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HOW TO BE SUCCESSFUL WITH POTATOES.

THE potato is more generally grown and used than any other vegetable.

A substantial profit awaits the potato grower who will take a real interest in his work. There is a big opportunity for increased yields and improved quality on nearly every farm that produces this crop. Improved cultural methods, better marketing, and correct storage conditions are sure to place a superior product before the consumer.

The man who has never raised potatoes to any extent should remember a number of facts:

First—Select a soil suited for potato production.

Second—Rotate the crops so as to destroy bacterial diseases.

Third—Big yields come from heavy feeding. Use commercial fertilizers.

Fourth—Pay especial attention to the selection and care of the seed.

Fifth—Plow deep and conserve the spring moisture.

Sixth—Plant good seed. Then aid growth by good cultural methods.

Seventh—Spray the vines several times with Bordeaux mixture.

Eighth—After the harvest, secure proper storage or market in the most profitable way.

The use of potatoes has become enormous. They make an excellent human food, and are steadily gaining in favor as a stock feed, for which they may be utilized when cheap. They are used in the manufacture of starch, syrup, alcohol and dextrin. The pomace, a by-product of the starch factory, has been used successfully in the form of ensilage for stock feeding. When abundant and low-priced, potatoes can be fed with profit to every kind of stock. Uncooked potatoes agree with all stock excepting pigs. Fifty to 60 lbs. of potatoes per 1,000 lbs. live weight, may be fed in the ration of the fattening steer, 20 to 25 lbs. to the milk cow, 40 lbs. to the fattening sheep and 12 lbs. to the horse. Salt should be fed with them, for the palatability is increased and the deficiency of sodium salts in the potato is made smaller. Experience has shown that cooked potatoes are relished more by hogs than when they are fed uncooked. The Wisconsin Experiment Station has found that 445 lbs. of cooked potatoes are equal to 100 lbs. of corn meal in feeding value.

For many years the price of potatoes has varied widely. One time it may go as low as 20 cents per bushel while the next crop may bring a dollar. The only sure money maker is persistence. Plant and raise the same number of acres each

year. Speculation does not enter into the profitable marketing of potatoes with any degree of accuracy.

From 1890 to 1900 the potato growers of the United States produced over \$1,000,000,000 worth of potatoes, the value being taken at the prices obtained on the farm. The average receipts per acre by the farmer were \$34.57. The yield per acre was less than 77 bushels. If two-thirds of this potato land were used in the place of the entire acreage, and were given the proper tillage, fertilization and seed, it would produce at least 115 bushels per acre, worth \$51.85. The other one-third of the land could then be given over to the production of clover or other soil enriching crops. This system would not enlarge the total crop but would greatly increase the net profit per acre to the grower. The saving in land from potato culture would be, stating it conservatively, 900,000 acres. All of this could be used for some other crops.

The ideal soil for potatoes is a deep, mellow, free working loam, grading from the sandy type to the clay. Heavier soils should be tile drained. Several arguments for the light sandy loam are:

First—The land can be prepared in the spring for planting.

Second—The soil becomes warm sooner than does the heavier land, and germination takes place earlier, insuring more rapid growth.

Third—Potatoes grown in such soil come out bright, clean, smooth, and of uniform size; and

Fourth—Light soils usually produce potatoes of excellent quality. They often force early maturity by cutting off the moisture supply.

Probably the most important reason for rotating the crops with potatoes is to maintain the fertility of the land, and to give whatever fungous diseases are present in the ground an opportunity to become starved out. Clean potatoes cannot be produced the second year upon a field infected with scab. Two rotations, often used, are, a four-year rotation of corn, potatoes, wheat and clover, and a three-year containing potatoes, wheat and clover. Oats is a good crop to grow right after potatoes, and is often so placed.

In the majority of potato states a considerable amount of commercial fertilizing and manuring has become a necessity. The direct application of manure to the crop, by plowing under, has been quite generally condemned in the past by many growers. It was claimed that fresh barnyard manure in the soil harbored many diseases, especially the scab. And

this was probably true if the manure had stood for a long time, and the crops were not rotated. However, the potato needs well rotted organic matter and it needs nitrogen, and stable manure is the cheapest source of these requisites. So the advice today is rotation, with all the manure to be obtained applied as early on the field as possible.

When such a plan is carried out, no further thought need be wasted on the nitrogen question. The other important elements are phosphorus and potash. The value of phosphorus for potatoes is not understood by the majority of growers. On the average farm, the amount of available phosphorus is so small that an application of several hundred pounds to the acre would surely be profitable. This element may be applied as acid phosphate to the wheat in the rotation, or as raw rock phosphate, in which case it is applied to the clover ground, preferably with stable manure, and plowed under with it. To gain the best results with any fertilizer individual experiments should be carried on by the farmer. He can then test out what his own soils need, and which fertilizers produce the biggest results under his conditions.

The cheapest form of potash is muriate. Many people believe that this will injure the potato because of certain harmful salts which it contains. They advise the use of the more expensive sulphate of potash. Many farmers have tested out both forms on their own fields. The most of them get good results with both. But experimentation will give the farmer the answer to this problem. If it is suitable, he can find no cheaper form to use.

The function of fertilizers is to furnish a certain amount of plant food, in a form more or less available. The benefits derived from them is due to the addition of this plant food to the soil, within reach of the growing plants. When about to purchase any quantity of fertilizer, it is best to get quotations upon the guaranteed analysis. Make certain the cheapest source of the elements needed, and then purchase. Many horse planters have fertilizer attachments which place the fertilizers right where they belong. A common way of applying is to sow it broadcast or along the rows. Do not leave it upon the surface of the soil but incorporate with a spike-tooth drag or harrow.

The selection and use of good seed has more influence towards a big yield of potatoes than any other one factor. When buying new varieties, it is advisable to test them out with your own potatoes under identical conditions of culture and

care, and then note the comparative yields and quality of each. Ordinarily it is safer to use home-grown seed than that brought in from the north or south. Do not allow the home potato to deteriorate. Proper selection of seed, careful growing and correct handling will prevent this entirely.

The use of whole or cut seed depends largely upon the value of the seed, the season and the culture of the crop. Medium sized whole seed is preferable when seed is cheap; since the saving in cutting will not pay for the extra cost of the seed. The cut potato, having one or two good eyes upon it, will produce just as big a yield, during the normal season.

The proper amount of seed per acre has been tested pretty thoroughly. The results of 13 experiment stations show that:

First—Within ordinary limits, an increase of seed per acre produces a marked increase in total yield and marketable potatoes.

Second—An increase in the size of the seed potato from one eye to half a potato, produces an increase in the net value of the crop. From 15 to 20 bushels of seed per acre makes a satisfactory seeding.

With general farming, it is not advisable to grow too many varieties. The beginner can select a variety from those that have been thoroughly tested in his immediate vicinity. Purchase from a reliable grower, who is known to be responsible. To many people, a potato is a potato and anything is used for seed, but such methods will never bring satisfactory success. The potato is a human food and the public taste must be considered. Aside from the good quality, a large yield is required.

When selecting a new variety of potatoes, learn the following facts about it:

First—Has it a good cooking quality and flavor? This is partly influenced by the time of maturing, the soil, etc.

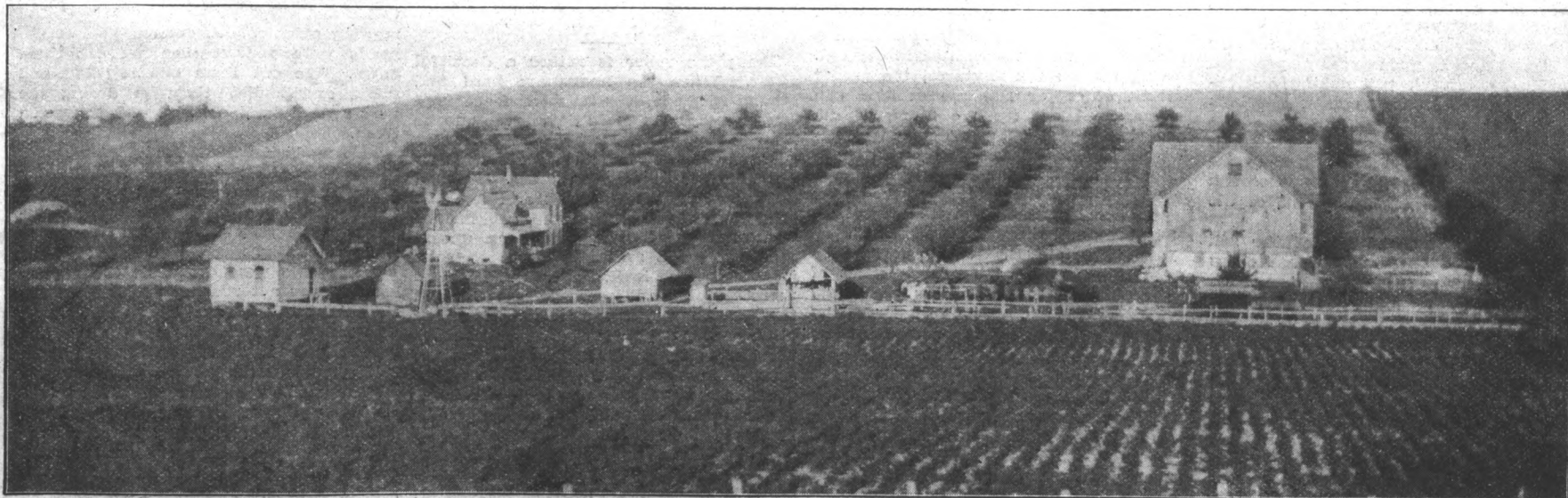
Second—Is it a large yielder? Late varieties yield heavier than do the earlier ones.

Third—Is it subject to disease? Ability to resist common diseases is extremely important.

Fourth—What is the color of the skin and tuber? For most markets, the white fleshed and white skinned tuber is preferred.

Fifth—Nature of the skin and shape. The majority of markets desire a rough skin and the flat, round potato.

Sixth—When does it mature? Potatoes must be harvested before the ground



Farm of O. A. Olsen, of Leelanau County, Typical of Many Northern Michigan Farms Adapted to Profitable Potato Production and Fruit Culture.

freezes to any extent. Green potatoes are hard to handle and must be allowed to harden up before the markets will receive them. So the time of maturing depends upon the climatic conditions of the locality and should come about the time of the first frosts.

A letter to the director of your experiment station, or to some prominent grower, will bring information as to the popular varieties upon the market and their adaptability to the above conditions.

As every good farmer understands how to prepare his land for a crop, little time need be spent on this part of the discussion. The potato needs a large supply of moisture, so plow deep. Put the plow down until it gets some of the sub-soil. And plow early in the spring. Then the early rains and snows can be conserved, with proper mulching, throughout the summer. For early potatoes, the fall plowing is the best. Care must be taken that the soil does not weather in such treatment. A cover crop is often sown in the fall, and then a shallow plowing made again in the spring. No difference when the plowing is done, make it deep so as to conserve the moisture and make a good seed bed.

For the man who raises more than five acres of potatoes, the machine planter can be used very profitably. Some planters require one man to operate them, others need two. A machine that plants perfectly is the only kind to use, for losses from insufficient seeding cannot be made up in one year. The land requires the same amount of work during the preparation and care of the crop and just as much dirt has to be moved during the digging, with a small yield as with a large one. The lower initial cost of a planter cannot recompense the grower for the loss from a poor planter when compared with the perfect work of a good one.

On a small acreage, the common hand planters are very satisfactory. A good man can plant an acre and one-quarter per day and get in every hill. The throwing up of furrows with a shovel plow and dropping the seed into same, is still used by many growers. The most profitable depth of planting for the average soils is four inches. A shallow planting is preferred for the heavier lands.

Montcalm Co. A. M. BERRIDGE.

FOR BETTER CORN YIELDS.

In the good old time of the nineteenth century, when "free land" abounded upon the western frontier, abundant harvests were assured from the rich, virgin soil, and an ample supply of hand labor was to be secured at a fair wage, the farmer was most concerned in the "bigness" of his acreage. With the passing of the red man, the "free land," the increase in land values and good labor harder to secure at a reasonable wage, less attention was given to the large acreage and more attention to a large yield upon the once rich, fertile soil. Today extensive farming is fast becoming a thing of the past. It is being drummed into history. A new regime is taking its place. Intensive methods are being martialed on the field of action. The largeness of the yield is the burning question confronting the would-be successful farmer of the twentieth century.

With the wheat and other fall grains, very little can be done by the farmer to increase or decrease the yield after the crop is once sowed. Seeds of a high germinating standard placed properly in a carefully prepared seed bed is the first and great requisite of the spring grains. But with the cultivated crops it is different. The high-grade seeds and the proper seed receptacle does not make the abundant harvest. Seeds of an inferior quality, planted upon poorly prepared ground, by careful, painstaking cultivation during the growing season may out-yield the former, weather, fertility of the soil and other conditions being similar. The farmer has it in his power to increase his yield materially by thorough tillage and this is especially true of the corn crop.

Michigan has the fertility of the soil and the climate to produce large crops of corn. Kansas and Iowa have been heralded over the country as great corn states, but the average yield of Michigan in 1909 was greater than Iowa and nearly twice the yield Kansas secured. And yet, for all that, Michigan's 1,700,000 acres of corn only averaged in 1911 about 32 bushels per acre. Surely, there is still plenty of room for an improvement. Prof. Holden, of the Iowa Agricultural College, who has done so much, not alone for the corn growers of his state, but also for the entire country, says: "The average

yield of corn in the United States today is about 25 bushels per acre. It can be increased to 30, then to 35 and ultimately to 50." Is it too high to place Michigan's future yields at 65, just double her present yield?

While the first and an important requisite of a successful corn crop is good seed planted in a proper seed bed, yet after planting your highly prized corn on your newly fertilized fields, don't leave it for a fortnight to the tender mercies of mother earth, and the watchful care of the birds of the air and the animals and worms of the ground. You may succeed in having a profitable yield, but the odds are not in your favor. As soon as the corn is planted it is well to commence working the soil. The dragging of the freshly planted ground will cover up all hills imperfectly covered, while on rolling land it will prevent washing down the corn rows by a hard rain. Frequent draggings will interfere with the work of cutworms while the crows and blackbirds will fill up on worms instead of seed corn. A highly edible diet for the birds and a profitable one for the corn grower.

When a rain is sandwiched between the first tillage and the corn planting upon soil where the tendency is to pack, the cultivator will break up the ground by following the corn marks. Follow crossways with the drag and each hill will be loosened up. Never mind if some foolish neighbor asks if you are rushing the season with the corn cultivator. Your turn to laugh at him will come a few weeks later, when he is trying to follow the corn rows in a neglected field where the weed seeds show thorough germination. Perhaps by more intensive planting and more intensive tillage, the same amount of corn could be raised upon half the acreage with less expense. It certainly would be worth trying.

Another saving would be the conservation of the moisture. The field that is repeatedly tilled, especially immediately following a rain, will not dry out nearly as much. This means a good deal in a dry season. Many times larger yields would have been secured if the corn crop had not suffered during the drouth.

By the time the corn is large enough to cultivate it should be weed free, and at the same time the corn cultivating will be well started, that is, the condition of the corn field would indicate that the soil had been worked several times. Then, in addition, the frequent tillage of the soil will not only conserve the moisture but it liberates plant food. This liberated food will help along in the raising of a heavy crop. Then by early and frequent tilling of his corn crop the farmer will make a start toward better corn yields.

Oakland Co.

E. S. C.

FARM NOTES.

Spraying Potatoes for Blight.

Will you please give me directions for making bordeaux mixture for blight on potatoes?
Kent Co.

BEGINNER.

The strength of the bordeaux which has generally been used for the prevention of late blight of potatoes is six pounds of copper sulphate to 50 gallons of water, with four to six pounds of lime added to neutralize the caustic effect of the chemical. For convenience it is better to have the ingredients at hand in the form of stock solutions. The copper sulphate may be dissolved in water by suspending a burlap sack containing the sulphate in the top of the barrel of water. About three pounds of copper sulphate will dissolve in one gallon of water, which makes what is termed a saturated solution. The lime can be slaked in a barrel or other convenient vessel and will retain its caustic properties so long as it is kept in a thick paste and not permitted to dry out. Having these stock mixtures, the proper amount of copper sulphate solution can be measured out for the filling of the spray barrel or tank. This should be added to about one-half the quantity of water needed and the lime paste should be diluted with the balance of the water required and strained into the spray barrel or tank and the whole well mixed.

It is important that sufficient lime be added to neutralize the caustic effect of the copper sulphate, and as additional lime does no harm, except to increase the likelihood of clogging the spray nozzles, it is best to use enough to be on the safe side.

A still better way is to test each batch of the mixture to determine the sufficiency of the lime content. A cheap and efficient test will be secured by purchasing a small quantity of ferrocyanide of potassium (yellow prussiate of potash.) Ten cents worth will be sufficient and it

can be secured at almost any drug store. This should be dissolved in water and the bottle in which it is kept labelled "poison." After mixing and thoroughly stirring a batch of the bordeaux mixture in the spray tank, take out a small sample and add to it a few drops of the test mixture. If it causes a discoloration of the spray mixture where it is dropped in add more lime; if no discoloration occurs the lime content is sufficient. In recent years such experiments have indicated that a mixture containing four pounds of copper sulphate to 50 gallons of water is sufficient, but the six pounds has not caused any injurious effects in its use by the writer. It would, however, be well to adjust the strength of the mixture within these limits to the capacity of the sprayer used and the amount of liquid which is applied per acre.

As a general proposition, the late blight does not attack early planted potatoes and it is not generally considered necessary to spray for blight except the late planted crop. Spraying should begin when the vines are about six inches high which, with the late planted potatoes will be about the first of August. The efficiency of the treatment will depend not a little upon the thoroughness with which the spraying is done and as it is a preventive rather than a curative remedy, spraying should be frequent enough to keep a coating of the copper compound on the vines at all times. In ordinary seasons the number of applications required will vary from three to six, according to weather conditions.

CAPACITY OF DIFFERENT SIZED TILE TO CARRY WATER.

Tell me if two three-inch tile, laid side by side, will take care of as much water as one six-inch tile for main ditch. Which would be best to put in, as I can get the three-inch tile for 20c per rod and the six-inch costs 60c per rod?
Arenac Co.

L. K.

Two three-inch tile laid side by side will not carry as much water as one six-inch tile. Tile carry water in proportion to the square of their diameter. The square of six is 36, and the square of three is nine, and twice nine is 18. Therefore, the capacity of two three-inch tile laid side by side compared with one six-inch tile would be in the proportion of 18 to 36, or a six-inch tile would carry twice as much water as two three-inch tiles, but in reality it will carry more because there will be more friction to overcome in the two-three-inch tile than there will in the six-inch tile. There is always greater friction in a small pipe than in a large one, and so it is with tile. I would say that, taking into consideration this extra amount of friction of a three-inch tile that one six-inch tile would carry three times as much water as two three-inch tiles laid side by side. Then, too, a three-inch tile for a main tile, being so much smaller, is much more liable to become filled by sediment. If the tile is not laid on a true grade line there are little hollows in it, and when the water gradually goes down after a rain a sediment will collect in these lower places which, after a time, will partially fill the tile. This, of course, would occur in a large tile, but there is so much more space for the water to flow through the large one that a small amount of sediment deposited at the bottom would not interfere with the flow nearly as much as it would with the small one. By all means use the six-inch tile for the main drain rather than two or more smaller ones laid side by side.

