn. The conserving of our manures must be accompanied by a system of some sort to reduce the waste to a minimum and at the same time reduce the labor connected with its distribution. I find perhaps one in every one or two hundred here who have such a method. With me the labor problem makes it imperative to distribute direct from the stables, pens and coops.

The careful and intelligent application of manure has a double advantage. The best authorities on the soils of Michigan claim that they already have an abundance of the phosphates but that they are inactive because of a trait of nature that declares to the robber of the soil, "thus far thou shalt go, but no farther," and locks up those elements and holds them fast until liberated. The office of the phosphoric acid is to assist in forming the grain and bringing it to maturity or seed condition, in other words, its full measure of life. But before it becomes available it must be set free. The work of setting it free is accomplished by plowing down organic matter, this matter decomposing or nitrifying brings all elements into union. It is thus seen that two things are accomplished by the one act, setting free of the phosphoric acid and increasing the fertility.

Each farmer should choose for himself the kind of business in which he should specialize, but in choosing should keep in mind that such a business should allow the soil to become more fertile. Dairying is my choice as it necessitates a large use of protein feeds, and selling of cream; second choice, because it gives a by-product high in protein to be delivered to the soil through the production of pork and eggs. During this process there is a resulting voiding of indigestible protein which goes as before stated, directly to the soil. I am not a chemist therefore can not say under what name this element travels until it reaches the kernel of corn. The two words, "protein" and "life," are to my mind synonymous.

This element or evidence of it is the first thing I search for in making selections of seed for future use. The stock feeder has found that for best results he must add some feed high in protein to his corn ration. A large portion of this can just as well be added during its growth. An element that will give a vigorous growth to animals will also give a vigorous growth to the corn grain.

Although the method of fertilizing referred to has a great tendency to increase its protein content yet its selection along this line will materially aid in its increase. By the evidence of protein content I mean the tendency to become hard immediately upon harvesting. The grains can be held (when fully dried) to the light between the thumb and finger and if there is a distinct transparency you will find the grain exceedingly hard. If there is but a skin of fat at the upper end the kernel is an ideal one in what I consider to be of the greatest importance. If the fat or starchy content reaches well down into the kernel it will be comparatively soft. This is where so much damage comes from the continued soaking as this is the part that holds the water and when subjected to frost the germ is parted from its coating, immediately reducing its none too high vitality.

The intent of this article is to urge the studying of corn and the conditions surrounding its culture, also to make what some may consider a very extravagant and dangerous statement, that the ear testing of seed corn can by better methods be made to become a relic of inefficiency; that it should be considered as a superfluous process to be resorted to only by those who are entirely willing to engage in the work of perpetually fighting inexcusable conditions; that farmers should at once begin to "observe" rather than merely see corn; that it should go high and dry, whether dented or not, and be given some extra heat. I also wish to make it plain that when a man fails in getting his product to a position he wishes he invariably resorts to charging it to the weather or some other consideration outside his control.

In conclusion I again wish to call attention to the condition of our Michigan soils and that nature pays a ten-fold, though silent tribute, to the one who becomes honorable in his dealings with her. This condition is such that it not only threatens our prosperity and happiness but the health of our people as well.

Kalamazoo Co. L. J. BRADLEY

LIVE STOCK

THE FARMER'S HOG.

As an animal from which to make money on the farm, the hog has won a place on the merits of his own ability as an economical producer of market meats in a short period of time. The hog is a good asset at all times of the year, and he is always busy making the most of himself where conditions will admit of it, and winning dollars for his owner. He gleans the grain from the fields, eats the grasses, and turns them into a marketable produce. In the fall and winter, he takes the salvage of the orchard and makes growth on it. He is the best animal on the farm to consume and make the most of the skim-milk, buttermilk and all dairy wastes in combination with his other feeds at all times of the year.

There are other reasons why he is an economical animal on the farm. He returns twice as many pounds of meat from a given amount of feed as does the beef steer; and while it requires three years for the steer to get himself into marketable condition, the pig is not in condition in less than one year. He makes three times as many pounds of meat from a given amount of feed as does the sheep, and does not require more than half the time to do the work. He makes his returns the first year when properly reared and handled, thereby making the quickest returns of any of the animals raised on the farm.

Types.

Of all the types or various forms, at present any of the types are fashionable and profitable; no matter whether he may be built for a bacon hog, a lard hog, or just a common hog, they all sell at about the same price at present. It is not worth our while now to discuss the merits of the different types of hogs, because at present prices there is money in any and all of them, but to suit our own tastes, it is the hog who will make the most money from a given amount of feed in the shortest period of time. That is the type the average farmer should raise.

Worthy of Good Care.

The hog is worthy of good care and comfortable quarters at any and all times of the year. He should receive not only a generous amount of feed, but should be treated kindly at all times in order to do his very best in his work for his owner. He should be kept free from external and internal parasites; should have plenty of water in which to wallow during the summer, and shade to protect from the direct rays of the sun. It is impossible for an animal of his nature to do his best unless he is made comfortable at all times.

Proper Size of Hog to Raise.

The medium size pig is the most profitable to raise, because he can be both thrifty and possess good quality. The small, fine-boned ones do not grow as much muscle and get size enough in a short period of time in order to be profitable. The very large-boned ones are slow to mature and take too long to make returns. The hog that requires more than six or eight months to reach market weights and conditions, costs more to produce than the quick maturing ones. The pig that can be raised under ordinary conditions and good care, and made to weigh from 250 to 300 pounds quickest, is the most profitable sized hog for the farmer to keep.

Age of Breeders.

Pigs from mature stock get a better start and reach the required weight sooner and with less cost than those from immature stock. When necessary to change breeding stock, it is not best to take in both sire and dam at the same time. It may be necessary to change sires every one or two years, but do not change the sows oftener than is necessary. A good, well tried brood sow is of great value. If it is well, in order to get animals of better quality, or better breeding, but unless for reasons extraordinary, keep the brood sows as long as they are good workers.

Stock from young sires and young dams are not as growthy, are not as easy keepers, do not make as good returns for the amount of feed consumed as those from the mature stock for reasons we will not stop at present to discuss. In breeding from immature stock, there is a tendency towards refinement, small bone, and lack of constitutional vigor, things which the farmer should avoid. By all means, keep up the health, strength and vigor of the breeding ani-

mals. No farmer can afford to keep stock of inferior quality, or that lacks constitutional vigor.

Raising the Pigs.

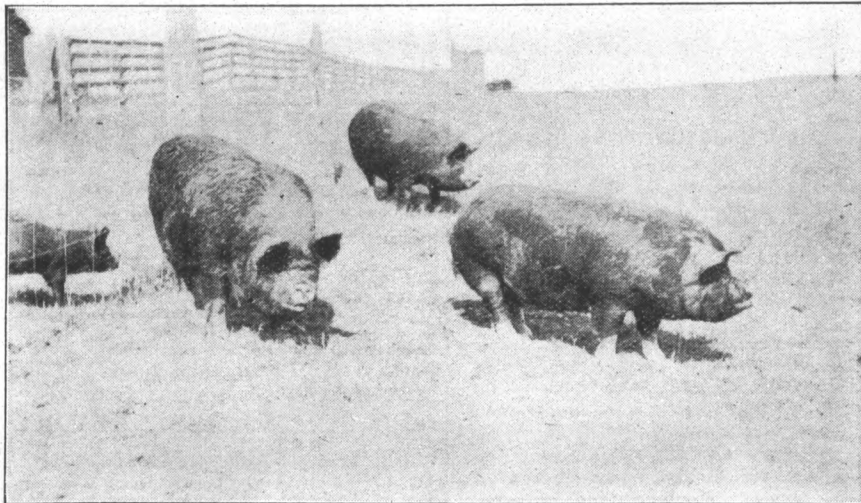
It is a matter of first importance to give the pigs a good start. One of the first essentials is to have the breeding stock in good healthy condition, not over-loaded with fat, nor pinched with hunger; then by proper feeding, the mother can give the young animals a good start along early in life. By liberal feeding of the mother after the pigs are two weeks old, an increase in the flow of milk can be stimulated and the growth of the pigs greatly increased. This is a matter of first importance for the reason that it helps to expand the stomach of the little pig, and enables him to not only do good service in making rapid growth while young, but enables him to make more rapid progress, and increases his capabilities for making a rapid growth later in life.

In the second place, it is a matter of importance, because it fixes within the young animals the habit of thriftiness, which will follow to the end of the animal's life.

In order to get the greatest profit from the pigs on the farm, it is necessary to encourage them to consume as much of the cheap feeds as possible early in life

families prevail. Farther up in the hill country we find the Cheviots and again in the higher and more barren hill country we find the Highland or Blackface sheep. In the southwest of England are the various classes of Downs and other breeds which have proved through succeeding ages the best suited to the districts. Unfortunately, the wisdom of this practice has been largely disregarded on this side of the Atlantic and the beginner allows his fancy for a certain breed to guide him in making a selection which after a few years' experience he perhaps discovers is entirely unsuited to his environment and in order that his flock returns be satisfactory is forced to change breeds and start all over again.

Another important factor in successful sheep breeding is continuity. Having obtained the breed that is best adapted to local conditions, don't change. No breeder should be content with merely holding his own, for in nine cases out of ten if he doesn't advance he will retreat. As in any other business, the most aggressive man is the most successful, other things being equal. The breeder should have an ideal of perfection, raised sufficiently high to give zest to his ambition and then strive to get there. By a rigid system of selection he can gradually raise the standard of his flock and will find himself



Brood Sows of Good Type from a Utility Standpoint.

and all along until the time they are prepared for market. In the spring, summer and fall, it is best to encourage the little fellows to eat grass, one of nature's best feeds, that helps not only to expand the stomach, but furnishes the mineral elements necessary for the building of bone, encouraging the development of the vital organs and strengthening the muscles. Such cheap feeds as pigs can pick up in the grassy fields given in addition to the dairy wastes, and a moderate amount of grain feeds will enable the pigs to grow rapidly and make big profits on the feeds consumed.

Let us remember that the feeding of pigs for the most profitable results is an art, and no fixed regular rules can be given. Very much depends on the individual feeding and caring for the animals, whether he studies their necessities, understands their weakness, and helps to strengthen and encourage them in all points which will enable them to make all they possibly can under the conditions which they are raised. Every feeder may consider himself an artist, and he who is most watchful and faithful to the animals under his care, will develop into the most competent feeder and prove himself the most accomplished in the business.

Wayne Co.

N. A. CLAPP.

SOME FACTORS IN SHEEP BREEDING.

The first fact to consider in this connection is environment. If the stock grower aims to secure the maximum profit from his investment he will, when laying the foundation of a flock carefully consider the adaptability of the different breeds to his locality or to his own farm. The principle indicated has, perhaps, received more attention in Great Britain than elsewhere, with the result that the breeds developed are the best suited to their respective districts. Evidently the British farmer is not governed by whims. He has chosen families bred in his section that are the most suitable for his soil, proved these by selection and the use of the proper sort of males, never losing sight of his environment. Hence in Shropshire we find nothing but Shropshire sheep. In the North of England and the South of Scotland, the Leicester

engaged in an interesting and useful work to which a life time may well be devoted. The history of breeding in Great Britain furnishes many examples.

There it is a common thing to find a farm on which Leicesters have been bred from 60 to 100 years. Messrs. Mansell, of Shrewsbury, who are famous as breeders of Shropshires have been continually breeding the same family on the same farm for 60 years. Others have continued in the same line for a much longer period.

But even supposing a breed has been wisely chosen and the owner continues in his efforts along the same line for a considerable period there still remains a possibility that the standard of perfection towards which he is working is not the most desirable. He may be paying too much attention to fads and neglecting the utility of the animal. This is the point that should always be foremost in the mind of the stock breeder. The power behind the whole business is the market requirements. We breed sheep to supply the consumer with the particular quality of wool and mutton that he demands. The next consideration is to supply this demand in the greatest quantity and the best quality for the food consumed and the care given.

While hundreds of years of experience has proven that nothing but pure-bred animals are suitable for breeding purposes, it frequently happens that "crossing" is resorted to in order to produce market lambs. This is a feature of breeding that is very much misunderstood by many farmers. In Great Britain it means the selection of ewes of a certain breed which are crossed with the male of another breed in order to produce lambs of better feeding and selling qualities than is the case with some pure-breds. For instance, Cheviot ewes are sometimes crossed with Down rams and sometimes with Wensleydales and other of the Leicester families. To keep a constant supply of Cheviot ewes a number of the best animals are mated with best Cheviot rams. These are kept for breeding purposes while the cross-bred animals are sold to the lowland farmers for fattening. In America, crossing has too often been abused. Frequently when a breed has been given no consideration as to its adaptability to a certain environ-

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Impossible to produce any scar or blemish. The safest best Blister ever used. Takes the place of all liniments for mild or severe action. Removes all Bunches or Blemishes from Horses or Cattle. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address THE LAWRENCE-WILLIAMS COMPANY, Cleveland, Ohio

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Cures Strained, Puffy Ankles, Lymphangitis, Poll Evil, Fistula, Boils, Sores, Wire Cuts, Bruises, Swelling, Lameness, and allays Pain quickly without Blistering, removing the hair or laying the horse up. Pleasant to use. \$2 per bottle delivered. Describe your case for special instructions and Book 5 K free.

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Put Horse to Work and Cure Him

WE Originated the Plan of—Treating Horses by Mail—Under Signed Contract to Return Money if Remedy Fails. OUR CHARGES ARE MODERATE. But first write describing your case, and we will send you—BOOK—Sample Contract, and Advice—ALL FREE to (Horse Owners and Managers).

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without a cent deposit, prepay the freight and allow 10 DAYS FREE TRIAL.
IT ONLY COSTS \$1.00 to learn our unheard of prices and marvelous offers on highest grade 1912 model bicycles.
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RIDER AGENTS everywhere are making big money exhibiting and selling our bicycles. We sell cheaper than any other factory.
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ment and does not come up to expectations it is crossed with another breed; not producing satisfactory results it is crossed with still another breed, and so on, until finally the flock is of such a nondescript and irregular character as to be of no value to the breeder or feeder and an absolute injury to the market where it may be sold. Hence the best results can only be obtained by a study of environment, continuity, utility and crossing which, if applied to the operations of every breeder would soon give this continent a reputation equal to that already won by the shepherds of Great Britain.

Canada. J. HUGH MCKENNEY.

BREEDERS' PROBLEMS.

The Best Breed of Sheep.

Which would be the best kinds of pure-bred sheep to get for this northern country? I want to start with a few of the best for wool and mutton, or general purpose sheep.

Charlevoix Co. H. E. C.

There is no one best breed of sheep. If such were the case farmers and breeders would soon find it out and the other breeds would gradually decline in popularity and numbers. The improved breeds are all good and the proper selection of one who contemplates the breeding of pure-bred sheep should rest with his individual preferences, after the question of adaptability to soil and market has been fully considered.

Years ago the American Merino was almost the universal sheep, but with the decline in wool prices and an increased demand for mutton this valuable breed, which was well designated the "Golden Hoof" by many of our early day farmers, was rapidly replaced by other and larger breeds, the English mutton breed of middle wool type predominating, while those who adhered to the Merino type largely turned their attention to the Rambouillet, which had the advantage of size, coupled with heavier wool production than in the strictly mutton breeds.

The large mutton breeds have been introduced to some extent, but have never become as popular as the middle wool breeds, of which there are more in the state at the present time than of any other kind. But, as above noted, after adaptability and market is considered, one's preference should be consulted, since the average man will give better care to and hence do better with the particular breed which suits his individual fancy.

Live Stock Should Have Access to Salt. Would you please tell me through the Michigan Farmer if a horse can eat too much salt? I have one that has salt by her all the time and she eats a great deal of it.

Saginaw Co. W. W.

It is a much better plan to permit all live stock to have access to salt at all times than to supply it intermittently, as is too frequently done upon many farms. Where salt is before them at all times there is no danger of the animal taking enough of it to prove deleterious, but where an animal has been deprived of salt for some time enough will sometimes be eaten to produce digestive disturbances. It is much better to give animals an opportunity to satisfy their appetites for salt at their pleasure. Some will consume a great deal more than others under these conditions.

SUCCESSFUL HOLSTEIN SALE.

At the public sale held by the Western Michigan Holstein Breeders' Association at Grand Rapids, Mich., June 12, 72 head of Holsteins were sold for an aggregate of \$9,240 or an average per head of \$128.33. There were altogether eleven breeders contributed to this offering, the different lots selling at rather close averages, running for \$90 to \$200 per head. Altogether this sale may be considered a successful one, notwithstanding that it was the first public sale of the breed held on the west side of the state.

The Samaritan Hospital, gift of Mr. J. L. Clark, of the firm of Drs. Hess & Clark, familiar to readers of our advertising columns, to his home town of Ashland, Ohio, was dedicated with impressive exercises on May 27. The building is a magnificent \$85,000 structure of the best modern construction and equipment, and its gift is a philanthropy greatly appreciated by the people of Ashland.

The Chicago newspapers have been losing large amounts of money through the strike of their pressmen and other employees, the distribution of papers having been materially lessened. This has had a bearing on the horse trade, as many horses that were worked by the newspapers in delivering papers were left idle in the barns, and the demand for horses has been checked from this source. One Chicago transfer company reports 80 teams standing idle.

VETERINARY

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

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

Septic Arthritis—Navel Infection.—Two weeks ago I wrote you about my nine days' old colt having sore leg and swollen joints. You called the terrible navel infection. Our local Vet. advised me to leave him alone and he might get all right, but the colt died. His joints swelled large, I opened one and nearly two quarts of pus ran out. The second Vet. I called said the colt had joint disease and was incurable. Now you seem to believe that this whole trouble comes from navel, but one of the Vets. says it is the result of feeding mare on dry feed during winter. Will it prevent this trouble to tie a string around cord not later than two hours after birth of colt? One of my neighbors had a colt with leaking navel and he tied a string around navel one week after colt was born and his colt died. B. V. D., Jenison, Mich.—The navel of every colt should be treated as early after birth as possible. A clean sterilized silk, linen or catgut string should be used and cord tied about an inch from body. This will prevent any infection passing through cord, besides a healing remedy should be applied once or twice a day. Any good home healing remedy such as one part carbolic acid and 30 parts water, or one part bichloride mercury and 500 parts water, or one part coal tar disinfectant and ten parts water will answer very well. A useful dusting powder can be made by mixing together equal parts oxide of zinc and boric acid. Feeding your mare dry feed last winter had nothing to do with death of colt, furthermore it is not a cause of joint disease.

Throat Pressure.—When my two-year-old colt is eating grass with head low he breathes hard, causing him to make a wheezing noise; he often runs and if head is held high he does not make any noise. C. C. V., Niles, Mich.—I am inclined to believe if you will apply iodine ointment to throat two or three times a week, he will perhaps get relief.

Wire Cut.—I have a horse that became tangled in barb wire, cutting fore part of hock. The wound is not quite healed, but there is considerable enlargement of joint which I would like to have reduced. C. E. P., Chesaning, Mich.—Apply equal parts oxide of zinc, powdered alum and boric acid to wound twice a day and give 20 grs. iodine at a dose in feed three times a day.

Feeding Colts Cows' Milk.—I have a colt one month old whose mother does not give enough milk to nourish colt properly and I would like to know if it would be safe to feed it some cows' milk and a little grain. F. W. P., Grant, Mich.—Give your colt some fresh cows' milk, adding a little sugar and not less than one-quarter water two or three times a day. They soon learn to eat ground oats.

Indigestion—Sharp Uneven Teeth.—I have a six-year-old horse that eats well, coughs some while eating, but is growing thin. I have turned him out on grass. I forgot to say that his sheath becomes very foul if he is not washed often. W. W., Orleans, Mich.—Perhaps you had better have his teeth floated and give him ½ oz. fluid extract gentian, ½ oz. fluid extract cinchona and 1 dr. tincture nuxvomica at a dose in feed two or three times a day.

Scours.—I have a horse that has been troubled with scours during the past three years and the only thing that seems to help him is hemlock bark. P. B., Disco, Mich.—Give your horse a teaspoonful of powdered sulphate iron, a tablespoonful of ginger and one of powdered quassia at a dose in feed two or three times a day.

Chronic Cough—Swollen Glands.—Have a ten-year-old horse that has been troubled with a cough for a long time. He is in an unthrifty condition and I think the whole trouble is in head and throat. G. E., Kingston, Mich.—Apply one part turpentine, one part aqua ammonia and four parts olive oil to throat two or three times a week. Give a dessertspoonful of fluid extract opium and a teaspoonful muriate ammonia at a dose in feed two or three times a day.

Roarer—Incipient Heaves.—I have a horse that has been thick winded for some time and last spring he was so bad that I could not work him every day. I have thought that he had heaves, but on account of not coughing I have a doubt. B. S., Grant, Mich.—Give 1 dr. fluid extract opium, 1 dr. ground nuxvomica and a dessertspoonful of Fowler's solution at a dose in wet feed three times a day. Feed very little bulky fodder of any kind.

Rheumatism.—I have profited by advice seen in veterinary column and now come to you for information regarding my cow. She is old but still a great milk producer and for this reason I am anxious to have her cured. She travels much like a foundered horse and although I have been a farmer since 1865 I have never had a case of this kind in my dairy. J. L. N., Mulliken, Mich.—Give her 60 grains sodium salicylate at a dose in feed three times a day; also give her a tablespoonful powdered nitrate potash at a dose in feed twice a day. If her fore feet are too hot, stand her in wet clay two or three hours a day.

PERCHERONS

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

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

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

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

WOODCOTE STOCK FARM, Ionia, Mich.

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

Am offering a yearling May Rose Guernsey bull for sale. ALLAN KELSEY, Lakeview Michigan.

7 Months Holstein Bull Calf

very large for age, nearly white, his dam a daughter of Lillith Pauline De Kol Count, his sire a son of the King of the Pontiacs from one of Hengerveld De Kols good daughters. Have others.

ED. S. LEWIS, Marshall, Michigan.

A 24-lb. Bull

Have Bull Calves out of—
13, 20, 23, 24-lb. Cows A. R. O.
By a 24-lb. Bull.

My herd averages 19 lbs.

If you want this kind write

BIGELOW'S HOLSTEIN FARMS,
Breedsville, Michigan.

HOLSTEINS

I can please any body with a service bull, bulls from one to ten months old, sired by Johanna Concordia Champion. Also cows and heifers bred to him. Write me for anything you want in Holsteins.

L. E. CONNELL, Fayette, Ohio.

HOLSTEIN BULL Pontiac Butter Boy, 58 daughters in advanced Registry, out of a grand daughter of De Kol 2nd Butter Boy 3rd, over 100 daughters in advanced Registry. A beautiful calf of choicest breeding. Price only \$50.

C. D. WOODBURY, Lansing, Michigan.

"Top-Notch" Holsteins.

Choice bull calves from 3 to 6 mos. old, of fashionable breeding and from dams with A. R. O. records, at reasonable prices. Also one 2-year-old bull, fit to head a good herd.

MCPHERSON FARMS CO., Howell, Michigan.

HOLSTEIN MILK FOR SALE—6 yearling Holstein Friesian Bulls, 2 A. R. O. bred. Some cows. Also bull calves. 34 years a breeder. Photos and pedigrees on application. W. O. JACKSON, South Bend, Ind., 719 Rex St.

Holstein Bull Calf—dropped Feb. 17, 1912, nearly white, 37½ % blood Hengerveld De Kol dams; record Senior 2-year-old, 18.37 lbs. butter. GEORGE E. LAPHAM, R. 8, St. Johns, Mich.

Holstein-Friesian Cattle—The kind that make good. GREGORY & BORDEN, Howell, Michigan.

6 HOLSTEIN BULL CALVES From \$50 to \$80. Send for pedigrees. LONG BEACH FARM, Augusta, Michigan.

Purebred Registered HOLSTEIN CATTLE The Greatest Dairy Breed Send for FREE Illustrated Booklets Holstein-Friesian, Assn., Box 164, Brattleboro, Vt.

REGISTERED HOLSTEIN CATTLE—Bulls all sold. Herd headed by Hengerveld Grove Pietertje LOYD F. JONES, R. F. D. 3, Oak Grove, Mich.

Big Bull Bargain—Choice registered HOLSTEIN ready for service. Hatch Herd, Ypsilanti, Mich.

YPSILANT FARMS BULL CALVES. Choicest Konradyke, Dekol and Hengerveld breeding. \$50.00 to \$100.00 Official Pedigrees on request. COLE BROTHERS, Ypsilanti, Michigan.

JERSEYS AND DUROC JERSEYS FOR SALE.

A few high class boars from such champion boars as Orion Chief, Instructor, and King of Illinois. Also a few bred sows, Jersey bulls, cows and heifers. BROOKWATER FARM, ANN ARBOR, MICH., R. F. D. 7.

Lillie Farmstead JERSEYS

Bulls ready for service, also bull calves and heifer calves. Cows all in yearly test. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

MARSTON FARM—JERSEY CATTLE. T. F. MARSTON, Bay City, Michigan.

NOTICE—I offer for sale a fine three-year-old Jersey cow. Also two young bull calves at bargain prices. C. A. TAGGETT, R. No. 1, Caro, Mich.

Jersey Cattle For Sale. C. A. BRISTOL Fenton, Michigan.