COLON C. LILLIE.

SOME ADDITIONAL OR NEW FARM TOOLS.

The plane roller is rather a deceitful affair. When the lumps are hard and ground rough it does its work feebly and often presses the clods down ready to be brought up again by the harrow. The good seed bed is one that retains moisture and here is the way the dry land farmer goes at it to pack and fine the soil with a tool called the sub-surface packer. The roller is always an uncertain tool for a rain may come and the smooth surface invites a crust. To meet these objections the corrugated roller and the double pulverizer are taking the place of the roller. A pulverizer smashes the lumps, firms the soil and leaves the surface in the same condition as if a garden rake had been used. For breaking a crust when formed over corn or sugar beets when conditions do not permit the use of a drag, they are ideal. To firm sod ground after plowing and before dragging these tools are most excellent. They are strictly a dry soil tool, for

when wet ground is reached they soon clog up.

JAS. N. MCBRIDE.

LILLIE FARMSTEAD NOTES.

While the excessive rains and the cold weather has retarded farm work very much it seems to have been a good thing for the oat crop. Most of the oats in this vicinity were sown late. If it had come off dry and hot the chances for a crop would have been very materially jeopardized, but by remaining cold, with plenty of moisture the oats have developed as they usually do when they are sown early in ordinary years. I have 25 acres of oats that look as well at the present time as any crop I ever raised. My neighbor said the other day that they looked good for 70 bushels per acre. Oats and peas sown together are also doing well.

We are now just ready to sow our sugar beets this year. Today is the sixth of June. Think of it, a month behind normal years, and the ground is not in very good condition. We did not get it plowed early and it dried out wonderfully in the drying winds, it is lumpy in a great many places, and unless we should have a good distribution of moisture I do not feel that the prospects for a good crop are very promising. I have cut down the acreage of sugar beets owing to the lateness of the season, and unless we should be favored by a reasonable amount of moisture from now on to bring the crop up and develop it it looks as if I might better cut out the whole acreage for this year.

We have a new canning factory at Coopersville this year. I have been persuaded to raise a few crops for this canning factory. It is new business to me, and while the prices are not at all flattering yet the market is sure and there is no speculation in it, and if you grow the crops you get your cash, and I want to try it out. I have, therefore, agreed to raise green peas, also some dwarf lima beans, and sweet corn. As these are new crops for me entirely I shall take very much interest in them, in the method of growing, and in the profits derived from them. It is something out of the ordinary and I am in hopes that it will assist us in getting a larger cash income out of the farm. The canning factory expert recommended that we sow our peas so that they could be cultivated. Their idea is to sow in double rows with a grain drill. Sow two rows close together and then leave a space that you can go through with a cultivator and then sow two rows more, and then another space, sowing three double rows with one sweep of the drill. Then the crop can be harvested with a common bean puller, and while this is something of an experiment even with the canning factory people it appealed to me a little bit. I am confident that this inter-tillage will assist in developing the plants and I am also confident that it will be better to harvest them with a bean puller than it would to attempt to harvest them after they had been sown broadcast with a mower or any other tool that is yet on the market.

COLON C. LILLIE.

OAT HAY.

The prices of rough feed just now, with the present indications for the coming crop do not look very encouraging for lower prices at least for several months.

Two years ago we were in the same pickle about feed as many farmers are now in. It so happened that we had a field of oats at that time which were sown perhaps one-fourth thicker than usual. Clover was sown in the oat ground as usual, to keep up the regular rotation of the field. Now when the time came to harvest these oats we did it with the mowing machine. About one-half of the heads were yellow when we cut them down. We cut them one morning and raked and hauled them in during the next afternoon. Not a bit of rain was on them.

This made the finest feed that we ever had. The stock evidently thought the same. The heads were just ripe enough to furnish some nourishment in themselves while they were green enough to not shell badly.

These oats were cut while the regular harvest was not rushing and so made little extra work for us. This was July 20. The yield was 11 loads from the two and one-half acres. The loads weighed about 1,500 pounds each. So the yield amounted to probably eight tons. There is a saving in threshing bills and an advantage in having this feed all under shelter. Of course, there are good feeding qualities in plain oat straw yet that is seldom housed.

Ohio.

R. E. ROGERS.

LIVE STOCK

SUCCESSFUL LIVE STOCK MARKETING.

Several timely matters in marketing live stock add much to the profit column. The more important are salable condition of the stock, manner of handling in transit and selection of a favorable market day. No stock should be shipped in an unfinished condition. Well-fattened stock, though conspicuously inferior in quality to animals unfinished in flesh, will sell "all around them."

It should be borne in mind that there are but two classes of stock in the yards for which there is an active, steady demand, i. e., stock fat enough for the shambles, and animals belonging to the feeder class. Prices in the feeder class are always more capricious than those in fat lots, hence stock not up to the rigid requirements of the killer grades land without argument in the feeder class. The loss thus entailed is the amount of feed used in the endeavor to get the herd or flock into the fat class.

Shipping stock to market at as little loss in weight as possible claims special attention. Shrinkage forms a large item in the expense of transporting cattle to market. Grass-fed cattle shrink badly, especially if the distance shipped be over 100 miles.

Cattle fattened on corn or hay, or both, will reach market in much better condition than grassers, and in consequence present a trim, desirable appearance in the sale pens. Cattle easily become excited and heated by the unusual exercise and alarming surroundings incident to shipment, and the voidings are frequent and watery, especially in the grasser grades.

It is well for several days previous to shipment to feed rations that are somewhat binding. Corn should be discarded, or fed sparingly, for while it ultimately makes firm flesh, it is too heating for a traveling ration. Good timothy hay fed for three or four days previous to shipment, cutting down the corn ration, is the best check. Such a ration will considerably retard the voidings of even grass-fed cattle, if fed in connection with the usual pasturage for a week before starting for market.

As the drift upon hogs and sheep is much less than that of cattle, comment is unnecessary beyond a brief warning against slopping the former or allowing the latter to have heating food for 48 hours before shipment.

To arrive in the full activities of a slump causes a very depressing feeling. Never is it best to go in on a falling market. It will cost but comparatively little to remain at home at such a time, for the probabilities are always more on the side of a further decline than for a pronounced rally in prices.

The most successful live stock marketing, in my observation, is done by those who manage to have their offerings ready for the sale pens at such seasons of the year when there is a noticeable, if not the greatest, scarcity of fat grades. A safe procedure is to ship when the market is decidedly on an upward tendency and as soon as it indicates a reasonable profit for the shipper. The shipper who is always satisfied with a fair profit and who has the nerve to "let loose" regardless of future blandishments may be ranked as a successful marketer, for he is sure to make money out of every shipment.

Illinois. W. H. UNDERWOOD.

RECORD PRICE PAID FOR SILAGE BEEF.

The coming of the silo is developing some new records for high-priced beef, and is not only making a great saving in the production of stock, but also greatly improving its quality.

On May 13, in the Kansas City Stock Yards, were sold three car loads of steers averaging 1,340 pounds each, at the record price of \$8.85 per hundred weight. These steers were produced on the ranch of Mr. E. F. Milmer, of Kansas, and were fed by him during the winter and early spring a ration of ground corn, cottonseed meal and corn silage. This price is not only the highest for several years, but no doubt will be a record for the year when number and market are considered. Another proof along the same line comes also from the Kansas City market on a bunch of steers weighing 1,613 pounds each and numbering 58 head, which sold for \$8.70 per hundred. This was also a record for heavy steers, and for the date

which was May 6, 1912. These steers were produced by Mr. Jess Monroe, of Missouri, and were fed a ration of ground corn, cottonseed meal and corn silage.

This is what may be termed scientific feeding, just as good results, no doubt, could have been obtained by substituting part of the cottonseed meal with alfalfa. Alfalfa would make the ration somewhat cheaper, and would do quite as well. In considering the benefits of such a ration we have this to remember, corn silage is a grass-like feed, succulent, appetizing and nutritious. It furnishes in the best possible way carbohydrates in the cheapest known form. Ground corn is also a carbohydrate food, and is concentrated in food nutrients. By grinding the corn, the animals are able to obtain all the food value of the grain. Cottonseed meal furnishes the protein not only in a very digestible form, but also in a very cheap ration. Good cottonseed meal has at least three times as much protein as alfalfa hay and the price can be judged accordingly, that is, keeping this in mind, the feeder can either buy cottonseed meal or alfalfa, for feeding his stock. Both could be used to good advantage, especially if he uses a large amount of corn ensilage.

It is well to remember this fact. The



As in Other Lines, it is Better to "Grow" into the Hog Business than to "Go" into it on an Extensive Scale.

feeder who applies scientific principles to his work, keeps posted and learns the best and most economic rations will certainly make the most money.

Nebraska. A. L. HAECKER.

USING HOGS TO INCREASE SOIL FERTILITY.

I note several articles in the columns of the Michigan Farmer in regard to building up and improving wornout farms and any article on such a question always interests me. The question of soil fertility is one of the most important of all questions that confront the farmer of today.

I note many ways and plans given for the betterment of the soil, and many kinds of stock named as best for adding manure to the farm. The dairy cow has had the front rank as a means of building up the farm and, if we do not count labor, I expect she stands at the head. Sheep have been rated as "soil builders," but few have paid a just tribute to the hog as an animal for making better farms. I wish to give the hog a little credit as an improver of poor farms when kept in the right way.

Many say that to keep hogs means to raise corn, and this is robbing the land. What is land for if not to raise good crops? But as generally managed, the hogs and corn make the farm poorer each year. We see the tillable part of the farm put in corn each year and this is fed to hogs in some woods or shady lot where the manure cannot be saved, yet the owner thinks he has an ideal place to feed hogs. It is for the first year, and then it is usually filthy. But the corn has gone to the hogs and no manure returned to the soil. The hogs are not always healthy, and the farm, of course, gets poorer.

I raise hogs, not on a very large scale, but they are my main stock. But I would not raise them if I had to keep and feed them as above described. There is a better plan, for I have tried it and am trying it now. I have my farm well fenced into lots, and aim to keep hogs on some pasture crop the whole year. I sow various crops in lots to have a succession of pasture and forage, and as fast as one lot is grazed down, I turn into another

and plow and reseed the first to something else. I have these lots on tillable ground, and thus save the manure, and in fact, I want the whole farm in such lots, and there I feed the grain in connection with pasture and then plow, and if that does not make the soil better, I would like to know what would.

On the rough part of the farm I have a permanent pasture, but this is used for horses and cows, or occasionally some brood sows are turned in. I feed the hogs grain in lots that are on smooth soil so I can plow and save the manure, and get the benefit of its in any kind of a crop I wish to grow. I have heard men say that the hog did not make much manure, but surely all he eats either goes to pork or manure. I claim the hog is a great animal to build up the poor farm when properly handled. And we do not have to haul the manure, for the hog is a great manure spreader. I would not think of growing grain on the tillable part of the place and feeding it all to stock, and have the manure left where it will do no good. As well sell the grain.

I let the hogs harvest a part of the corn, and they can do it as well and as profitably as a man, and then all is left on the ground, besides what extra you feed. Of course, this system requires

good fences, but it means good farms and less labor.

Missouri. E. J. WATERSTRIFE.

FEEDERS' PROBLEMS.

Grains to Feed with Cull Beans.

What can I feed hogs for fattening to balance the ration where beans is the principal feed; something that will take the place of corn, as corn is too expensive a feed to buy? How would cottonseed meal, oil meal, or digestible tankage be?

SUBSCRIBER.

It is doubtful if any more satisfactory or economical feed than corn could be used in connection with cull beans for hog feeding. Beans contain more protein than corn and rather more than is required for fattening hogs. Hence, in this case corn would be used to balance up the excess of protein in the bean ration and be profitably fed in small quantities to aid in balancing the ration and giving variety to the feed. Cottonseed meal, oil meal or digester tankage would not be economic feeds to use in connection with the beans since they carry an excess of protein, of which sufficient is provided in the beans. Their chief value for use in connection with corn is to balance the deficiency of protein in that feed.

If other starchy feeds, such as barley, could be secured more cheaply than corn this would answer equally as well to combine with cooked beans in a ration for hogs. But if the beans are very much cheaper than any other available feed and a small pasture run can be provided for the hogs so as to give a little variety to the feed, it is not absolutely essential that any other food be used in combination with them, since while maximum gains would not be secured by the feeding of beans alone, gains so secured might be more economical than where a more expensive grain is combined with the beans to secure a ration better adapted to fattening hogs.

Texas grass-fed cattle have been moving to Missouri river markets in steadily increasing numbers recently, and as the season advances they will become sufficiently numerous to force prices considerably lower for their native competitors. Hence, stockmen having ordinary cattle they intend to sell shortly should lose no time in getting them marketed.

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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.

Sharp Uneven Teeth—Irritation of the Mouth.—When my mare has bit in her mouth or when eating corn she is inclined to slaver, but does not do it so much when eating hay or grass. I took her to our local Vet. who floated her teeth, but she still slavers. E. W. Hart, Mich.—Sharp uneven teeth is a common cause of slaving, besides horses that have never been properly bitted frequently do it and it is sometimes the result of eating too much grass that contains a large percentage of water or the mouth may be irritated by eating alsike clover. Dissolve 1 oz. of alum in 3 pts. of water and gargle mouth two or three times a day.

Chronic Cough—Indigestion—Incipient Heaves.—I have a mare that has been troubled with a hacking cough for some time and she seems to generate too much gas. She shows the symptoms of an animal that has a milk attack of heaves. She is much worse when well filled with hay. This mare is only six years old and had a colt three weeks ago. T. V., Midland, Mich.—I am inclined to believe your mare is taking incipient heaves. Feed her no dry fodder, but if she is working feed her grain and grass; also give her 2 drs. muriate ammonia, ½ dr. powdered lobelia and 1 dr. salicylic acid at a dose in feed two or three times a day. She should not be fed any clover or dusty, musty, badly cured fodder and never allowed to fill herself too full of food. Furthermore, she should never be over-exerted when stomach is very full.

Enlarged Gland—I have a ten-year-old mare whose throat glands are enlarged and they have been in this condition for nearly two years. A. K., Hawks, Mich.—Give your mare 2 drs. iodine potassium at a dose in feed two or three times a day and apply one part iodine and ten parts lard to swollen glands twice a week.

Broken Wind—I have been paying particular attention to the veterinary columns of your paper, but have not found anything that fits my case. I have an old mare in good flesh, that seems to be having trouble to breathe. Our Vet. tells me she has heaves and I am quite sure she has a touch of them. For the past two years she has done very little work after June 1. She seems to have trouble in swallowing food, for a portion of what she chews drops out of mouth, nostrils expand and she jerks in flanks. N. H., Allegan, Mich.—I am somewhat inclined to believe her to be broken-winded. Feed no clover, or musty, dusty, badly cured fodder. Grain and grass is the best food for her and give her a dessertspoonful of Fowler's solution, ½ dr. fluid extract lobelia and 1 dr. fluid extract opium at a dose in feed two or three times a day.

Wind Founder—Six weeks ago I bought a driving mare in Detroit, had her clipped and drove home facing a strong wind; she was taken sick that night and our Vet. treated her for wind founder. This treatment had very little effect and it keeps us busy to move her out of barn for she is very stiff and sore. A. L. C., Owosso, Mich.—Her fore feet should be kept wet or she should stand in wet clay several hours a day. Blister corns with cerate of cantharides every ten days and allow her to run on grass. A recovery in this case is somewhat doubtful.

Hernia—Sprained Fetlock.—I have just ascertained that my seven-weeks-old colt has a navel rupture; had a small bunch when foaled, but it has increased in size a little since. I also have a four-year-old colt that sprained hind ankle which is now swollen and painful. E. H., New Haven, Mich.—In some cases a bandage with some elastic in it, and a pad applied to rupture does some good; however, if I owned your colt and the hernia was not doing it any harm I should leave him alone until October or November, then if he has not recovered, have him operated on. This operation is simple and usually successful.

Diabetes—Our driving horse urinates too often and occasionally he acts as if it hurt him to pass urine. W. M., Lakeview, Mich.—Give 2 drs. potassium iodide at a dose in feed three times a day.

Surfeit—Bursal Swelling.—Having received valuable information through your columns before, I appeal again for aid. Have a valuable mare that I think was slightly over-heated; pimples appeared on skin, and I would like to know what to give her. I also have a three-year-old colt that has a puff on each inside of hind leg. I also have another horse that I am afraid is going to take heaves and would like to know what to do for him. W. S., Uby, Mich.—Give your mare a tablespoonful of bicarbonate soda and a tablespoonful of powdered charcoal at a dose in feed two or three times a day; also salt her well. Apply equal parts of tincture iodine and spirits camphor to puffs on hocks twice a week. See treatment for broken wind and heaves, this column.

Mud Fever—Our horses on the farm have been working in wet clay and nearly every one of them are troubled with stocked legs and mud fever. I might add it will not be possible for us to keep these horses out of the mud for some-

(Continued on page 663).

Only One Question To decide

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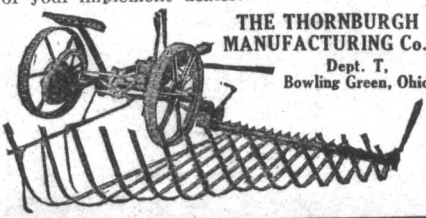
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Herd, consisting of Trojan Erics, Blackbirds and Prides, only, is headed by Egerton W. a Trojan Erica, by Black Woodlawn, sire of the Grand Champion steer and bull at the International in Chicago, Dec., 1910. A few choice bred young bulls for sale.
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Am offering a yearling May Rose Guernsey bull for sale. **ALLAN KELSEY, Lakeview Michigan.**

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We have a few good Holstein Friesian Bull calves from 6 to 8 months old. Prices and individuals right. **Gregory & Borden, Howell, Mich.**

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"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.
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Write for what you want in Holsteins.
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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
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HOLSTEIN BULL calf sired by best son of 13, 20, 23, 24-lb. Cows A. R. O. bred. Some cows also bull calves. 34 years a breeder. Photos and pedigrees on application. W. C. Jackson, South Bend, Ind., 719 Rex St.