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

RED POLLED—Choice lot of females any age, also some bull calves. J. M. CHASE & SONS, Ionia, Michigan.

RED POLLED BULLS FOR SALE—from good strains. JOHN BERNER & SON, Grand Ledge, Mich.

DAIRY BRED SHORTHORNS—Milk strain, beef type, or good note. J. B. HUMMEL, Mason, Mich.

SHEEP.

Hampshires—Who wants 18 good ewes and ewe lambs, and a good \$10. lb. imported ram for \$225. Also have 7 good ram lambs for sale. All registered. E. A. Hardy, Rochester, Mich.

Leicesters—Yearling and ram lambs from Champion flock of Thumb of Mich. Also select Berkshire swine. Elmhurst Stock Farm, Almont, Mich.

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

Reg. Rambouillets—Wish to close out both sexes. All ages, low price. Farm—2½ miles E. Morrice, on G.T.R.R. and M. U. R. J. Q. A. COOK.

HOGS.

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

BERKSHIRES for Sale—March farrowed boars and gilts, sired by Handsome Prince 3d, out Weyeneth Lady Francis A. A. PATTULLO, Deckerville, Mich.

Bred Berkshire Sows and Service Boar.—Best bred. Magnificent specimens. Very prolific. Bargain prices. ROUGEMONT FARMS, Detroit, Michigan.

BERKSHIRES Weaned pigs either sex \$15 two for \$25; bred gilts \$35; bred sows \$50, registered and transferred. Excellent breeding. Choice individuals. C. C. COREY, New Haven, Michigan.

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

O. I. C's Special Prices on spring pigs and service males, also fall pigs 200 to pick from. Ship on approval. ROLLING VIEW STOCK FARM, Cass City, Michigan.

O. I. C. SWINE—Males weighing 200 lbs. each. Also a few very choice gilts, bred for June farrow. Geo. P. Andrews, Dansville, Ingham Co., Mich.

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

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

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

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

O. I. C. swine and Buff Rock cockerels of right type, best of breeding, price way down for quick sale. G. D. SCOTT, Quimby, Mich.

O. I. C. Choice spring pigs, by "Frost's Challenger" (2311), Write for prices. GLENWOOD STOCK FARM, Zeeland, Mich.

O. I. C's of superior quality. Service boars, gilts, spring pigs. No akin pairs. Also Buff Rock eggs \$1.50 per 15. Fred Nickel, R. 1, Monroe, Mich.

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

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

Duroc Jerseys—Sows bred for May and June. Spring pigs. I pay the express. J. H. BANGHART, Lansing, Mich.

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

DUROC-JERSEY SOWS bred for July and August farrow. Choice bred spring pigs. Prices reasonable. JOHN MCNICOLL, North Star, Mich.

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

SERVICE BOARS Duroc Jerseys for sale and Fall pigs, (either sex) sired by W's Choice Rule No. 30795. Prices reasonable. Write R. G. VIVIAN, R. 4, Monroe, Mich.

Duroc Jerseys For Sale—Service Boars, bred sows and Spring Pigs either sex. Pairs not akin. M. A. BRAY, Okemos, Mich.

CLOSING OUT—Butler's Big Type POLAND-CHINA. A bigger, better and more prolific type. 10 nice, big sows, bred for June, July, August, September at \$25 each, 1 o. b. You had better order one at once. J. C. BUTLER, Portland, Michigan.

POLAND-CHINA SWINE Bred for September. R. W. MILLS, Saline, Mich.

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

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

POLAND CHINAS—Gilts and yearling sows bred for first of Sept. farrow, a few big types. E. D. BISHOP, Route 38, Lake Odessa, Mich.

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

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

BIG TYPE Poland China fall and Spring pigs, sows bred. Dairy bred Shorthorn cattle and calves. Prices low. ROBERT NEVE, Pierson, Mich.

15 Poland China Sows bred for spring litters. Will ship c.o.d. priced to sell. WM. WAFFLE, Coldwater, Mich.

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

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

Mulefoot Hogs—30 SOWS and GILTS bred. Dairy bred Shorthorn cattle and calves. Boars all ages. G. C. KREGLOW, Ada, Ohio.

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

Lillie Farmstead YORKSHIRES.

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

Mange—Ringworm.—My horse commenced rubbing against stall about a month ago and has kept it up ever since. The hair in mane and tail is worn off, also some of the hair of sides and there are now several inflamed spots. C. B. S., Richmond, Mich.—Mix one part sulphur, 1/2 part carbide potash and five parts of fresh lard and apply to itchy spots of body and scalp of mane and tail twice a week for two weeks, then apply one part bichloride mercury and 500 parts water twice a day. Give 1/2 oz. Donovan's solution at a dose in feed three times a day.

Shoulder Sweeney.—We have a valuable Percheron colt that was driven with too large a collar by the hired man and has been sweeneyed; what is best to have done? Some say rowl it, some say don't. The local Vet. says it will come out all right if let alone, but I have seen many horses spoiled by being sweeneyed and hate to run the risk. L. B. Allegan, Mich.—Atrophy (sweeney) usually follows sprain of muscle or muscles, or from lack of proper nutrition, or exercise. Mild stimulation such as is obtained by applying equal parts turpentine, aqua ammonia and raw linseed oil every day or two will stimulate reproduction of muscular tissue and grow the parts to their normal size. Mild blisters applied once a week have the same effect. Moderate exercise and feeding muscle-making food such as oats, has a good effect. I do not approve of the use of seaton (rowl) in hot weather.

Partial Paralysis.—Our two-year-old colt seems to be affected with a form of paralysis. He was taken sick two weeks ago and occasionally tumbles and remains down, seemingly having poor use of limbs and very little use of back. He suffers no pain and has a good appetite. O. C. O., Baraga, Mich.—Give your colt 2 drs. potassium bromide and 1 dr. of ground nux vomica at a dose in feed three times a day. Rub his back with alcohol twice a day and feed him plenty of green food.

Indigestion—Impaction.—Last spring one of my cows was off her feed, but our local Vet. treated her and she partially recovered. She was constipated; the Vet. overcame this trouble, but she remains thin and her old hair hangs tight to her body. G. P. S., Rochester, Mich.—Give her 1 oz. ground gentian, 1 oz. ginger and 1 oz. salt at a dose in feed two or three times a day. A change of feed might help her.

Parasitic Mange.—My calves have a sort of disease of the skin that must be contagious, for it commenced on one and he seems to have diseased several others. What can be done for them? R. E. L., Alden, Mich.—Apply one part iodine and 15 parts fresh lard to itchy and sore parts twice a week. Give each calf 10 drops of Donovan's solution at a dose two or three times a day.

Barren Cow—Eversion of Vagina.—I have watched veterinary column of the Michigan Farmer for some time, in order to know how to treat my three-year-old cow. Last November she was bred after losing her eight-month-old calf, but fails to get with calf. This cow seems to be healthy, gives a small mess of milk and when down the vagina everts and remains out. I would like to know how she can be gotten with calf. W. V., Kalamazoo, Mich.—Perhaps she has a vaginal discharge and until this is corrected she will not breed. Dissolve 3 ozs. of borate of soda in a gallon of tepid water and inject her once a day, using it freely, but carefully. Also dissolve 2 ozs. of powdered alum in a gallon of water and inject her with this lotion once a day. It will not be necessary to use both lotions for many days; however, you had better use one of them once a day for two or three weeks. Give her 30 drops of carbolic acid in a pint of water mixed with feed twice a day for 20 days.

LIVE STOCK NOTES.

Cured hog products are still selling extremely high, being much above the prices of a year ago. Provisions are now much higher relatively than hogs, compared to a year ago, and this has begun to tell on the market for the former, the cash demand being no more than moderate, while accumulated stocks in western warehouses are extremely large. Pork has been selling more than \$3 per barrel higher than a year ago, and lard, short ribs and other goods show similar advances. Fresh pork is having a large sale everywhere, being much cheaper than other meats, but bacon, hams, etc., are retailed in the meat markets at such high prices that fair consumption is materially lessened.

Grass-fed cattle, hogs, sheep and lambs are now forming a large percentage of the daily receipts at all the markets of the country, and such offerings are severely discriminated against by killers. Such offerings make a poor showing on the hooks as compared with dry-fed stock and are given a poor reception by the packers, who refuse to purchase except on liberal price commissions. Stockmen, when considering making shipments should bear this in mind.

The wool shipped out of the southwestern corner of Colorado this season amounted to half a million pounds, filling 50 cars. Prices paid ranged from three to four cents per pound higher than a year ago, sales averaging 15c per pound.

Manufacturers are doing some hustling to obtain their wool supplies, appreciating the fact that there is quite a shortage in the spring clip of the country. A short time ago word came from Rawlins, Wyoming, that no fewer than 25 representatives of eastern wool commission firms were in that vicinity buying wool, and it was thought that at least 90 per cent of the Carbon county clip, which will reach 5,000,000 lbs., would be sold for cash, leaving very little for shipment to the National Wool Warehouse & Storage Company at Chicago, for storage. A majority of the shepherds around there are

members of the National Wool Warehouse Company, which was established by western flockmasters several years ago, but the prices offered by buyers on the ground were too tempting to be refused. Prices ranged at 15¢ @ 20¢ per lb., with the average price about 4 1/2¢ higher than a year ago.

Matured cattle are expected to make up the main part of the summer and autumn shipments from the ranges of South Dakota, Montana, Wyoming and Colorado, and the aggregate supplies of these cattle promise to fall much below last year. Last year the drought forced great numbers of cattle on the market, and hence available supplies are below those of recent years. As the ranges are well supplied with grass and water, stockmen will be in no hurry about selling, for the high prices of fat cattle will act as a stimulus for holding on until the herds become in fine condition. Cows and heifers will be retained as a rule for breeding and light weight steers will be given plenty of time to get good and fat.

The growth of the sheep raising industry in the west has brought into existence a distinct class of skilled labor. Men travel along regular routes every year making a specialty of shearing, a majority of them using machine clippers. Starting in on the southern California ranches, they proceed as far as the middle of that state, and then go through Utah, Wyoming, Montana, Idaho and Oregon. They finish up shearing in Oregon in July, and then proceed to Canadian ranches, where they complete the year's labor.

Look out these days for hot spells when preparing to ship hogs long journeys to market. Already lots of dead hogs have been removed from cars arriving in the Chicago stock yards on hot days, and every dead hog counts up in these days of extremely high prices. See that the cars are well cleaned and well covered with sand or cinders, and use great care in avoiding crowding too many big lard hogs in the car. See that the hogs are not heated when starting out, and sprinkle them with water frequently. Country shippers of long experience have found that big cakes of ice suspended from the tops of cars were a great help, the melting ice trickling down in cooling little streams of water on the swine.

Smaller eastern purchases of hogs in the Chicago market of late than heretofore are explained by larger marketings at eastern packing points from the country that lies east of Chicago. When this outside competition is lacking the local packers usually find it convenient to depress prices.

According to Prof. W. J. Kennedy, silage must be put into the feeding program of every beef producer who wants to fit steers for the market economically and efficiently. The animal husbandry department of the Iowa Experiment Station proved this a year ago in a thorough feeding test, and proved the same thing recently in a second feeding test. The report shows that the animals fed on silage made cheaper gains, they lost less in shrinkage, and they returned greater profits than other animals in the test fed on clover hay as roughage. The silage fed steers put on gains at a net cost that was \$2.01 per 100 lbs. less than the clover hay fed steers, and the best lot of silage fed steers made a profit of \$23.46 per animal as against \$17.27 per animal for those fed clover hay. It was found that in finishing cattle for the market a concentrate grain is required, and corn is the cheapest one to be had, silage not being a complete feed.

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DETROIT, JULY 6, 1912.

CURRENT COMMENT.

The Fourth of July Celebration. Statistics show that the propaganda for a safe and sane Fourth of July has lessened the casualties resulting from the celebration of our national holiday very materially. There is a growing tendency to make the day one of more quiet pleasures than was formerly the case. Of course, young America must make some noise on the "Glorious Fourth" else childhood would be robbed of one of its most dearly loved pleasures; but the modern tendency toward a sane celebration has done much to rob those noisy pleasures of danger, although there is still need for constant caution and occasional prompt treatment on the part of the parents of children throughout the country. But the modern tendency to make the Fourth of July an occasion of community picnics or family gatherings with a demonstration of fireworks in the evening at some nearby village, or on a smaller scale at home, has added to the pleasures of the day and detracted not a little from its danger to the patriotic youth.

Nor has the fire of patriotism waned on account of this modern tendency. The strong men of the next generation will be as ready to take up arms for the nation's cause as any which have preceded them should the occasion demand. The spirit of liberty is inborn in every true American. It is well, however, that the day which is set apart to commemorate the achievement of liberty by our forefathers should continue to be one of national celebration, as it ever will during the life of our nation. Truly, those early and patriotic pioneers builded better than they knew, and it is meet that we who are reaping the benefits of their sacrifice should observe the day in an appropriate manner.

Michigan Manufactures. The figures of the thirteenth decennial census relating to Michigan manufactures will be of interest to our readers. Space cannot be given to a detailed statement of same, but some interesting comparisons are available in the totals presented in the census report. In addition to being an important agricultural state, Michigan has for many years been one of the leading manufacturing states in the Union.

As early as 1849 the value of its manufactured products amounted to more than \$11,000,000 per annum. At that time more than 9,000 wage earners representing 2.3 per cent of the total population of the state, were employed in manufactures. In 1909 the total value of manufactured products exceeded \$685,000,000 and the total number of wage earners employed in manufactures was 231,499, or 8.2 per cent of the total population of the state. During this period the gross value of manufactured products per capita of the total population of the state increased from \$28 to \$244.

The total number of manufacturing establishments in the state in 1909 was 9,159 and the total number of persons employed in manufactures was 271,071, to whom were paid out in salaries and wages \$158,838,000. Of this total of persons employed 231,499 are designated as wage earners whose labor has produced to the value of \$685,109,000 to produce which material costing \$368,612,000 was utilized. Thus, it will be noted the value added by manufactures was \$316,497,000, which figures represent as accurately as it can be designated the net gain created by manufacturing operations during the year.

While the development of manufactures in Michigan has been constant and rapid since the earliest period when data is available, it has been more rapid during the last five year period, since the last state census in 1904 to the census year of 1909, during which period there has been an increase of 59 per cent in the value added by manufactures as arrived at in the above figures, while the total value of manufactured products as increased during this period 59.7 per cent.

The total amount of capital invested in manufactures as shown by the census figures is \$583,947,000. At the top of the Michigan manufacturing industry in value of product is the automobile industry, including bodies and parts, the value of which in 1909 was \$96,651,000, or 38.8 per cent of the total value of the products in this country as a whole. The manufactures of the state include 63 enumerated industries, in addition to 946 establishments included under the head of other industries. Lumber and timber products still hold second place in value of products, notwithstanding the fact that the timber industry of the state has declined rapidly in recent years.

The great and growing manufacturing industry has been an important factor in the rural as well as urban prosperity of our state, since it has enlarged the home market for both food stuffs and raw material in many lines. Truly, Michigan is a great state in the diversity of her industries and the diversity of her manufactures is as notable as the diversity of her agriculture.

Passing of Vehicles on Highways. A Tuscola county farmer writes that in that section of the state there is a confusion of ideas as to which way a horse-drawn vehicle should turn out on the highway to let automobiles pass, and asks that the law upon this point be quoted. Section 17 of Act 304, Public Acts of 1907 reads: "If a vehicle drawn by a horse or horses or other draft animals, or a motor vehicle, be overtaken by any motor vehicle, and the person in charge of such motor vehicle expresses a desire to pass, it shall be the duty of the driver of any such vehicle or motor vehicle so overtaken as aforesaid, to turn either to the right or to the left of the center of the wrought traveled portion of the highway, and give the person so making the request an opportunity to pass, but in passing, the person in charge of such motor vehicle and the other male occupants of the same thereof, over the age of fifteen years, shall give such assistance as they are able to the occupant or occupants of the vehicle they are passing, if assistance be asked, and in thus passing, the chauffeurs shall use all due care to avoid accidents."

It will thus be noted that the state law gives the driver of the vehicle which is overtaken and passed on the highways of the state the choice of the sides of the highway upon which he may turn out to let the vehicle which overtakes him pass. It is, however, customary among motorists who have learned to comply with city ordinances, particularly with the Detroit city ordinance, in this matter, to pass vehicles going in the same direction on the left side of the highway, which would necessitate the turning out of the vehicle passed on the right side of the center of the highway.

Thus, while the driver of a horse-drawn vehicle has the legal right of either side of the highway when being passed by another vehicle, as a matter of practice it is better to always turn to the right, the same as is necessarily done when meeting another vehicle, as this will avoid possible confusion of motorists who have learned to conform with city ordinances, which permit them to pass vehicles moving in the same direction only on the left side thereof.

Professional Opportunities. Available figures with regard to the number of students who graduate each year in the leading professions of medicine and the law show that this number aggregates more than double the number required to take the places of older practitioners left vacant by death and other causes, and to keep pace with the growth of population. As a consequence, a very large proportion of these so-called professional men either fail entirely in their intention to follow up their chosen profession or eke out but a meagre existence, instead of attaining the success of which they have dreamed when preparing themselves to enter that profession.

While there is plenty of room at the top in these professions as in every one

of human endeavor, yet there are a great many more unoccupied rungs on the ladder of success for the educated farmer than for the professional man in any other line. This fact affords profitable food for thought for the young men who will this year decide what line of higher education to pursue. There is no line of endeavor which affords greater inducements in educational advantages than does agriculture at the present time and, while many will not be attracted in this direction, other things being equal, the young man who will this year enter college to prepare himself for future usefulness will do well to consider the opportunities which are open to the educated farmer, as compared with those which are open to him in other lines of professional work.

The Conduct of the School Meeting. We have received from school officers and school electors several requests for a brief comment on the conduct of the annual school meeting for the benefit of those who are called upon to participate in these meetings, either as officers or electors and who have not had the benefit of training along parliamentary lines.

The conduct of the annual school meeting is a very simple affair, more simple even under the present school laws which have simplified the duties of the school electors not a little. It would be well for the moderator, who is the presiding officer of the school meeting, to familiarize himself with the provisions of the school law in advance of the meeting in order that he may be the better equipped to discharge the business in hand more rapidly and correctly.

Immediately upon calling the meeting to order if he would explain in simple language the main provisions of the law as affecting school electors, which were summarized in a comment in our issue of June 8, it would lead to a better understanding by the school electors who participate in the meeting, of their rights, duties and limitations. After the report of the previous meeting has been read any unfinished business should be made the first order, after which new business should be taken up.

The business which may be properly transacted by the electors is rather limited in character, being confined largely to the matter of buying sites, or the building of new schoolhouses, the question of the payment of the tuition of pupils in amounts in excess of the \$20 per pupil per year, which is the limit to which the school board can go, the voting of taxes for these purposes and the election of officers of the district for the ensuing year, which will properly be last on the order of business.

On questions involving the appropriation of money only those who have property assessed for school taxes within the district may vote. Women who can thus qualify have the same right to vote as men. On all other questions the parents of children whose names are on the school census are also qualified voters. Officers for the district must be elected by written ballot, even though there be only one candidate, and only taxpaying electors are eligible to office. Under a recent ruling of the attorney-general, members of the township board are not eligible as school officers.

In the conduct of a school meeting the usual parliamentary rules prevail which govern any deliberative meeting, with which the presiding officer would do well to familiarize himself to some extent, if he is not already familiar with the precedence of the ordinary motions which may be made at such a meeting. Altogether the conduct of the school meeting is a very simple matter, and should be approached with confidence rather than with misgiving by the presiding officer, even though he may have had little or no experience in parliamentary practice. A record of the meeting should be kept by the director which will be a complete and intelligible history of its deliberations.

The Boys' Garden Idea Growing. School gardens have been growing increasingly common for a number of years, and

it is believed by practical educators and observers that this form of study and employment, which may properly be included under the term of vocational training, has been most beneficial to the pupils who have had the advantage of such training, particularly in the large cities. Over in our sister state of Indiana this idea has grown beyond the confines of schools, and one large factory has introduced the boys' garden as a means of affording employment and vocational training for the boys of the families of

its employees and as many more as the available land will accommodate.

This scheme was first developed by Mr. S. D. Rider, superintendent of the South Bend Watch Co.'s factory, who, with the co-operation of other members of the company, utilized some vacant land adjacent to the company's plant for such a boys' garden. The land was plowed and prepared for use, the company furnishing all tools and seeds required. The land apportioned to each boy in turn will be cultivated by him, the proceeds to be his own to be disposed of as he may desire. A plot of ground 40x100 feet is allotted to each boy between the ages of 10 and 16 years in the families of those employed by the company.

In addition to the free use of the ground, tools, seed, etc., prizes will be awarded at the end of the season for the garden in the best condition and the best results obtained, for regular attendance, punctuality, etc. Also the report books which the boys will be asked to keep will be taken into consideration in awarding the prizes. This work is to be educational in character, instruction as well as superintendence being given to the boys in the conduct of their work.

This is an extension of the school garden idea which may well be emulated by other commercial institutions and which may well result in the life-long appreciation of the boys whose attention is thus directed to the advantages and possibilities of agriculture as a profitable and enjoyable vocation.

HAPPENINGS OF THE WEEK.

National.

The democratic national convention, in session in Baltimore, failed to nominate a candidate last week, all records in the number of ballots in deadlock at any previous convention of the party having been broken by the 26th ballot taken before the adjournment Saturday night. Gov. Wilson made consistent gains from 324 votes on the first ballot to 407½ on the 26th, while Speaker Clark received 440½ on the first ballot and 436½ on the 26th, a decline from his high point on the 10th ballot, when he received 556 votes. It is probable that no nomination will be made before this issue goes to press. Aside from the personality of the candidates an issue is being made in the convention between the progressive and conservative wings of the party, the outcome of which is problematical in view of the fact that under the rules and precedents of the democratic convention, a two-thirds vote is needed to nominate a candidate.

A recent report states that the Citizens' Telephone Co., of Grand Rapids, which is contesting the law passed in 1909 authorizing the state tax commission to assess the property of telephone companies under the ad valorem system, has reported earnings in the last year amounting to \$735,645.47. In view of the contest the manager of the company tendered payment of the specific tax of three per cent, as required under the old law. This case at present is in the supreme court of the United States and, according to a statement of Auditor-General Fuller, if the state wins the company will be obliged to pay back taxes amounting to approximately \$75,000 in addition to a penalty of one per cent per month.

A phase of Michigan's primary law is being tested in the supreme court, which last week ordered the Secretary of State to show cause why he should receive the primary petition of the candidate for circuit judge at Sault Ste. Marie. This occurrence is the first step in the fight between Judge Oren, who was appointed to fill a vacancy, and his opponents, the judge contending that his successor should be nominated at a convention and not by the general primary.

The Interstate Commerce Commission authorized an advance of one cent per hundred pounds for freight charges on hardwood lumber and yellow pine from the southwest to St. Louis and on similarly situated destinations, and also made a reduction in the freight charges on yellow pine lumber from points in Arkansas, Louisiana, Mississippi and Texas to St. Louis City and other similar destinations of two cents per hundred pounds.

On July 1, the National House of Representatives passed a joint resolution extending the time of all appropriations for the fiscal year of 1912 one month beyond June 30, the date when the fiscal year closes. This action was made necessary by the fact that funds for the coming year were not available when current appropriations ran out and was the first time such action had been necessary since 1895.

A premature Fourth of July celebration was responsible for a \$20,000 fire in Detroit, Sunday night, a spent sky rocket dropping in a pile of rubbish being the cause of the conflagration.

In the cities of Battle Creek, Muskegon and Saginaw petitions have been circulated among members of the old parties asking that a meeting of progressives be held at Lansing, July 5, for the purpose of forming a new party. The petition was freely signed.

Dr. Thomas G. Blaisdel, Professor of English at the Michigan Agricultural College for some years, has accepted the presidency of Alma College which was recently offered him by the board of trustees of that institution.

Foreign.

It is estimated that 500 people were (Continued on page 15).

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

MICHIGAN FARMER
AND *LIVE STOCK* JOURNAL
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The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

VALUE OF AN AGRICULTURAL COURSE IN THE HIGH SCHOOL.

BY IRWIN J. MATHEWS.

JUST at present the leading educators of the country are agitating great reforms in the existing school system. In times past we, as teachers, have been doing too much book work and not enough practical work in the laboratory. Now the tendency is to go to the other extreme and do too much laboratory work and not enough with the text.

The problem which confronts the schoolmen is to find a medium between the two extremes: to find a subject whose study will train the pupil in an intellectual way and, at the same time, train his physical self to act in accordance with his mental self.

Among the subjects which are attracting foremost attention is the study of the science of agriculture. Science denotes an orderly and systematic arrangement of knowledge, and hence we speak of reducing the subject to a science. By the term "Agricultural Science" I mean the study of the several branches of agriculture such as farm crops, horticulture, feeds and feeding, live stock and breeding, soils, and farm motors and farm machinery.

The popular idea concerning the introduction of the course into the high-school curriculum is that we are aiming to prepare the student for entrance to the Agricultural College. Such a view is erroneous in the extreme. Our object is to reach out and get hold of those boys and girls who cannot afford to go to college and whose parents are unable to send them. To these pupils we wish to teach a few of the fundamental principles of agriculture. It cannot be expected that all the students who take this course will be farmers. In the past, the education has always been of things in the city; never once has the attention of the growing boys and girls been directed towards the possibilities and opportunities which the farm holds out to them. It has often been the case that a man in middle life, after making a failure at other occupations, turns back to the farm which he left in the prime of his life and finds that here he gets greater returns for his labor than at any other work. In all probabilities, had an agricultural course been offered him in school he would have seen the opportunities of the farm and not spent half his life at other vocations. We do not wish to neglect the most important of all sciences and thus turn the country boy away from his natural home and the scenes which he holds dear.

The purpose of the writer is to correct the popular idea concerning the motives for establishing a course in agri-

culture in the high school, and to enumerate some of the many advantages which are to be derived from such a course.

We are all more or less related to the

everyday life afford. For instance, every boy on the farm or in the city has seen a potato and can recognize one when he sees it, but as to describing it definitely, I will wager that nine out of ten would be unable to do it. How many boys or girls can answer these questions: 1. Is the potato a root or a stem? 2. To what, on a tree, do the eyes correspond? 3. Do leaves ever grow directly from the tuber?

We shall treat the word value with regard to two different meanings. First and foremost, we shall consider the val-

everyday life afford. For instance, every boy on the farm or in the city has seen a potato and can recognize one when he sees it, but as to describing it definitely, I will wager that nine out of ten would be unable to do it. How many boys or girls can answer these questions: 1. Is the potato a root or a stem? 2. To what, on a tree, do the eyes correspond? 3. Do leaves ever grow directly from the tuber?

Of course, everyone, as soon as he notices a potato closely, will be able to answer the above questions. We readily see that such a study teaches the pupil to be observant, and were this the only object sought it would be a worthy one. But it is only one of a number of equally good ones.

Agriculture presents practical problems. This sort of mathematics is the one which appeals to the ordinary boy or girl. As a rule we are attracted more by things which we can see than by those which are vague and hazy. Take, for instance, a problem in corn harvesting and, with figures, show which one of several methods practiced in the cheapest. From experience I find that such a problem attracts a great deal of interest and that it is solved with a will. Problems in algebra and arithmetic are not solved with the same interest which marks the solution of a practical farm problem.

Again, the farmer in his daily life is coming into contact with new problems to which he cannot apply any hard and fast rules. For example, a student finds that it costs more to fence a long field than a square one containing the same acreage. He also finds that it takes less time to till the oblong field. The question is, will the extra cost of the fence be compensated for by the time gained? Everyone must solve his own problems and act accordingly. This calls forth a great deal of ingenuity at times.

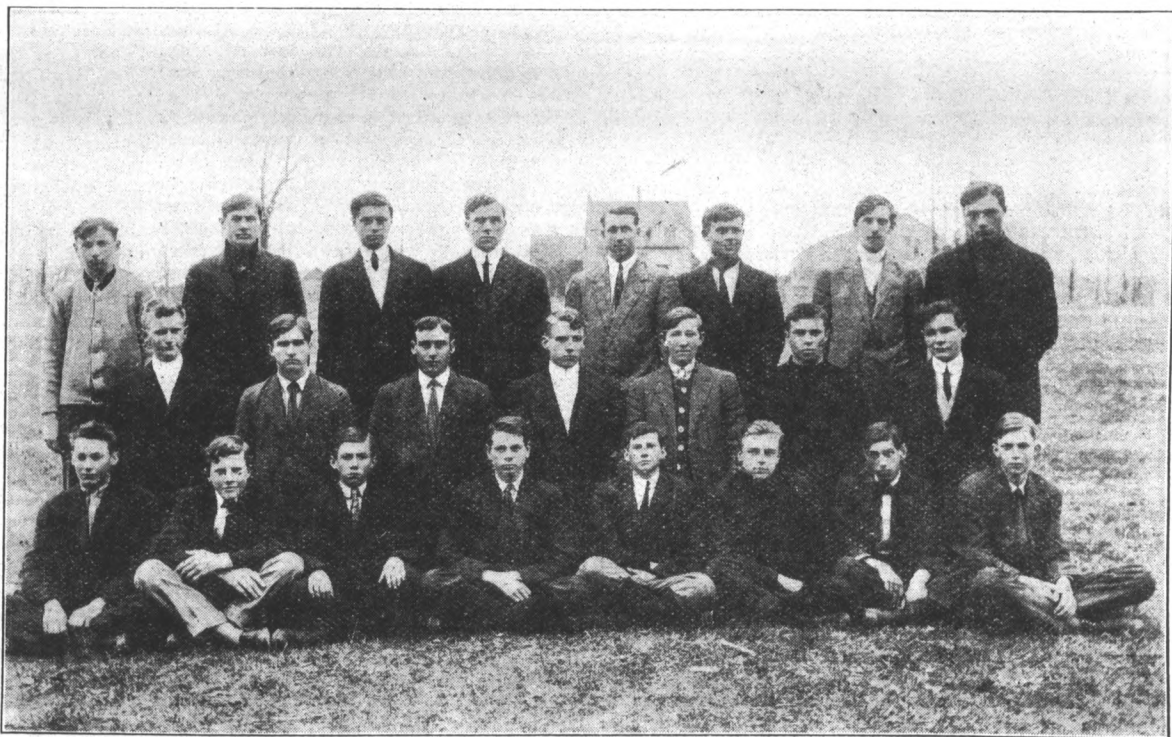
Some will say, what will you do with the student who has exceptional talent for other things? Some pupils are very apt at mechanical drawing. If so, the problems of drawing plans for barns, houses, and farms will interest them. Do not misunderstand me when I say drawings. By that I mean plans which are dimensioned and finished nicely. In our agricultural laboratory we have some mechanical drawings which will rank very favorably with those of professional architects.

Perhaps other pupils enjoy working with machinery and are naturally inclined towards mechanics. If such is the case



FARM CROPS CLASS IN NORTHVILLE (WAYNE COUNTY) HIGH SCHOOL.

Reading from left to right the members are: Reid Stimpson, Howard Whipple, Don Yerkes, Fred Taft, Walter Thompson, Harold Kellogg, Leo Des Autels, Charles Mundy, Carl Van Valkenburg, Vine Yerkes, Katie White, Hattie Pagel, Prof. Wells Pratchner.



MEMBERS OF AGRICULTURAL CLASS IN FLUSHING HIGH SCHOOL.

First row, reading from left to right.—Ross Hallack, Geo. Petherbridge, Geo. Miller, Bruce Martin, Laverne Sanborn, Wendell Dubbs, Will Hand, Paul Marshall. Second row.—Harry Rowe, Glenn Rhodes, Charles Bowers, Will Wolfe, Paul Ensign, Roswell Mulkins, Leo Waite. Third row.—Bertie Mears, Milton Freeman, Earl Swain, Mr. Mathews (principal), Earl Wood, Oscar Stevens, Ivan Fuller, Leon Parsell.

for the business man and the laborer; to the same extent, dull times for the farmer mean equally dull times for the merchant and the worker. No other one industry yields such a great influence, and since this one occupation rules the world, in a sense, we appeal to the readers and are sure that, in view of these facts, the study of so important a science

Any study which appeals strongly to the student must embody those things which are common to him in his everyday life. When he discovers, at the age of sixteen, that an object which he has seen all his life has something new for him, then he is in a position to learn. His curiosity is aroused and he sees the opportunity for study which the things of

say drawings. By that I mean plans which are dimensioned and finished nicely. In our agricultural laboratory we have some mechanical drawings which will rank very favorably with those of professional architects. Perhaps other pupils enjoy working with machinery and are naturally inclined towards mechanics. If such is the case

these students find an opening for their genius in the study of farm motors and farm machinery. The agricultural course offers something which will interest scholars having exceptional talents along nearly all lines.

We have seen the value of a course in farming to the student; now let us see if it benefits the school at large. Such a study cannot fail to attract the brightest boys and girls from the country and, in so doing, the intellectual standard of the school is raised, making an added reason. The course also presents an added list of electives.

There are, however, two other good reasons which should influence school boards to adopt this course. In the first place, the cost of equipment for an agricultural laboratory is very cheap when compared with the cost of apparatus for other courses. Twenty-five dollars worth of materials will start an agricultural course very nicely, and this will include a Babcock tester, soil thermometers, etc. Manufacturers are willing and glad of the opportunity of sending samples of their products to schools where practical farming is taught.

The course is being boomed all over the country and at present the only disadvantages are that universities will not accept agricultural credits, and that there are no texts which meet the demands. The study is equally as educative for girls as for boys, and most of the subjects are elective for both.

From the reasons given above, I am sure that all thinking people will agree that the study of the science of agriculture should occupy a prominent position in the high school.

The above excellent article by Principal Mathews, of the high school at Flushing, Genesee county, was accompanied by the photograph of the agricultural class which is reproduced upon the preceding page. In connection with it we are reproducing a photograph of the farm crops class at Northville, another of the very progressive high schools of this state. Northville high school has provided a complete and thorough four-year course in agriculture. Although secondary in purpose, a high standard of scholarship is maintained and the work done is in many cases equal to that done by college students. This course has seemed to appeal to those from the city as well as those from the country and is popular with the girls as well as the boys.

An essay contest was a feature of the world of the farm crops class during the last term of the school year just closed. The first prize was awarded to Walter Thompson, whose subject was "Cotton." Second prize went to Don Yerkes who wrote on "Cabbage," and third to Leo Des Autell who chose "Oats" for his subject. For copies of these essays, as well as the photograph referred to above, we are indebted to our Wayne county correspondent, Mr. N. A. Clapp, and we take pleasure in giving space to Walter Thompson's prize-winning production on "Cotton," which follows:

Cotton, one of the most valuable and useful crops of the world, is supposed to have originated in Persia and to have come to America by way of the Bahama Islands.

The earliest notice of cotton was by Herodotus in Persia about 450 B. C., who speaks of the trees there bearing, as their fruit, fleeces more delicate and beautiful than those of sheep. Cotton is not the oldest of the leading fibres, as flax was made into cloth before cotton was cultivated. In 63 B. C. it was first found that cotton could be made into cloth and it was later introduced into Italy and Greece, and is now grown in all of the tropical countries of the world. It is said that cotton cloth of the ancient Hindus has been excelled only by cloth made by modern machinery.

Cotton was also cultivated and used in making cloth by the Mexicans before the discovery of America by Columbus, who found it growing on the island of San Salvador. The first experiment in cotton growing in United States was made by the Pilgrims in 1621, and the success of the crop caused many to engage in its cultivation.

In 1791 two million pounds were grown in the United States, three-fourths of which was grown in South Carolina, and today the cotton growing states of the United States produce more cotton for their area than any other country in the world.

There are many varieties of cotton as a result of cultivation. There are cotton trees in Asia which live for a number of years, but only annual varieties can be grown in America. Plants in the United

States grow to a height of about three feet and are shaped somewhat like a young apple tree. The plants are grown from seed which is sown in rows, about five feet apart and two feet in the drill, by planters which are made for that purpose.

The seed is planted in March and by the first of July most of the plants are in bloom. The blossoms produce pods in which the cotton and cotton seed are contained. On maturing, the pods burst open, revealing a white woolly boll of cotton. When picked the cotton is attached to the seed, which must be removed before it can be used. The picking season begins in September and generally lasts until December.

Cotton is so light that a pound, when spun, is said to have been made to reach a distance of 1,260 miles. After the seed are removed from the cotton it is baled and sent to the factories, and the seeds are ground and used for dairy food. The hulls are put back on the land for fertilizer. The seed used for planting is imported.

Cotton can be grown only in warm countries that have at least eight months of freedom from frost. It requires a warm rainy spring to produce strong plants, a hot summer with occasional rains to mature the bolls, and a dry fall giving full time to harvest the crop. Rich sandy loam is the best soil for cotton, as the plants develop more rapidly than on clay or gravelly soils.

Cotton as a general thing is grown on the same land for four or five years in succession and therefore requires much fertilizer to keep up the soil. An acre of cotton removes from the soil in one season about 26½ lbs. of chemical salts, containing 9 lbs. of potash, 9 lbs. of phosphoric acid, 5½ lbs. of magnesia and 3 lbs. of lime. Fertilizers that contain a high per cent of phosphates, potash, and sulphuric acid are used.

The cotton boll weevil is about the only pest encountered in cotton growing. It does much damage by working in the bolls and making the crop unfit for use. This pest can be prevented by early planting, and by burning the dead plants in the fall, as they harbor in the stalks.

THE RIVAL POETS OF CLIMAX CITY.

BY ELLA M. ROGERS.

"Miss Minturn," began Mrs. Anderson to her summer boarder, "I haven't ever told you about the poetical contest we had here winter before last. It was the best thing we've had in Climax City for a good many years—I don't know but it was the best thing we've ever had here.

"I'll have to begin back a ways, so as to make it all clear to you.

"Three or four years ago, an original poem came out in the Weekly Palladium. I've forgotten just what it was about, but it was signed Sibyllina-on-the-Heights. I'd ought to have explained to you before that we have two papers here, The Palladium, Mr. Mountmore's paper, and The Live Wire, which is owned and run by Sam Maxwell. The Palladium's a good sort of paper, but it's awfully dignified and dry; the Wire is more interesting and spicy.

"Mr. Mountmore lives on The Bluffs with the rest of the aristocracy, or those that consider themselves the aristocracy, of Climax, and he takes their side of everything and speaks of us poorer folks, that live down here on The Flats along the river, in a patronizing way as 'the laboring classes' or 'the lower element of society.' Sam belongs to 'the plain common people' and he isn't a shamed to stick up for us.

When that poem came out, Mr. Mountmore made a big flourish over it, and, of course, it was the first thing of the kind there ever had been here. We wondered what Sam would do to get even; but, sure enough, in his next paper, right on the front page, there was a poem about three times as long as the one in The Palladium. It was 'Written specially for The Wire,' and was signed 'Valley Bell.' "Sibyllina had some of her verses in the next Palladium, and Valley Bell more of hers in the next Wire, and so it went. Almost every issue of The Palladium had its 'poem from the pen of our valued contributor, Sibyllina-on-the-Heights,' while The Wire was sure to contain its 'ripple of real song from our peerless warbler, Valley Bell.'

"The two editors always take the opposite sides of every question and watch each other like hawks. The poets did somewhat the same way, only their fighting was all in rhyme and had a kind of feminine touch to it. I remember just after the monument was erected to Carlton Wright, the wealthiest citizen Climax

ever had, and quite benevolent, for he gave the money to build The Old People's Home—well, Sibyllina wrote an ode about it, and she happened to put in the line, 'And freely pour the flowing bowl.' I really don't suppose she meant a thing out of the way, but Sam saw his chance. I'll read you what he said about it." Mrs. Anderson here produced a bulging scrap-book.

"This is another sad yet unmistakable evidence of the dissipation, profligacy, and utter moral corruption of that entire portion of our city that is represented by our smug contemporary, The Palladium."

"Mr. Mountmore tried to explain." Again, Mrs. Anderson referred to her scrap-book. "The line whose true meaning has so viciously been misconstrued, was merely a slip of the poetic imagination. We insisted upon having something regarding the occasion from the gifted pen of Sibyllina-on-the-Heights, and in great haste she dashed off this ode, which really is a matchless gem. As is well known, the author is a member in good standing and a tireless worker in our W. C. T. U., and only a mind traveling in the narrow and circumscribed orbit in which the Editor's of The Wire is known to move, would think of interpreting a beautiful poetic figure with such groveling literalness."

"This didn't head off Valley Bell. She was right out with a poem called 'The Flowing Bowl.' Here it is:

"Young man your appetite control,
When tempted by the flowing bowl
And ere you taste it, stop and think
'Tis vastly better not to drink."

"Prisons and jails would empty be,
If none e'er went upon a spree,
Nor need police our streets patrol,
If 'twere not for the flowing bowl!"

"The girls hadn't written long before everybody knew who they were. Valley Bell was Kate Conover, whose father is an engineer in the big mill. Kate was good-sized and a little inclined to be heavy, and a real nice jolly girl. She was past thirty even then. Sibyllina was Ophelia Manning, and she was, and of course still is, several years older than Kate. She's tall and slim and bony-like, and wears eye-glasses. She's kept all the airs she got when she went away to boarding-school twenty years ago, so she's become kind of tiresome and ridiculous to most folks. The Mannings always have carried their heads high, and they have plenty of money; so when Ophelia went into poetry she didn't have to do much else. She took 'her art' as she called it, seriously, I can tell you. If you went by the Manning house in the summer-time, you'd be likely to see her out on the veranda, with her book of synonyms and a rhyming dictionary at her elbow, struggling away for dear life on some ballad or sonnet or what-not she'd be trying to get up. And she always was reading what she'd written, and talking about dactyls and spondees and heroic verse and a lot of things that were Greek to nineteen people out of every twenty. I was there at Manning's sewing once, and, at supper, Ophelia complained of being very tired; she'd been at work all day 'on a little trifle in anapaestic hexameter.' She always found 'the anapaestic especially difficult.'

"Valley Bell wrote what she had to say right out straight and plain, and she'd get along about four times as fast as Sibyllina without making half the fuss. And land sakes! I never could see but her poetry was every bit as good, in fact, better; for what good will poetry do if you can't for the life of you tell what it means?"

"Just no good at all," acquiesced the amiable summer boarder.

"Those two girls always tried to make out they were great friends and passed off their newspaper controversies as a huge joke. But when they were going around with locked arms, they really felt like jabbing each other, not on account of their poetry but on account of Nat Corliss."

"Nat waited on both the girls a whole lot, off and on. First, it would be Ophelia he'd go with steady for quite a while. Then, that would all be broken off and Nat would be Kate's company. Nat's a good-looking fellow and very agreeable, and always had a wonderfully taking way with him, especially with women folks."

"Finally, after he'd been devoting himself to Ophelia an unusually long time, all of a sudden he quit going there. Ophelia's friends said that she'd refused him for good and all, and she carried that impression herself; but the people on The Flats said that Nat just got tired of her everlasting airs and jilted her. Of course, he again began going with Kate. This was about the time Mrs. Doc. Camp-

bell began getting up that great poetical contest I started to tell you about.

"Mrs. Campbell and the Doctor are different from other people here in Climax, that is, both sides claim them. She was an Overton, and the Overtons are one of the oldest families on The Bluffs. The Doctor was a Flats boy, who worked his own way through school. He made a great success in his practice right from the start, and the swiftest folks in town are glad to employ him. Ten years ago he married Jeannette Overton."

"Every year, Mrs. Campbell gets up some kind of an entertainment for the benefit of The Old People's Home. Winter before last they needed more money at The Home than usual; so, as one feature of the entertainment, there was to be 'A Grand Poetical Contest.' That was the way it was put on the bills. I don't know where Mrs. Campbell ever got the idea; but it took wonderfully."

"An hour's time was to be allowed for the composition of original poems, which must be written right then and there. The poems were to be read and then the audience would decide by vote which contestant should get the gold medal. Anyone could enter that wanted to; but it was plain from the first that the whole fight would be between Sibyllina and Valley Bell. The Bluffs people all would vote for Sibyllina, and the Flats were solid for Valley Bell, regardless of the merits of their respective poems."

"Mrs. Campbell sent four or five girls out with tickets, and she was just scared at the way they sold. When she saw how terribly in earnest each side was to win out, she feared that the plan she had intended should just awaken interest and make a little fun, would be the cause of bitter contention and strife. But the entertainment was advertised, so she couldn't back down."

"A ticket was bought for every man, woman, and child in Climax City, even for babies less than three weeks old. You see, children under ten could be voted by their parents. For Uncle Tom and Aunt Polly Edmundson, they're town charges, and for the Widow Axton and her three boys, the rest of us Flats folks clubbed together and paid for their tickets. The Doctor and Mrs. Campbell bought tickets; but, seeing she was getting up the show, they weren't going to vote. Sibyllina and Valley Bell arranged to vote for each other. Everybody else in town lined up strong on one side or the other."

"The girls who sold the tickets kept count of who was going to vote for which candidate, and the day before the entertainment was to come off at night, they figured up and found the two sides were just even. It wasn't any use to try to sell tickets to outsiders, for it was one of the rules that only residents could vote. There were no more residents to sell tickets to, so the girls had to stop selling. It got around town before dark that there was going to be a tie, and we all went to the opera-house supposing that was the way it was going to come out. That house was packed and jammed; there was hardly standing room, and not a soul there knew the tie would be broken but Mrs. Campbell. The Doctor knew, of course; but he had been called into the country. Jennie Kittridge might have known, only she never could put two and two together."

"Each side had hopes that someone on the other side would be unavoidably detained at home. I had thought of the Widow Plympton; she lives on The Bluffs, and she's awfully subject to sudden sick spells. I don't bear the widow any ill will; but, if she had to have a spell anyway, I couldn't see why it mightn't just as well come that night. We people on The Flats had tried so hard it seemed as if we'd ought to come out ahead. But the Widow was there in the front row of seats, rather pale and all propped up with pillows, but there."

"The first part of the entertainment was a musicale rendered by local talent. Then, the participants in the poetical contest withdrew to a room back of the stage, where they could have it quiet, there being two custodians with them to make sure that neither one received any help. They were given the topic, 'Memories,' to write on. Judge Macey had been blindfolded and drew this one from a whole hatful of topics furnished by the audience."

"While the poets were writing, a short drama was played on the stage. Every one tried to give it respectful attention; but, in reality, we all were waiting to hear the poems read and vote on the candidates."

"When the time was up and they came
(Continued on page 10).

A SAFE AND SANE FOURTH.

BY EDGAR WHITE.

The Hon. Thomas Bledsoe, candidate for re-election to congress from the Second District, was confronted by a disagreeable task. The committee of arrangements for the Fourth of July celebration over at River Bend Heights had put him on the program, and notified him afterwards. He had no chance to escape without offending a community where he would need votes—need them badly since John Hassett, the clever young lawyer of Sunnydale, had come out against him.

"If it were anything on earth but a Fourth of July speech," he groaned, "how glad I'd be to go! But what is there left to say on such an occasion?"

Mr. Bledsoe was a short, ruddy-faced man, with sparkling blue eyes and a thick head of wavy, grandfatherly hair. In his college days he had been a catcher of distinction, and was the best thrower to second base the team ever had. He would rather attend a base ball

humor of it was that the fledgling would think it was all original.

Bah! Why couldn't they cut out the speeches and have a Fourth of July celebration where a sane man could sit in the shade and enjoy himself? Who in thunder wanted to hear a speech on a hot day?

But when a man's running for congress conventionality cannot be set aside, Mr. Bledsoe reflected. That speech had to be made and he might as well accept that miserable fact. I don't want you to gather from all this that Mr. Bledsoe wasn't a patriot. Not at all! Patriotism was his best hold. He was a lineal descendant of a lot of Revolutionary heroes, and his sire was a fighting man on Sherman's march to the sea. Had he been a few years older, Mr. Bledsoe junior would have marched with his blue-coated sire. He did try to get in by yarning about his age, but the mustering officer smiled sympathetically and sent him home.

The only aversion to making a Fourth

happy, laughing crowd! Mr. Bledsoe had sinned away his day of grace and was like the virgins who had come to the wedding without any oil in their lamps. Somebody was looking over a poster announcing the meeting. Bledsoe read his own name—he couldn't help but see it—in big wood letters stretching clear across the sheet. He shuddered. They were advertising him as the lion of the occasion, and he hadn't a thing to say—not a thing! Experienced as he was in talking, he knew the fatal result of attempting to make a speech without previous preparation. He had heard self-complacent spellbinders boast of their ability to go ahead and rely on the crowd for their inspiration, but he had observed that such speakers rarely interested their audiences.

Well, there was only one thing to do. To reach back into his memory and drag out one of those old, moth-eaten—

"River Bend!"

With sharp emphasis the porter announced the station. A flutter of excitement, of pleasant anticipation, swept over the crowded coach. The band was loudly playing something on the depot platform. A line of hacks and autos was waiting to take the visitors "right out to the grounds!" Everybody was rushing about and busy about something or other. Flags floated from windows, balconies and staffs. Every vehicle was decorated with bunting and flowers.

"Come right this way, Colonel! We got a car for you!"

Big Joe Billings and Jack Foster of the arrangement committee each grasped an arm of the congressman and hustled him into the panting car. With them he was still a lion, because they were unaware that he hadn't his speech ready. Nobody seemed to be there to meet Hassett, who had a speech, a speech full of flowers and rippling waters, of booming canno, of smoke and of glory, and a final rhapsody of the most gorgeous fireworks that were ever released to the delighted gaze of the multitude!

What an irony of circumstances!

As the little car growled its way over the uneven streets to the hotel, Billings and Foster gleefully pointed to the enormous crowd that had come in, and told how well things were shaping up for the biggest celebration that was ever held in the county. They said there were five bands, a drum and fife corps, a pair of wire rope walkers and that there would be a big—everything was "big"—balloon ascension after the ball game between the River Bend Tigers and the Flat Bottom Indians.

For an instant the congressman's blue eyes lighted up, but when he reflected that he would be sitting on a rickety platform of borrowed timbers listening to some white-clad and beribboned maiden reading the Declaration of Independence, or to that fresh young Hassett thundering out his speech on Bunker Hill and the Siege of Yorktown, or else in front reeling off his own ancient effort, his face resumed its gloomy expression and he made no observation to his friends' enthusiastic description. In the crowded office of the little hotel Bledsoe turned to Billings and Foster and said, with strange solemnity: "Men, can I talk with you in a room all to ourselves a minute?"