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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.**

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Choicest Konradyke, Dekol and Hengerveld breeding. \$50.00 to \$100.00 Official Pedigrees on request.
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Bulls ready for service, also bull calves and heifer calves. Cows all in yearly test. Satisfaction guaranteed. **COLON C. LILLIE, Coopersville, Mich.**

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

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Durocs and Victorias—Young sows due Mar. & April. Bred to 1st prize and champion boar. Priced to move them. **M. T. Story, Lowell, Mich.**

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BERKSHIRES—2 fancy gilts, bred, at \$35. Boars servicable age, \$25 and up. Am booking orders for spring pigs. **Elmhurst Stock Farm, Almont, Mich.**

BERKSHIRES Weaned pigs either sex \$15. Two for \$25; bred gilts \$25; bred sows \$30, registered and transferred. Excellent breeding. Choice individuals. **C. C. COREY, New Haven, Michigan.**

Improved Chester Whites—A few choice young sows, bred for late March & April farrow. Also three young boars, cheap, to close them out. **W. O. WILSON, Okemos, Mich. Both phones.**

O. I. C's Special Prices on spring pigs and service males, also fall pigs 300 to pick from. Shipped 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.**

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O. I. C's—All ages, growthy and large, sows bred, prices on young stock. **H. H. Jump, Munith, Mich.**

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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 Bull 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 Bull Rock eggs \$1.50 per lb. **Fred Nickel, R. 1, Marree, Mich.**

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

DUROC-JERSEY boars for sale from such sires as Star Wonder and Mc's Col from Chief Col. Fall sows of like breeding. Reasonable prices and satisfaction guaranteed. **John McNicoll, North Star, Mich.**

Duroc Jerseys—Sows bred for May and June. Spring pigs. I pay the express. **J. H. BANGHART, Lansing, 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. 3075. 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.**

LARGE TYPE P. C.—Largest in Michigan. Pigs from mammoth sires and sows. Weigh 160 to 175 lbs. at 4 months. My motto—"Not how cheap but how good." Will pay expenses of those who come and do not find what I advertise. **W. E. LIVINGSTON, Parma, Mich.**

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

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

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

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

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

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

15 Poland China Sows bred for spring litter, 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. Also pigs not akin. Boars all ages. **G. C. KREGLOW, Ada, Ohio.**

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

Lillie Farmstead YORKSHIRES.
Boars for spring service. A few bred sows. Also sows bred for August and September farrow. Pairs and trios not akin. Satisfaction guaranteed.
COLON C. LILLIE, Coopersville, Mich.

PRACTICAL SCIENCE.

FUNCTIONS OF NUTRIENTS.

BY FLOYD W. ROBISON.

The respiration calorimeter and the fuel calorimeter we might call the starting points for the scientific valuations of the different food nutrients. We have seen that with the fuel and respiration calorimeters the exact value of the different food products in terms of heat production have been determined and these valuations gave a decided impetus to the study of the principles of animal nutrition. This subject has been followed up by Voit, Kellner, Armsby, Jordan, and others, and very reliable data is now at hand regarding the real functions of these various food nutrients. The most information in this matter has been determined through experiments on animals—a true index of these changes being revealed through a careful and minute study of the liquid and solid excrement, particularly the urine.

Voit's Starvation Experiments.

Voit, working on dogs, established the possibility of two important kinds of protein in the body which he designated tissue protein and circulatory protein. The tissue, or muscular, protein of the body is the firm solid material which constitutes the muscles of the body. The circulatory protein was a product of more or less indefinite character, protein in nature which was made available at any particular point in the body and which was constantly in circulation. In starving animals the urine disclosed a rapid waste of nitrogenous matter which kept up for some time without any apparent reduction in the muscular tissues of the body. This nitrogen waste was considered to come from the circulatory protein of the body and an animal could endure, without vital consequences, a period of starvation which would permit of practically the entire consumption of the circulatory protein of his body. When, however, the circulatory protein was exhausted and the consumption of tissue, or muscular protein was begun, the decline of the animal was very marked indeed, and following rapid emaciation death was but a very short distance removed.

Amino Protein and Circulatory Protein.

The protein compounds in food are divided principally into a class which we have heretofore designated as true proteins and amino bodies. We have not been willing to give the same value to the amino bodies in a ration that is given to a true protein body and while we have not assumed that these amino bodies do not have an important bearing in the food, at the same time being less completely organized perhaps, they do not represent the full value to the animal that is represented by the true protein body containing the same content of nitrogen. In a convalescing individual as we have just inferred, it is the circulatory protein of the body which has been used up and it seems possible that the circulatory protein of the body may be replaced in form, at least, by these so-called amino bodies in the food. The circulatory proteins would conform more nearly to the composition of the amino bodies than would the stationary or muscular protein that is already an integral part of the animal tissue. Whether this view be correct, as a matter of fact, we do find it decidedly advantageous in a convalescing individual to feed the patient on these so-called amino bodies. The standard meat extracts and bouillons and many of the meat soups that are so highly recommended for a convalescent patient are in reality nothing but concentrated amino products. To say that they have no place in the ration, is to speak idly, but to claim for them full value with the true proteins is clearly making an assertion that is not only unwarranted but which is not borne out by the bulk of scientific evidence at the present time.

Fischer's Synthesis of Proteins.

Emile Fischer's work on the synthesis of the protein bodies has done much to familiarize scientists with this highly complex principle. It has been but a short time since the first organic compound has been synthetically prepared in the laboratory, and this organic production, of urea, by Wohler, in 1828, was followed by a period of very rapid progress in the production of organic compounds. Little attempt was made, however, and little success has been attained in the synthesis of protein compounds until Emile Fischer, in the last few years, has

succeeded in producing some of the amino bodies such as, however, exist in the circulatory proteins in the animal body. This has resulted from an intricate study of and taking advantage of the resultant products as excreted in the urine, and as stated some time ago, the excretory workings have been a most fruitful source of scientific investigation on the problems of animal nutrition.

Protein a Complete Food.

Protein seems to be the one principle which by itself is capable of completely nourishing the animal body. There are certain carnivorous animals which live almost exclusively upon a crude protein diet supplemented with an excess of mineral matter in bones, and such sources. These animals as a rule are not exceedingly fat, although it is known that they do at times accumulate varying quantities of fat. Following up Voit's studies in starvation and its influence upon nitrogen excretion, experiments were conducted on feeding an excess of protein to ascertain if the nitrogen would in this case be excreted. Protein cannot apparently be stored in the body after the maximum body requirements are met. A study of the urine indicates that as fast as an excess of protein is stored away and after the maximum body requirements are met, the nitrogen of this protein is excreted in the urine in the form principally of urea. This would indicate that the animal body has no provision for the storing up of protein in the body as is the case when an excessive quantity of carbohydrates and fats are taken in the food. Nevertheless, it is a known fact that animals when fed on a ration of protein exclusively may increase in weight. This weight indicates that the protein is stored up in the form of fat and this is known to be actually the case.

Protein Contains a Carbohydrate Molecule.

The theory of this formation is that the protein molecule consists of a carbohydrate molecule attached to which is the nitrogen in the proper proportion. The theory of the disintegration of the protein body is that after the maximum protein supply has been met the molecule is then further split, the carbohydrate part of it going to form fat, the nitrogenous end of the molecule being eliminated as urea in the urine.

We have gone into this point of the exact function of protein in the body because it has a bearing upon the theory of the use of balanced rations which we shall discuss probably in our next paper.

Fats and Carbohydrates not Complete Food.

Continuing these investigations to the fats and carbohydrates, it has been clearly shown that an animal cannot thrive for any long period of time on an exclusive diet of fats and carbohydrates.

Following the ingestion exclusively of
(Continued on page 665).

LABORATORY REPORT.

We made cider from good ripe apples in early fall, put it in a vinegar barrel, left it undisturbed on the barn floor, expecting it to turn to vinegar. This spring it is insipid, seems to be dead. Why didn't it turn to vinegar? Can it be revived?

A READER.

It is difficult to tell from the description given by Reader just what is the trouble with the cider in question. We would like to ascertain first whether the cider is still sweet or whether it has completely turned to alcohol. If it is still sweet, by dissolving a package of compressed yeast in the same and allowing it to have access to the air, that is, opening the bung, and inserting a small cotton or straw plug, alcoholic fermentation will be encouraged and this time of the year should proceed with vigor. Then after the alcoholic fermentation is started acetification will begin. If alcoholic fermentation has started and all of the sugar has been fermented, acetification may possibly be encouraged by introducing a little vinegar or a little mother-of-vinegar into the barrel.

We would suggest that reader refer to a previous number of the Michigan Farmer where this question of fermentation of cider and the forming of vinegar is more or less thoroughly explained.

If Reader is not successful in getting fermentation started in this vinegar, if a small sample is sent to the Practical Science Department we will endeavor to ascertain what is the trouble with the same.

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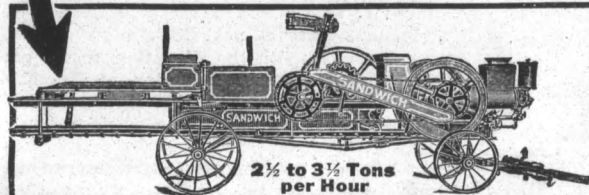
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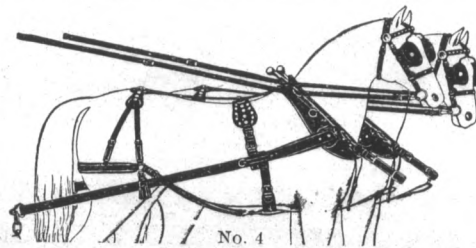


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The Lawrence Publishing Co.,
Detroit, Mich.

DETROIT, JUNE 15, 1912.

CURRENT COMMENT.

As noted in a recent issue, the Progress of Parcels Post Legislation. House has moved a little way in the

direction of an adequate parcels post in the passage of the post office appropriation bill, which raises the weight limit of packages which may be sent by mail from four to 11 pounds and reduces the postage from 16 to 12 cents per pound, aside from providing for a rural route parcels post with a charge of five cents for the first pound and one cent for each additional pound. But perhaps the most important provision of this bill is one which provides for a joint committee of three members from each house to further study the whole parcels post question, consider all bills and report to congress on the first Monday of December, 1912.

At first thought, this last mentioned provision of the bill looks like an attempt to delay progress in parcels post legislation, but those who are most friendly to the parcels post idea do not believe this to be the intent of the provision for several reasons. First, it is stated upon good authority that the setting of March 18 as parcels post letter day resulted in the bringing of so many communications from farmer constituents to congressmen as to convince many doubtful members of congress that there was a very general interest in this proposition, thus making them more favorable to constructive legislation along this line. Then, the more the proposition has been studied by thinking men, the more apparent it has become that time is yet needed for study which will clear up some of the points at issue and harmonize the various views held upon this subject by those who are most desirous of securing for this country adequate parcels post legislation.

In addition to the measure of parcels post provided for in the general post office appropriation bill, which will probably be passed by the senate in a similar form, there are a number of special parcels post bills among which the following may be mentioned as prominent: The Bourne Bill, introduced by Senator Bourne, chairman of the committee on post offices, provides for a weight limit of 11 pounds on rural and city delivery at low charge and divides the country into zones with a gradually increasing charge for each succeeding zone. Another bill is the Gardner Postal Express bill

in the Senate, similar to the Goeke bill in the House, which are in a class by themselves in presenting an entirely new idea on parcels post legislation. They are based on the findings of Rep. Lewis, of Maryland, who has devoted years to the study of this subject. These bills provide that the government shall take over the express companies' business and contracts, assuming the entire parcel carrying business of the country in order that all people may receive equal service at the least possible cost, including the people who live on rural routes. This plan has been favorably considered by the House committee on interstate and foreign commerce, which committee has reported the Goeke bill with recommendations that it pass. Many of the most ardent friends of an adequate parcels post have endorsed this postal express plan, as have the National Grange and the state Granges in many states, including Michigan.

These bills, and others now before congress, will bear close study, and with the disposition manifested on the part of members to thoroughly investigate the problem and act in accordance with their findings at the next session of congress, there is every reason why the friends of adequate parcels post legislation should be content with the situation and wait for its best solution under our conditions, rather than to urge hasty action before the different plans can be thoroughly investigated and the views of the friends of parcels post harmonized in such a manner as to unite their strength in a comprehensive plan which will give the best possible service to the greatest number of people at the lowest practicable rate.

An innovation in Boys' Model Farms state fair management and an added attraction for the

Michigan State Fair for 1912 has been planned and is now under way. This new feature will consist of a number of "model farms" on the fair ground to be conducted on a competitive basis by boys selected for the purpose. Work has already been started upon this feature, a space 1,000 feet by 400 feet having been plowed and fertilized and during the present week some 50 boys have made selection of their plots. These plots are about 50x200 feet, and on them the boys will plant various crops in season so that same will be harvested at the time of the fair. Among these crops will be included corn, potatoes, mangels, beans, sugar beets, squash, pumpkins, celery, onions, etc. In addition to these practical crops the boys will also plant flowers to beautify their little farms and make them attractive.

The state fair management has hung up liberal prizes for these boys. To the boy whose produce, and general appearance of whose little farm is the best at fair time, a cash prize of \$100 in gold will be given. The second prize will be \$50 and the third prize \$25. In addition to these prizes a number of other prizes will be given by merchants who handle seeds and agricultural implements, so that the winners will be well prepared for more extensive farming should they decide to take up that line of work.

Among the boys who will take the most active part in the little farms are a number selected from among the boy scouts of Detroit. Thus far there have been chosen 30 of these boys who have agreed to each take one of these little farms and conduct it to the finish in a manner to make the best possible showing. These boys were chosen from five troops of boy scouts in the city, including the Y. M. C. A. troop and the troops from a number of Detroit churches. The boys will not be allowed to go into camp as this would mean their absence from school for a greater part of the week. It is certain, however, that they will take much interest in the work and will receive an inspiration from it which will mean much for their future development.

These little farms will also prove an added attraction at the fair and should likewise prove an inspiration to many country boys who see the results attained by their city contemporaries on these boys' model farms. This work will, of course, be educational to the boys themselves and this educational influence will extend to thousands of boys who do not participate, inasmuch as it will reveal to them the possibilities which are open to the boys of both the city and country in agricultural pursuits.

It is a new development of the old school garden idea which has proven such a success, especially in the cities where the boys have little conception re-

garding agriculture or its possibilities and the state fair management is to be congratulated on this move which we predict will be productive of even more beneficial results than they have anticipated, since many a farm boy will be inspired to plead for a little model farm of his own in consequence.

Economists are everywhere viewing with apprehension the city-

ward trend of our population and sounding a warning to the effect that if this tendency is not checked by educating the people back to the land, the consequences are bound to become serious in the not distant future. In a majority of cases, however, they direct their educational campaign toward the wrong subjects. It is well nigh useless to argue this point with mature adults who have chosen their vocations in life, but when the possibilities of agriculture are properly presented to the boys and girls who have not yet made this choice, the results may be entirely different.

As an example of this fact, we would refer to the results in Wright county, Iowa, where the boys and girls over the fourth grade in 34 graded schools were asked what they intended to do when grown up. Of 164 boys to whom this question was put 157 replied that they would have nothing to do with farming, while 163 of 174 girls likewise voted against the farm. Three years later, during which time instruction had been given in agriculture and home economics, the same question was put to the same pupils in the same school. This time 162 of the 174 boys answered that they intended to become farmers, while 161 of the 178 girls were planning on remaining on the farm. Does not this point the way to the best method of keeping the country boys and girls on the farm?

HAPPENINGS OF THE WEEK.

National. The republican national committee is in Chicago preparing for the republican national convention to be held in that city June 18. The whole number of delegates to the convention will be 1,078. It will thus require 540 votes to make a nomination. There are 411 votes instructed for Col. Roosevelt and uncontested. President Taft has 201 instructed delegates that are uncontested. Senator LaFollette has 36 instructed delegates that are uncontested and Senator Cummins has 10 instructed delegates that are not contested. Altogether there are 166 uninstructed delegates. This leaves 254 that are contested and it is the duty of the committee in session to review the claims of the contested delegations and determine whether they will be seated in the temporary organization of the convention.

The federal government has just issued advance sheets of the census showing the condition of Michigan industries at the time the last census was taken. This bulletin states that in 1909 there were 271,071 persons engaged in factories. This is a large increase over the number so engaged when the state census was taken in 1904.

Apprehension is felt among the mill owners in Connecticut lest the textile workers will walk out on strike.

The supreme court of the state of Washington has upheld the ordinance passed by the Tacoma common council which provides against treating.

Traffic has been resumed again in Boston where business was disturbed by the street car strike. The company operating the roads of Boston and vicinity are using new men.

Fishing towns on the shore of the Shelikof Strait in Alaska are believed to have been destroyed by erupting volcanoes. Assistance has been asked for.

A joint conference is being held at Lansing this week to effect a permanent organization of the several associations of the state looking toward the conservation of our natural resources. A program is being given with prominent public personages to address the delegates.

Arrangements are being made for bringing to Detroit during the celebration of Cadillacqua, July 22-27, the fastest motor boats to be found. The course in the Detroit river is held to be the fastest in the world by the United States naval authorities, which fact is attractive to those interested in racing. In the speed trials 52 miles per hour has been reached by one boat that is to enter the races.

A resolution has been submitted to congress providing for the investigation of the weather bureau department of the government, the reason for the movement being largely based upon the withdrawal of service from the farming communities and upon expenditures of money for equipment of uncertain worth and the neglect of duties and work of certain value.

At a recent meeting of the Michigan State Board of Agriculture plans were completed for the establishment of a system of forestry extension work in this state, and C. A. Taylor, of Branch county, was appointed to carry into effect the general plans of the board.

The fifth session of the Graduate School of Agriculture will be held under the auspices of the Association of American Agricultural Colleges and Experiment Stations, at the M. A. C., East Lan-

ing, Mich., July 1-26, 1912. Director A. C. True, of the United States Office of Experiment Stations, will be dean of the school and the faculty, as usual, will consist of some of the leading scientific men from the United States Department of Agriculture, the American agricultural colleges and experiment stations, other American universities and European institutions. Two lecturers have been secured from England, Dr. A. D. Hall, of the Rothamsted Experiment Station, and Prof. F. H. A. Marshall, Christ College, Cambridge University.

Foreign.

Two persons were killed by falling 300 feet from a monoplane at Mourmelon, France.

Two battleships have been ordered to sail for Cuba by the state department at Washington to protect Americans and foreigners on the island from the rebels who are menacing the inhabitants in many sections of the island. Property has been destroyed in a number of places and it seems that the revolution is general all over the island. The issue is forcing a contest between the whites and blacks, thus making the war one not between different sections but between the two races.

A heavy blow was dealt to the revolution in Mexico by the capture of Gonzale C. Enrile at El Paso, who has been responsible for financing the revolution. Also Capt. Gonzales, of the rebels, was killed at Juarez. It is further reported that rebel forces were defeated in an engagement about 50 miles east of Torreon. These, with other discouraging features, seem certain to dishearten the rebels in their hope to put down the present government.

The 13 ships comprising the German fleet now visiting this country are in New York harbor where the officers and men are being entertained by the American navy men.

Out of eight contestants who started in the aeroplane contest from Berlin to Vienna under the auspices of aviation societies, three succeeded in finishing in the big contest. Five of the machines were wrecked.

Unless something unforeseen takes place the big dock strike in London will be terminated in a short time.

American tin plate is being shipped to Japan in increasing quantities. This product is also finding a way to Liverpool and even to London itself. The Welsh producers are much exercised over these facts, they believing that Americans are getting their markets away from them.

An engagement between Italian and Turkish-Arab forces between the oasis of Zanzur and the Mediterranean sea resulted in a victory for the Italians. A counter attack was made by the defeated troops without success.

SPECIAL INSTITUTE TRAIN.

The Agricultural College will run a special institute train through the central and northern part of the state during the latter part of June.