"Sure, you can, Colonel," said Billings;

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GRANDFATHER'S FOURTH OF JULY.

BY MILDRED M. NORTH.

A tired little boy when the Fourth was done leaned over his grandfather's knee saying, "Grandpa, did you have Fourth of July, when you was a kid like me?" "Fourth of July when I was a kid? Well, I guess we did have, sonny, 'Fourth I wasn't ever called a 'kid' and to me it's rather funny. When I was a youngster the boys were 'lads' or 'sprouts,' or 'little shavers,' or 'tads,' or maybe 'tykes,' or 'limbs' if we were bad behaviorers. We had a variety then in names, and words for boys a-plenty. But now it's 'kids' and 'kids' and 'kids' from babies up to twenty. We had more fun with our crackers then, a hollow log and some powder. Than most folks seem to now-a-days, tho' they can make noise that's louder.

"Tell you about the things we did? I'm seventy come December, it must be sixty years ago—that Fourth I well remember. We had a procession and a band, a fife and drum and fiddle. The fiddle and fife played the tune each side, the drum kept time in the middle. 'Twas Yankee Doodle, the tune they played, and we youngsters marched our best. We were barefoot, too, I recollect, but I had a bran new vest. It was made of print like mother's dress, but never a vest I've had. Seemed half as fine as that calico vest I wore when a little lad.

"And Aunt Polly Webb made a pyramid cake, compounded with curious arts, And covered over the whole outside with sugar and candy hearts. I wouldn't undertake to tell the eggs it took to make it. Nor the number of pans she put it in, nor the hours it took to bake it. Aunt Polly had never a child of her own, and boys were her distraction; She watched that cake with a jealous eye, lest we get the smallest fraction. Job Peters drove his big ox team—Big Brindle and Old Reddy—Aunt Polly sat in state up front with her cake on a stool held steady. They drove to the grove by the log schoolhouse and there we had our speeches, Where seats and tables had been fixed out under the spreading beeches.

"Then dinner came, and we youngsters ate, as youngsters always do, And then Aunt Polly cut her cake when we were almost through. 'Twas a fortunate thing we'd had our fill of things of our mother's making. For the cake was spoiled by the heat and damp and, maybe, under-baking. When it was cut 'twould stretch for yards—we lads all found it jolly. But, looking back, I've had time to think and to pity poor Aunt Polly. And when I read of the accidents that the Fourth often makes, I think, 'They've been overdoing things' and made one of Aunt Polly's cakes."

game now than listen to the erupting fountains of wisdom in the halls of legislation.

But it was written in the fateful book of destiny that he had to make that Fourth of July speech to those farmers and woodsmen about River Bend. Since he started in public life by running for prosecuting attorney, 30 years ago, he had been making Fourth of July speeches.

At first Mr. Bledsoe rather liked it. It was an inspiring theme for discourse—then. He remembered the high-sounding words he had laboriously whacked together for use on the home run.

"Americans all! The followed the old tattered banner to the belching mouth of the British cannon; followed it as bravely and as intrepidly as did those gallant Scottish gentlemen follow the proud heart of Bruce when hurled amid the Moorish cavalry on the sunny hills of Spain!"

That generally fetched 'em, but after his using it several times the school-kids of the district got to quoting it, and they mixed up the Americans and Brits and Moors so badly that it was quite the reverse from a patriotic declaration.

But Mr. Bledsoe wasn't confined to one speech. He had dozens of others, all on the same subject. Some he had "tried out" four or five times, in different sections. Now he was all in. He couldn't think of another thing to say. To give an encore performance from his shopworn stock would hardly do. Every man, woman and child in the district had seen the goods on hand. He must think up something new. When he started for the train to River Bend no idea had come—not the ghost of an inspiration! The thought that young Hassett would be there bursting with eagerness to orate was maddening. He wouldn't have any trouble about having something to say. He would paw the air for an hour or two, shouting about "our glorious land of freedom," "the proud banner that rules on land and sea" and shake every feather loose from the screaming eagle's tail, just as if the same thing had not been done all over the country forty 'leven thousand times before. And the

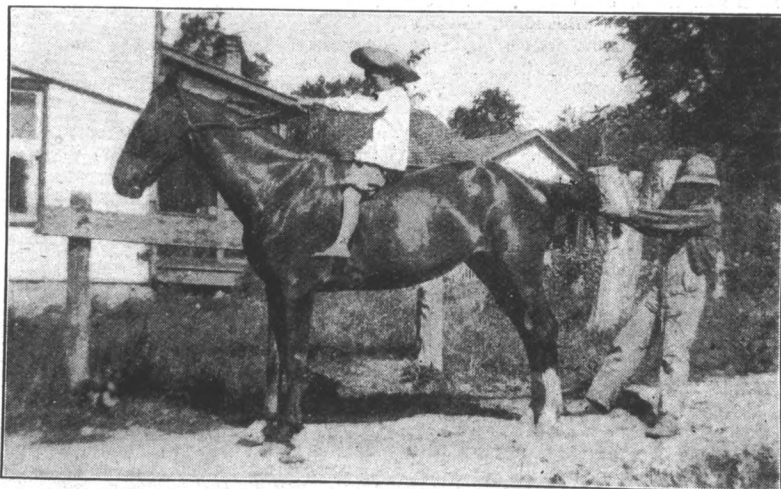
of July speech was that it was too much like the landlady's menu of ham and—the same yesterday, today and forever.

As the train bumped along Mr. Bledsoe raked his brain for a way to treat an old subject from a new viewpoint. A few seats ahead of him was young Hassett, reading the speech he was to deliver. Now and then an exultant smile flitted across the young man's thoughtful face as he recalled something of special weight. Bledsoe knew the symptoms. He had been all along the line.

People soon began trooping into the coaches as the train stopped at a way station—men smiling in spite of the torture of high collars and coats their wives remorselessly forced them to wear; women with babies and baskets, children of all kinds and shapes. No chance to think further about that speech among that

BOYS THAT ARE BOYS.

BY MILLIE G. REILEY.



You may have your boys that are quiet,
Who sit, read or dream all the day.
I do not envy the mother
Of the boys who care not for play.
I want not a yellow-haired angel—
His father's pride, jewel and joy—
But I'll take a rollicking spirit
In a child that is really a boy.

You may have your boys who are sober,
Whose smile is a faint sickly grin,
Whose blouses are always so spotless,
Whose pockets have never things in;
Whose hands are fair as a baby's,
Who never would think to annoy;
You may have your dear little darling,
But I'll take a boy that's a boy.

"here, Jake."—addressing the clerk—"show us a room quick! We want to have a little consultation."

Upstairs, the door securely locked, the congressman made his confession: "Boys" he said, "I'm up against it hard—the worst ever I want to do what's right. Upon my soul I do! It would do my heart good to have given you a lift in your celebration. I've been thinking over it day and night ever since I got your message and I have tried my level best to study up something worthy of the occasion and of your most loyal efforts. But—to make a long story short—I'm pumped clean dry on Fourth of July speeches!"

The awful truth was out! Billings and Foster looked at each other quizzically, and then Billings broke out: "Speech! Why, Colonel, we don't want no speech out o' you!"

"No?" with intense relief.

"Sure not! Think we'd saddle a job o' speech-making on you a hot day like this! No, sir! We think too much o' you. You're here as our guest, and we intend to see that you enjoy yourself. Directly after dinner I'll have the 'honor and pleasure' of introducing young Hassett to the women and children in the town park, and let him orate till the sun goes down, if he wants to. Otherwise we're going to have a 'safe and sane Fourth' just as advertised. While he's spoutin', me and you and Foster will hike out and get some red lemonade."

"And—and can I see the ball game?" asked the congressman, wistfully.

"Well, I reckon," returned Billings. "We got you billed to umpire it. That's what fetched the crowd."

LITTLE FARM FABLES.

BY AUNT QUILLIA.

How Dr. Blindmole Over-reached Himself.

A mole once set himself up as an eye specialist. Some claimed that he had no eyes himself and always spoke of him as Blindmole, while others contended that, although the organs of sight existed they were too deeply imbedded in surrounding tissues to be visible.

Notwithstanding these conflicting and detrimental rumors Blindmole hung out his shingle and proceeded to take in a very comfortable practice.

Up and down the meadows, along the borders of the creek, across the swamp and away out to the gardens of Farmer Woodmasee went the surprising news.

Among those who most rejoiced thereat was Bufo Vulgaris Hopmore. This ponderous name indicated no patrician origin, for Bufo was just a plain, plebeian toad who got his living by helping to clear the grounds of insects.

Of late his impaired vision had caused him much concern. Whereas he once could see a gnat several rods distant, he now could scarcely discern a horsefly at tongue's length, so, hearing of Dr. Blindmole he decided to consult him.

On reaching his office he was received with such an astonishing effusion of professional urbanity and ardent friendliness that all doubts as to his honor and ability—had he possessed any—must have vanished.

Among the first things noted was the doctor's coat, which consisted of very fine fur, but as late fall was approaching and as he had heard that the family were given to soft raiment when they could get it, he never associated the fact with the thought of professional extortion and at once dismissed it from his mind.

Not so easy of disposal, however, was another thing that came under his observation. As the interview progressed he noticed that in no way could he get at the doctor's terms for treatment. No matter how cautiously or how squarely he put the question, the matter of charges was invariably evaded.

While exceedingly verbose as to the nature and cause of all eye ailments, the consequences of neglect, and his methods of treatment, the doctor persistently avoided naming a definite sum for which he would undertake his case.

This, of course, was a matter of supreme importance to Hopmore as his livelihood depended upon his vision and his finances had alarmingly declined on account of its impairment.

Again and again he ventured the question as to the probable cost, but just as often the doctor would smilingly say, "Don't trouble yourself, sir. I am always reasonable. The herbs I use and the spectacles I furnish—double distilled dew lenses, sir—are of the very best quality, but please remember that motto hanging before us. They are the words of a dis-

tinguished oculist: "Eyesight is too precious to be treated with economy."

Failing in all efforts to get a specific sum named, Hopmore was about to leave without ceremony. "Pray be seated, sir," urged the doctor. You now will surely see the necessity of putting your case into my hands. Once more I will enumerate the diseases to which the eye is heir: Long sight, short sight, no sight, granulated balls, high-balls, cataracts, small waterfalls, cross-eye, squint-eye, pink-eye, dry eye, moist eye, weak eye and wall-eye. Your difficulty is wall-eye, the most serious in the whole category. You will require an operation and, of course, an anesthetic. These will cost a trifle, and I may say that my skill is actually thrown in, but please remember, sir, that "Eyesight is too precious to be treated with economy."

Worn out at last with circumlocutions and evasions which invariably ended with the words of the motto, Hopmore resolutely made for the door, remarking between jumps, "Yes, eyesight is too precious to be treated with economy, and I will add that money is too precious to be treated without it."

THE RIVAL POETS OF CLIMAX CITY.

(Continued from page 8).

back, Sibyllina, being the older, read first."

Mrs. Anderson again turned to the scrap-book.

"Ah! 'tis with a hand reluctant that I draw aside the curtain. And glance adown the vista of the years:

As pictures one by one arise before my vision, My heart is very heavy and my eyes bedimmed with tears."

"I won't read the other three verses, for they're in the same strain and rather harrowing to the feelings. She goes on and tells how most of her old school-mates have either died of broken hearts or been drowned at sea. All the Bluffs ladies were quite visibly affected, and Sibyllina's most particular friends mopped their eyes very often with their handkerchiefs.

"Valley Bell's was very different. Here it is:

"Just why it is, no one can tell, But some can not remember well. And he who finds his memory poor, Should try real hard to make a cure.

"Teachers, don't fail to do your part, And make the children learn by heart; For ways they get while they're at school Will stay right by them as a rule."

"There are twenty verses in all. She tells those who run accounts not to forget when pay-day comes; wives should remember to sew on missing buttons and mend their husbands' socks, while husbands should bear in mind about splitting up kindling and ordering soap and flour. There's a lot more, and all just as good and sensible.

"Of course, The Bluffs people tried to applaud Sibyllina in their genteel way; but it was nothing like the rousing round we gave Valley Bell.

"Then, the voting began. It was arranged that each person should go up and register his or her vote; Mrs. Campbell had planned it that way. It did seem a little like viewing the remains at a funeral some way; but it was necessary so's to avoid any duplicating or ballot-box stuffing.

"Jennie Kittridge hurried and got in her vote and told someone that she'd got to rush home so that Jim, who was taking care of the baby, could come over to vote. Then, it was whispered around that the Kittridge baby was sick, and things began to look pretty blue for us folks of The Flats.

"I never saw Nat Corliss so desperate in my life. Commonly, he takes everything very calm and easy; but the beads of sweat just stood out on his forehead. He tiptoed up to Mrs. Campbell and talked with her, low and earnest. I learned afterward what he said.

"Mrs. Campbell, what about that kid of Kittridge's? Is it very sick?"

"Not very sick, Nat; but it's all broken out with measles. The Doctor was called there about five o'clock."

"Couldn't they bundle the little thing up and bring it over just long enough to vote it?"

"I asked the Doctor that, but he just couldn't allow it; measles is so catching. He let Jim and Jennie come, and that was the very best he could do. We feel just awful about it; but I don't see that it can be helped."

"Nat thought a minute.

"Mrs. Campbell, do you suppose it would even things up any for Valley Bell if we were married right here tonight?"

I know she'll be all broken up over Sibyllina's getting the medal. We've been planning to be married the first of next week and I've got the license."

"Why, Nat, it would be just the greatest thing! It would take people so entirely by surprise! It would be the best thing in the whole entertainment. You speak to the minister at once. No; that might set people to guessing. You go back to your seat, I'll speak to the minister."

"When the votes were counted, Sibyllina was one ahead.

"The Reverend Alfred Elliott had only just given the medal to her when Nat walked up to him with Kate, all smiling and happy on his arm, and the good man married them.

"Well, that audience was perfectly thunderstruck at first; but, when they grasped the situation, I never saw anything like it! Both sides were happy and both seemed to think their side had won.

"Elder Elliott has lots of tact, and he made some appropriate remarks, speaking of the lifelong friendship of 'these two dear young ladies,' and told how honored he felt to confer a crown of poesy upon the one, and a crown of wifehood upon the other. And the way he said it, you'd think there wasn't more than fifteen cents difference between the two crowns, and that both the girls had gotten it.

"Of course, The Palladium made a lot of Sibyllina's getting the medal, and called it 'a triumph in the cause of true art,' and said that her poem was 'a perfectly finished production that left few dry eyes in the house.' The only mention made of the wedding was just a little notice in one corner of the paper: 'Married. At the opera-house on Tuesday evening, by the Rev. Alfred Elliott, Kate Conover to Nathan Corliss, both of Climax City. The Palladium extends congratulations.'

"When the Wire came out, an entirely different view was given of the contest. I'll read you what Sam said about it.

"Our peerless songster, Valley Bell, knowing what would be the happy matrimonial termination of the whole affair, could not find it in her heart to accept the boon of poetic victory that rightfully belonged to her; so she had quietly spoken to a large number of her friends, earnestly entreating them, as a personal favor to her, to vote for Sibyllina-on-the-Heights. This wasn't strictly true, for Valley Bell didn't request anybody to vote for Sibyllina—still I've always thought this was real cute of Sam. 'And what gratitude is shown for this delicately thoughtful consideration? We have them beaten to a frazzle, yet they imagine they came out ahead, and keep shouting their idiotic paens of victory.'

"In the next Palladium, with what the editor called 'a queenly condescension,' Sibyllina had a poem entitled 'I Can Not Bear to Say Farewell.'

Mrs. Anderson read:

"Long years, my friend and I in girlish glee,

Together plucked the flowers of poesy. A voice implored me oft, 'Forsake thy art,

At thy proud feet I'd gladly lay this heart.'

I turned a deafened ear, pursued my goal, and now Fame's laurel wreath is resting on my brow.

'Tis meet for me to breathe these upper airs;

I soon should languish, bowed with household cares.

"My friend gave heed unto the voice and fled, Leaving these lofty heights for me alone to tread.

Ah friend! sometimes come back, I miss thee sore, And let us roam together as of yore. We'll pen glad lines in flowing measures free.

And cull again the flowers of poesy."

"Wasn't that nerve for you when she'd have given her eyes to get Nat herself? This is the way Valley Bell answered her:

"A wife should try to do her part, And from her duties never shrink; I simply can't take time to write, I'd get behind with all my work.

"My house must clean and tidy be, And shining like an ocean pearl; I'll do it all myself, for now It costs like fun to keep a girl.

"And if perchance it be my fate To toil for love early and late, Still for the heights of Fame I'll not repine;

Secure within my humble cot, I'm very happy with my lot, I want no single blessedness in mine."

"Ma, do cows and bees go to heaven?"

"Mercy, child, what a question! Why?"

"Cause if they don't, the milk and honey the preacher said was up there must be all canned stuff."

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Woman and Her Needs

At Home and Elsewhere.

OUR PRESENT DUTY.

AH, that I had you yet but for five minutes beside me, to tell you all."—Carlyle.

This has been classed by a famous professor as one of the three most pathetic sentences in our language. And every one who has reached maturity can join in Carlyle's wail and agree with the learned professor. There is not one who has not been parted from a friend, perhaps by death, perhaps simply by stress of circumstances, and who has not felt with the great Scot that trouble could be easily borne if only the friend were here to share it.

And yet, such are the contradictions of our nature, that while the friend was with us he probably had not the slightest knowledge of how much his friendship meant to us. We were so sure of him while he was by our side that we never thought it worth while to let him know how much we valued him. We never told him that his encouraging word raised us from this slough of despond, or that his belief in us prompted us to surmount that obstacle. Perhaps we went even farther than carelessness and covered our feelings with a rough exterior, grumbled at his shortcomings and returned barbed words for his kindly advice. All the while we knew he was the best friend we had, but we were so afraid he would find out that we knew it!

It was only after Carlyle's "Jeannie" was snatched from him by death that he came to a complete realization of what his wife had been to him. After she was gone he could write:

"Cherish what is dearest to you while you have it near you, and wait not until it is far away. Blind and deaf that we are; oh, think, if thou yet love anybody living, wait not till death sweep down the little paltry dust clouds and dissonances of the moment, and all be at last so mournfully clear and beautiful, when it is too late."

The really important things of life are so common we never appreciate them until they are taken from us.

A great friendship, the love of a mother, all are so common, as common as water, air, health, so much a part of us we never rate them at their real value. We have always had mother and friends, we accept them as something that has always been and always will be until some day we awake to feel that a part of us is missing and that part is the dear one we never knew we depended upon until she was gone. Then we realize that the things we worked so hard to get, fame, wealth, power, were after all not one-half so worth having as the things right at hand which we neglected in our effort to get something just out of our reach.

Then it is that we wonder how we could have been so blind, how we could have neglected to enjoy the dear one while she was with us, why we never thought it worth while to let her know she was dear. Then it is we cry, "Oh, that I had you yet but for five minutes to tell you all," and the hopelessness of the lament appeals to us with its full force.

It is not for us to mourn ever. If we have lost the dearest, are there not others who can benefit by our sorrow? Someone we have left who will be happier if we tell her of our love today? The world-old lament must ever be with us, but may it not give us a true appreciation of the friends we have left?

DEBORAH.

FLORAL WORK FOR JULY.

DURING the hot, dry season beginning, most of us will need to use the watering-can in our gardens but woe to the garden where it is used without judgment, for plants are better off without any watering than with just enough to dampen the surface soil. Sprinkling the foliage after sundown to wash the leaves and allow them to drink in what moisture they can will do good rather than harm if care is used to prevent wetting the soil enough to cause the roots to work their way upward.

Roots always work toward moisture, whether above or below them, and those attracted to the surface quickly wilt and burn from the heat of the sun-baked soil while those that remain deeper in the soil can withstand a much longer drought.

If water for the garden must be pumped from well or cistern, see that it is pumped hours before needed and allowed to stand where the sun can take the chill from it. Cold water poured on the soil is better than none but warm water is better for the plants. Pumping water, especially for the garden, will rarely be necessary if the water used in washing, scrubbing and all kinds of housework be saved up. The water from the house is apt to contain soap, ammonia, or something of the sort that is either food or stimulant for the plants, and this is worth considering.

The water that has had first use in the house during the day will give a thorough soaking, that will wet the soil below the deepest roots, to several beds, and these will need no more for a week. Soak as many as possible each evening, taking them in rotation or selecting those that seem to need water most. Do the watering in the evening as evaporation is much less rapid during the night and plants have time to absorb what is given them before they can be robbed of it by the sun.

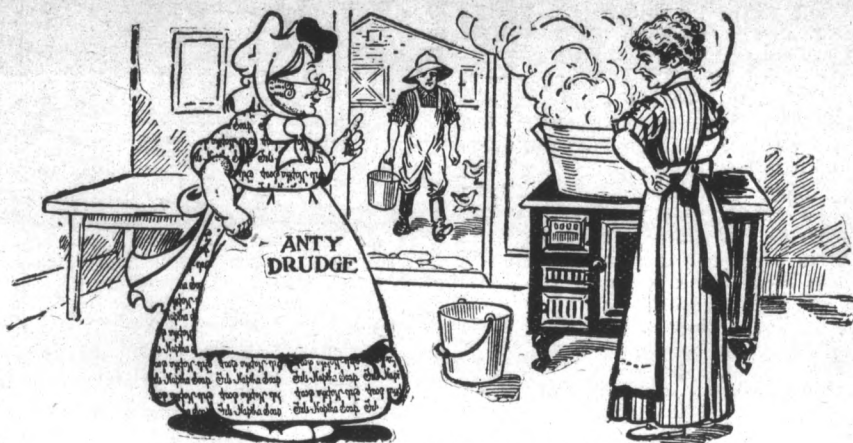
Pansy seed sown before the middle of this month will produce strong plants that will furnish the finest of blossoms during the late fall, up to the time of actual freezing, while seeds sown later in the month, or even until the first of September, will give nice plants that will live over winter if given very light covering, and begin blooming early in the spring. The finest pansies, both as to size and texture, the writer ever has seen, were picked during April and May from plants grown from seed sown during the late summer. If some of these seedlings are taken and planted in a shallow box and kept in a room where the temperature is but a few degrees above freezing fine blooms may be had in mid-winter, but do not expect any good results if the box is kept where it is warm.

Seeds of free-flowering annuals sown this month will furnish fine pot-plants for the early winter display in the window-garden and keep up the succession of bloom during the month or two before forced bulbs and other plants are in exhibition form.

This is the best month, too, for sowing seeds of hardy perennials because the early sowing gives time for the plants to mature sufficiently to go through the first winter in good shape. While they may be sown where the plants will be allowed to stand, they are much less liable to be disturbed when pulling weeds or doing other work if they are sown in a specially prepared seedbed and transplanted to permanent positions early in the spring.

Some growers say to root cuttings of geraniums and other plants in August, but the one who starts them in July will have well established plants ready for blooming about as soon as the outdoor flowers are all gone. In either case, to get the plants to a strong, free-blooming condition it is necessary to keep all flower buds pinched out until the plants are thoroughly rooted and making a vigorous growth. Buds that form on cuttings rarely develop into perfect flowers and letting them exhaust the vitality of the plant in the effort to do so is merely postponing the time when fine blooms can be produced.

Those who prize the beautiful white lilies that appear in June should order bulbs this month and get them planted as soon as possible. This lily is sometimes called the Madonna lily but is known to florists as *Lilium Candidum* and should be ordered by that name. The bulb will, soon after planting, send up a crown of foliage that will remain green through the winter and the early planting is necessary to allow the leaves to reach full maturity before winter. In the spring the flower-stalk will come up from the center of this crown of foliage. While this lily is perfectly hardy and is usually grown in the garden it may be forced in



Anty Drudge's barn hint

Anty Drudge—"Well, well! Mother Smith, what is the matter? You look as though you had lost your prize chickens."

Mother Smith—"Oh, no! it's not that. When the men wash bandages and stable sheets down at the barn, they come up and bother me for a cake of soap and a bucket of boiling water. I wish to goodness they could do without hot water."

Anty Drudge—"They can. Just give them Fels-Naptha Soap for the barn. They can use that with cool water and the things will wash out clean and sweet."

A wise farmer never overworks his horses. Tired animals lose their efficiency.

Why don't you, Mrs. Farmer, be as wise as your husband? Why do you wear yourself out on washday so that you are unfitted for work during the rest of the week?

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For full particulars, write Fels-Naptha, Philadelphia

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We have had your sewing machine about five years and are well pleased with it. It has never failed to do satisfactory work.—Mrs. A. H. Youngs, R. F. D. No. 4, Alma, Mich.

My daughter has a Michigan Farmer machine—got it about 17 years ago, and she is a dress maker and it has been in use, you might say, constantly and is in good working order at this time and does good work.—Wm. S. Pinney, Durand, Mich.

the house as an Easter (?), lily and is mere apt to prove satisfactory in the hands of an amateur than the true Easter, or Bermuda lily.

July is none too early to begin collecting soil, sand, leafmold and fertilizers for mixing a supply of soil ready for use in potting and re-potting plants and bulbs for the window garden. Prepare more than enough for present needs and keep a boxful ready for any need that may arise during the winter. It will be much easier to prepare a supply of extra fine soil for seed boxes while in the muss than to make a special job of it when needed in February or March. While doing this work be getting a supply of

Keep up the fight with weeds and bugs of all sorts for to do otherwise is to throw away all the care that has been expended on them earlier in the season, as well as to lose our fall display. To quit now is to lose all.

KENSINGTON BAGS.

BY MAE Y. MAHAFFY.

Every season brings a new array of bags for carrying fancy work, etc., and this spring is no exception. The variety is so great that it is a difficult matter to make a selection. There are embroidered, beaded, crocheted, knitted, and unornamented bags of such rich, handsome materials that ornamentation would be altogether superfluous. Among the embroidered three distinct styles are illustrated, either of which may easily be fashioned in a few hours' time, since the designs are not elaborate.

Number one is of black broadcloth, with gold thread couched on to form the decoration. Couching is simply catching the cord down to the material with an over and over stitch of the same or a contrasting color. The shape is the unique feature, since any color, material or trimming may be used. The black bag is, however, especially practical, being well adapted to uses for which brighter color schemes would not be suitable. To carry with a cream colored suit nothing is prettier than a bag of this kind of the same material with silver or gold couching, or with outlining in some daintily colored floss.

The cord and drops are made of the same color as the background. The cord is coiled to form disks where it fastens near the top, and the drops are made of soutache braid sewed round and round a filling of cotton. It is a little easier to handle these if the cotton is first stuffed into an inner lining of muslin of the desired shape. They may be round or oblong, and if one prefers may be crocheted of silk or cotton floss. The bag is lined throughout with fancy silk, and a featherbone is run in the bottom of the lining to prevent sagging.

Cross stitch, seed stitch and outlining are combined to embellish bag number



No. 1.

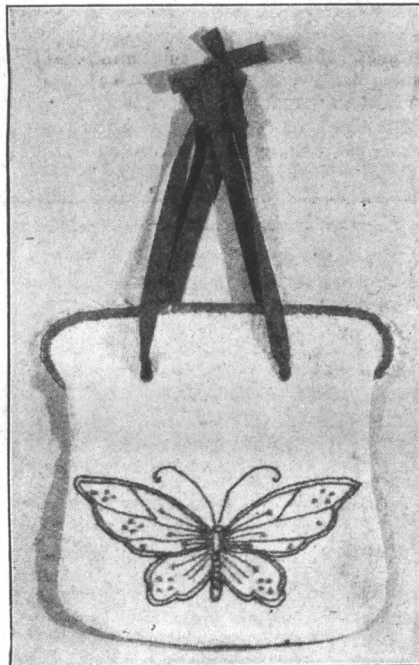
burned bones and charcoal ready for use as drainage material. It is always wise to have a good supply of compost at hand for special purposes that unexpectedly arise.

While much of the work of the month is to be done in the garden the plants in the house cannot be altogether neglected. Most of them will need more and more frequent watering, partly because of the heat and dryness of the atmosphere and partly because the soil is becoming exhausted and less retentive of moisture, while the larger top-growth and greater number of roots demand more moisture. A mulch of pulverized moss, or fine grass clippings from the lawn placed over the soil in pots helps to prevent evaporation and is as much needed as on the garden beds.

Another thing that should be guarded against is the sun shining on sides of pots, especially if it shines through the window-glass. The pots get so hot that the roots of the plant are, literally, cooked. If no other arrangement is practicable slip a folded paper between the pot and the window during the hours it may be needed.

Hanging baskets need especial care as, being exposed to the air on every side, they dry out rapidly, and having many plants crowded together (as they usually do), there is need of much water.

This is a good season for starting the new baskets for winter, and a few suggestions may be a help. In order to support a number of plants the soil should be rich and plans should be made for giving additional plant food as that in the soil is exhausted. Do not fill the basket full of soil. Let there be space in the top where water can stand until it soaks down among the roots. If a common clay pot is sunk in the center of the basket it can be filled with water and will serve the purpose of a reservoir from which the moisture will gradually work down into the very heart of the mass of roots—just where it is most needed.



No. 3.

two, the simple running pattern being carried around front and back of the bag, which is formed of tan linen. The top facing is stitched twice for a draw-string space, and soutache braid forms the double strings. A lining may be used, or just the facing will answer. Black is used for needlework and facing in the bag illustrated, but any color scheme preferred may be followed. Green is pretty on a tan background, with the seed stitches in the leaves made of a little lighter shade. These are merely irregular back stitches.

A butterfly design appears in cut number three, unbleached towelling forming the background. The two parts of the bag are cut with a slightly rounded bottom, and flaring, open top. The top is buttonholed in orange floss. The butterfly is outlined in mahogany floss, with an outer outline of black, and markings of orange and black, French knots being used for the dots, though these may be worked over and over with equal propriety. Eyelets are worked in both sections at either side of the center near the top, through which black ribbon is run.

HUMAN WELFARE QUERIES.

Household Editor:—My brother and I have an argument over which is right, "You hadn't ought," or "You ought not." He says the first is correct? Is it?—Jim.

Ought has no past participle and therefore cannot take the perfect tenses. "You ought not" is right.

Household Editor:—Which is better, white bread or brown, for children?—Mother.

Everything depends upon the child. Brown bread contains more nourishment, but analysis has shown that the body appropriates more nourishment from white, as brown bread is laxative and much of the nourishment is lost. If the child is inclined to be constipated brown bread might be better.

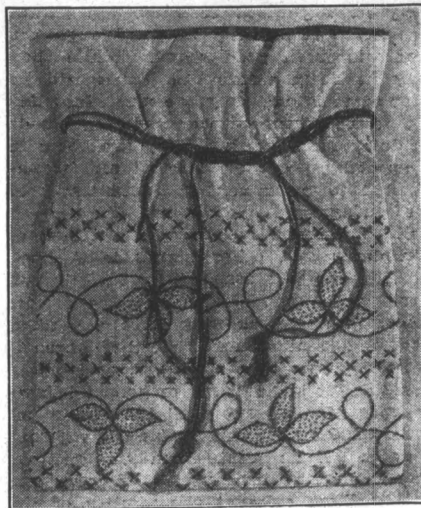
Household Editor:—In the last issue of The Farmer I noticed the inquiry of a "Busy Mother" for a recipe to can pieplant for winter use. I submit my method for your approval. It is time now to put up pieplant while it has its finest flavor and texture. Wash and wipe the stems, strip off the peel as thinly as possible, cut in pieces three-quarters of an inch long, place in a granite or earthen dish, cover well with boiling water in which a teaspoonful of soda has been dissolved (this is enough for two or three quarts of the pieplant). Let stand on the back of the stove for nearly an hour, stirring carefully that every piece may receive the soda bath, but do not boil. Draw off the water and add one teaspoonful of granulated sugar to every quart of sauce and cook for 10 or 15 minutes, then can while hot. When I make my pie I thicken with a tablespoonful of cornstarch or flour, flavor with lemon extract, if liked a beaten egg may be added. I have been making pieplant pies for many years and I must say that I would not enjoy a pie made in the old-fashioned way. I can pieplant now to have it ready for mixing with raspberries and elderberries. It does away with the disagreeable features of both of these berries. The benefit of eating pieplant has not been half told.—L. E. M.

A Pretty Way to Cook an Egg for an Invalid.

Cut a slice of bread and shape it round or in diamond form. Spread lightly with butter, smooth it over with a spoonful of milk or cream. Turn out the white of an egg, leaving the yolk in the shell so it may not be broken. Beat the white until it looks very white and roughs up, then heap it upon the bread, make a hollow in the middle of the top, lay the yolk in this and season lightly with pepper and salt. Place on a tin and bake in the oven until the white is firm. It looks pretty and tastes good. Do not tell the invalid what is coming. It is called Sunshine.—L. E. M.

Household Editor:—In answer to Northern Star, will send in a recipe for buttermilk pie that was handed down from my grandmother:

Two eggs well beaten, three-fourths cup sugar, two spoonfuls flour, one and one-half cups fresh buttermilk, a pinch



No. 2.

of cinnamon or nutmeg. Beat well and pour in crust, sprinkle cinnamon or nutmeg on top and bake until brown. Best eaten fresh.—Mrs. E. A. C.

(Does Mrs. E. A. C. mean two teaspoons of flour, or tablespoon? Thanks are also due Mrs. E. C., of Redford, and Mrs. H. W. R., of Metamora, for pie recipes.—Ed.)

Can someone furnish a recipe for a chowder made of red beets and cabbage? Will appreciate it very much.—Mrs. E. A. C.

Try placing a bunch of cotton or a clean white cloth on top of can of fruit, thoroughly saturating it with juice. It will help to keep fruit nicely.—L. M. L.



Why bother to raise so many "good things" unless—

—Unless you save them. Your wife can "put up" many kinds of fruit. But it isn't so easy to "can" vegetables.

Not—if she depends on old-style, narrow-necked, tin-topped, screw-capped jars, that take in only small fruit. This year find out the better way to "put up" fruit—and vegetables, too—the

E-Z SEAL JARS

This is the all-glass jar, with the all-glass cap—no metal to taint the fruit—no twisting and turning. No shattering, no splattering. Easy to fill, easy to seal, easy to open and clean.

Don't allow good garden stuff or fruit "to go to waste." You may be sure it will keep—vegetables and fruit will not spoil in these air-tight, all-glass sanitary jars.

Free Jar—Free Book

Cut out this coupon, take it to your grocer—he will give you one E-Z Seal Jar—FREE. Be sure and write us for FREE Book of Recipes—it tells many things you should know. Get the Jar from the grocer. Get the Book from us.



HAZEL-ATLAS GLASS COMPANY
Wheeling, W. Va.

1-Qt. E-Z Seal Jar AQ FREE for the Coupon

Please note—in order to secure free jar this coupon must be presented to your dealer before Sept. 1st, 1912, with blank spaces properly filled out.

HAZEL-ATLAS GLASS CO.,
Wheeling, W. Va.

This is to certify, That I have this day received one "Atlas" E-Z Seal Jar Free of all cost and without any obligation on my part. This is the first coupon presented by any member of my family.

Name _____

Address _____

TO THE DEALER:—Present this to jobber from whom you received E-Z Seal Jars. All coupons must be signed by you and returned before Nov. 1st, 1912. DEALER'S CERTIFICATE. This is to certify, that I gave away one "Atlas" E-Z Seal Jar to the person whose signature appears above.

Dealer's Name _____

Address _____

Drink Nature's Tonic

Many drinks have a good taste and a bad effect. The Rootbeer you make from Hire's Household Extract tastes good and does good. There's health and strength in every drop. It agrees with everyone—gives the ruddy skin that betokens pure blood.



is a true tonic. Has no unpleasant reaction—is made of roots, bark, herbs and berries—the simple natural curatives of our hardy ancestors. One package makes 5 gallons. If your grocer isn't supplied, we will mail you a package on receipt of 25c. Please give his name. Write for premium puzzle.

THE CHARLES E. HIRE CO.
229 North Broad St., Philadelphia, Pa.

ROOFING ready to lay, 50c to \$2 for 100 square feet. Free samples.
American Roofing Co., 1224 VanBuren St., Chicago, Ill.

GRANGE

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

THE JULY PROGRAMS.

State Lecturer's Suggestions for First Meeting.

(A Patriotic Program).

Patriotic songs.
Prayer: "For all public officers," by chaplain.
Reading, "Who are the people?" from Ray S. Baker's article in American Magazine.
Song.
Who are "The People?" discussion.
A playlet, "Birth of the National Flag," in charge of Equal Suffrage Committee.
Reading, "Alfalfa."
Discussion, "How shall we insure best crops of alfalfa?"
Patriotic songs.

Suggestions for Second Meeting.

(A Vacation Program).

Song.
Current events in legislative and public affairs, by chairman of Legislative Committee.
Recitations or exercises by children.
If a father gives his 12-year-old son the use of an acre to help with his education, how can the boy best use it? Discussion by two boys, two fathers and two mothers.
Songs by children.
Choice bits of prose and poetry, read or recited by three women.
"Suffrage March," in charge of Equal Suffrage Committee.
Refreshments, gold cake and orangeade.

NATURAL OUTGROWTH OF GRANGE PRACTICES.

Once in a while we are brought so forcefully face to face with the legitimate outcomes of long continued Grange habit of thought or action that it fairly startles us. Two instances of this nature have in recent months been brought to pass by developments of public sentiment.

The first is the response which Grange people are making to the appeals from certain other people for more careful thought to the matter of recreation. Beginning with the needs of congested city districts, definite attention to play has spread to include country districts as well, and grown people as well as children. It may be said to have grown human-wide in its scope and to now embrace the broad social instinct rather than the more limited conception implied by the term "recreations."

For myself, I confess that—doubting Thomas-wise—I anticipated that our Grange people would pay little heed to

both the possibility and the advantage of the holiday for both old and young."

The second instance of power in habit of Grange practice is that of the attitude Grange people are taking toward this question of equal suffrage now before Michigan voters. It appeals to their sense of justice, of possibility and right adjustment of civic affairs. Having lived together in the Grange for forty-five years, it strikes Grange people as only natural that they might work effectively together in national affairs. On every hand committees are being appointed in local Granges, and men and women are together planning for a strong campaign for these principles and this practice which has grown so matter-of-course to them through long usage.

JENNIE BUELL.

AMONG THE LIVE GRANGES.

A Union Meeting of Harris Prairie, Cleveland and Redford Granges was held at Redfield Grange hall early in June with about 100 patrons present. The morning was spent in social intercourse followed by a bounteous dinner served by Redfield Grange. An interesting program, participated in by members of the three Granges, was rendered in the afternoon.

Ionis Pomona held a very successful meeting with Portland Grange on June 20, enjoyable features of which were the excellent dinner and supper served by the sisters of Portland Grange. Among the topics presented and discussed were "Tact and Diplomacy," "Child Study," "Does the Farmer's Wife Receive Her Share of Farm Improvements?" "The Woman and the Ballot," the last named developing unusual interest. Sister Dora Stockman and Bro. B. E. Kies were present in the capacity of state speakers, both of whom gave helpful talks at the evening session, after which a class of 27 was given the fifth degree.

Washington State Grange.—The annual meeting of the State Grange of Washington was held at Puyallup early in June with an attendance which exceeded 500 at some of the sessions. In his annual address State Master Kegley declared that the growth of the order in Washington during the past year had exceeded that of any other year, not so much in the number of new Granges organized as in the matter of additions to those already organized. The history of the year shows 53 subordinate Granges organized, six reorganized and two Pomonas, with a total membership for the state of 17,000. Master Kegley holds that the subordinate Grange is the foundation and basis of all that is worth while in Grange endeavor, and that no amount of energy expended in Pomona, state or national organization can count for effective work without the live subordinate Grange. He declared that one of the first movements after organization by a subordinate Grange should be the building of a hall. It has been, and is now, one of his boasts that no state can show a greater percentage of Grange halls than Washington. It has now over 100

FARMERS' CLUBS

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

Associational Motto.—

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

Associational Sentiment.—

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

THE AMERICAN GOVERNMENT.

Paper read by Valois B. Todd at the March meeting of the North Shade Farmers' Club, of Gratiot county. Published by request of Club.

Conceived in liberty and dedicated to the proposition that all men were created equal, the nation which was brought forth on this continent was a new venture in the manner of government, inasmuch as it was the intention of its founders that it should be a government of the people, by the people, and for the people, and not the subjection of the many for the benefit of the few. It has been the mecca to which the oppressed of many lands have come, imbued with the spirit of liberty. To those whose ambitious aspirations of life were bound down and thwarted by the oppressive governments of the old world, America has meant opportunity and the fulfillment of life's desires.

As we look back at the origin of our nation from the thirteen colonies we notice that its cause was most entirely a matter of principle. Had the taxes which were imposed by the British government been levied by their own colonial assemblies, they would have been paid with only the usual grumbling at taxes. Had the British ministry conceded to their demand for a representative in parliament, there perhaps would have been no revolution or declaration of independence. It was the principle of taxation without representation that brought the colonies in rebellion against the mother country.

It is those fundamental principles of just government as laid down in the preamble of the constitution which we must ever keep uppermost in our minds and foremost in our action and to which all other things must be subordinate. The principles of right and wrong are eternal, they do not change with conditions, latitude or longitude, or the lapse of time. The problems before our nation are many in number and diversified in character. It is not my intention to discuss these various problems in detail. There is the conservation of the natural resources which have been terribly and sometimes wantonly destroyed. The question as to whether this government shall continue in partnership with the liquor business or rather those engaged in it. We have the race problem without any encouraging precedent, for never in all the history of the past have any two races, no matter how similar, lived in the same country on terms of social and political equality, in peace. The question of foreign immigration is one of vital importance. In the last few years the immigrants have greatly increased in numbers and deteriorated in character.

The immigrants of 50 years ago came from northwestern Europe and were composed of the best product of the races of men. They came to this country to establish a home for themselves and their posterity for all time to come. They brought with them a high moral character and intelligence which has given to this nation its high standard of citizenship. They readily accepted the responsibility of the government and the bearing of its burdens. Most of our immigrants of today come from southern and eastern Europe; the former the remnants of an ancient civilization steeped in ignorance, deceit and crime; the latter are of Slavic and Scythic origin, vastly inferior to the Teutonic and Celt. They are flocking to our shores by the millions, bringing as their virtues the blackhand and anarchy. The assassin of McKinley was a sample of many of them. They come here attracted by higher wages to take all the advantages our government affords but not to assume its responsibilities. It may be argued that they are needed to do some classes of work, but they certainly greatly lower our standard of nationality.

The problem of capital and labor is a question which not only confronts this country but nearly every other. What would labor do at building a locomotive or automobile if it had not been for the

brains and genius that invented them. Capital is indispensable in establishing these industries and giving employment to labor, and capital can do nothing without labor. Each is dependent upon the other, but the great contention is, is each receiving its just share of its proceeds? Human nature is never satisfied and it is but the nature of things that capital will employ labor as cheaply as possible, while labor is equally determined to get all it can. The organization of capital and labor seems to cultivate their vices and deaden their virtues. Organized capital takes all the advantage of the protection of the law and yet grows rich and powerful in violation of the law. The organization of labor is necessary to create a balance of power to prevent capital taking an unfair advantage, but organized labor is equally as tyrannical and unjust as capital. As we look over the character of the acts of organized labor, their treacherous schemes, their crimes of violence, their disregard for the laws of the land, their denying to those in no way connected with them the most common and sacred rights of liberty, shows that many of their leaders and those who direct their motives are no respectors of liberty or justice or life. With them the end justifies the means.

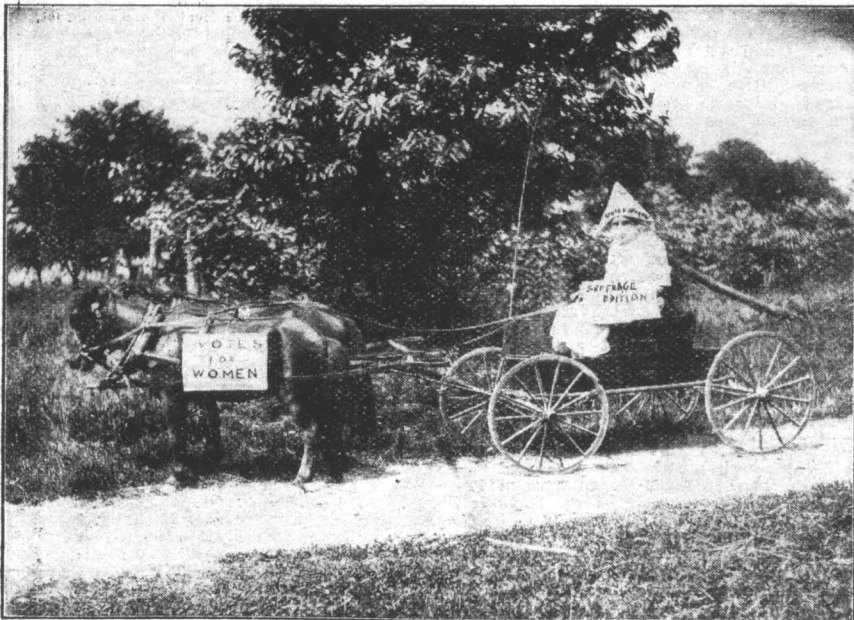
Perhaps the most vital problem before our notice is the maintenance of a true representative government; a republican form of government in spirit as well as in letter. We have long rested comfortably in this country upon the assumption that because our form of government was democratic it was producing automatically democratic results. There is not anything mysteriously potent about the forms and names of democratic institutions that should make them self-operative. Tyranny and oppression are just as possible under democratic forms as any other. We are slow to realize that democracy is a life and involves continual struggle. It is only as those of every generation resist with all their might the encroachments of its enemies that the ideals of representative government can ever be nearly approximated. One form of misrepresentative government which we see a great deal of, particularly in the large cities, is what is commonly called boss rule, the power above the law. Perhaps one of the most prominent examples of this was the rule of Boss Cox, a saloon keeper and gambling house owner who ruled Cincinnati for 20 years with all the absolute power of a federal king. He divided the government between the two parties, a certain per cent to the republicans, a certain per cent to the democrat party. By the operation of a merit system the prizes were distributed to the men who best controlled the voting machinery of both the republican and democratic parties. Elections were a mere mockery. Cox was the appointer of every official from mayor to scrub woman. The courts were his private property. He was the distributor of public money and became many times a millionaire.

(Continued next week.)

CLUB DISCUSSIONS.

Children's Day Meeting.—The Hadley and Elba Farmers' Club was royally entertained at Old Oak, June 20, by Mr. and Mrs. A. L. Brown. A piano solo by Miss Rebe Louks opened the program, followed by the roll call, which was responded to by earliest reminiscences. The program was furnished by the children as this was our annual children's day. Thelma Crankshaw, Ruth Groover, Helen Groover, Leslie Davenport and Gertrude Halpin responded with recitations and were followed by a reading by Mrs. C. A. Bullock. The next meeting will be held at the Hadley Town Hall, July 4. Roll call, name a Michigan governor. A cordial invitation is extended all to meet with us, enjoy the picnic dinner, etc.—Mrs. C. P. Johnson, Cor. Sec.

Ladies' Day.—The Washington Center Farmers' Club held the June meeting with Mr. and Mrs. Campbell at Shadelands, June 13. This was "Ladies' Day" and the meeting was called to order by the vice-president, Mrs. Hill. Reading of minutes was followed by miscellaneous business. It was decided that the members of the Club as far as possible, meet the institute train on the T. S. & M., at Pompeii, June 24. Roll call was responded to by naming a wild flower of Michigan. "Putting up fruit" was the topic for the day. "Rules and suggestions for canning," by Mrs. W. C. Long; "For Preserves," Mrs. S. N. French; "For Jellies," Mrs. O. J. Campbell; "For Pickles," Mrs. Maud Walker. This proved to be both interesting and timely, many new ideas were brought out and suggestions offered. A reading was given by Mrs. W. C. Long and nearly all present joined in a discussion on "Short Cuts in House-keeping." In this discussion some men offered new ideas which will soon be put in operation. What the results will be time alone will tell. After the adjournment supper was served by the hostess. The next meeting will be Children's Day, July 11, at Frank Brown's.



A Madison Grange Rally's "Newsy" and Pomona Master Allis' Team.

the subject of play. But as its fundamental principles have disclosed themselves there has been no mistaking the genuine readiness of many of our people to take the matter up and join others in "thinking it out." This is strikingly shown by the statement of one man, in a discussion recently in a Grange, upon the feasibility of taking a half day off in a rural neighborhood. This man said, "I was put upon the negative side of this question but I cannot talk what I don't believe. For more than thirty years I have belonged to this Grange and have learned to so plan my work that I can lay it aside Saturday afternoon and attend Grange. This I do without loss or detriment to my work. I am, for this reason, most emphatically convinced of

Grange halls and many more in the course of construction. As an example of what can be accomplished, Sylvan Grange, at Edgewater, in Skamania county, was cited. Organized only last August it dedicated a hall in February. Located in a new county and settled by newcomers, who are establishing their own homes in the forest, these loyal patrons went to work as woodsmen and in a short time had a hall which in one of the New England states would not cost less than \$4,500 to \$5,000.

COMING EVENTS.

Pomona Meetings.

Lenawee Co., with Fruit Ridge Grange, Thursday, Aug. 1. J. C. Ketcham, state speaker.

Kent Co., at John Ball park, Wednesday, Aug. 14. Picnic dinner, address by National Grange speaker, and athletic program.

MARKETS

DETROIT WHOLESALE MARKETS.

July, 3, 1912.
Grains and Seeds.