The Detroit and Mackinac and parts of the Michigan Central and Grand Trunk and Ann Arbor roads will be covered, stops for about 90 minutes being made at the points and on the dates given below. There will be three coaches and three or four baggage cars. Lectures upon a variety of topics, including alfalfa, dairying, fruit growing, bee-keeping, and various phases of general farming, will be given.

The baggage cars will be filled with exhibits which will be used to illustrate the lectures, and for demonstrating the use of machinery of various kinds.

For the last six years one or more institute trains have been run annually and the interest has increased each year. Farmers who live within driving distance of stations where the train will stop should avail themselves of the opportunity of listening to the lectures and inspecting the exhibits.

Itinerary of Farmers' Institute Train.

Friday, June 14.—Omer, 8:00 a. m.; Twining, 9:30 a. m.; Whittemore, 12:30 p. m.; Hale, 3:00 p. m.; Rose City, 4:30 p. m.

Saturday, June 15.—East Tawas, 8:00 a. m.; Harrisville, 10:30 a. m.; Black River, 1:00 p. m.; Ossineke, 2:50 p. m.; Alpena, 4:30 p. m.

Monday, June 17.—Cathro, 8:00 a. m.; Bolton, 9:40 a. m.; Posen, 1:30 p. m.; Metz, 2:30 p. m.; LaRocque, 4:00 p. m.

Tuesday, June 18.—Millersburg, 8:00 a. m.; Onaway, 10:00 a. m.; Tower, 1:00 p. m.; Aloha, 2:45 p. m.; Cheboygan, 4:15 p. m.

Wednesday, June 19.—Indian River, 8:15 a. m.; Wolverine, 10:00 a. m.; Vanderbilt, 1:00 p. m.; Gaylord, 2:30 p. m.; Frederic, 4:15 p. m.

Thursday, June 20.—Roscommon, 7:45 a. m.; St. Helens, 9:15 a. m.; West Branch, 10:45 a. m.; Alger, 1:10 p. m.; Sterling, 2:30 p. m.; Standish, 4:00 p. m.

Friday, June 21.—Bentley, 7:45 a. m.; Gladwin, 10:00 a. m.; Pinconning, 1:00 p. m.; Linwood, 2:30 p. m.; Kawkawlin, 4:00 p. m.

Saturday, June 22.—Fosters, 8:15 a. m.; Burt, 10:00 a. m.; Montrose, 1:00 p. m.; Flushing, 2:30 p. m.; Lennon, 4:00 p. m.

Monday, June 24.—Pompey, 8:00 a. m.; Middleton, 9:30 a. m.; Carson City, 11:00 a. m.; Butternut, 1:00 p. m.; Sheridan, 2:30 p. m.; Greenville, 4:00 p. m.

Tuesday, June 25.—Carland, 8:00 a. m.; Elsie, 9:30 a. m.; Ashley, 10:50 a. m.; North Star, 1:15 p. m.; Ithaca, 2:45 p. m.; Alma, 4:15 p. m.

Wednesday, June 26.—Forest Hill, 8:00 a. m.; Shepherd, 10:00 a. m.; Mt. Pleasant, 1:00 p. m.; Rosebush, 2:45 p. m.; Clare, 4:15 p. m.

Thursday, June 27.—Farwell, 8:00 a. m.; Lake George, 9:30 a. m.; Temple, 11:00 a. m.; Marion, 1:00 p. m.; McBain, 2:15 p. m.; Cadillac, 4:00 p. m.

Friday, June 28.—Boon, 8:00 a. m.; Harrietta, 9:30 a. m.; Mesick, 11:00 a. m.; Pomona, 1:15 p. m.; Copemish, 2:45 p. m.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

A POSTOFFICE ON WATER.

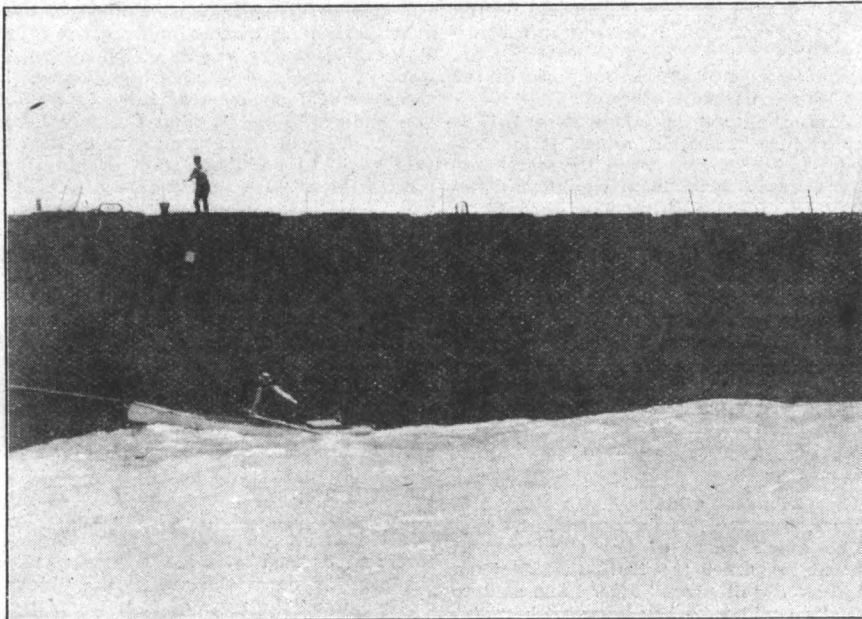
BY HOWARD M. SULLIVAN.

THE international postal service has many novel and interesting methods of delivering mail matter to its patrons, running the range from the barrel chained to the rocks at the southern end of bleak and deserted Terra del Fuego, where ships may stop and the crews row over to it to get any mail addressed to the ship and deposit letters for delivery to all parts of the world, to the dog train of Alaska where hardy men drive dog teams harnessed to sledges loaded with mail, hundreds of miles across dangerous mountains barren plains and treacherous ice, for distribution to the exiles of that desolate country above the Arctic circle.

But none of these are more unique or interesting than the method of the delivery and collection of mail to passing boats on the river at Detroit, Mich. It is called the United States Marine Post Office and is the only one of its kind in the world. It has been in operation for several years.

The river at this point is three-fourths of a mile wide. Strangers are attracted by the greatest of marine spectacles in the world formed by the endless procession of giant freight and passenger steamers that pass the Detroit port. While one stands amazed at the great water caravan he sees suddenly coming out from one of the docks a small black boat with white cabins. It darts forth to meet an oncoming freighter. It is Uncle Sam's mail boat and is named the C. F. Bielman. Aboard her are six men whose duty it is to see that all boats passing Detroit receive all mail addressed to them. This duty is well performed.

When nearly in front of the oncoming steamer, a man in gray uniform runs to the stern of the tug where a large rowboat is being towed. Getting into the rowboat he casts off the line and grasping the oars rows straight for the big vessel until he is directly in front of it and an accident seems inevitable. Nearer comes the freighter, never checking its speed or changing its course; higher and higher its sharp black bow looms up, overshadowing the pigmy in its path. The marine carrier, for that is what he is called, pulls suddenly on a long line fastened to the tiller and the rowboat drifts alongside the freighter. He then stands up and grasps a coiled line laying in the bottom of the rowboat. All this time the larger boat is rushing by him at a rate of ten to fifteen miles an hour. Suddenly he heaves the line toward the deck towering above him. The line, uncoiling as it flies straight to the mark, is caught by the willing hands of a sailor waiting to grasp it and make it fast. As the line tightens with a jerk, the small boat is pulled almost out of the water and care must be taken by the carrier that he is not pitched headlong into the river. A bucket is then lowered containing outgoing mail which is taken out to be mailed ashore and mail for the steamer is put in its place to be delivered



Hoisting Mail Bucket from Small Boat to the Deck of a Giant Freighter.



Row-boat Used in Marine Service. The Box Contains Mail for the Freighters.

to the sailors anxiously waiting for news from loved ones at home who are not seen for months at a time.

All this must be hurriedly done as other boats are coming and all must be caught in a like manner and none can be missed.

This operation is gone through with night and day, in the hot August sun or November's snow and sleet, for nine

months of every year. If two or more boats are coming at once the mail is also delivered from the tug by the other carrier, who uses a contrivance shaped very much like a dip net on a long handle. This last feat requires great skill in handling the tug on the part of its captain and is quite exciting for the novice. This sight is always interesting to onlookers, yet thousands witness it and

never know any of the particulars about the work.

To follow a letter from the time it is received at the marine post office until it is delivered to the passing vessel is interesting. The author has had the privilege of watching the journey of these letters from beginning to end.

The mail is delivered by automobile at very frequent intervals, in a manner similar to that employed for other stations of a city. As soon as it arrives the bundles are untied and on the back of each letter, one of the clerks writes the name of the vessel to which it is addressed, in a large plain hand so that it may be easily read. Then the mail is tied up into bundles again and carried aboard the tug where the carriers sort it and deposit in pigeon holes the same as at a land post office. All this must be done quickly for even while it is being done a steamer may be in sight and mail must be made up for it until the last possible minute. When ready the letters and papers are again tied up, each bundle for a boat, and when wanted are taken aboard the rowboat and placed in a large waterproof box in a handy position where they can be picked up readily.

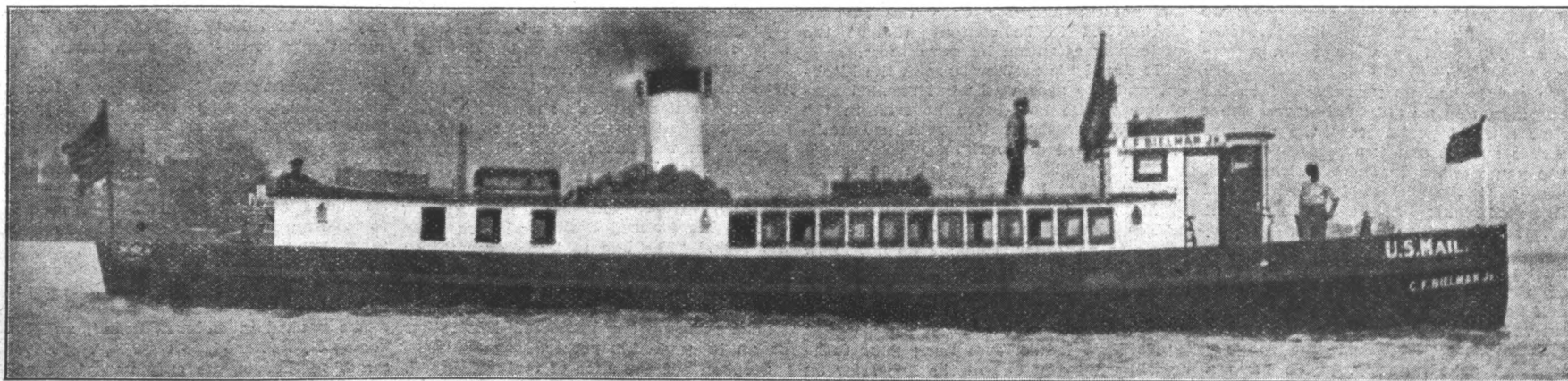
Although confusion sometimes seems inevitable, everything is done systematically and nothing is laid down except where it can be quickly picked up again when wanted.

A telegraphic report is received of all vessels leaving every port on the great lakes, locking through the canal at Sault Ste. Marie, or passing through the Straits of Mackinaw and a careful record is kept which, aided by the knowledge of the carrier in regard to the speed and cargo of each vessel, a very close calculation can be made in regard to the time each boat will pass Detroit.

Any scrap of marine information is painstakingly gathered and carefully kept by the force on duty that their knowledge may be kept up to the minute. It is necessary that all vessels shall be familiar to the men connected with this work and so peculiarities in the design and construction of each boat are noted until the way they can be recognized by these men seems almost uncanny; one vessel's smoke stack may be a trifle longer than the average or perhaps slant almost at an angle. A thousand and one different things are noted and kept track of, so that in the darkest night, the boats may be distinguished as far as they are seen.

This work is no child's play, when it is taken into consideration that upwards of a hundred boats pass Detroit each day, that a very large number must be remembered and also that there is almost a duplicating of many of the boats' names.

The C. F. Bielman is about sixty feet in length and fourteen feet beam. It was built at Ferrysburg, Michigan, of steel, for the work that it is engaged in and is of peculiar construction that enables it to be turned in a very small circle. It is equipped with a fore and aft



The C. F. Bielman, Jr., only Floating Postoffice in the World; Carries Mail for the Thousands of Sailors on the Great Lakes.

compound engine 6½x13x8-inch stroke of piston and is of ample power to drive the boat at the necessary speed. It is modern in every respect, having electric lights and all conveniences.

The small wooden steamer, Florence B, was used for a number of years but the service outgrew it and owing to the congestion due to the small accommodations the very best service could not be given, so the smaller boat was discarded.

The crew to handle the boat is divided into two shifts, each consisting of a captain and engineer. Each crew is on duty twelve hours a day. Six carriers take care of the mail. There are three crews of two carriers each. Each pair works eight hours of every twenty-four, having no Sundays or holidays during navigation season. The carriers are all picked men selected for their knowledge of, and experience in, water and marine matters. Each one was required to take an examination conducted by the post office department to satisfy the officials that he possesses this knowledge. Each carrier shows his calling by the muscular development of his chest and arms, due to rowing a heavy boat.

To hear them talk the listener would be almost persuaded to believe that their chosen vocation is as prosaic and devoid of adventure as the ordinary city or rural letter carrier, but after spending a night in late November or early December, one's opinion undergoes a change. They must keep at work through snow, sleet and spray until their clothes are frozen stiff. No matter how rough the river is or how hard the wind is blowing, the mail must be delivered that no sailor be disappointed in not receiving letters due

him. However, they consider it all a part of the business and although the danger is far above that of the average man's work, accidents are very rare and nothing serious has ever happened. Probably the greatest accident that, in their minds, could happen, would be the missing of a single boat.

The importance of this work is realized when we learn that a movement in congress to abolish the marine post office some years ago, met with such sturdy opposition that the attempt was abandoned.

This narrative would not be complete without a description of how the sailor receives his mail. No housewife, standing on the porch of her home awaits with more eagerness the coming of the postman than does the mariners of the great lakes. Shut off from sight of family, home and friends for a very considerable portion of the year, and hearing only belated news of the busy world, the marine carrier is the connecting link between the sailor and the outside world, for not only does he bring the news from home but he can be depended upon to hand up a scrap of important news, even to shouting the results of an election or the score of the last league baseball game.

When the mail is taken aboard it is carried into the cabin, where it is sorted out for the crew. Then the watchman of the vessel plays at postman by distributing to the waiting a crew a letter from home or perhaps the town newspaper. The men quickly withdraw to read them, or retire, disappointed, to wait until the boat passes Detroit again where they may expect another visit from the marine letter carrier.

ried out. On the way he sought to decide on just the method to be used in telling his father of the afternoon's happenings. Stephen knew the rigid, stern nature of his father, born of a cold, Puritanical race and bred in their teachings, and he realized that he would look with no favor on this bringing into his home of a strange, mysterious girl from the western part of the state. It would look to him like charity carried to an extreme—a thing which he detested, and which usually aroused his anger. Stephen, at first, thought of keeping quiet about the whole affair until his mother could explain matters to his father, for she, of all in the family and near relatives, was the only one before whom his father's iron nature bent; but, again, he reasoned that a word now would save his mother just so much explanation when the crisis came. So he told the story of the afternoon.

The strong figure of the older man straightened beside his work, and the even eyes were hard. "What's that, Stephen—give a perfectly strange girl the guest room? No one you ever saw? or Mother? knew no one in the village? A piece of foolishness—that's my judgment! the idea of doing such a thing! How do you know who she is, what she may have been? For all you know—well, here's this work to be done; we'll decide this matter later." He turned abruptly to his work.

Stephen watched him a moment in dismay before he, too, began work. He knew what his father intended. The cold searching of his questions would soon establish who she was, where she came from, and the thought of that searching chilled him. In the brief time he had seen the girl, something had been stirred within him—the same feeling that had actuated him long ago when he rescued a little brown thrush from the claws of his mother's favorite cat at the cost of the cat's life; and now as he watched the wintry face of his father the same instinct was stirred within, again, to protect and defend.

When far down the valley the village clock chimed the hour of five, his father dropped his tool and signaled him to do likewise. They walked to the house without a word, his father silent and taciturn as was his custom, but this time the silence had a chilling and forboding effect on Stephen.

As they entered the kitchen his mother looked up with a smile—the one perfect smile on earth—a mother's smile of love and greeting. The light on her face was reflected on his father's, and the stern face relaxed as he kissed her by way of greeting.

His ears tuned to hear the first mention of the girl, Stephen made ready for supper. Nothing was said, however, until at the table, where his mother said: "Maxwell, I have a little brown bird upstairs that we found by the wayside—a girl."

"So Stephen was saying," his father answered, shortly.

The crisis was approaching. Stephen buttered a slice of bread on both sides, but his disgust at so doing was momentary, for his mother went on, "I want to keep her here with us—for a while; she—"

Mr. Lane carefully laid down his knife and fork. "Mother, I will not countenance this thing. You have altogether too kind a heart. You have been imposed upon enough because of it. These people that come from the thickly settled portion of the state under the circumstances this girl evidently did are not to be welcomed with open arms; you have had some experience before with them. Now, I'll talk with this girl; if she satisfies me, she stays; if not, she goes. My home is not to be made an institution for wandering girls. I will talk with her."

Stephen put the bread carefully down. Across the table he watched his mother. Her gentle face, crowned with the white hair, shone Madonna-like under the mellow glow of the big center lamp; and she was smiling. "No, Maxwell, you will ask her no questions at all," she said, quietly.

Stephen had a boyish desire to slap his mother on the back; thus did many of her victories begin.

"Mrs. Lane!"

"Now, father, your potato is getting cold." He glanced down and picked up his fork. "She has told me everything: who she is, where she came from, what is wrong." He picked up his knife. "I want her to stay; she can help me, and I need someone besides Bess." His father began to mash his potato.

Stephen cut the slice of tortured bread. Only seldom did his mother oppose his father directly at every point, but when

she did the chances were in her favor; under the heat of her firmness and gentleness seldom did his father fail to melt.

Not another word was said about the girl upstairs until Stephen took it upon himself to question his mother. "Who is she, mother, and what's wrong?" he asked.

"Stephen, you will learn in all good time," his mother answered.

Stephen turned away to see on his father's face the nearest expression to a smile that ever rested there. "You see, son?" he said.

Stephen nodded.

After he had retired that night, Stephen heard his mother go into the west room, and their voices reached him, the girl's sweet and wistful, his mother's tender and motherly. As she was leaving the room and the door remained open for a moment, he heard the girl say, "You are so good to me; if I only had a real mother like you!" He did not catch his mother's reply, but as she went by his room, he called her in. "Mother, what's her name?"

She smiled. "Still so curious? Avery Dale."

"Avery Dale," he repeated, learning back; it was a new name to him, but it seemed to fit.

At noon the next day, he entered the kitchen to find his mother and the maid busy in the work which his mother loved, and there, too, was—the girl.

His mother heard him and turned with her welcoming smile. "Stephen, this is Avery."

Something in his mother's simple, unaffected introduction gave their first meeting almost the grace of old friendship. He saw that her face was pale, and the shadow was still in her eyes, but the swift, shy smile that came in answer to his drove the shadow into utter rout.

Then his father came in, and his mother introduced them. Under the gray lancing of his eyes, the girl seemed to shiver and cringe, and her answer to his even greeting was low and shaken.

Someway, after it was over, Stephen felt as if his nerves had been tightened into knots, then suddenly cut.

While at the table, Mrs. Lane said: "Stephen, I want you and Avery to drive to the village this afternoon for a few things that I must have."

He eagerly agreed to accept the commission, and when he drove up to the house with the black pair, she was waiting for him.

The drive was an eventful one, and Stephen's heart was soon warmed by the mystic influence that is born into existence when two hearts attuned meet. Under the kiss of the wind her cheeks were touched with rose, her eyes brightened, and curls of her wavy brown hair were blown from under the Tam O'Shanter his mother had bade her wear.

They chatted along conventional lines until he discovered her almost childish interest in the sights and scenes along the road, then he led her on with question and answer until her sweet voice hesitated no longer but ran happily on.

He told her of himself, of the beautiful estate of his father which had been in the possession of his family since colonial days, of his father's pride in the place, in his ancestors, his beliefs. Then it was he saw a little of the rose fade in her cheeks.

"I am afraid of your father," she said, slowly.

"You mustn't be—yet most everybody is—except mother; he loves her too much."

"His eyes—they look into your very soul as if he read what no one else could."

"That is just his way. He does not realize it; and at heart he is the best in the world. But he comes of an old Puritan family—a regular old line Puritan; doesn't believe in some kinds of music, theatre-going, dancing; and he thinks anybody who has anything to do with such things is in league with Satan."

He thought he felt her start, and looking down he saw that she was indeed startled. Quickly she mastered her emotion, however, but not so swiftly that he did not have time for a moment's swift wonder as to what he had said that should so affect her. "It was so—so kind and good of you and your mother to take me in the way you did. It must seem very strange to you—the way it happened. I told your mother everything; and I would tell you but—I am afraid I—"

She paused in embarrassment, and he, seeing it, hastened to save her. "Never mind, mother is the only important one anyway, and I don't care so long as she manages to keep you with us."

The Little Brown Bird.

BY ARTHUR W. PEACH.

STEPHEN LANE'S simple and satisfactory philosophy of life held no room for the presence of Fate, but that one moment and the resultant occurrences came very near to compelling him to recognize the existence of something working in life for the good or ill of men beyond their direction.

He and his mother had driven up to the small village station for an express bundle; and instead of driving immediately away, at the suggestion of his mother he waited a moment that they might watch the western express majestically sweep across the flats, and stop for a few moments, looming dark and haughtily over the little station.

Then Stephen lost interest in everything except a slight figure, the only passenger to alight, who stood hesitatingly on the platform. Something in her appearance held his attention; what it was he could not tell then, but it cost him much thought and anxiety later. She was dressed very simply in brown; pretty she certainly was, but Stephen was attracted more by the expression on her face as she turned and looked toward them after the express pulled out.

"Mother," he said, "that girl's a stranger here, and in trouble—look!"

With a leap that carried his six feet from the carriage inartistically but solidly to the platform, he ran over to where the girl had fallen, bent over and gathered her in his arms; and in obedience to his mother's directions took her into the station waiting-room where the only man in charge, Welsh, hurried up with a glass of water.

Under Mrs. Lane's ministrations the girl stirred and her eyes opened, showing luminous brown depths that were full of a dark something—fear, dread—he did not know what it was, but it pulled his heart strings and stirred the pity within him.

The girl started with a little cry as full consciousness came.

"There, there," Mrs. Lane's soft, motherly voice said, "Don't be frightened; we will look out for you. You just fainted—that's all. You'll be all right in a moment."

The girl looked up yearningly into the gentle face, and stirred in the arms about her as a child nestles into the arms of one it is sure it can trust.

"Do you want a doctor?" Welsh asked. "No—no!" the girl said hurriedly. "I shall be all right; I am rather tired—just tired, that's all."

Stephen saw her eyes were dim with tears as her voice faltered on the "just tired, that's all," and he knew by intuition if nothing else, that there was something wrong deeper than mere weariness.

"Where is it you would like to go?" Mrs. Lane asked, gently. "We have a carriage outside, and can easily take you."

The girl's face whitened, she started to answer, but her lips only trembled.

The quick heart of the elder woman seemed to gather the truth that Stephen could not. "Stephen," Mrs. Lane said to him, "we will take her home with us."

Coming from arranging the cushions and robes, he found her attempting to walk alone but wavering in evident weakness. Without a word he folded her arm under his and gently led her to the waiting carriage where he tucked them cozily in.

As he turned from the front seat to see if all was well with them, he saw that the girl's face lay on his mother's shoulder and that her eyes were closed. Her face in relief against the dark driving coat of his mother looked like a white, frail flower.

He spoke to the black span, and they sped forward, swiftly, smoothly.

The drive to the house gave him time for thought. He knew that the girl was a stranger for he was familiar with every man, woman, and child in the village, and his mother must have decided, too, that she was unknown. There was mystery in her appearance at the little station, mystery in her attitude, and there appeared to be mystery in other ways that he could not unravel. He recalled the dread in her eyes, the weariness and the hopelessness in her low "Just tired, that's all," and he remembered that people are often tired in more ways than the mere physical.

Through the last stretch of woods they whirled, then up the broad driveway to the stately house standing white and serene—fit symbol of the character of the dwellers therein.

The black pair swung gently before the wide door, and a maid came out to whom Mrs. Lane said, "Bess, please see that everything is all ready in the west room."

Stephen stared; that was his mother's choice room; but to give it up was "like mother." He assisted them in, then, on his mother's orders left to take care of the horses; and for once the favored blacks had to be content without the customary attention he gave them.

He found his mother busy in the kitchen, and the aroma of what smelled suspiciously like beef-broth hovered in the air. "What's the matter with her, mother?" he asked anxiously.

"You big, blunt boy," she answered, smiling, "that little girl is starving."

"Starving!" he reiterated in horror.

"Yes, that is the trouble—though there seems to be other things I do not know about. But she is a lonely, weary, motherless girl, and we must be good to her."

"I'm with you, mother," he said promptly. "What can I do?"

"Nothing, laddie, just now; your father will want you out in the lot; later on we may need you."

Donning his working garb, Stephen hur-

The rose mounted to her cheeks again, and her eyes softened into a deeper brown, but before she could reply, he stopped the horses before a store in which they were to make purchases.

Soon his orders were filled and she had gone through her list. Stephen watched her with interest; her quick eye for what she wanted and womanly way of asserting her wishes amused him and won his admiration.

The drive home left them at the great side door—friends, and on the verge of something more. Stephen realized it as he refused the help of the stableman and busied himself in making the blacks comfortable. No one had ever brought into his life the magic that makes life and its hum-drum duties wear a new and halcyon meaning as she had in the little time he had known her. There was the mystery of her coming which might hold much; evidently it did—something she did not wish to tell; but the surety of her presence was more to him than the mystery of her appearance.

The next day held incidents that gave Stephen cause for amusement, wonder, and thought.

His father made it a rule to spend most of the evenings reading from newspapers, taking care of the voluminous mail that came to him as a result of the positions he held on town and state boards and committees. It was his custom to change his heavy shoes in the evening for slippers, and each time he seemed to leave them in a different place so that when he wanted them again he could not find them readily, and the ensuing search invariably aroused his ire and discomfort. Mrs. Lane, after vainly attempting to teach him to keep them in some regular place, had given up, vowing that she would not aid him, and that he must learn from experience—but he never did.

The second evening after Avery's coming, he found them waiting by his chair. Stephen caught the silent, astonished question on his father's face as to whom had been so thoughtful, but who he thought it was Stephen could not guess, for after the first questioning expression the mask of coldness covered his father's face.

An old dog, Lionel, was a great chum of his father, following him day in and day out about the many-acre estate, never failing, rain, sun, or snow. One afternoon he did not appear. Stephen knew his father was worried about his old friend and gradually growing restless. Finally he called work off early, and hurried to the house, Stephen following.

Hardly had the door closed when Mr. Lane asked: "Mother where's old Lionel?"

She laughed. "Maxwell, the heart of a male is fickle. Lionel has fallen in love with Avery. I sent her down to one of the men's homes with gruel for a sick baby, and the dog went with her. There they are now."

They turned to the window. Up the walk Avery's slight figure was coming lightly; by her side rolled along the old shepherd dog. Mr. Lane stared, saying not a word, then turned from the window, and Stephen knew that his father had food for thought; that the old dog who had been his boon companion for years should desert him for a wisp of a girl he had known only for a few days was an occurrence worth pondering; and it hurt.

That same evening they were sitting together and Avery was upstairs busy about something when a ripple of song came down to them, clear and sweet. His father looked up from his paper with a scowl. It was the first time she had sung, though Stephen had wondered before if she could not, for her speaking voice was sweet enough he reasoned. The song ran on and on above them, the notes like little elf delirious with happiness, tumbled down the great hall into the room. Mr. Lane held his eyes steadily to his paper, but Stephen watching keenly saw that he did not read a line. His father turned. "What is that song she is singing?" he asked quickly.

Taken by surprise, Stephen answered, "Keep a Song in Your Heart While the Years Haste Away—a popular song, father, but a good one."

Mr. Lane grunted. "The sentiment's not so bad," he said, brusquely.

The third Sunday evening came, and as Stephen and the stableman hitched up the eager blacks, his mood of mind was far different from the calm serenity that usually follows a beautiful country Sabbath; for his mother had prevailed upon Avery to sing that evening in the village church. Stephen's nervousness was due to fear of his father's silent but no less effective anger, for he knew that his father looked upon Avery with sus-

picion, because of the mystery of her coming, the silence she had kept about herself, her evident desire that nothing be said to her about the past. And to have her sing in the church—one who might prove, to be unworthy; that would be a lever that would release the curbed power of his nature. But his mother had serenely planned it, and that settled it.

So it was with mingled sensations that, after the drive to the village, he entered the crowded church. As he walked down the aisle he saw her sitting in the choir loft, looking a little nervous, but winsome and girlish. He sat down beside his father in the old family pew, secure in his belief that his father's near-sightedness would prevent him from recognizing her unless when she sang.

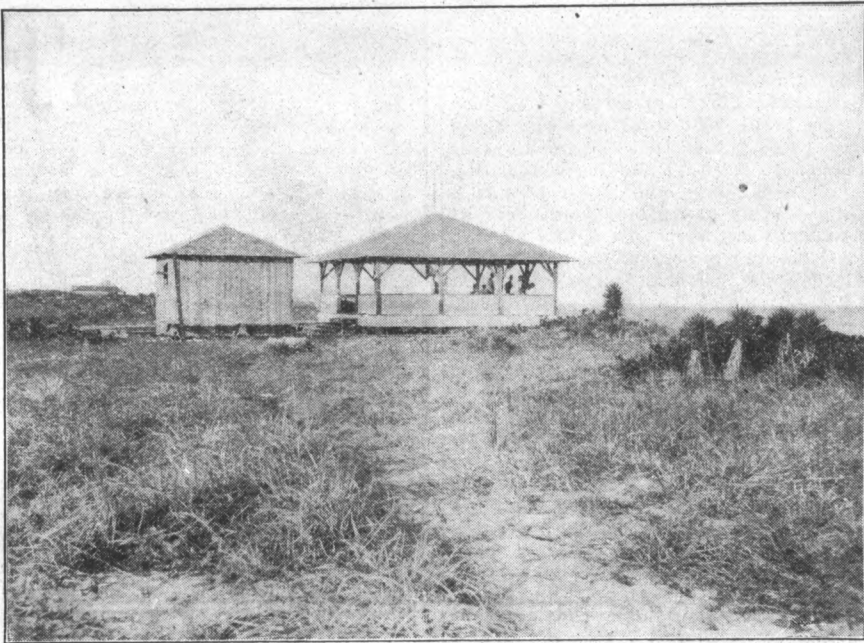
The service drew on, and she arose to sing. The song was one of the old loved hymn tunes, slightly changed with varia-

(Continued on page 658).

A CO-OPERATIVE BEACH RESORT.

BY C. R. ROSS.

Many a community is missing a chance of out of door relaxation through lack of proper surroundings. The little village of Delray, on the east coast of Florida,



Pavilion and Bath House Built by Co-operative Effort.

has met this need in a way that may look good to other towns, whether near the ocean or only some lake or river.

Delray is fortunate in being near the ocean and in having an exceptionally good beach. Ever since the beginning of the settlement, this fact has attracted the attention of the people; and it soon grew to be a neighborhood custom to spend one or more evenings each week on the beach. While this was pleasant in the main, there were some drawbacks; sudden storms sometimes came up and it does

was built co-operatively, the people putting into a common fund, what they felt that they cared to give for the purpose.

It was estimated that \$235 would purchase the material for the pavilion and a small bathhouse. Some of the heavy timbers were picked up along the beach, but if these had been purchased, it would not have added more than \$10 to the cost. The work of construction was done by everyone, men, women and children turning out to help the good work along, and each day ended with a supper and a social evening on the beach.

The pavilion is built square, 24x24 feet in size and thoroughly braced as a protection against the high winds. It is ceiled from the floor to a height of three feet, and canvasses are provided to be hooked on the side from which the wind blows. Benches and tables are always on hand and a meal can be served in perfect comfort in the midst of a high wind or a driving rain. The cost of the pavilion alone was \$200.

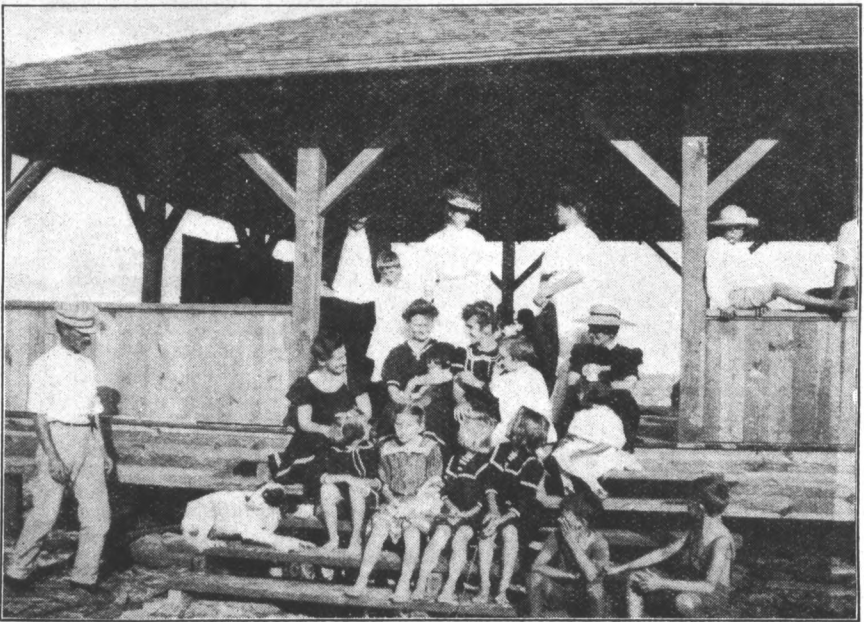
The bath house was built on the same general plan, 12x12 feet square and at a cost of \$35. It was divided into stalls on each side of a central aisle and will accommodate eight people at a time.

These little buildings on the beach have

become the social center of the town and stimulate a wholesome outdoor life on the part of its people.

ORIGIN OF COLORS IN YELLOWSTONE PARK.

That the harmonious and brilliant tints in the geysers and hot-spring pools are due mainly to plant life is one of the interesting statements made in a publication entitled "The Geological History of Yellowstone National Park," just issued



Picnic Party Enjoying the Privileges Afforded by Community Pavillion and Beach.

not take a long rain in Florida to get one pretty thoroughly wet. The lunches and picnic dinners were often ruined by having sand blown into the food. This was a common occurrence as the wind generally blows with vigor along the beach.

Altogether those of us who enjoyed the picnics there began to feel the need of some kind of shelter. After some discussion, the bungalow style of pavilion was settled upon as being most suitable. This

by the department of the interior. Algae flourish equally well in the waters of all geyser basins and on the terraces of Mammoth Hot Springs. Wherever these boiling waters cool to the temperature of 185 degrees algous growths appear, and by the lowering of the temperature on exposure to air still more highly organized forms gradually come in. It is said that at about 140 degrees the conditions are favorable for the rapid growth of

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there's a period when the kernels are plumped out with a vegetable milk, most nutritious.

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several species. The development of plant life at such excessive temperatures and on a scale of such magnitude seems a marvelous thing. Nowhere else can this be seen so well as in the Yellowstone Park.

As the water in shallow pools chills rapidly, corresponding changes in color follow. No life exists in the center, where the water is boiling. On the outer edge certain colors prevail, and in the cooler overflow channels still other colors predominate. In a geyser basin, the first evidence of vegetation in an overflow stream consists of creamy white filamentary threads passing into light flesh tints and then to deep salmon. With distance from the source of heat, the predominating colors pass from bright orange to yellow, yellowish green, and emerald, and in the still cooler waters various shades of brown.

The marvelous colors in the Grand Canyon of the Yellowstone are mainly due to mineral matter, the pigments being derived from the lavas. Along the base of the canyon thermal and solfataric agencies have been at work through long ages, slowly but steadily decomposing the rhyolite rock that forms the walls. Upon the buttressed walls and sculptured amphitheaters tints of green and yellow are intermingled with red, the colors being blended with singularly harmonious effects. From the roaring turbulent river at the bottom to the somber green forests at the top, the abrupt walls seem aglow with color.

This publication contains an account of the geologic forces that have caused the wonderful natural features that have made the Yellowstone famous throughout the world.

THE LITTLE BROWN BIRD.

(Continued from page 657).

tions adapting it to solo work, just enough to bring out still more the melody and appeal of the original tune.

Under the spell of the sweet, clear voice that rose fearlessly without effort to the high tones and sank mellowly and tenderly to the lower, the packed forms grew still. The voice was that of one singing as the birds sing, because there is music in the heart.

As the song drew on to a close, Stephen was startled to see his father reach for his glasses, an unusual thing for him to do there at such a time. Tensely he watched him adjust them; there was a slight parting of the lips as he recognized her; but not a word. Stephen eyed him closely to see what the effect was but none was visible.

After the service, while Stephen was waiting for her, he saw a portly, bald-headed man, a stranger evidently, step from one of the side pews and speak to her, at the same time holding out his hand. Stephen's heart went cold. She shrank from the man as if in terror, and refused his hand. The man stepped closer to her and said something that made her quail before him. Her face went white and frightened, and she slipped by him.

Stephen stepped up as she came out into the hall. He took her arm. "Anything wrong, Avery?"

"O, Stephen—please don't ask me—please!"