Wheat.—Monday's sharp decline in the wheat market was followed by a good break on Tuesday which resulted from a report of rains in the northwestern wheat fields, thus favoring the development of the crop. This break was, however, checked by reports of rains in the winter wheat harvest fields, so that Tuesday's market closed even with Monday's quotations. Trading was only moderately active and the future of the market is conceded to depend on spring wheat conditions more than any other circumstance, unless a wet harvest season should prevail in the winter wheat sections. News from the Canadian wheat fields is optimistic, due to rains early in the week which benefited the growing crop, as was the case in the Dakotas and Minnesota. Quotations for the week are as follows:

	No. 2	No. 1	July	Sept.
Thursday	1.14	1.12	1.14	1.15
Friday	1.14	1.12	1.14	1.15
Saturday	1.14	1.12	1.14	1.16
Monday	1.12	1.10	1.12	1.15
Tuesday	1.12	1.10	1.12	1.13

Corn.—There has been little doing in this market during the past week and prices have remained fairly steady, closing 1/2c per bu. lower than a week ago. The new crop has not yet reached a stage of growth for weather condition to have any marked effect upon this market. Quotations for the week are as follows:

	No. 3	No. 3
	Corn.	Yellow.
Thursday	77	79
Friday	77 1/2	79 1/2
Saturday	77	79
Monday	76 1/2	78 1/2
Tuesday	76 1/2	78 1/2

Oats.—This market has been an even one during the past week notwithstanding the fact that weather conditions have not been so favorable for the growing crop, except in scattered sections where rains occurred during the week. Increased offerings from the country, however, operated to maintain a practically steady market. Quotations for the week are:

	Standard.	No. 3
		White.
Thursday	55 1/2	55
Friday	56	55 1/2
Saturday	56	55 1/2
Monday	56	55 1/2
Tuesday	55 1/2	55

Beans.—This market has been nominally steady with a drop of 5c on the September option due to the advance of the season. Reports from the country indicate that a great many beans will be planted late. Quotations for the week are:

	Cash	Oct.
Thursday	2.70	2.30
Friday	2.70	2.25
Saturday	2.70	2.25
Monday	2.70	2.25
Tuesday	2.70	2.25

Clover Seed.—This market is inactive at present with nominal quotations prevailing throughout the week as follows:

	Prime Oct.
Thursday	10.00
Friday	10.00
Saturday	10.00
Monday	10.00
Tuesday	10.00

Rye.—Demand very light; market weak and lower, the price being 85c for cash No. 2.

Flour, Feed, Potatoes, Etc.

Flour.—Prices are steady with the trade slow.

Straight	5.60
Patent Michigan	5.80
Clear	5.00
Rye	5.40

Feed.—Market steady at last week's lower range of values. Carlot prices on track are: Bran, \$25 per ton; coarse middlings, \$27; fine middlings, \$30; cracked corn and coarse corn meal, \$34; corn and oat chop, \$32 per ton.

Hay and Straw.—All grades of hay \$1 lower. Wheat and oat straw 50c lower. Quotations: No. 1 timothy, \$21.50@22; No. 2 timothy, \$19@20; clover, mixed, \$18@20; rye straw, \$11@11.50; wheat and oat straw, \$10@10.50 per ton.

Potatoes.—Old stock practically out of the market. New potatoes from the south are quoted at \$3.50@3.75 per bbl.

Provisions.—Family pork, \$19.50@21.50; mess pork, \$20.50; clear, backs, \$19.50@21.50; hams, 14 1/2@15c; briskets, 11 1/2@12c; shoulders, 12c; picnic hams, 10 1/2@11c; bacon, 14@16c; pure lard in tins, 12c; kettle rendered lard, 13c per lb.

Dairy and Poultry Products.

Butter.—This market is showing considerable strength but prices here were not affected by the fractional advance at Elgin on Monday. However, values here have been in advance of Elgin figures for some time. Quotations: Extra creamery, 26 1/2c; first creamery, 25 1/2c; dairy, 21c; packing stock, 19c per lb.

Eggs.—No change to note in this market beyond the fact that candled stock has the call to such an extent that lower grades are not quoted. Current receipts, candled, are quoted at 20c.

Poultry.—Receipts have shown a good increase the past week but the demand has been sufficient to prevent price changes. Quotations: Live—Broilers, 25@28c; chickens, 11@12c; hens, 12@12 1/2c; turkeys, 16@18c; geese, 11@12c; ducks, 14c; young ducks, 15@16c per lb.

Veal.—Steady; fancy, 10@11c per lb; choice, 8@9c per lb.

Cheese.—Steady at last week's advanced values. Michigan flats, 16@17c;

York state, flats, 17@18c; limburger, 17@18c; domestic Swiss, 24@25c; brick cream 17@18c.

Fruits and Vegetables.

Cherries.—Sour are quoted at \$1.25@1.50 per 16-qt. case.

Raspberries.—Prices falling from last week's high mark as the supply increases. Reds now selling at \$3@3.25 per 24-pt. case.

Blackberries.—Very few in the market as yet. Quoted at \$5.25@6.50 per bushel.

Huckleberries.—In light supply and are selling at \$4@4.50 per 24-qt. case.

Gooseberries.—Firm at \$2@2.50 per bu. Honey.—Choice to fancy comb, 15@16c per lb; amber, 12@13c.

Apples.—Scarce and firm. Willow Twig, \$7@7.50 per bbl; Steele Red, \$5.50@6.

OTHER MARKETS.

Grand Rapids.

Local dealers are paying the country shippers 17c for eggs and 21c for dairy butter. Old hay is bringing \$14@16, new hay, \$12@14. Red raspberries are beginning to come, selling on the city market at \$2.50 per crate. Hot, dry weather has cut the strawberry season short and the best berries sold up to \$1.50 Tuesday morning. New peas are worth \$2; new string beans, \$4. Sour cherries are worth \$3 per bu., sweet, \$3.50.

Chicago.

Wheat.—No. 2 red, \$1.07 1/2@1.09 1/2; July \$1.06 1/2; September, \$1.03 1/2.

Corn.—No. 2, 72 1/4@74c; July, 73 1/2c; September, 71 1/4c per bu.

Oats.—No. 2 white, 50@51c; July, 45 1/4c; September, 38 1/4c per bu.

Barley.—Malting grades, 80c@1.10 per bu; feeding, 55@65c.

Butter.—Last week's prices rule. Volume of business moderately good. Quotations: Creameries, 23@25c; dairies, 21@24c per lb.

Eggs.—Market active and firm with top grades showing a gain of 1c; miscellaneous offerings unchanged. Quotations are: Firsts, 18c; ordinary firsts, 16 1/2c; per doz; at mark, cases included, 15 1/2@16 1/2c.

Potatoes.—The season is closed for old stock. New potatoes coming in rapidly from Virginia and market has a weak undertone. Triumphs, 90@95c per bu; Virginia, \$2.85@3 per bbl.

Beans.—Prices remain at last week's figures with business slow. Quotations: Pea beans, choice hand-picked, \$2.92@2.95 per bu; prime, \$2.82 1/2@2.85; red kidneys, \$3.25.

Hay and Straw.—Timothy has suffered another sharp decline, while clover and alfalfa are also considerably lower. Straw slightly lower. Quotations: Timothy, choice, \$19@21; No. 1, \$17@18; No. 2 and No. 1 mixed, \$14@16; clover, \$9@12; No. 2 and no grade, \$5@9; alfalfa, choice \$13.50@14; No. 1, \$11@13; No. 2, \$9@11. Straw—Rye, \$10@11; wheat, \$7.50@8.50; oat, \$7.50@8.50.

New York.

Butter.—Market steady with last week and prices unchanged. Creamery extras, 27@27 1/2c; firsts, 25 1/2@26 1/2c; seconds, 25@25 1/2c.

Eggs.—Market steady with last week, quotations unchanged. Fresh gathered extras, 22@23c; do. extra firsts, 20@21c; firsts, 19@19 1/2c; western gathered whites 22@23c per dozen.

Poultry.—Prices for chickens a little improved. Dressed—Chickens, broilers, 30@35c; fowls, 14 1/2@16c; turkeys, frozen, 16@17c.

Boston.

Wool.—Prices have been firm with a rising tendency in the local wool market the past week. The wool auctions opened in London on Tuesday with a large attendance of buyers. A fair selection of 10,573 bales were offered and met with a keen demand. Merinos and fine crossbreds sold five per cent higher than the last series and crossbreds sold at about the same advance. American buyers paid 7 1/2 per cent higher and occasionally 10 per cent higher for selected half-bloods. Leading local quotations for the week are: Ohio and Pennsylvania fleeces—Delaine washed, 33@35c; XX, 30c; 1/2-blood combing, 29@30c; 3/4-blood combing, 29@30c; 1/4-blood combing, 28@30c; 1/2, 3/4 and 1/4 clothing, 25@26c; delaine unwashed, 28c; fine unwashed, 22@23c. Michigan and New York fleeces—Fine unwashed, 21@22c; delaine unwashed, 24@25c; 1/2-blood unwashed, 27@28c; 3/4-blood unwashed, 28@29c; 1/4-blood, 28@29c; 1/2, 3/4 and 1/4 clothing, 22c.

Elgin.

Butter.—Market is firm at 25 1/2c per lb., which is 1/2c above the quotation of one week ago.

THE LIVE STOCK MARKETS.

Buffalo.

July 1, 1912.

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

Receipts of stock here today as follows: Cattle, 215 cars; hogs, 105 double decks; sheep and lambs, 50 double decks; calves 2,600 head.

With 215 cars of cattle reported on our market here today, and with 21,000 reported in Chicago, we have to quote today one of the worst markets of the season. Cattle of all kinds are much lower; the best light weight cattle, weighing from 1,200 up, are fully 25c per cwt. lower than last Monday, and all other grades are anywhere from 25@40c per cwt. lower. In many instances these grassy cattle weighing 950 to 1,050 are selling 50c per cwt. lower. The best fat bulls, all of 50@75c lower. Fully 25 loads of cattle going over unsold.

We quote: Best 1,400 to 1,600-lb. steers dry-fed, \$8.85@9.25; good prime 1,300 to 1,400-lb. steers, dry-fed, \$8.60@8.85; do. 1,200 to 1,300-lb. do., \$8.25@8.50; medium

butcher steers, 1,000 to 1,100, dry-fed, \$7.75@8.25; best fat cows, dry-fed, \$6@6.40; best fat heifers, dry-fed, \$7.50@8; grass steers, 1,000 to 1,100, \$6@6.75; light grass steers, \$5.25@5.75; best grass cows \$3.50@4.25; grassy butcher cows, \$3.25@3.75; grassy fat heifers, \$5.50@6; grassy butcher heifers and steers mixed, \$6@6.25; trimmers, \$2.50@3; stock heifers, \$3.50@4; best feeding steers, dehorned, \$4.50@5; common feeding steers, \$3.50@4; stockers, inferior, \$3@3.25; prime export bulls, \$6@6.25; best butcher bulls, \$5@5.50; bologna bulls, \$4@4.75; best milkers and springers, \$5@6; fair to good do., \$4@4.50; common kind do., \$25@30.

With 90 cars of hogs on sale, the opening trade was rather slow, with early bids considerably lower than Saturday, but with a fair shipping demand. Packers were forced to buy hogs at higher prices than they expected, paying generally \$7.95 for the best mixed, with a few good weights at \$8; yorkers, \$7.75@7.90; pigs and lights, \$7.40@7.65; roughs, \$3.50@6.85; stags, \$5@6. Buyers discriminating against thin sows; good many here today that were thin in flesh that we were compelled to sell at mean prices.

The lamb market was very dull today; most of the choice spring lambs sold at \$7.75@8, which was a strong \$1.50 per cwt. lower than last Monday, and the same with yearlings; most of the best selling from \$6@6.50. Sheep market was also very dull; prices strong 50c lower than last week. Look for about steady prices on both sheep and lambs the balance of the week.

Choice spring lambs, \$7.75@8; cull to fair do, \$5@7; yearlings lambs, \$6@6.50; bucks, \$2.50@3; wethers, \$5@5.25; handy ewes, \$3.75@4; heavy ewes, \$3.50@3.75; cull sheep, \$2@3; veals, choice to extra, \$8.25@8.50; fair to good do., \$6.50@8.

Chicago.

July 1, 1912.

Cattle. Hogs. Sheep. Received today 21,000 38,000 25,000 Same day last year 10,332 26,782 15,365 Received last week 46,444 137,248 100,693 Same week last year 57,560 132,024 87,654

The event of the lamb market today is the arrival of the first Idaho range lambs of the season, there being six prime double-decks of lambs and three cars of yearlings. At a late hour they were not sold, the demand for lambs being very poor, with packers bidding as much as 25c lower, although they received direct from Louisville only about 2,000 head. One sale of fancy selected spring lambs occurred at \$8.10, but otherwise good to choice lots went at \$7.50@7.75. Sales were made of 600 head of Oregon range wethers at \$5 and of 301 Washington range choice yearlings at \$5.75.

Cattle are selling satisfactorily today so far as fat lots are concerned, with a \$9.60 top, but other kinds are slow and weak to a dime lower. As the Fourth of July will be a close holiday at the stock yards, the week's business in live stock promises to be of small proportions. Hogs are fairly active today at \$7.10@7.65, with one sale reported early at \$7.70. Prices are partly 5c lower. The best 195-lb. hogs are selling close to the top of the market. Hogs received last week averaged 238 lbs., compared with 236 lbs. a week earlier, 235 lbs. a year ago and 240 lbs. two years ago.

Cattle have been headed in two directions lately, the best going a little higher and the poorest going lower, the past week's receipts showing an increasing proportion of common grass steers and cows. Good to strictly prime steers of good weights sold at \$8.80@9.60, and some inferior little grass yearlings brought \$5.75@6, but the latter did not cut much of a figure, the great bulk of the steers bringing \$7.40@9.25. Distillery steers were numerous and sold at \$8@9.50 in most cases, some bringing as low as \$7.60. The top price for steers was the highest by a dime of any witnessed this year. Kansas City and St. Louis have been receiving goodly supplies of Texas grass cattle, and this acted as a bearish influence on common native grassers in all the western markets. Good Chicago cattle receipts Monday and Wednesday last week made further reductions in prices for cattle that were not good and fat, grass-fed and warmed-up lots weakening the most. Demand was much the best for steers selling at \$8.75 and upward, although fat cows and heifers also moved off briskly, fair to prime lots fetching \$4.25@8.75, with not many going above \$8.25, although a sale was made of three head of perfect 1,063-lb. Shorthorn heifers at \$9. Cutters sold at \$3.40@4.20, canners at \$2.40@3.35 and bulls at \$3.60@7. By Wednesday butcher cattle were offered much less freely than a week ago, when the supply was so heavy, and better prices prevailed. There has been more doing in stockers and feeders owing to larger offerings and lower average prices, the former going at \$4@6.20 and the latter at \$5.50@6.75. Calves met with a fairly active demand at \$3.25@8.50 per 100 lbs., and milkers and springers were in better shipping demand at \$35@80 per head, a few fancy Holsteins bringing the top price. General surroundings of the beef cattle market remain pretty much unchanged, except that fat beefs are forming a smaller percentage of the offerings. At the close of the week cattle worth \$8.50 and up were as high as a week earlier, but the \$6.50@8.25 steers were 15@35c lower. Good butcher cattle were 10@25c higher than a week earlier. Stockers and feeders were largely 25@35c lower.

Hogs work lower and then higher, depending largely on the volume of the receipts, with the eastern shipping demand but a small affair as compared with the early part of the year, when eastern packers were taking a big share of the best heavy barrows. Lack of outside competition makes it harder for sellers to maintain prices, and hogs are selling much lower than at the high time last spring. A good many hogs have been

carried over unsold from day to day, and these offerings have added to the existing weakness. More stags and heavy sows are received as the summer advances, and at times pigs are plentiful, selling high or low, depending upon their weight. The aggregate receipts at the leading markets of the country since January 1 show a large increase over a year ago and an enormous gain over the like period two years ago. The worst feature of the hog situation is reports of outbreak of cholera at various points in Iowa and Indiana, forcing a good many pigs and hogs on the market prematurely. Hot weather is here, and big, heavy hogs are bound to sell lower, the demand already being better than it has been for the lighter weights. Many heavy hogs have succumbed in transit to the heat. At the close of the week hogs sold at \$7.15@7.65, compared with \$7.25@7.75 a week earlier. Pigs sold at \$5.50@7.10, stags at \$7.70@8.15 and boars at \$3.25@4.

Sheep and yearlings have not shown up prominently among the recent supplies, spring lambs having comprised the great bulk of the receipts, and a large share comprised consignments forwarded from Louisville direct to the Chicago packers. These lambs were mainly of the better class and continued a factor in fixing prices for native lambs that were offered on the open market. By the middle of last week large numbers of Missouri spring lambs arrived on the market and brought about a sharp decline in prices. Native ewes were offered rather freely, and there was a fair show of bucks, but wethers and yearlings were very scarce. Numerous breeding ewes sold at \$3.50@4.25 per 100 lbs., and some good Indiana and Ohio fed wethers brought \$5, a decline of 35c, while a sale was made of 205 head of two-year-old Missouri-fed wethers that averaged 86 lbs. at \$5.35. Late last week the market went to pieces on big receipts of Missouri spring lambs, and the close saw spring lambs mainly \$1@1.25 per 100 lbs. lower than a week earlier, while sheep and yearlings were off 35@50c. Spring lambs sold at \$4@8.25; dry-fed lambs at \$4@7.15; yearlings at \$5.50@6.75; wethers at \$4@5.15; ewes at \$1.50@4.15 and bucks at \$2.50@3.

Horses sold well so far as the small percentage of good animals was concerned during the past week, with not enough offered, but sales were slow for common horses at weak prices. Farm workers had a poor outlet at \$100@200 per head, and inferior horses were slow of sale around \$85@95, while wagons had a moderate sale around \$175. Light drafters sold moderately around \$175@225, and a much better and heavier class sold on the basis of \$250@325, few selling anywhere near the top price. Some feeders of good to choice quality brought \$200@275, and chunks that weighed from 1,250 to 1,450 lbs. brought \$125@220. Orders for car lots of choice heavy draft mares could not be filled.

LIVE STOCK NOTES.

Word comes from Colorado that the beet acreage is fully a third larger than a year ago, and there will be lots more cattle fed than last year. Most of the cattle on ranges of Colorado and Wyoming are reported in fine condition, and the grass is the best it has been in years, while crop prospects are all that could be desired.

Wyoming advises report there is a shortage of sheep, while grazing is exceptionally fine. There was a poor lambing season, following the severe winter, and the lamb crop is a disappointment. The "O-O" ranch in Texas, comprising 117,000 acres of land, located in Kent county, is to be broken up into small farm tracts. One by one the old ranches are disappearing in this manner.

The following announcement is made: "The Indiana Live Stock Breeders and the Indiana Hereford Breeders' associations will hold a joint mid-summer meeting and annual picnic at Kentland, Ind., at the farm of Mr. Warren T. McCray, president of the first and secretary of the second named association. The date has been set for August 7, and to insure against any malevolence on the part of the weather man, a huge tent will be provided, so that the meeting may be held in comfort, rain or shine."

The Chicago market for milkers and springers of late has varied widely, prices undergoing much larger fluctuations than is customary, but in nearly all instances the fancy class of milch cows, whether Holsteins, Durhams or other popular breeds, commanded strong prices. Eastern orders have been only moderate as a rule, but anything fancy has sold up to \$75 or even higher, a sale now and then taking place at \$80@90. The commoner cows have been neglected invariably, and a good many cows have sold over the scales to killers, prices declining as much as \$5 per head in a single week at times.

Shrewd farmers who are interested in the sheep raising proposition have been picking up some rare bargains at the Chicago stock yards recently, and many Iowa farmers who have plenty of pasture lands that they dislike to see go over with no live stock to eat up the grass, but who feel afraid to pay asking prices for stock or feeder cattle, are looking to sheep as a way out of the difficulty. They have been buying both feeders and breeders, and a particularly strong demand has started up recently for breeding ewes, as well as for feeder sheep and lambs. During the long drouth last summer and the severe winter following stocks of breeding sheep in Iowa were seriously depleted, the dearthness of feed being an important factor in lessening the supplies. In recent weeks the Iowa farmer stockmen have been purchasing in the Chicago market desirable matured breeding ewes at a cost of from \$3.50 to \$4.25 per 100 lbs., and they appeared to be well worth the money. This demand is expected to expand in the near future if supplies continue liberal at low prices.

THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.
July 4, 1912.

Cattle.

Receipts, 1,003. Good grades steady; good butchers active; bulls and common grades dull at last week's decline.

We quote: Extra dry-fed steers and heifers, \$8@8.25; steers and heifers, 1,000 to 1,200, \$6@7; grass steers and heifers, 800 to 1,000, \$4.50@5.50; do. 500 to 700, \$3.75@4.50; choice fat cows, \$4.50; good fat cows, \$3.75@4; common cows, \$3.25@3.75; canners, \$2.60@3; choice heavy bulls, \$4.50@4.75; fair to good bolognas, bulls, \$4.25@4.50; stock bulls, \$3.50@4; choice feeding steers, 800 to 1,000, \$4.50@5; fair feeding steers, 800 to 1,000, \$4@4.50; choice stockers, 500 to 700, \$4.25@4.75; fair stockers, 500 to 700, \$3.75@4; stock heifers, \$3.75@4.25; milkers, large, young, medium age, \$4@6.50; common milkers, \$2@3.50.

Haley & M. sold Kamman 7 butchers av 71 at \$4.35, 6 do av 574 at \$4, 5 cows av 902 at \$4.40; to Bresnahan 1 cow weighing 1,070 at \$3.25, 7 stockers av 600 at \$4, 2 canners av 660 at \$2.60, 1 do weighing 660 at \$2.25, 5 cows av 948 at \$3.35; to Lachalt 2 do av 1,060 at \$4.50, 4 butchers av 830 at \$5.15, 4 do av 800 at \$4.35; to Regan 4 do av 585 at \$4, 2 do av 530 at \$3.80, 3 do av 690 at \$4.25, 1 heifer weighing 650 at \$3.75, 3 do av 463 at \$3.60; to Hammond, S. & Co. 2 do av 915 at \$4.25, 1 do weighing 1,120 at \$4.75, 1 do weighing 1,120 at \$4.25; to Marx 9 steers av 870 at \$5.85; to Applebaum 2 cows av 1,035 at \$3.50; to Sullivan P. Co. 1 heifer weighing 700 at \$5, 1 steer wgh 860 at \$6.25; to Herschleman 5 butchers av 704 at \$4.35, 1 steer weighing 850 at \$6.50, 4 butchers av 875 at \$4.50; to Sullivan P. Co. 5 do av 774 at \$4.85, 1 bull weighing 1,290 at \$4.50, 3 cows av 1,043 at \$5, 2 cows av 990 at \$3.75, 2 do av 1,115 at \$4.50; to Thompson Bros. 5 do av 930 at \$4.50; to Prowsky 3 butchers av 560 at \$3.75, 9 steers av 722 at \$4.75; to Newton B. Co. 1 do weighing 1,000 at \$6.50, 4 butchers av 682 at \$4.50.

Spicer & R. sold Bresnahan 2 canners av 735 at \$2.50, 9 butchers av 803 at \$4.25, 3 cows av 911 at \$3.25, 1 do weighing 790 at \$3, 3 do av 916 at \$3.25, 4 do av 927 at \$3.75; to Saneh 6 butchers av 800 at \$4.55; to Sullivan P. Co. 11 do av 700 at \$4.35; to Goose 8 do av 431 at \$3.25; to Parker, W. & Co. 2 bulls av 1,140 at \$4.50, 2 do av 1,050 at \$4.25; to Bresnahan 3 butchers av 762 at \$4.25, 1 cow weighing 730 at \$3.75; to Newton B. Co. 30 butchers av 798 at \$4.75; to Sullivan P. Co. 1 bull weighing 1,180 at \$5, 15 steers av 926 at \$7; to Smith 18 stockers av 421 at \$3.50.

Bishop, B. & H. sold Newton B. Co. 1 cow weighing 1,170 at \$3.50, 6 do av 911 at \$3.25, 2 do av 1,025 at \$3.25, 4 do av 670 at \$3, 4 butchers av 482 at \$3.50, 3 do av 666 at \$4.50, 1 steer weighing 830 at \$6, 2 cows av 780 at \$3, 2 do av 820 at \$4, 6 do av 925 at \$4.50, 6 do av 826 at \$3.60, 3 do av 760 at \$3, 5 do av 972 at \$3.25, 2 steers av 1,090 at \$5.25, 6 butchers av 765 at \$5, 2 cows av 825 at \$3, 5 do av 1,038 at \$3.75, 7 butchers av 850 at \$5.50; to Parker, W. & Co. 11 bulls av 920 at \$4.50, 1 do weighing 910 at \$4, 8 steers av 1,090 at \$7.25, 1 do weighing 810 at \$6.50, 2 bulls av 855 at \$4.15, 1 do weighing 1,200 at \$4.50, 5 do av 884 at \$4.40, 3 do av 953 at \$4.35; to Fromm 10 butchers av 613 at \$3.50, 10 do av 863 at \$5.50; to Hobbins 21 stockers av 668 at \$4.60; to Mich. B. Co. 20 butchers av 830 at \$5.50; to Hammond, S. & Co. 1 bull weighing 950 at \$4, 22 butchers av 830 at \$4.40, 3 cows av 597 at \$3.50; to Austin 2 stockers av 630 at \$4; to Goodwin 4 cows av 1,000 at \$3.35; to Sullivan P. Co. 6 butchers av 896 at \$5, 2 do av 660 at \$4.25; to Bresnahan 6 do av 853 at \$3.50.