Stephen drove up to the church later and they started off for home. She sat silent and rigid beside him, answering questions when asked, but making no comments cheerily as was her wont on the many things that invariably interested her along the road. Stephen knew not what to make of what he had seen or of her silence, but he felt as if he had been plunged into darkness after being in the light, as if listening to the sweetest music, suddenly it had been stilled and a sweet voice silenced. Who was the man? What did he say? Had his father's keen eyes seen more clearly than his own love and his mother's gentle heart?

Arriving at the house, and stabling his horses, he turned with lagging footsteps up the path. As he did so, he saw a shadow leave the door of the big house, flit by the window; the light fell upon it, and he recognized Avery.

A few swift steps and he caught her. With a frightened cry she tried to slip from him, but he crushed her tightly to him.

Avery, what does this mean?" he demanded hoarsely.

He felt her face bury itself in his shoulder.

"O, Stephen! Stephen!" In her voice was longing and regret, mingled with fear and hopelessness.

"Avery, tell me what is wrong!" he commanded. "Tell me!"

she made no answer.

"Tell me, little girl—perhaps I can help you."

Her arms crept around his neck where they clung close. "Stephen, I was going away," she said, so low he could hardly hear it.

"Well, I guess—you're—not!" he exclaimed. A sudden realization made him see and know what a great vacancy would be left in his life if she did—a place that no other could fill. Whoever she was, whatever she had been—he cared not a whit! She was the girl he loved, and that was enough. "You're going to stay here, right here, for Avery, I love you—I just—love—you!"

"Wait—Oh! wait—Stephen, until—until you know," she said, breathlessly. "And please—do listen. I'll try to make things plain, then if you don't want me, it will be easier. I would have told you long before but I was afraid. I have neither father nor mother, and an aunt with whom I lived in—the city—died. She had given me a chance to learn to sing a little and study. When she died suddenly, I didn't know what to do. A man where we were staying offered me right off a—what he said was a fine place in—in—a moving-picture place—I was to sing—and—and—dance; and he seemed so eager to help me. But it wasn't—nice—for me. I sang a week then I gave it up. But I couldn't do other things, and I was afraid. Men bothered me; some followed me wherever I went. I couldn't sing good enough to be well paid, and everything began to go wrong. There were things I wouldn't do anyway; and I got to hating the city—one day—one day—I bought a ticket with my last money just as far as I could get away—just as far as I could, and it brought me—here. Listen, Stephen—please do. You must! You were good to me, but I was fearful of your father; and your mother was, so we agreed to say nothing about it, even to you. And I have been so happy here. But tonight one of those men happened to be in church—he travels through here—he spoke to me—I left him—he said he would 'get even.' And a little later—Stephen—he went up to your father where he was talking with some of the church people—and gave him a letter—and oh, Stephen—you can see. It won't say true things, but—your father will—believe. I came back to get my things and go before your father—made me." She was whispering at the close.

"Go you will not, Avery—unless I go with you," Stephen said quietly. "Come in and we'll see what father has to say. Come, sweetheart—be brave."

As they entered the door that opened into the sitting room, she suddenly tightened her hand upon his. "Stephen, he's reading it now," she said, fearfully, drawing herself into his arms as if for shelter.

Stephen saw that his father was holding an envelope in one hand and beginning to read a sheet of paper in the other. As if guided by one thought they stopped and watched him. In his even, moderate way he read down the sheet, glanced back a number of times, then turned it over, his face perfectly expressionless. Stephen felt her tremble in his arms, and his own heart was beating rapidly. He knew his father well enough to know that his decision would be shown by some quick action at the close of his reading.

His father finished it, and stood in thought. Then, quickly, with short vicious snaps he tore the sheet into shreds and threw them into the open fire.

Stephen gasped. "Come, dear—it's now."

She wavered with a whispered word, but he drew her into the room. Mr. Lane turned and stared at them. His mother appeared in the door bearing a tray of good things for their usual Sunday evening lunch. She stopped, too, surprised.

"Father, and mother, too, I just caught Avery running away from us."

"Running away?" Mr. Lane said, slowly.

"And I have asked her to stay for life."

With a crash, "Mother's" tray dropped. Avery turned, and brushing a bit of mist from his eyes, Stephen saw a brown head nestle close to a white one.

His father's strong hand came forward, his even voice said quietly, "I understand, Stephen; I have seen light. A noble woman is noble though she dwell in hell itself." The stern face softened. "Besides, the old dog loves her."

His mother's voice echoed in. "Now I shall have someone to help me and cheer me, always."

"And I—I won't have to hunt high and low for my slippers ever again—Avery," his father said, smilingly, and held out his arms.

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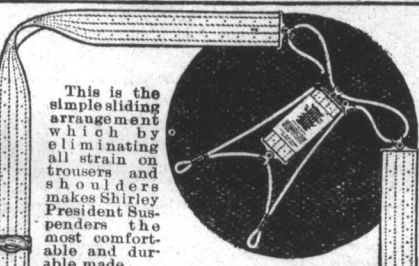


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Woman and Her Needs At Home and Elsewhere



Children, Like Poults, May Be Over-Tended.

THE turkey article written a few weeks ago by E. H. McDonagh, was undoubtedly intended by the author solely for the advice and inspiration of women who are raising our next Thanksgiving dinner. But without her willing it so it contained some chunks of wisdom for the mother of small children. At first thought it may seem like a far cry from poults to babies, but after all, the youngsters of every species bear marked resemblances, so what is sauce for the poult is sauce for the small human in a good many cases.

There is the doctrine of letting them alone—just as a starter. Mrs. McDonagh strongly advised letting your young birds alone as much as possible and trusting to nature (and the mother turk), to fetch them along. That same treatment is excellent for children, to a large extent. Not that I would advise letting the babies pick and choose their food, but so far as possible I strongly urge letting them roam around and investigate conditions as they find them, in entire unconsciousness of the fact that you are watching.

As I write a lonely three-year-old is unconsciously pleading for this turkey freedom. Behind the house on a tree-shaded common is a perfectly wonderful pile of clean sand left by builders. Four small boys, whose mothers believe in supervised freedom, are digging caves and filling pails with sugar and burying feet and otherwise enjoying that sand, and freedom, in a small boy fashion. On his porch in solitary confinement sits the three-year-old, in full sight of the fun, yet not permitted to step outside the sacred portals of his own 30-foot lot! Imagine it, you mothers of three-year-olds who have a whole farm to roam over! Imagine trying to keep a real boy in a 30-foot space, and think of the effect on your nerves and his! If the poor kiddie goes to the back fence to glue his eye to a knot hole a shrill voice from indoors dares him "to put a foot outside that gate." Of course, he is cross and unhappy and saucy and disagreeable, and who can blame him? He wants to be nice, and he would be if he could only have a chance to be himself. If he could only have a bit of the freedom his Thanksgiving turkey is now enjoying!

Of course, country mothers do not go to this extreme. There are not the autos, trains, trolleys and tramps to fear which town mothers so dread. But the average mother is apt to be afraid of freedom. She restricts her children by commands when she should be allowing them freedom to try the things they would like to do and learn by experience why they should not do it. A burned child dreads the fire, and one tiny blister on a finger will instill more respect for the fire into the mind of a child than a whole lifetime of someone else's advice could give.

If your 14-year-old boy is bent, bound and determined to do something which you can see is bad for him and you are unable to make him see through your eyes, just say quietly, "Very well, then, go ahead and try your way."

The minute you give him permission he will get uneasy. He will lose half his assurance with your consent and wish he hadn't been so insistent. Of course, he will try his own ideas, and when he finds out you were right and he wrong, he will have a respect for your judgment which he could gain no other way. That one taste of freedom will teach him more than ten years of supervision.

With the younger children, do not let them know you are watching them. Of course, you want to know what they are doing, but find it out without their knowing it. You do not like to feel that someone is constantly spying on you, and children have the same feeling.

It is well for us to stop and reflect that if we do bring children into the world they do not belong to us, soul and body. We are all individuals and each has a right to his own life. Our children are coming along over the same road we traveled, but they have a right to choose their own method of traveling, so long

as that method does not interfere with the rights of others.

Leave them alone as much as possible. Keep still nine times out of ten when you want to advise them, and let them grow up self-reliant and therefore happy.

DEBORAH.

THE LETTER BOX.

New Ways of Making Money at Home.

In deciding how to earn money at home, much depends upon the surroundings, but more still upon the woman. If we are wide awake and keep our eyes open to see what there is a demand for in our local market, we will soon learn in what way we may succeed best.

Early spring is a good time to commence, as people get tired of winter vegetables and long for something fresh and new. We have received good returns by furnishing our town friends with nice fresh greens, some wanting cowslips, some the thinnings from the beet bed while others prefer the crisp, tender leaves of the horseradish. The more tastes vary, the better for the housewife, as it makes different sources of income.

Growing horseradish is perhaps the most desirable, as it can be made to pay not only for selling the tops for greens in spring, but the roots also are made an article of merchandise. When cultivated for market it is often grown as a second crop. When preparing the roots for winter market, all the small roots are taken off and saved for planting, leaving nothing but the main root for selling. The rootlets, which are a fourth to a half an inch in diameter, are cut into pieces from four to six inches in length and tied in bundles of about 50. The top end, the one nearest the main root, is cut square off and the other end slanting, so that in planting there will be no danger of getting the root, or "set," in upside down. When the sets are prepared they are stored in enough sand to prevent heating and kept in a cool cellar or pitted in the open ground.

Cabbage, cauliflower and beets are good crops among which to plant horseradish. If cabbages are used as the first crop, they are generally planted in rows about two feet apart and a foot and a half between the plants. The horseradish is planted between the rows and about the same distance apart as the cabbage, giving about 2,000 plants to the acre.

Take an old broom handle and thrust it into the ground eight or ten inches and drop the set in the hole thus made, having the top two or three inches under the surface when the earth is pressed about the set and the hole filled up. The reason deep planting is practiced is to keep it from coming up until the cabbages are harvested. Horseradish makes its main growth in the fall, so if it is kept from growing until mid-summer no harm is done and if it makes too much growth before the cabbages are gathered, the tops can be cut off without injury, as all who have raised it know it will quickly send up new leaves. It soon covers the ground and the amount of work required in its culture is very small, and once established it can be made a source of income for years by any energetic woman.

Growing watercress is another source of income. Not far distant from our home is a brook of clearest water, and along its margin the dainty and fresh watercress abounds. It is found in many places in our county, and is gladly purchased in town. Being obtainable so early in the spring it has an increased value.

Where it does not grow naturally, it can be easily grown by planting along the margin of streams, where it quickly increases, both by spreading of the roots and by seeding. It is most easily cultivated where the creek runs through level tracts of land. An old market gardener gives us the following directions for making the beds:

Supposing the stream is, on the average, a foot deep and from six to eight feet wide, running through a meadow. A

good plan is to make excavations laterally, say in beds five feet wide (with alleys between, five feet), to a depth of about eight inches, deep enough to be flooded by the stream when it is of average height, or, when shallow, by damming it up so as to flood the beds. The advantage of having the beds at right angles to the stream rather than parallel with it, is that in the event of freshets the crop is less liable to be washed away. The length and number of beds must be determined by circumstances.

Watercress seeds germinate freely in earth when kept saturated, so the beds, when properly leveled and pulverized, should be slightly flooded enough to saturate the soil only, when the seeds germinate, for if the beds were filled up with water the seeds would be washed away.

After the seedlings have started so as to show green, the water may be gradually let on as they develop. For this latitude the best time for sowing the seed is about the middle of August.

Where cress grows naturally the beds can be made by setting the plants from six to 12 inches apart each way. When cultivation is once begun there is no difficulty in forming new beds, as the plants grow very rapidly where proper conditions are supplied.

In a wild state cress is found growing best in clear, shallow, slowly running water, with a sandy or gravelly bottom. Once established in such a place, it would be lasting.

It is well when making our gardens, to have a generous allowance of parsnips, salsify, and such vegetables as will keep in the ground over winter, for there is no lack of market for such things in the spring. With such vegetables and a little planning to get established a nice bed of asparagus and, where practical, a bed of cress, we would have a source of income which, with out rolls of golden Jersey butter and baskets of freshly laid eggs, would give us a generous allowance of pocket money until returns could be realized from the sale of later vegetables.

The garden to many a farmer's wife has proven not only a road to wealth, but a road to health.—Housewife.

"MAMMA, WILL YOU HOLD ME?"

BY MRS. F. NISEWANGER.

It was at the dinner table that a baby girl nearly four years old, inquired with a little anxious smile, "Mamma, will you hold me pretty soon and rock-a-bye?"

The mother opened her lips to protest or beg off, for the dinner work was to do up (dishwashing sisters being busy in school), and she wanted to finish the ironing that had proved too much for the spare hours of the morning, but the words did not come, for in that same instant she had another vision.

It was a series of pictures of other baby girls who had grown up all too fast, and gotten beyond the rock-a-bye age, for that is a way they have of doing before we have time to realize it. It is only when we have to look back that we have the clearest comprehension of the fact that those short hours and days and years are really the happiest and most care-free we have, regardless of the multitudinous claims on time and patience.

So this mother sat down in the big willow rocker by a softly shaded living-room window, and cuddled the little maiden close, rocking her and singing requested lullabies, while both relaxed and rested.

The little one's eyelids fluttered and drooped but she did not really sleep, and presently the busy little body was ready for play again. Two plump arms slipped round mother's neck, a laughing kiss fell on her cheek and a happy baby girl ran outdoors for a romp with Fido.

The dishes were not greatly hurt by their wait, the water was still nice and hot, a little brightening of the fire made the irons good and hot—and the little rest and "loving" had put new life into mother. Certainly, the thing farthest from her mind was any feeling of regret because she had pleasantly acceded to the, "Won't you hold me, mamma?"

It pays to take time to baby the babies. No business undertaking pays such interest on the investment as does this. Re-

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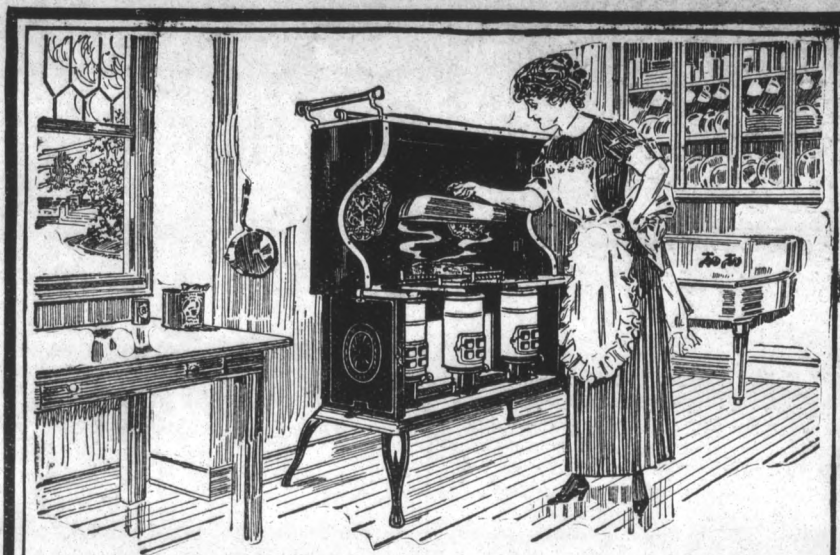
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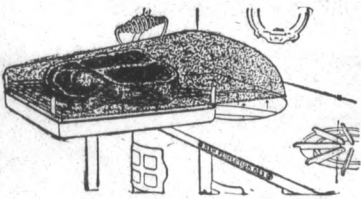
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A HAND BAG OF IRISH CROCHET.

Household Editor:—Can you tell me where I can obtain the directions for crocheting one of the handbags now so popular? Any pretty pattern, but Irish crochet preferred.—Subscriber.

One of the most popular bags is that shown in the illustration, accompanying these directions. To make the bag you will need one large skein of No. 5 Perle cotton and a No. 6 crochet hook.

The rose is made first.

Chain 6 and join in a ring.

Second Round—Chain 5, * 1 D C in the ring, Ch. 2 and repeat from * 4 times; join to third chain of the chain 5 at beginning of the round, with a slip stitch, thus forming six spaces.

Third Round—Turn, 1 S C, 6 D C, 1 S C all in the first space, repeat in each space of round, chain 3, turn work and catch around first spoke of second round with a slip stitch.

Fourth Round—Chain 6, catch around next spoke and repeat all around.

Fifth Round—1 S C, 9 D C, 1 S C, in first space and repeat all around, chain 3 and turn.

Sixth Round—Catch around first spoke of fourth round with a slip stitch, Ch. 8 and catch around next spoke and repeat all around, turn work.

Seventh Round—1 S C, 13 D C, 1 S C

caught alternately in the centers of picots of the two sides.

Border around the top.

First Round—Make 1 S C in center of some picot space, * Ch. 6 and catch in center of next space with 1 S C and repeat from * all around. Join. The ribbon holes are next to be made; Ch. 5, * 1 D C, Ch. 2, skip 2 Chs. and repeat all around.

Make another round of ribbon holes, putting the D C in the spaces of preceding round. Then a round of picots caught down in alternate spaces. Fasten off. Then make a round as the first round of top was made, working from the wrong side. Turn: make 7 S C in chain just made, 1 S C in center and repeat all around. Turn: Ch. 8 and catch down in the S C of previous round and repeat all around.

Turn—* 5 S C in chain just made, Ch. 3 and catch back to form picot, 5 S C in chain, 1 S C in center and repeat from * all around.

Balls—Chain 4 and join in a ring. Make 8 S C in the ring. Do not join as the balls are worked around and around, both threads of stitch being taken up.

Next Round—Put 2 S C in each stitch of preceding round. Make six more rounds of 16 S C then two rounds skipping every third stitch on each round. Fill with cotton and make a final round skipping every other stitch. Draw up with 1 S C chain 10 and fasten off. Make 15 more balls in same manner. Fasten two balls on each corner of bag, two in center of lower edge, two in center of each rose and one in each bow of the ribbons that are used for drawing up.

HUMAN WELFARE QUERIES.

How is "Yuan Shi-Kai," president of "The Great Republic" pronounced?—A Reader.

The name is pronounced just as it would be in English, "Yu-an" has the short "a," "Shi," long "i" and in "Kai" the "ai" is pronounced as in "aisle."

Can you suggest a substitute for potatoes? They are so high this spring and the old ones are getting poor?—Mother.

Plain boiled rice is a welcome substitute in our family. You can buy broken rice six pounds for a quarter and eaten with meat gravy and meat exactly like potatoes, it is fine. It is also easy of digestion.

Household Editor:—Will you kindly let me know how to get up a shower for a young lady friend, who is soon to be married? It will be in the evening.—An Inquirer.

Invite your guests as for any party, only be sure to invite only intimate friends of the bride who will be glad to bring a gift. In giving the invitations be sure to say what sort of shower it is to be, linen, china or kitchen, so the girls will know what to bring. Showers are oftenest held in the afternoon, only girls being invited, and are very informal. The refreshments are simple, and at this time of the year strawberries and cream with two kinds of cake, and lemonade, would be ample.

Household Editor:—Will some reader please send, through your columns, a recipe for tutti frutti?—The Housewife.

Household Editor:—Would someone please send in a tried formula for resilvering mirrors? Also how to apply and the price.—Farmer's Daughter.

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We could tell a great deal more about the value of these books but think that by this time you have been convinced that at the price (25 cents, postpaid), you are offered a bargain which you can not resist. Just send a quarter or 25 cents in stamps and one of the books will be mailed you at once. Send orders to The Michigan Farmer, Detroit, Mich.

in each space all around, Ch. 3 and turn. Eighth Round—Catch around first spoke, Ch. 10, catch around next spoke and repeat all around.

Ninth Round—1 S C, 15 D C, 1 S C in each space. This completes the rose.

Tenth Round—Chain 7, catch back in second Ch. to form picot, Ch. 8, catch back in 3rd Ch., chain 2, thus forming one set of picots, catch with slip stitch in fifth stitch of petal. Make another set of picots, as directed, and catch in tenth stitch of petal. Continue in this way making a set of picots and catching in the fifth and tenth stitches of each petal all around.

Eleventh Round—One set of picots, catch in center between the 2 picots of preceding round, chain 8, catch in next center, turn the work and in the chain 8 just made, make 16 S C, Ch. 3 and turn, 15 D C on the 16 S C just made, Ch. 3 and catch down before the next picot of preceding round. * 1 set of picots, catch in center between next two picots, 1 set of picots, catch in next center, Ch. 8, catch in next center, turn 16 S C, chain 3 and turn, 15 D C, Ch. 3, catch down as before and repeat from * twice.

Twelfth Round—One set of picots, catch in center between the 2 picots of preceding round and continue as tenth round was made, excepting that the picots are caught in the third, middle and thirteenth stitches of petals. (Three times).

Repeat the eleventh and twelfth rounds until there are four petals on each corner. There will be more picots between the petals on each round. Fasten off.

Make second side like first. Join the two sides with a single row of picots,

POULTRY AND BEES

BREAKING UP BROODINESS.

Referring to a question regarding broodiness which appeared in these columns some weeks ago, I would like to say that I have never found anything that will prevent hens becoming broody. Doctoring their foods or drinking water has no effect. I have however, a method of treating or handling them after they become broody which has given satisfactory results, and I will describe it as well as I can.

First, I make a swinging crate, the ends of which are solid and about 30 inches square. Plan to have the crate about four feet long, making the bottom of laths placed two inches apart, the sides of poultry netting and the top of a frame, or lid, covered with burlap, letting the burlap extend over front and back like a curtain. The hens are admitted to the crate by means of this top or lid. Then bore a good-sized hole in each end piece a little above the center and pass a stout pole through these holes, letting it extend a foot or two beyond the crate at each end.

The crate is now ready to hang up, which I do by dropping the ends of the pole into two crotched supports of sufficient height to let the crate swing clear of the ground. Sometimes trees, or a tree and a fence post, are found so located that they can conveniently be used for supports. Provision must be made for feeding and watering the hens, so I fasten an old can in one corner to hold water and a box for feed in another corner.

It is impossible for a hen to get into a nesting position upon the slats which form the bottom of crate. When she tries to do so the crate tips and she soon becomes discouraged. After a tempestuous time she seeks the pole which passes through the crate as a roost, as this pole is the only steady thing about the whole contrivance. When a hen has perched on the pole two nights I turn her out as cured and she soon begins to lay again.

Such a crate will accommodate six or eight hens without crowding and it gets good, quick results. I have used it for several years and it has proven so successful that I do not think it necessary to try any other method as I am entirely satisfied with this device.

Wayne Co.

J. P.

PROTECTION FOR POULTRY FROM SUN AND RAINS.

During the summer months the hens and the chicks must have protection from the direct rays of the sun during the middle of the day. Hens that are compelled to live at this season without any shade protection cannot keep healthy, or lay many eggs while thus exposed. Many hens that are not provided with shade will drop their feathers or molt early because of the influence of the sun's rays upon them. When the feathers fall from the neck, back and wings the flesh is left bare to the sun and it soon becomes scorched and blistered. More than this, ailments such as apoplexy, blind staggers and diarrhoea will prevail in such flocks and the losses from these troubles may be quite severe.

A few trees in the poultry yard are to be desired at this season, but if the yard is devoid of trees it is easy to arrange for artificial shade. Straw sheds or sheds over which vines are made to run, a frame work covered with old boards, a patch of sunflowers and such like will answer all purposes very well.

Shelters separate from the ones provided for the old fowls should be constructed for the use of the chicks. For shade purposes, these shelters may be erected near the regular quarters of the chicks, since they always come up to quench their thirst when the sun shines hottest and they seldom return to their foraging grounds until near the middle of the afternoon. When there are several hens with little chicks a number of shelters are necessary, for the brood hens are never inclined to associate very closely and the boss hens with their broods will insist on monopolizing some of the shelters, thus compelling the weaker hens to remain without protection unless shelter enough to accommodate all is provided.

When the runs used by little chicks are practically bare, it pays to scatter plenty of convenient shelters around the grounds wherever the chicks are in the habit of going. These shelters will enable the chicks to protect themselves from hawks, crows and from sudden showers. These

summer rains often claim a large number of chicks, for if the chicks are a distance from their coops they usually become confused and fail to reach their quarters in time to avoid a thorough soaking. By providing shelters under which they can readily get on such occasions without loss of time, there will be fewer losses from drowning. Old boxes, barrels, etc., will serve for these shelters, the hens and chicks will soon learn their location and use them whenever a shower suddenly appears, if they haven't time to reach their regular quarters. Chicks of considerable size that are old enough to take care of themselves at most times, often lose their lives in a hard downpour of rain because they cannot find convenient shelter. They seem to become confused and often a number of them will huddle up together in a fence corner or under a tree, and as a result some of them are lost and those that escape often contract colds and may eventually die.

Indiana.

W. F. PURDUE.

TURKEYS SURVIVE RAINS.

So many people persist in thinking turkeys—especially young turkeys—to be puny weaklings, "hard to raise," and susceptible to cold from every wind that blows, and to damp from every drop of dew and every shower that falls, that the writer feels inclined to enter a few facts by way of protest.

The facts hereafter mentioned are not things learned from my father or that I read out of a book, but they are things seen "with my eyes." Almost all authorities to the contrary, my experience has proven that with a good turkey mother, turkey poulters from sound, vigorous stock can and do withstand rains and wet weather in Michigan. Outside of this climate I cannot speak with authority.

I think the editor of the Michigan Farmer must have chuckled with delight as he placed under one heading in his issue of June 1, the article on "Feeding the Newly-hatched Turkeys," by W. R. Gilbert, of Canada, and under it my own on the same subject. Of course, both articles included general care and we use directly opposite methods. In his third paragraph, Mr. Gilbert gives minute directions for keeping the poulters dry until they "shoot the red," or approach maturity. I turn them loose, as described on page 418 in the Michigan Farmer of April 6. Any resident of Michigan during the unprecedentedly wet spring we have just experienced, will think my turkeys have given the wet a fair trial and I would like to state the result.

The first hatch during the almost continuous rains of May 22, from a woods nest and a barn nest, owing to a combination of circumstances at hatching time, resulted in only 15 live turkeys. Part of these were rescued during the rains from a knoll in a swamp, quite surrounded by pools of water, and as they were gathered up several were seen to swim across the pools in their efforts to escape. We had a three-foot board wall put up in the hayloft around the barn hen and nest, the chilled birds were warmed in the house, and the 15 given the barn turkey. Everything was flooded out of doors, the rains continued, and we expected to keep the poulters in the hay loft for a week at least. They were fed commercial chick starter but given no water, and busied themselves among the chaff and grass seeds of the hay floor.

The second day the wing feathers had started, but showed the effect of confinement, standing out from the body in a loose, untidy manner, quite unlike the sleek, well groomed appearance of poulters in the open.

The rain had temporarily stopped that afternoon, the sun was shining, and pools drying up. I resolved on desperate measures, knowing the poulters required sand and grit from the earth, and insect food to enable them to quickly clothe themselves with their sheltering coat of feathers. I carried the turkey hen and her 15 young poulters out of doors, past the worst pools and placed them on the wet but warming ground. She led them to an adjoining meadow. The next day it rained constantly, and continued to rain for much of the next ten days. When counted the fourth day one was missing.

Three days later I put out another hatch of 12, on a stretch of grass, following severe rains earlier in the day, with every bit of available earth wet. Although it rained heavily soon afterward, especially all the next day, the mother kept her 12 snug and warm and dry out in the open, with no protection but her perfectly equipped body with its rain resisting coat of feathers and well thatched wings. The third day she led

them across a watersoaked field of dying oats, to a higher fence row and meadow beyond. I saw her get them across a ditch, where most waded, but one, getting into a deeper pool, swam like a duck. Though still covered only with the first down, these birds did not get wet or drabbed either from the running water or wet grass. She moved a short distance, hovered, warmed and rested them, and kept them sleek and dry as young ducks. She still has every bird, all thriving, and fast covering with sleek feathers.

When the first flock was ten days old, I found a second poult missing, leaving but 13. But a little farther across the meadow I came to a second turkey mother, the apparent duplicate of the first, leading 10 poulters with wing feathers and starting tails, seemingly of the same age. She had brought them safely through the swamps of the woodlot adjoining, where the water was so deep we had made no attempt to keep track of them.

Yesterday, another woods nest gave a hatch of 12, making up to date, 47 sturdy, healthy poulters, three-fourths of the number already equipped with wet-resisting feathers. Forty-nine poulters put out, two lost, means for the first three weeks of the season, at which time all admit the most expensive losses occur, a loss of but four per cent.

These turks have had no umbrella carried for them through almost continuous rains, neither coops put over them, nor coops set under sheds, nor grass cut lest they wet their feet. In Michigan, I think I have proven turkeys can and do resist wet, damp, cold and rainy weather.

Saginaw Co.

E. H. McDONAGH.

ANATOMY OF THE BEE.

I wish I were able to write you a really scientific account of the anatomy of the bee, for I assure you that it is a very interesting subject, but this would be impossible for me, and so I will, in this brief article, try only to give a few points that will be of most interest.

One of the interesting features of the anatomy of the bee is the alimentary canal. Most people know that a bee swallows the honey as it is gathered from the field and that it is regurgitated on the return to the hive. What many of them do not know is that they have a special stomach for this purpose. The nectar as it comes from the field is stored in a little sack, or stomach which, when full, will measure about one-seventh of an inch in diameter, and which is connected with the true stomach by a little valve of very peculiar construction. This valve has the ability to separate the grains of pollen from the nectar, and through this the bee takes her nourishment, either in the hive or on the wing.

In these little sacks the bees, when swarming, can and do carry enough honey to last them several days, which insures them against starvation in case of a few days of unfavorable weather.

It is here in this little honey stomach too, that the honey, or nectar, as it is called up to its entry into the honey stomach, is partially digested, making it so much easier on the stomachs of the people who eat it than the other sweets. In other words, the honey undergoes a chemical change converting the cane sugar of the nectar into the grape sugar of the honey.

The nervous system of the bee is composed of the brain and several ganglia or nerve centers, with the usual system of nerves running all through the body, the involuntary muscles are controlled by the ganglia. Thus it happens that a bee will sting, or claw with its feet long after it has been decapitated.

The bee breathes, not through its mouth, as one would naturally expect, but through little mouths in the thorax and the abdomen. For this reason a bee may die of strangulation from being submerged in water or honey even though its head may be out all the time. If their bodies become daubed with honey they must be cleaned off very soon or death will ensue.

Mecosta Co.

L. C. WHEELER.

White Dysentery.—Can you suggest a remedy for our little chicks? First symptoms they begin to show dullness when about a week old, their wings droop, a white dysentery sets in and death comes in about 24 hours. When first hatched we feed them boiled eggs, later cracker crumbs and bread crumbs, also some Johnny cake. Mrs. L. C. Springport, Mich.—First of all make a saturated solution of permanganate potash; this is done by adding water to permanganate potash crystals and put in one teaspoonful of this solution into ten gallons of water and let your chicks drink it; besides, you should feed them a good quality of food.

WELL POSTED

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Prize Winning Barred Rocks, R. I. Reds, Mammoth Stock for sale. Eggs \$1, \$2, \$3 per set. Utility \$5 per 100. EMWOOD FARM, R. R. No. 13, Grand Rapids, Mich.

Barred Rock Eggs—Great Laying Strain and prize winners, 15 eggs, \$1.00; 30, \$1.75; 100, \$5. W. C. Coffman, R. 6, Benton Harbor, Mich.

BLUE BELLE BARRED ROCK, PHILLO WHITE ORPINGTON Eggs now 75c a setting; two to same address, \$1.25. LAKE RIDGE FARM, Levering, Michigan.

LILLIE FARMSTEAD POULTRY B. P. Rocks, R. I. Reds, and S. C. W. Leghorn eggs for sale, 15 for \$1; 25 for \$1.50; 50 for \$2.50. COLON C. LILLIE, Coopersville, Mich.

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BARGAINS in Standard Reds. A few pens at \$5; yearling hens at \$1 and \$1. If taken now. Eggs \$4.25 per 30 now. W. T. FRENCH, Ludington, Mich.

R. C. R. I. R. eggs, \$5, \$2 and \$1. Penciled Indian R. Runner Duck eggs, pure white egg strain, \$1 for 13. COY G. BRUMM, Nashville, Michigan.

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For Sale—at farmers' prices, pedigreed Sable and White Scotch Collie Puppies. CHAS. A. BEATTY, Milford, Mich.

30 Pure Bred Fox Hound Pups ready to ship in May 1912. Send stamp. W. E. Lecky, Holmesville, Ohio.

Mention the Michigan Farmer when writing advertisers

MARKETS

DETROIT WHOLESALE MARKETS.

June 12, 1912.
Grains and Seeds.

Wheat.—The market has fluctuated during the week. Crop news has been the chief factor in changing values, although a lack of buyers on Tuesday reduced prices. The government report puts the condition of winter wheat five points below the estimate for May. In the spring wheat belt everything appears to be ideal and the market is now figuring on a perfect crop from that quarter. This means that whatever change there is will be favorable to those desiring higher prices. The decline in winter wheat and the excellent condition of spring wheat have, however, kept the market about steady. The visible supply shows a decrease of about two and a half million bushels. One year ago the price for No. 2 red wheat was 78c per bu. Quotations are as follows:

	No. 2	No. 1	Red.	White.	July.	Sept.
Thursday	1.14 1/4	1.12 1/4	1.13 1/4	1.14	1.15	1.15 1/4
Friday	1.15 1/4	1.13 1/4	1.15	1.15 1/4	1.15	1.15 1/4
Saturday	1.15 1/4	1.13 1/4	1.15	1.15 1/4	1.15	1.15 1/4
Monday	1.15	1.13	1.14 1/4	1.14 1/4	1.14 1/4	1.14 1/4
Tuesday	1.14 1/4	1.12 1/4	1.14	1.14 1/4	1.14 1/4	1.14 1/4
Wednesday	1.15	1.13	1.13 1/4	1.13 1/4	1.13 1/4	1.13 1/4

Corn.—While changes have occurred the corn trade rules about steady with a week ago. A large percentage of the new crop is being planted unusually late and scarcely any was in the ground at the time the corn should be planted. The visible supply shows an increase of three-quarters of a million bushels. A year ago No. 3 corn was selling at 56 1/2c per bu. Quotations are as follows:

	No. 3	Yellow.
Thursday	77	79 1/2
Friday	77 1/2	80
Saturday	77 1/2	80
Monday	77 1/2	80
Tuesday	77 1/2	80
Wednesday	77 1/2	79 1/2

Oats.—The government crop report shows a general improvement in the condition of the oat crop. However, average prices on the local market are slightly higher than those of last week. The demand is easy. The visible supply shows a decrease of over one and a half million bushels. On this date last year standard oats were selling at 40c per bu. Quotations are as follows:

	Standard.	No. 3	White.
Thursday	57	56 1/2	56 1/2
Friday	57 1/4	57 1/4	57 1/4
Saturday	57 1/4	57 1/4	57 1/4
Monday	57 1/4	57 1/4	57 1/4
Tuesday	57 1/4	57 1/4	57 1/4
Wednesday	57 1/4	57 1/4	57 1/4

Beans.—This trade is inactive, with practically no contracts made on the local market. The quotations given out which are nominal are as follows:

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

Clover Seed.—There is absolutely no dealing in clover seed. The following prices are merely nominal:

	Cash.	Oct.	Alsike.
Thursday	12.50	10.00	11.50
Friday	12.50	10.00	11.50
Saturday	12.50	10.00	11.50
Monday	12.50	10.00	11.50
Tuesday	12.50	10.00	11.50
Wednesday	12.50	10.00	11.50

Rye.—This trade is quiet and easy with a decline of 1c from the price of last week. Cash No. 2 is now selling at 91c per bushel.

Timothy Seed.—Nothing is being done with this seed and the nominal quotation remains at \$6.40.

Flour, Feed, Potatoes, Etc.

Flour.—Prices are higher and market steady.

Straight	5.60
Patent Michigan	5.80
Clear	5.00
Rye	5.40

Feed.—All grades are higher except bran. The carlot prices on track are: Bran, \$29 per ton; coarse middlings, \$30; fine middlings, \$32; cracked corn and coarse corn meal, \$33; corn and oat chop, \$34 per ton.

Hay and Straw.—Hay is lower, straw steady. Quotations: No. 1 timothy, \$24.50 @25; No. 2 timothy, \$23 @23.50; clover, mixed, \$22 @24; rye straw, \$11.50 @12; wheat and oat straw, \$10.50 @11 per ton.

Potatoes.—The increased receipts of new potatoes and the inferior quality of the old crop is restricting the demand for the latter. As a result prices show a decline on the local market since a week ago. For carlots on track the price is \$1 per bushel in bulk, and \$1.05 in sacks.

Provisions.—Family pork, \$19.50 @21.50; mess pork, \$20.50; clear, backs, \$19 @21; picnic hams, 11c; bacon, 14 @16c; pure lard in tierces, 11 1/2c; kettle rendered lard 12c per lb.

Dairy and Poultry Products.

Butter.—The product is moving freely, the demand being active and supply is about normal for the season. Creameries have advanced while dairy offerings are steady. Quotations are: Extra creamery, 25 1/2c; first creamery, 24 1/2c; dairy, 21c; packing stock, 19c per lb.

Eggs.—Every channel of the egg market is active and offerings are being moved very freely under a strong demand from consumers and storage people. Quotations are: Firsts, 20c; seconds, 16 1/2c; checks, 14c per dozen.

Poultry.—About the only activity no-

ticed in this market is for broilers which are scarce and show an advance of from 2 @3c since a week ago. All other kinds are steady and inactive. Quotations are: Live.—Broilers, 28 @30c; chickens, 14 @14 1/2c; hens, 14 @14 1/2c; turkeys, 16 @18c; geese, 11 @12c; ducks, 14c; young ducks, 15 @16c per lb.

Veal.—Veal is steady. Fancy, 10 @11c; choice, 8 @9c per lb.

Cheese.—Steady except Swiss and brick cream which are lower. Michigan flats, 16 1/2 @17c; York state, flats, 16 1/2 @17c; Limburger, 17 @18c; domestic Swiss, 21 @22c; brick cream, 16 @17c.

Fruits and Vegetables.

Strawberries.—Michigan berries are coming in quite freely. The demand is brisk. The price paid for Michigan 16-qt. cases is from \$1.25 @1.50.