Roe Com. Co. sold Hammond, S. & Co. 22 steers av 1,048 at \$8.25, 2 do av 875 at \$7; to Breitenbeck 21 butchers av 948 at \$6; to Newton B. Co. 8 do av 800 at \$5; to Goodwin 1 cow weighing 890 at \$4, 2 do av 890 at \$3.75; to Bresnahan 2 do av 885 at \$3, 5 do av 892 at \$3.50; to Newton B. Co. 27 butchers av 763 at \$5.35, 8 do av 731 at \$4.75, 3 do av 620 at \$4; to Bresnahan 5 cows av 892 at \$3.50; to Newton B. Co. 3 steers av 680 at \$5; to Hammond, S. & Co. 2 bulls av 1,205 at \$4.75, 1 do weighing 940 at \$4, 2 do av 705 at \$4; to Sullivan P. Co. 9 steers av 838 at \$5.75, 5 butchers av 1,004 at \$4.75, 1 heifer weighing 520 at \$4; to Bresnahan 1 cow weighing 1,000 at \$3.25, 3 do av 930 at \$3.

Veal Calves.

Receipts, 1,104. Market steady with Wednesday, 50 to 60c lower than last week. Best, \$7.75@8.25; common, \$5.50@6.

Spicer & R. sold Broodloff 5 av 160 at \$7.75; to Mich. B. Co. 2 av 155 at \$8; to Newton B. Co. 5 av 145 at \$8; to Hirschleman 11 av 145 at \$7.75; to Hoffend 10 av 127 at \$5; to Applebaum 1 weighing 340 at \$3.75; to Sullivan P. Co. 6 av 165 at \$6.25, 1 weighing 370 at \$3.50, 5 av 190 at \$4.50; to Newton B. Co. 2 av 215 at \$6; to Goose 7 av 130 at \$5.50, 9 av 135 at \$7.75; to Mich. B. Co. 19 av 150 at \$8.

Roe Com. Co. sold Sullivan P. Co. 1 weighing 310 at \$4, 10 av 165 at \$6, 25 av 150 at \$8, 9 av 170 at \$8.50; to Thompson Bros. 12 av 145 at \$6.10; to Burnstine 3 av 140 at \$6, 12 av 150 at \$8; to Sullivan P. Co. 5 av 165 at \$8.

Haley & M. sold Sullivan P. Co. 5 av

145 at \$3.50, 12 av 150 at \$8; to Thompson Bros. 13 av 140 at \$8; to Parker, W. & Co. 20 av 165 at \$7, 3 av 180 at \$7; to Rattkowsky 3 av 155 at \$8, 1 weighing 160 at \$8, 1 weighing 280 at \$4; to Newton B. Co. 3 av 100 at \$6, 17 av 135 at \$8; to Parker, W. & Co. 5 av 165 at \$7.50, 21 av 150 at \$7; to Rattkowsky 4 av 150 at \$8.

Groff sold Kull 15 av 145 at \$8. Bishop, B. & H. sold Parker, W. & Co. 21 av 150 at \$8, 23 av 152 at \$7.75, 5 av 130 at \$7.50, 1 weighing 130 at \$7.50; to Mich. B. Co. 28 av 140 at \$8, 1 weighing 110 at \$6, 11 av 145 at \$8, 1 weighing 160 at \$6; to Newton B. Co. 9 av 170 at \$7, 1 weighing 155 at \$8, 3 av 150 at \$7; to Goose 3 av 140 at \$6, 9 av 143 at \$8, 2 av 285 at \$3.50, 16 av 150 at \$7.50, 38 av 140 at \$6; to Sullivan P. Co. 4 av 155 at \$7.50, 15 av 150 at \$8.25, 2 av 135 at \$7; to Burnstine 15 av 155 at \$8.25, 14 av 135 at \$8.25, 14 av 145 at \$8.50; to Sullivan P. Co. 22 av 160 at \$8, 3 av 130 at \$6; to Mich. B. Co. 20 av 170 at \$4.75; to Rattkowsky 16 av 140 at \$7.50; to McGuire 35 av 145 at \$7.90, 5 av 140 at \$6; to Elk 9 av 160 at \$7.50, 5 av 155 at \$8; to Goose 24 av 130 at \$7.35; to Hammond, S. & Co. 11 av 180 at \$8.25, 28 av 150 at \$8, 47 av 160 at \$8.

Sheep and Lambs.

Receipts, 1,687. Market steady with Wednesday, 50@75c lower than last week; quality very common. Best lambs \$7@7.50; fair to good lambs, \$4.50@6; light to common lambs, \$3@4; yearlings, \$3.75@5; fair to good sheep, \$2.50@3.25; culls and common, \$1.50@2.25.

Roe Com. Co. sold Sullivan P. Co. 23 lambs av 65 at \$7, 10 do av 68 at \$4.50, 3 sheep av 113 at \$7; to Barlage 11 lambs av 70 at \$7.

Spicer & R. sold Mich. B. Co. 7 lambs av 60 at \$7.50, 12 sheep av 100 at \$2.50; to Hammond, S. & Co. 9 lambs av 55 at \$6.75; to Mich. B. Co. 2 sheep av 55 at \$2, 24 av 90 at \$3, 1 buck weighing 140 at \$3, 8 lambs av 77 at \$5; to Newton B. Co. 21 do av 74 at \$5.50; to Hammond, S. & Co. 16 do av 65 at \$7.50; to Newton B. Co. 19 do av 56 at \$6.25.

Haley & M. sold Thompson Bros. 33 lambs av 75 at \$5; to Newton B. Co. 53 do av 73 at \$7; to Thompson Bros. 51 sheep av 110 at \$2.50; to Rattkowsky 5 do av 120 at \$3; to Hayes 35 do av 85 at \$3; to Youngs 70 lambs av 65 at \$7.

Bishop, B. & H. sold Sullivan P. Co. 11 lambs av 70 at \$5.50, 47 do av 70 at \$7.10, 2 do av 90 at \$8; to Mich. B. Co. 18 sheep av 100 at \$3.50, 11 do av 125 at \$3, 5 do av 85 at \$2, 5 do av 70 at \$2; to Barlage 85 do av 80 at \$2.50, 42 do av 70 at \$3.75; to Fitzpatrick Bros. 72 lambs av 65 at \$7, 16 do av 55 at \$7.25, 4 sheep av 120 at \$3, 61 lambs av 73 at \$7.50, 14 do av 70 at \$5, 10 sheep av 121 at \$3, 31 do av 110 at \$3.75; to Young 10 lambs av 66 at \$5.50; to Barlage 25 do av 65 at \$6.50; to Sullivan P. Co. 20 do av 65 at \$7, 13 do av 70 at \$5, 13 sheep av 90 at \$2.50, 32 lambs av 70 at \$7, 63 do av 70 at \$7; to Young 27 do av 70 at \$6.50; to Parker, W. & Co. 59 do av 60 at \$6.75, 10 sheep av 115 at \$3.25.

Hogs.

Receipts, 2,535. Market dull at Wednesday and last Thursday's prices.

Range of prices: Light to good butchers, \$7.35@7.45; pigs, \$6.50@6.75; light yorkers, \$7.10@7.25; stags one-third off.

Spicer & R. sold Parker, W. & Co. 280 av 190 at \$7.40, 40 av 120 at \$7.25.

Haley & M. sold same 200 av 180 at \$7.40, 100 av 160 at \$7.35.

Roe Com. Co. sold Sullivan P. Co. 130 av 200 at \$7.45, 72 av 190 at \$7.40, 21 pigs av 120 at \$6.75.

Bishop, B. & H. sold Hammond, S. & Co. 105 av 200 at \$7.45, 650 av 190 at \$7.40, 166 av 170 at \$7.35, 95 av 150 at \$7.25.

Friday's Market.

June 28, 1912.

Cattle.

Receipts this week, 1,799; last week, 1,603. Market dull at Thursday's decline.

We quote: Best steers and heifers, \$8@8.50; steers and heifers, 1,000 to 1,200, \$6.25@7; do. 800 to 1,000, \$5.25@6; grass steers and heifers that are fat, 800 to 1,000, \$5.25@6; do. 500 to 700, \$4@4.75; choice fat cows, \$5@5.50; good fat cows, \$3.75@4.25; common cows, \$3@3.25; canners, \$2@2.50; choice heavy bulls, \$5.25@5.50; fair to good bologna bulls, \$4.25@4.50; stock bulls, \$3.50@4; choice feeding steers, 800 to 1,000, \$5@5.50; fair feeding steers, 800 to 1,000, \$4.25@4.75; choice stockers, 500 to 700, \$4@5; fair stockers, 500 to 700, \$3.50@4; stock heifers, \$3.75@4; milkers, large, young, medium age, \$4@6; common milkers, \$2.50@3.5.

Veal Calves.

Receipts this week, 1,647; last week, 1,477. Market steady at Thursday's prices. Best, \$8@9; others, \$4@7.50.

Sheep and Lambs.

Receipts this week, 2,639; last week, 1,413. Market steady at Thursday's prices. Best lambs, \$7.50@8.50; fair to good lambs, \$6.50@7; light to common lambs, \$4@6; yearlings, \$4@7; fair to good sheep, \$3@3.50; culls and common, \$1.50@2.50.

Hogs.

Receipts this week, 6,360; last week, 4,402. Market 5c higher than on Thursday. Range of prices: Light to good butchers, \$7.40@7.50; pigs, \$6.50@6.75; light yorkers, \$7.10@7.25; stags one-third off.

An American ice company has been buying on an average 100 horses in the Chicago market for eastern shipment weekly of late, the better class being taken. Rugged workers that tip the scales at 1,300 to 1,500 lbs. are purchased, and prices range from \$200@250 per head. For several weeks past there has been very slim opportunity for intending buyers of stock steers or good feeding cattle to pick up stock in the Chicago market, and at the close of a recent week less than 300 head of all descriptions were held in the stock yards of that city. There has been a very restricted move-

ment of young cattle of the stocker and feeder type to market, and killers have usually succeeded in getting possession of everything that had any fair showing of meat. Such conditions caused sharp advances in prices, even for ordinary offerings while the choicer lots rose sharply and killers have paid up to \$7.50 per 100 lbs. for steers on the feeder order that weighed around 900 lbs. Country buyers in search of high-class feeders with weight have been forced to pay at least \$7, and sometimes an even higher figure. Feeder speculators in the stock yards have been buying steers at prices ranging all the way from \$8.15 down to \$7.15, selecting a few head of attractive feeders from such lots and selling the cattle remaining to local slaughterers, seeking thereby to make living profits. This method is the opposite of that employed in former years.

The supply of hogs ready for market in the region commercially tributary to Chicago has turned out to be much larger than was supposed, and a lagging eastern shipping demand in that market has helped local packers to club prices, placing them on a much lower level than that of the best time during the past spring. The proportion of grassy hogs has increased to such a degree of late that prices have shown a widening tendency, following the former unusually narrow range.

Stock farmers are not disposed to sell their marketable hogs under \$7 per 100 lbs. at home, and whenever prices drop to a lower basis, fewer swine are shipped to market. At this season of the year country shippers require larger margins in prices because of heavy shrinkage while stock is in transit and danger of hogs dying during heated periods. The percentage of packing hogs going to market is increasing all the time, but this is usual at this time of the year, and as many sows lost their spring pigs, receipts of such sows may be expected from now on.

(Continued from page 6.)

killers and a loss of \$10,000,000 entailed by a tornado which, after a day of thunder storms and high winds, struck Regina, Sask., at six p. m., Sunday, June 30. A relief train was sent from Winnipeg to care for the injured. Towns to the east and north of Regina suffered severely from the effects of the storm.

Suffragettes in London last week inaugurated a general campaign of destruction on post offices throughout the country. A first step in the campaign was the smashing of windows of the post offices at many points in London and other cities of the Empire.

An unconfirmed report states that Orozco, rebel leader in Mexico, has communicated to President Madero his willingness to surrender and asks for terms for himself and men. It is stated upon what is believed to be dependable authority that the end of the Mexican war is near and that amnesty without reservation will be extended to all political offenders.

CROP AND MARKET NOTES.

Northern Isabella and Southern Clare Co.'s, June 27.—Warm and dry after six weeks of cold, wet weather. Wheat will not be 15 per cent of a crop in this vicinity. Corn looking very poor. Hay very

light. New seeded badly killed out. Oats fair. Big acreage of beans planted, not looking very good owing to the cold weather. Quite a large acreage of buckwheat being sown.

Livingston Co., June 26.—The dry weather which has prevailed for the past two weeks has materially shortened the hay crop, which would have been a light crop with plenty of rain. Haying will begin in a few days. There are many beans not yet sown on account of lack of moisture. Corn is the smallest in years for this date but the hot weather is helping it along. Wheat will be not more than 50 per cent of a normal crop. Oats are looking fine and with plenty of rain will be the largest crop in years. Pastures are drying up badly.

Emmet Co., June 28.—Until the middle of June the season was unfavorable for such crops as require high temperature, but for the past two weeks there has been a decided improvement for the better. The weather has been warmer, but the showers have been light. Crops in general are not yet suffering for rain, nevertheless a good shower would not come amiss. Under proper conditions of soil preparation and seeding and land fertility such crops as winter wheat and rye, oats and hay, are looking promising. There are some promising fields of alfalfa in the county. About the usual acreage of potatoes is being planted. Eggs, 20c; butter, 20c; strawberries are selling at \$1.50@1.60 per 16-qt. case. This crop will be cut short by the dry weather unless rain comes soon.

Ogemaw Co., June 27.—The last few days have started everything growing, especially corn, which had been in poor shape. Many farmers had to replant their corn which sprouted a little and then seemed to rot, from the extreme moisture no doubt. Quite a large clip of wool has been marketed this year and of very fair quality. Wheat is looking better than it did a month ago. Hay in old meadows is poor, June grass predominating. New seedings, however, look fine, as a rule and all together the crop promises to be an average one. Eggs, 15c; butter 20c; strawberries are plentiful and small fruits promise well. Several fields of alfalfa have been sown this spring, and the crop bids fair to be of considerable importance in this section as clover grows naturally all through the woods and wild land. Feed is still very high and a good many calves and young cattle are being shipped. Sheep are also being shipped quite largely as farmers have an idea that the price will go down soon.

Ohio.

Hardin Co., June 27.—We have been having some fine growing weather throughout our section of the county. Oats are looking fairly well. A large percent of our corn was planted over. Clover is more plentiful than last year but is very short. Timothy is light and scarce. Oat and pea hay looking good.

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HORTICULTURE

AN ORCHARD OF WAGENERS.

The Wagener apple has been planted so much for a filler that it is not commonly thought of for any other purpose. It is well adapted for this use, being small in size and early to bear. The popularity of the variety for this purpose will not be doubted when it is known that nurserymen are unable to supply the demand for trees.

Is not the Wagener deserving of some attention for other purposes besides as fillers? It may have some merit as a

solid orchards in place of as fillers? On suitable soils, where they would live long, it would seem as though a portion of the orchard ground might profitably be given to this variety.

Oakland Co. FRANK D. WELLS.

THE USE OF BOXES FOR PACKING APPLES.

There is a general opinion among those not widely informed that the box pack is adaptable to all conditions. Western growers are using it in distributing their apples and citrus fruits among eastern consumers and the high values they are able to command, together with the superior appearance of the pack has led to a general belief that boxes could be used

is stated in the preceding paragraph, is the best package; it has a reputation as a container of fancy fruit and the public is accustomed to pay good prices for apples so packed. These conditions are encouraging the use of boxes because he who sells his best fruit in them is getting larger net returns than if he sold in barrels.

Packing a box is more difficult than packing a barrel. The circular form of the barrel makes the facing of the fruit a simple task, whereas the rectangular shape of the box and the slight variation in the size of the fruits even when carefully graded, is pretty sure to present difficulties when fitting in the last row of each tier and also the last tier. In pressing down the apples in a barrel the bulk and shape make the effort easy, but with the box both the bulk and shape hinder the easy accomplishment of this part of the packing. The packer must keep the thought of the final pressing before him as he places every specimen in a box, a care not required in packing the barrel. It takes much experience and a certain amount of acumen to make one an efficient box packer.

THE AFTER-CARE OF THE STRAWBERRY PLANTS.

After the strawberry crop is gathered the plants will require special cultural attention if they are to remain for the production of berries the succeeding year. The limited cultivation possible while the crop is developing in the spring is not sufficient to keep down weeds, so that under ordinary conditions these are present in a liberal number and generous size, and demand removal by the time one can get to them after the harvest. Old plants that have spent their energy will only obstruct the chances of the patch for another season. These need to be cut out with the weeds. The soil stirred but little and packed hard by the repeated trampings of the pickers, is in a poor state to begin the growth of new plants and ripen another crop of berries. Deep and frequent cultivation is the only way to put this soil in condition, and if it lacks in the elements of fertility there should be added and worked into the soil a quantity of well-rotted barnyard manure, or commercial fertilizers if the former is lacking, or both, to replenish the plant food taken out by the last crop. After this has been done the old crowns will send out runners in every direction. If these are permitted to establish themselves at random it would be but a short time till all trace of the old rows is obliterated. The prevention lies in training the new plants into rows corresponding to those occupied by the old plants. This is done by following a special method of culture. Run a one-horse plow about six inches from the center of each row on both sides, throwing the soil away from the row, thus leaving an undisturbed portion one foot wide. With a hoe the weeds are removed and the runners pulled around so that the plants developing from them will be on the narrow strip unplowed. This confines them to the row and permits cultivation to the end of the season. In the cultivations that follow a rolling cutter fastened to the side of the cultivator will sever all new runners that attempt to grow into the spaces between the rows and thus keep the spaces clean. This stirring of the soil provides conditions for the development of sturdy plants. Where diseases and insect pests have troubled the patch, the good results following the cutting and burning of the tops of the old plants commends the practice where the burning can be done with a "flash" fire, i. e., a quick one. If the tops are so thick, or have so many weeds mixed with them that they do not become thoroughly dry, burning should not be done but the tops raked together with a horse rake or hand rake and drawn off, for a slow fire will destroy the old crowns. These facts and conditions point out the necessity of after-harvest culture in the strawberry patch.

Wayne Co. SUBSCRIBER.



Wagener Apple Trees Thirty-five Years Old and Still Paying Good Dividends.

standard, though it seems to have been overlooked for such uses.

The Wagener bears at an early age and abundantly for the size of the trees. When set on a warm, responsive soil and stimulated by cultivation it is popularly supposed to exhaust itself in about a dozen years, after which it may as well be cut out, since the trees are no longer profitable. In so short a time the tree cannot become very large, but it can yield a good return for the attention given it. In these few years it will not encroach upon the slower maturing varieties and will give a profit from the orchard while they are growing.

But the Wagener is not necessarily so brief in its usefulness. On heavy soil it will last longer. On heavy soil it may be a good tree even till forty years of age if it has not been stimulated to an early maturity.

It was my privilege to see some Wageners this spring which are thirty-five or more years old. They are in an orchard that received little care till a new owner took charge a few years ago, who pruned, sprayed and mulched with manure, but has not broken up the sod in which the trees have stood for a long time. The trees are thirty feet apart, but would not be crowded at twenty, so small are they. At blossoming time they looked like a snowbank, which was no surprise to the owner. It was to be expected. If they do not ripen as many apples as they can hold up it will be a disappointment. But that is no more than they are accustomed to do once in two years. Had they received proper attention when young they could have been trained to bear less at a time and with regularity. The trees look good for many more years of productivity. In fact, they look as healthy as the Spies and Baldwins of the same age in the orchard with them.

Since the Wagener tree is small it will admit of close planting. A distance of twenty-five feet is sufficient, which allows of seventy trees to the acre. At twenty feet apart there would be a hundred and ten. Compare this with the forty or fifty feet allowed to the standard varieties, which only admits of twenty-seven, or seventeen trees respectively per acre.

Small trees have some advantages which orchardists deem worthy of consideration. Cultivation is easier than about large trees, the fruit is less expensive to gather, but most of all the pruning and spraying can be done more thoroughly and with less labor. These are important points at present and are likely to be in the future.

As a market variety the Wagener ranks high. It is one of those kinds that are in demand, even in an overloaded market, so is considered a safe variety to grow.

Would it not be well to plant such small, early bearing, productive trees in

everywhere and for all kinds and grades of fruit as successfully.

But practical men have demonstrated that the range of usefulness of the bushel box for packing apples in eastern states is restricted. The impression made by the marketing of western apples in boxes encouraged eastern producers to give them a trial. While conditions here do not force the careful handling of fruit that they do in the west, it has been satisfactorily settled that boxes are economical only in the packing of the very best grade of apples. In fact, western growers long ago learned this and their effort has been to produce only such a grade as will make a neat box pack. The grades below fancy are more cheaply handled in baskets, barrels or in bulk. Fruits varying in size and shape cannot be packed in a rectangular container like the box so as to produce an attractive, selling appearance. A first-class pack in



Crimson Clover in Bloom in Peach Orchard. (See First Page).

such a container is possible only where the specimens are quite alike in size and form. Only the fancy apple trade is, therefore, open to the use of the box.

However, the use of boxes among our fruit producers is growing. More eastern apples will be put up in boxes this season than were packed in boxes in 1911. The increased knowledge brought to our orchards is giving a larger percentage of high-class fruit and in marketing this portion of the apple output, the box, as

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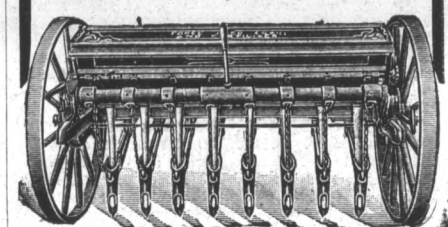
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POULTRY AND BEES

KEEPING THE CHICKS GROWING.

Most chicks are well fed and cared for while their mothers are confined in coops; but, when allowed to range, regular feeding is too often neglected, and as a result growth is retarded and they become what is termed, "stunted." It appears from statistics furnished by produce dealers, that but seven per cent of spring chicks marketed weigh four pounds by Dec. 1. At that date all the spring stock of the general-purpose breeds, like the Rocks, Wyandottes, Orpingtons and Reds, should average at least six pounds live weight. Plymouth Rocks have been made to weigh seven pounds, dressed, at Thanksgiving time, by judicious feeding for growth and development while on range.

Where chicks are separated from the hens at six or eight weeks of age, and are given abundant range, their grain ration, with grit and charcoal, may be supplied in hoppers. The hoppers should be so placed, or so constructed, that the old fowls will not rob the chicks or drive them away. A small enclosure, made of lath and covered with wire, will admit the chicks and keep others from frightening or molesting the chicks while eating. Coops of ample space should be furnished, well ventilated, but secure from the depredation of night prowlers. The coops, utensils, and surroundings should be kept scrupulously clean and sanitary, and the flock kept free of vermin.

Cracked corn is one of the best grain feeds for growing poultry. When new corn begins to harden, whether sweet or field corn, it may be "whittled" or shaved from the cob for the eager chicks. On range they will secure bugs, worms and grasshoppers, and pick up grit and bone-making material.

When they have reached full height, all those intended for market should be put into fattening crates and fed ground feed and skim-milk for three weeks. An average of two pounds per head may be added to the weight of fowls, old and young, by this method at a cost of about five cents per pound. By all means keep the chicks growing, and fatten them before putting them on the market.

Minnesota.

N. E. CHAPMAN.

CAPONIZING IS PROFITABLE.

What to do with the surplus cockerels that are hatched each season is a problem that puzzles a majority of poultrymen. Fattening them and selling as broilers is usually unsatisfactory and to some is unprofitable. Unless one can adopt the crate fattening method of preparing broilers for market the results are usually unsatisfactory, and unless the chicks intended for broilers are cooped in crates and deprived of exercise their flesh will be tough and they will develop bone and muscle instead of fat.

This is where caponizing has a distinct advantage over broiler raising. It is not necessary to confine the caponized cockerels in order to have them fatten readily. They may be allowed to run with the other chicks, and they will grow and take on flesh at the same time.

Caponizing is not such a difficult operation as some suppose. After one acquires a little experience it is not at all difficult. Most anyone can, with a little practice, become quite expert in handling the instruments, and the loss resulting from the operation will amount to practically nothing. One must not be nervous or easily excited, however, if the best results are to be expected. The sight of a little blood, or the twitching of the fowl must not affect you. A steady nerve and a little experience is all that is required to insure success.

When one intends to try caponizing it is imperative that a good set of instruments be purchased. A full set of the latest improved instruments can be bought for \$2.50, and this will prove a profitable investment. As complete directions always accompany the tools it is not necessary to describe the operation except in a general way. If one has never seen the operation performed by an experienced operator it is a good plan to experiment on a fowl that has been killed for table purposes. Select a cockerel that weighs from 1½ to 2 lbs., according to breed. A barrel or box makes a good operating table, placed at a height suitable for the operator to work well. A barrel will usually answer the purpose admirably. Place the cockerel upon the

top of the barrel, on his side. A cord must be fastened around his feet, to which a weight is attached—a half a brick will do very well if nothing else is handy. The weight hangs down the side of barrel, tending to keep the fowl's feet still. A similar cord and weight is used to hold the wings securely and keep the fowl from flapping about. Then, following minutely the directions that come with the instruments, you may safely begin the operation. Do not get excited and you will find the operation easier than you had supposed. It might be well to add that a bright, clear day should be selected, as one requires good strong light to see to do the work.

As soon as the victims are released they are ready for first feed. They must be given such variety as will tend to supply nourishment and will keep them growing until maturity. They must not be put on fattening rations until about three weeks before marketing. Then they may be fed heavily on corn. Ground feed must also be given, as this tends to hasten fattening. Equal parts by weight of corn meal and ground oats makes a good soft feed. Either water or milk should be used in the mixing. Milk is preferable, however, when it is available.

When dressing capons, leave the head and hackle feathers, tail feathers, the feathers on the wings to the second joint, and the leg feathers half way up the thigh. Neither should the head be removed. These are the distinguishing marks of the capon in the big markets.

Indiana.

O. E. HACHMAN.

ANOTHER METHOD OF PREVENTING AFTER-SWARMS.

Another way is to remove the queen-cells. If we cut all the cells but one on the fifth or sixth day after the issuing of the swarm, as has been recommended many times, we are not sure that the cell left will hatch; and, furthermore, the bees still have larvae young enough to convert into queens, which they are almost sure to do, and in this case they will often kill the queen which hatches first instead of allowing her to destroy these later-started cells, when we not only have as many after-swarms as we should have had had we not cut the cells, but we have also the disadvantage of having queens reared from old larvae, which all concede gives inferior queens.

If we wait about this cutting of cells until the eighth day we shall run no risk of the colony swarming; where the first swarm was not kept back by foul weather there will be no larvae young enough to convert into queens. As a rule, the first young queen will be hatched, and all the queen cells there are in the hive. For these reasons, I now wait till the morning of the eighth day after a prime swarm has issued, when I open the hive, take out the first frame and hastily look for nearly ripe queen-cells. If none are found I shake most of the bees off near the entrance of the hive, into which they immediately run, when the frame is closely inspected for queen-cells, peering into every nook and corner for them; for, should some small, crooked one be missed, swarming would surely result.

All cells are cut off after a frame has been shaken to rid it of bees, for this shaking of the young queens in their cells is likely to cause them to be deformed, if not killed outright. The next frame is treated in the same way, unless ripe cells are found, in which case it is set outside of the hive awaiting the finding of a cell from which the queen has hatched, when all are cut off. Should none have hatched, then the best one of the ripe cells on the frame set out is saved and put back into the hive.

In this way we can make sure that no after-swarm will issue from this hive, and it is the only certain plan that I know of. Of course, any manipulation of a colony of bees must be done at the proper time and in the proper manner to secure the desired results, which means that the successful bee-keeper is one who has his eyes wide open all the time and sees and appreciates what is going on in his apiary from day to day, and, from what he sees, and from what he reads, is prepared to take advantage of circumstances.

Where one wishes to do away with swarming entirely he must either divide his bees or work for extracted honey. Most persons having out-yards prefer the latter plan. I believe my bees in the out-yard have never swarmed. If they have I am not aware of it. The idea is to supply empty combs and to take away the full ones. If they are thus kept busy it will suppress the swarming tendency.

New Jersey.

F. G. HERMAN.



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Eggs for Hatching from Standard Silver, Golden and W. Wyandottes, 15, \$2.30, \$3. Browning's Wyandotte Farm, R. 30, Portland, Mich.

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Crystal White Orpingtons—the great winter layers. Bargains in stock: eggs half price balance of season. Send for mating list. MRS. WILLIS HOUGH, Pine Crest Farm, Royal Oak, Mich.

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Prize Winning Barred Rocks, R. I. Reds, Mammoth Pekin and I. Runner ducks. Stock for sale. Eggs \$1.25 per set. Utility \$5 per 100. EMWOOD FARM, R. R. No. 13, Grand Rapids, Mich.

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Eggs \$1 per 15. BUELL BROS., Ann Arbor, Mich.

BARGAINS in Standard Reds. A few pens at \$5; yearling hens at 75c and \$1 if taken now. Eggs \$1.25 per 30 now. W. T. FRENCH, Ludington, Mich.

S. C. Rhode Island Reds of quality. Eggs from first S. pen headed by Red Cloud \$2 per 15; Range \$1 per 15; \$5 per 100. E. J. MATHEWSON, Nottawa, Mich.

DOGS,

30 Pure Bred Fox Hound Pups ready to ship in May hounds. Send stamp. W. E. Lecky, Holmesville, Ohio.

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PRACTICAL SCIENCE.

NUTRITION STUDIES. (Continued).

BY FLOYD W. ROBISON.
Balanced Ration.

Chemical analysis would show that there are sufficient nutrients in corn stover to provide for all the requirements of the animal body. At the same time the percentage of protein therein contained is so low that the animal would be compelled to eat impossible quantities of the feed in order to gain a sufficient amount of protein to provide for the normal requirements of the body. Therefore, while corn stover might satisfy one of the requirements of our definition of balanced ration it is evident that it would not satisfy the other in furnishing the amount of one desirable nutrient, namely protein which the animal system demands.

By reference to tables given last week we find that linseed meal contains 30.1 lbs. of digestible protein per 100 lbs. of the meal and 30.9 lbs. of digestible carbohydrates and 6.9 lbs. of digestible fats. Linseed meal, therefore, would satisfy clearly one of the requirements under our definition of balanced ration. It would furnish a sufficient amount of protein, carbohydrates and fats to satisfy all the nutritive demands of the animal body, but aside from the factor of general wholesomeness which a ration exclusively of oil meal would lack the second division of our definition of balanced ration would necessitate the reduction of linseed meal by blending it with some less expensive ingredient, for its cost would be prohibitive. We therefore find that a properly balanced ration, if it consisted of corn stover and linseed meal would require that they be so blended that the maximum amount of protein is supplied, at the lowest possible cost, having under consideration at the same time the full feed requirements of the animal.

Nutritive Ratio.

This condition is best determined by studying what we may call the nutritive ratio of these various feeds. By nutritive ratio we mean the ratio between the protein on the one hand and on the other, the carbohydrates and fats combined. In the case of corn stover there would be, on the one hand, 1.4 lbs. of protein; on the other would be 30.7 lbs. of carbohydrates and .7 lbs. of fat. We have stated in one of our previous discussions that while protein and carbohydrates have equal heat values when taken into the body, fats represent two and one-fourth times the heat value of either the protein or the carbohydrates. Therefore, the total amount of fat in a ration must be multiplied by $2\frac{1}{4}$ before it can be compared with the protein. So, to determine the nutritive ratio of corn stover we would therefore multiply .7 lbs. (the digestible fat) by $2\frac{1}{4}$ and add it to 30.7 lbs. (the digestible carbohydrates). This sum, divided by 1.4 (the digestible protein), gives us the nutritive ratio factor which we find to be 23.0. Therefore, the nutritive ratio of corn stover we have found to be one part protein to 23.0 parts carbohydrates and fats, or as we say, 1 to 23. In the same way we find the nutritive ratio of clover hay to be 1:5.9; of timothy hay, 1:16.2; of oat straw, 1:31.8; whereas the nutritive ratio of corn is 1:9.8; of oats, 1:6.7; of bran, 1:4, and of old process linseed meal, 1:1.6.

Wide and Narrow Rations.

In general we may say that the nutritive ratio of roughages is wide, whereas the nutritive ratio of concentrates as a rule, is narrow. By a wide nutritive ratio we mean a ration which perhaps is typified by the example of corn stover given in our previous discussion. The nutritive ratio of corn stover we placed at 1:23.4. It is wide, because the percentage of carbohydrates and fats is very high, compared with the percentage of protein. The nutritive ratio of linseed meal, on the contrary, is narrow, 1:1.6, showing that the relationship between the protein on the one hand and the carbohydrates and fats on the other, is very close indeed.

The Wolff Standards were Rigid.

The Wolff standards which have been under discussion and which have formed the basis of our experimental work in feeding, prescribed with a considerable degree of exactness, different ratios for different animals and for different purpose animals. For example, the original Wolff standard for milch cows when yield-

ing 11 lbs. of milk daily provided a ration with a nutritive ratio of 1:6.7, which would be considered quite a narrow ratio. This ration contained 25 lbs. of dry matter, 1.6 lbs. of digestible crude protein, 10 lbs. of carbohydrates and 3 lbs. of fat. It was Wolff's plan to increase these percentages of nutrients 0.1 lbs. each for each 100 lbs. weight over 1,000 lbs., and to deduct 0.1 lbs. of the nutrients for each 100 lbs. weight under 1,000 lbs. live weight. At the same time Wolff recognized that a cow producing a greater flow of milk than 11 lbs. daily of necessity required more nutrients and a greater weight of feed per 1,000 lbs. For an animal giving 16.6 lbs. of milk he figured that 27 lbs. of dry matter per day was necessary with a ratio lowered to 1:6. With a cow producing 22 lbs. of milk daily he allowed 29 lbs. of dry matter with a nutritive ratio of 1:5.7; a cow producing 27.5 lbs. of milk daily, was allowed 32 lbs. of dry matter with a ratio of 1:4.5.

Production of Milk Consumes as Much Energy as Heavy Work.

A 1,000-lb. cow producing 22 lbs. of milk daily was considered doing work equivalent to a 1,000-lb. ox at heavy work and a ration provided carrying fully as much dry matter and a ratio of nutrients nearly as narrow.

Wolff Standard Unduly Emphasized the Protein.

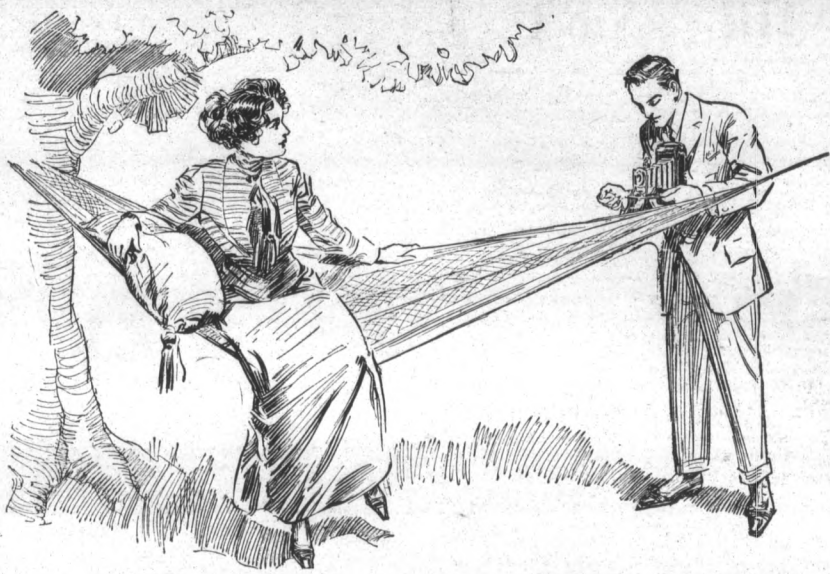
It is perhaps well for us at this time before going further with our study of the balanced ration to pause and sound a note of warning regarding the too rigid application of the balanced ration. Late investigations have shown that an animal at heavy work or a dairy cow on a heavy flow of milk can do as well with a content of protein in the ration far less than that promulgated by Wolff. This idea is entirely in line with the experiments by Chittenden, and others in human nutrition on the minimum amount of protein required in the dietary. This information has been obtained largely through experimentation with the domestic animal, in the respiration calorimeter by Armsby, Kellner, and others who have established beyond a question of doubt that the protein as given in the Wolff standards is far in excess of the actual physiological requirements of the animal. Likewise, Wolf, in a series of feeding experiments at the Wisconsin station substantiated in an entirely practical manner, these same findings. These results, however, have not detracted from the value of the Wolff standards but have simply modified them.

Balanced Ration Means Economical Balance as Well as Scientific Balance.

Another deduction likewise follows, namely, that especially with the feeds to which domestic animals have access the theory of the balanced ration does not necessitate as direct an application of the protein limit in the feed as would be the case in the diet of man wherein fleshy foods constitute a considerable portion of the ration. The calorimeter has established beyond doubt that a certain amount of protein is absolutely necessary in the ration. Below that the feed must not go. On the other hand, we are confronted with the condition that sometimes it is more economical to feed a ration containing what according to the Wolff standard, would be an excessive amount of protein, and we must conclude that we are not violating the principles of the balanced ration when we do adapt ourselves to this new ration. This point was not considered or appreciated when the original idea of the balanced ration was promulgated. In fact, shortly following the publication of Wolff's theories and standards some feeders began an almost literal application of these standards with the idea of fluctuating not at all in the ration. We must remember, however, that the vegetable proteins will do as satisfactory perhaps, as the carbohydrates and fats, filling the same offices which carbohydrates and fats fulfill in the dietary, and that the main excuse for keeping the percentage of protein low is the one of economy.

We have, therefore, to take cognizance of this condition in our definition of the balanced ration, although some authors do not consider the question of economy at all in their definition of balanced ration. Therefore a ration which to some writers may be considered unbalanced because of a high content of protein comes fully within our definition of a

(Continued on page 20)



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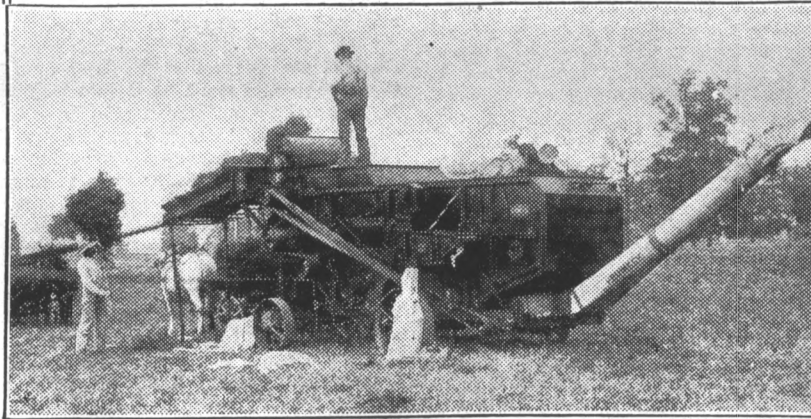
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THE DAIRY

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ALFALFA FOR SILAGE.

I wish to tell you my plans and ask your criticism. I am going into the dairy business with pure-bred Holsteins. Will sell milk to our local cheese factory. Expect to operate on the intensive plan. Will not depend on summer pasture but will feed from the silo the year round. Expect to build a silo this summer. I intend to use alfalfa for summer feed, putting it into the silo without running it through an ensilage cutter. Will make a door in the side of the silo just high enough to be handy to pitch into. Now this alfalfa silage is the doubtful part of my plan. Will alfalfa silage keep, made in this way? Is my plan practical? Would it be a success? If I could follow this plan it would save me hiring a big crew of men and an ensilage cutting outfit at filling time. I and my boys could do the filling. Am planting one field to alfalfa this summer and expect to plant another next summer.

Ogemaw Co.

A. L. D.

Yes, I think this proposition will work out all right. There will be some trouble in keeping the alfalfa in the silo without cutting it. It is a hard job, too, to handle when green, it ought to be put in real green, wet, in fact, or it will mold. It must be thoroughly tramped or packed in the silo and it ought to be weighted down. You can make good silage out of green alfalfa without running it through a cutting box, but it requires some painstaking care and you must understand how to do it. You can make good alfalfa ensilage easier by running it through a cutting box because, when it is cut up fine it will pack closer, exclude the air and be a better quality of silage, but it can be done the other way. However, I would not try to make silage with alfalfa. I would cure it dry, cut it at the right time just as soon as the young sprouts commence to appear on the crown of the alfalfa, wilt it and cock it up, leave it in the cocks to cure, use hay caps if possible, dry-cure it and feed it in that way. Then I would plant enough corn to make sufficient silage to last the year around. I believe this to be a much more practical plan than the one you suggest.

There is a lot of extra labor and expense in soiling crops. There is work to be done every day, rain or shine. I tried it once and I never will attempt it again. My advise would be to wait until the alfalfa has reached the proper stage of development and then cut and make into hay. Raise enough corn so that you can have silage the year around, then feed corn silage and clover hay with about half an ordinary grain ration and you can expect that your cows will produce maximum yields, if they are good cows and properly taken care of.

The idea of cutting a hole in the silo so that the alfalfa can be easily pitched in is all right with the exception that the silo ought to be filled full of alfalfa so as to get pressure enough to settle the contents and pack it close. Merely the bottom of the silo filled with green cut alfalfa without any extra pressure will not make good silage. It will mold.

SORGHUM FOR SILAGE.

I was advised to grow sorghum for ensilage. So this spring I secured four bushels of seed and drilled it in for that purpose and now comes another friend who tells me that sorghum will be bad for ensilage as it has too much sugar content and therefore will have too much acid. I have eight acres to corn, for corn to husk and can fill my silo on that after husking, if sorghum is no good. Please advise me as to whether sorghum is all right or not.

Otsego Co.

E. P.

Sorghum does not make as good silage as corn. There is something in the idea that it is liable to contain so much sugar that when it ferments you have too large a per cent of acid in the silage to be first-class. Not only that, but cattle don't like the sorghum plant as well as they do corn. You can't raise any more of it to the acre. I can't see why you would go to work and sow sorghum in this climate. Corn is the natural fodder plant. However, now that you have sorghum planted the only way that you can take care of it and get anywhere near its value is to put it into the silo, and I would do so, and save your corn crop for husking as you intended in the first place; but never again would I raise sorghum for the silo, but would raise corn. It may be necessary to feed a little more dry feed with your sorghum silage than it would with corn silage, but under the circumstances now you could afford to do that and save the sorghum.

PICKING DAIRY QUALITIES.

It is not easy to go out and buy good dairy cows. Farmers who have cows to sell seldom keep milk records; or, if they do, they have too much business sense to sell off their best cows. It is of no use to ask a farmer which are his best cows, for he will tell you they are all good cows, besides he may not know himself. Fortunately, there are certain points in cow conformation that indicate milking qualities.

The first thing to consider is vitality, or staying qualities. We want cows that will stand heavy feeding, resist disease and do good service. Everybody values constitution in a dairy cow, but some have queer and mixed ideas of determining it.

A large mouth and a wide body denote good feeding and digestive qualities. Animals that eat bulky and organic foods have large and vigorous digestive tracts and by the law of correlated parts they should have large mouths. It seems strange how men will disregard this fact when it is as plain as day. Cows swallow before eating. They fill up, and then chewing the cud is eating. They must have much storage room. When the food has been chewed, then returned to the second stomach and further digested, then it is taken into the blood; that demands a long digestive coil, a long intestine. You can not find a cow with a great first stomach and a long digestive tract without a capacious body. It is the cow with a good middle, not too large and out of proportion, that will stand heavy feeding and give the most milk and butter-fat.

Another important point in selecting dairy cows is their ability to consume and convert large quantities of farm grown roughage into milk and butter-fat. Cows that do not have great digestive capacity or that have been improperly developed upon too much grain and highly concentrated commercial feedstuffs cannot economically convert large quantities of these farm grown feeds into dairy products. In buying new cows for the dairy one should buy of dairy farmers who practice rational methods of feeding, preferably from those who do not feed too much grain and commercial concentrates. Many cows have been fed so much grain that they have lost their capacity for handling home grown roughage. Such cows are no longer profitable dairy producers and should be avoided when buying new cows for the dairy.

Another indication of good breeding and dairy ability is a large full eye. The cow must have a strong nerve system and the best sign of its presence is a large full eye. It is an outward indication of an inward grace. They may have digestive tracts but if they lack the nervous force to drive it they are like a great machine with a small engine to drive it.

Underlying everything else in the dairy cow is the element of temperament. To define temperament, we will call it an inherited tendency of function. One class of cattle inherit a tendency toward milk giving in an enlarged degree, these we define as belonging to the dairy temperament. Another class inherit a tendency toward flesh making—these we define as belonging to the beef temperament. As you develop the dairy temperament, you decrease the flesh-making tendency and vice versa. The dairy cow possesses in a marked degree the ability to turn her feed into milk. She does not gain in flesh condition easily and, when milking no amount of feed will fatten her. All that is given her goes to make milk. This tendency of function, or dairy temperament, is indicated by an angular conformation, large and prominent hipbones, a rough, ridgy, open back-bone, a rather long, slim neck, thinness over the shoulder blades and at the withers and a clean, bony face, with rather fine horns and a pronounced female expression.

The cow's thighs should be thin and incurved on the back side, with lots of room between them, and the flank arched up high just in front of them. All this is to provide room for a large fine udder, which she must have to be a great producer. The udder should extend well forward and well back, making a long connection with the body, and having four fairly good-sized teats set well apart. Large, full milk veins, that carry the blood from the udder to the heart through large "milk wells" or openings through the walls of the chest, are indications of good milking qualities. The importance that is placed on milk veins and wells comes from the fact that the larger amount of blood that can be cared for in the udder at milking time, when

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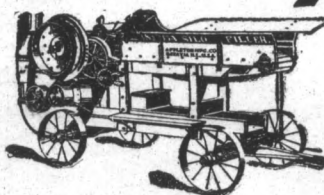
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the milk is formed fastest, the better the cow as a milk producer. By having them large, tortuous and branching, extending well up toward the front legs and entering the body through numerous large wells, their capacity is increased; hence the cow's capacity is increased in this point.

It is very important that the dairy cow should be a regular breeder. Through heavy feeding, not only the digestive organs, but also the reproductive organs are injured. Perhaps another reason may be due to the abnormal development of the mammary gland, a condition which must be obtained to have an exceptionally good dairy producer. It is probable that this condition has an influence upon the breeding qualities of high-class dairy cows. The udder is connected with the womb by a wonderful network of delicate nerves called sympathetic plexus, and thence to the lumbar region of the spine. Many leading dairy authorities claim that heavy milking has a reflect effect on the womb. There are other plausible theories for irregular breeding and barrenness, but this is enough to suggest the importance of good feeding and careful treatment in maintaining the breeding qualities of dairy cows. There is no denying the fact that some of the best dairy blood has been lost to the world, because of excessive feeding for forced records.

Great care should be taken to buy cows that are healthy and that come from herds that are free from tuberculosis and contagious abortion. Many excellent herds have been infected through the buying of a single diseased animal. One should know the conditions that surround every herd from which he buys new cows and demand that every animal purchased be accompanied by a reliable veterinarian's certificate.

The breed to buy depends upon the preferences of the buyer. It is better to stick to one breed, or grades on one breed. It is more a matter of individuals than of breed. The use to be made of milk may influence the selection of the breed. For butter-making the Jerseys and Guernseys will be found profitable, while for cheese and market milk the Ayrshires and Holsteins will do well. By this, I do not mean that the breeds need be held strictly to these uses, for many Ayrshires and Holsteins are good butter cows, and many buyers of milk demand Jersey and Guernsey quality. For market milk I prefer to keep a few of both the milk and butter breeds in order that I may produce a fair grade of milk and still make a profit.

There is no rule to apply as to how much money to pay for a good cow. A man must buy as good cows as he can find for his money. These men who figure out a scale of prices to guide us in the purchase of cows must take into consideration that you cannot put a price on the other man's stock and force him to sell to you. We must exercise our own judgment and buy cows when and where we can get the best ones for our money.

W. MILTON KELLY.

NUTRITION STUDIES.

(Continued from page 18)

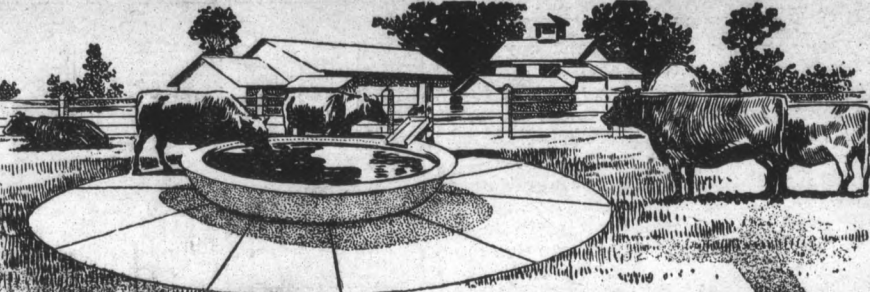
balanced ration because it is the combination of nutrients of whatever nature which fully satisfy the requirements of the animal and which are produced most economically.

Henry cites an example, wherein it might be advantageous to use as the major ingredient of a feed, alfalfa which we know to be rich in crude protein. On economical grounds we know that even to do this materially narrows the nutritive ratio and therefore conflicts with the standards originally set forth by Wolff, and others. On the other hand, in certain districts in Illinois and in the corn belt, we may easily understand why the minimum protein quantity should be given, and on economical grounds, the remainder made up by the use of corn. And still, as long as the exact and full requirements of the animal body are satisfied we place such a ration within our definition of the balanced ration.

The method of calculating balanced rations is not difficult though to get almost close approximations to standards is somewhat tedious. By familiarizing ourselves with the general values of the various roughages available, together with the principal constituents, supplemented with a knowledge of the approximate quantities of feed required by the animal per day makes the calculation of a ration a very simple matter.

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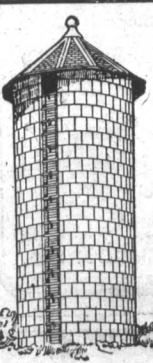
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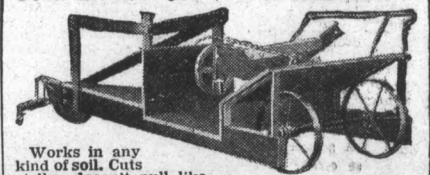
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