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

Apples.—Market slow. Baldwins are selling at \$4.50 @5; Steele Red, \$5.50 @6; Ben Davis, \$3 @3.50.

OTHER MARKETS.

Grand Rapids.

The season for home-grown strawberries opened Tuesday morning, with 100 loads offered on the city market. Prices for good berries ranged from \$1.25 @1.40 per 16-qt. crate, some small fruit selling for \$1. A few loads of old potatoes went at \$1 @1.25, southern grown new potatoes at \$1.75. Radishes are worth 5c per doz; beet greens, 35c per bu; pieplant, 45c; lettuce, 40c; spinach, 35c; asparagus, 90c. Old hay is still held at \$20 @23. Beans are in better demand and are quoted on \$2.30 basis to farmers. Eggs are steady at 16 1/2 @17c.

New York.

Butter.—Butter held firm at last week's figures. Creamery extras, 27 1/2 @28c; firsts, 26 1/2 @27c; seconds, 25 1/2 @26c.

Eggs.—Best nearby grades steady; western stock higher. Quotations: Fresh gathered extras, 21 1/2 @22c; do. extra firsts, 19 1/2 @20 1/2c; firsts, 18 1/2 @19c; western gathered whites, 21 @22c per dozen.

Poultry.—Fowls lower and turkeys are higher. Dressed.—Chickens, broilers, 28 @35c; fowls, 14 @16c; turkeys, 13 @22c per lb.

Chicago.

Wheat.—No. 2 red, \$1.11 @1.12 1/2; July, \$1.08 1/4; September, \$1.06 1/4. Corn.—No. 3, 73 1/4 @74 1/2c; July, 73 1/2c; September, 72 1/4c per bu.

Oats.—No. 2 white, 55 1/4 @56c; July, 50 1/4c; September, 49 1/2c per bu.

Barley.—Malting grades, \$1.12 @1.19 per bu; feeding, 65 @85c.

Butter.—Top-grade creameries quoted 1/2c higher to accord with the advance at Elgin. Market firm. Quotations are: Creameries, 23 @25 1/2c; dairies, 20 @24c per lb.

Eggs.—Values unchanged and market steady. Quotations: Firsts, 17 @17 1/2c; ordinary firsts, 16c per dozen; at mark, cases included, 15 1/2 @16 1/2c.

Potatoes.—Both old and new stock in good supply and generally lower, old potatoes having declined 5c during the past week. Michigan and Minnesota stock now quoted at \$1.10 @1.20 per bu.

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

Hay and Straw.—Clover and alfalfa lower; wheat and oat straw also showing a slight decline. Quotations: Timothy, choice, \$25.50 @26; No. 1, \$24 @25; No. 2 and No. 1 mixed, \$22 @23; No. 3 and No. 2 mixed, \$18 @21; clover, \$17 @19; No. 2 and no grade, \$10 @14; alfalfa, choice, \$17 @17.50; No. 1, \$16 @16.50; No. 2, \$13 @16. Straw.—Rye, \$10 @11; wheat, \$8 @8.50; oat, \$9 @9.50.

Boston.

Wool.—Eastern buyers now show more inclination to buy wools than they have shown during the past few weeks. There is, however, a fairly wide margin between the prices offered by them and that asked by the growers. In Michigan the growers are asking about 24 1/2c for their best grades, while in Ohio 25c is being demanded. The agents and brokers declare that they cannot afford to pay over 22 @23c for the medium grades. The advance in the price of foreign crossbreds, which compete with American fleeces, is an encouraging item of news for producers. Fleeces are already moving eastward and quotations will soon be better established than at the present time.

Elgin.

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

THE LIVE STOCK MARKETS.

Buffalo.

June 10, 1912.

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

Receipts of stock here today as follows: Cattle, 138 loads; hogs, 115 double decks; sheep and lambs, 45 double decks; calves, 2,800 head.

With 138 loads of cattle on our market here today, and with a light run of 15,000 reported in Chicago, all the good fat cattle of all classes sold from 10 @15c per cwt. higher, and in some instances, the heavy dry-fed cattle sold fully 25c per cwt. higher. The grass cattle of all kinds sold fully 25c per cwt. lower than last Monday, and our advice to shippers is, to be very careful about buying these grass cattle, as they are bound to go lower every week for some time yet, especially the half-fat and slippery kind.

Best 1,400 to 1,600-lb. steers, dry-fed, \$8.75 @9.25; good prime 1,300 to 1,400-lb. steers, \$8.75 @9; do. 1,200 to 1,300-lb. do.,

\$8.25 @8.65; medium butcher steers 1,000 to 1,100, dry-fed, \$8 @8.25; best fat cows, dry-fed, \$6.75 @7; best fat heifers, dry-fed, \$7.50 @8; grass steers, 1,000 to 1,100, \$6.75 @7; light grass steers, \$6.50 @7; best grass cows, \$4.50 @5; grassy butcher cows, \$3.75 @4; do. heifers, \$6.25 @6.75; do. butcher heifers and steers mixed, \$6.50 @6.75; trimmers, \$2.75 @3; stock heifers, \$4.50 @4.75; best feeding steers, dehorned, \$5.50 @6; common feeding steers, \$4 @4.50; stockers, inferior, \$3.50 @4; prime export bulls, \$6.75 @7; best butcher bulls \$5.75 @6.25; bologna bulls, \$4.50 @5.50; best milkers and springers, \$6 @7; fair to good do., \$4.50 @5; common kind do., \$2.50 @3.

Today's supply of hogs was liberal; 115 double decks on sale; fair supplies all through the west, and a healthy condition of the market all over the country, strengthened our buyers here today, and the general market ruled full steady with Saturday's average. We sold one fancy load of Illinois hogs today at \$8.05; several more that had weight and quality at \$8, with the bulk of the mixed hogs selling around \$7.95. Yorkers, as to weight and quality, \$7.50 @7.95; pigs, \$7 @7.25. Packers bought liberally here today, and towards the close the trade eased up some, with about 10 double decks going over unsold. Market appears to be in fair shape, and with anything like moderate supply for next two days, do not look for much change.

The lamb market today was very slow; few choice lambs sold at \$7.75; one or two decks at \$8. There was a wide range today between the strictly fancy lambs and the pretty good kind; some very good lambs sold from \$7 @7.50, and grassy kinds at \$6 @7. Sheep market very dull.

We quote: Choice spring lambs, \$9 @9.50; wethers, \$4.85 @5; handy ewes, \$3.75 @4; heavy ewes, \$3.75 @4; yearling lambs \$7.50 @7.75; cull to common, \$5 @5.75; cull sheep, \$1.50 @3; bucks, \$2.50 @3.25; veals, choice to extra, \$9.25 @9.50; fair to good do., \$6.50 @9.

Chicago.

June 10, 1912.

Received today: Cattle, 14,000; Hogs, 42,000; Sheep, 18,000. Same day last year: 22,400; 43,384; 20,810. Received last week: 33,926; 127,643; 86,064. Same week last year: 46,191; 127,047; 104,556.

Continued meager offerings of cattle resulted in a rise of 10 @15c in lots that were at all desirable today following last Thursday's advance, and sellers said there were numerous sales that looked 15 @25c higher than sales made last Wednesday. Most of the reports sent out called the improvement 10c, live stock commission firms fearing that if the report was made better than that, too many cattle would be shipped in at once and that this would force a quick reaction. There were two sales at \$9.30 early in the day. Hogs were active at firm prices, sales ranging from \$7.70 down to \$7.15. Hogs received last week averaged 233 lbs., compared with 237 lbs. a year ago and 242 lbs. two years ago. Sheep and lambs that were fat sold at firm prices, but otherwise trade was slow, with buyers bidding lower prices. A sale was made of some fat yearlings at \$6.50. Receipts here of southern springs were nearly 3,000 head, and Louisville wired receipts there of 8,000 head.

Cattle sold badly most of last week, firming up by Thursday on meager offerings and selling a little higher after general sharp declines during the first half of the week. It has been a case of unusually high prices for beef everywhere, especially throughout the east, checking its consumption to an extraordinary extent, the boycott of the Jewish kosher hatcheries being one of the disturbing influences. At any other time such small cattle receipts as have been seen in recent weeks would send prices up materially for all descriptions, but this is a time when beef prices have been raised to figures where many families feel that they must abstain, at least in a measure, from buying it. Fresh pork, eggs, fish, cheap vegetables and strawberries are largely substituted for beef and mutton, and this condition of trade is likely to continue unless beef prices are lowered considerably. The available supply of fat beef cattle is known to be unusually small, and most of the cattle sent to market are light weights that have had a short feed, the great majority offered failing to exceed in weight 1,200 lbs. The marketing of the Texas cattle from pastures is just now going forward, and this is a powerful influence in lowering ruling prices for native grassy cattle. Beef steers have been selling largely at \$7 @8.90, prices still being much higher than in most former years, with the best

NATIONAL CROP REPORT.

The Crop Reporting Board of the Bureau of Statistics of the United States Department of Agriculture estimates, from the reports of the correspondents and agents of the Bureau, as follows:

	Acreage, 1912.	1911.	Acres.
Spring wheat	94.2	94.2	19,201,000
Winter wheat	88.3	88.3	25,744,000
Oats	100.2	100.2	37,844,000
Barley	99.3	99.3	7,574,000
Rye			
Hay			
Pastures			

The following gives the indicated yield per acre and comparisons of total production. The indicated yield for 1912 is based upon the ratio of the average condition on June 1 to the final yield in the

	Yield per Acre.	1911.	1906-1910.	1912 a.	Final	1910.	Final	Cen-
Winter wheat	14.1	14.8	15.5	363	430	434	418	418
Spring wheat	13.8	9.4	13.4	265	191	201	265	265
All wheat	14.0	12.5	14.6	628	621	635	683	683
Oats	29.3	24.4	28.4	1,109	922	1,186	1,007	1,007
Barley	25.2	21.0	24.8	192	160	174	173	173
Rye	16.0	15.6	16.3	...	33	35	30	30

a Interpreted from condition reports.

grade of heavy steers going at \$8.80 @9.40 and the poorest little yearlings bringing \$5.85 @6.85. Good cattle are selling at \$8 and upward and medium grade steers at \$7.50 and over, while fair killers fetch \$7 @7.45. There has been a very fair call for cows and heifers at \$4.25 @8, canners and cutters selling at \$2.25 @4.20, bulls at \$3.50 @7 and calves at \$3.50 @9, the best calves selling well, with much smaller receipts. Stockers and feeders sold sparingly at \$4.25 @7, not many going above \$6.50. Milch cows sold lightly at \$30 @75 each.

Hogs have been marketed for a week past in much smaller numbers than during the previous week, and on some days good advances in prices were paid, the receipts for Monday being unusually small for that day. Still there was not any great strength in prices on the whole, and on several days the market ruled lower, with the eastern shipping demand much smaller than a few weeks ago. As usual, prime heavy hogs sold at a good premium, these being wanted by shippers. The hog crop has turned out to be larger than was at first estimated, and aggregate receipts at eleven leading markets for the first five months of the year amounted to 11,766,000 head, showing a gain of 1,208,000 over a year ago and a gain of 3,628,000 over two years ago. This shows that farmers have been better provided with swine than cattle, for only 2,712,000 cattle reached half a dozen markets for the first five months of the year, a decrease of 270,000 from a year ago. Stocks of provisions held at five western markets decreased during May 10,256,000 lbs., compared with an increase of 13,363,000 lbs. in May last year, indicating a much larger consumption.

Hogs firmed up towards the close of the week, with light receipts and a good demand, and closed with sales at \$7.10 @7.70, after the best had sold at \$7.60, being not much different from prices of a week earlier. Pigs went at \$5.50 @7 and stags at \$7.50 @8. The best light hogs brought \$7.60.

Sheep and lambs underwent large declines in prices last week, with supplies in excess of the moderate requirements of the local and shipping trade. Naturally, thin stock suffered much the worst, being neglected by buyers, but even the best stock sold much lower after Monday, when spring lambs sold as high as \$10 per 100 lbs. and prime fed lambs brought \$9.25. Spring lambs were marketed in steadily growing numbers, and the southern spring lambs were moving freely, as many as 5,000 head arriving on the Louisville market in a day. Sheep receipts were mostly confined to ewes and bucks, and ewes had a phenomenal break in prices, being in the poorest kind of demand. California sent in some choice spring lambs, while some big bunches of Washington range wethers that averaged 117 to 120 lbs. brought \$5 @5.40. The close of the week saw prices of sheep and lambs ruling 50c @1.50 per 100 lbs. lower than a week earlier, the bulk of the sales being \$1 @1.25 lower. Spring lambs declined the least, closing at \$5 @9.25, while fed lambs brought \$4 @8.50. Ewes sold at \$1.75 @4.50.

Horses were received last week in much smaller numbers than a few weeks ago, when the spring trade was at its best, but large supplies were not needed, and there were too many common animals, these selling at declining prices. The demand has become more of a local character, while a smaller attendance of outside buyers, and demand now centers in good business horses, with a poor showing of prime horses. Common drivers sold at \$85 @100 per head, with better ones salable at \$125 @200, and farm workers sold at \$100 @200, mares going highest. Light drafters sold at \$175 @225, and better and heavier ones were quotable at \$230 @325.

The available supply of southern cattle for shipment to the northern ranges this season is much below that of recent years, and such points as Denver and Sioux City have been reporting slim shipments. Texas is known to have a shortage of young and aged cattle, and prices are away up, yearlings selling at \$26 per head and over, twos up to \$35, and three and fours at \$46 @48. As for Mexican cattle imports, they are curtailed by the revolution. The grazing season in the northwest has opened with fewer cattle than in a great many years, and a great shortage of range cattle, both beef cattle and feeders, next fall is inevitable.

A double-deck of 77-lb. fed western range lambs was sold on the Chicago market recently at \$8.40 per 100 lbs., with 50 out at \$6, that left that market two months earlier at a cost of \$7.35 in the fleece. Their Michigan buyer, R. Goodall, of Vernon, secured a wool clip of eight pounds per head from the flock before marketing them, and they came back, minus their fleeces, averaging about seven pounds more than when they were taken out to shear and fatten.

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.

June 13, 1912.

Cattle.

Receipts, 1,421. Good grades and bulls steady; other grades 10@15c lower.

We quote: Extra dry-fed steers and heifers, \$8; steers and heifers, 1,000 to 1,200, \$7.50@7.75; do. 800 to 1,000, \$6.50@7.50; grass steers and heifers that are fat, 800 to 1,000, \$6@6.75; do. that are fat 500 to 700, \$4.75@5.50; choice fat cows, \$6@6.25; good fat cows, \$5.25@5.50; common cows, \$3.75@4.75; canners, \$2.75@3.25; choice heavy bulls, \$5.50@6; fair to good bolognas, bulls, \$4.75@5.25; stock bulls, \$3.50@4.75; choice feeding steers, 800 to 1,000, \$5.50@6; fair do., 800 to 1,000, \$5@5.50; choice stockers, 500 to 700, \$4.50@5; fair stockers, 500 to 700, \$3.50@4.25; stock heifers, \$3.50@4.50; milkers, large, young, medium age, \$40@55; common milkers, \$25@35.

Spicer & R. sold Kamman 4 butchers av 692 at \$5.50, 2 steers av 1,015 at \$7, 1 cow weighing 920 at \$4, 1 stocker weighing 440 at \$4.50; to Strong 4 do av 605 at \$5.50; to Sullivan P. Co. 3 cows av 1,170 at \$6, 1 steer weighing 700 at \$6, 1 bull weighing 1,330 at \$5.50, 1 cow weighing 830 at \$3.50; to Kamman 2 butchers av 475 at \$5; to Mich. B. Co. 7 do av 563 at \$5; to Applebaum 3 cows av 927 at \$4.75; to Pakes 1 do weighing 780 at \$3.50, 1 do weighing 790 at \$3; to LaBoe 2 bulls av 540 at \$4.50, 1 do weighing 1,550 at \$6, 3 do av 1,150 at \$5.50, 2 do av 870 at \$5.10, 2 do av 725 at \$5, 1 do weighing 1,540 at \$5.75, 1 do weighing 840 at \$5, 1 do weighing 680 at \$5; to Hammond, S. & Co. 2 cows av 850 at \$3.50, 6 do av 1,000 at \$5.75, to Strong 2 stockers av 525 at \$5, 4 do av 460 at \$5; to Regan 5 butchers av 508 at \$4.85; to Bresnahan 12 do av 504 at \$4.50, 6 do av 495 at \$4.75; to LaBoe 2 steers av 735 at \$6.50, 2 do av 630 at \$5.50; to Kamman 1 cow weighing 1,000 at \$4; to LaBoe 1 heifer weighing 800 at \$6.50, 1 do weighing 800 at \$6; to Kamman 13 butchers av 774 at \$6.25, 6 cows av 1,037 at \$4.85, 4 steers av 810 at \$6.50, 2 cows av 910 at \$3.50; to Hammond, S. & Co. 4 cows av 855 at \$3.75, 2 steers av 1,150 at \$7.75.

Roe Com. Co. sold Sullivan P. Co. 3 bulls av 860 at \$4.75, 1 cow weighing 870 at \$5.25; to Breitenbeck 12 steers av 926 at \$6.75, 1 do weighing 900 at \$6; to Sullivan P. Co. 10 cows av 942 at \$5; to Newton B. Co. 23 butchers av 744 at \$6; to Sutton 12 stockers av 465 at \$3; to Rattkowsky 7 butchers av 520 at \$3.75; to Dutton 11 stockers av 470 at \$4; to Jersey 18 do av 582 at \$5; to Sullivan P. Co. 10 cows av 1,010 at \$5, 7 canners av 833 at \$3; to Mich. B. Co. 3 bulls av 985 at \$5.25, 1 do weighing 810 at \$5; to Hammond, S. & Co. 6 cows av 861 at \$3.25, 2 do av 1,640 at \$4.25; to Regan 1 bull weighing 660 at \$4.25; to Marx 18 butchers av 820 at \$6.10.

Haley & M. sold Breitenbeck 3 cows av 950 at \$5, 4 do av 920 at \$4.75, 4 butchers av 770 at \$6; to Sullivan P. Co. 3 cows av 960 at \$4.80, 1 do weighing 800 at \$4, 6 butchers av 855 at \$6.35, 11 do av 909 at \$5.60; to Kamman 8 steers av 861 at \$7, 1 do weighing 850 at \$5, 6 do av 595 at \$6; to Rattkowsky 13 butchers av 611 at \$5.50; to Hammond, S. & Co. 2 cows av 1,000 at \$4.10, 3 do av 907 at \$5; to Mich. B. Co. 4 do av 1,040 at \$4, 1 heifer weighing 810 at \$6, 2 do av 645 at \$4, 4 cows av 920 at \$5; to Hammond, S. & Co. 10 butchers av 979 at \$5.60, 8 steers av 990 at \$7.90, 5 cows av 1,024 at \$4.10, 1 do weighing 1,220 at \$6.50, 3 do av 1,093 at \$5.35, 2 do av 1,010 at \$3.50, 3 bulls av 1,078 at \$5.25; to Sullivan P. Co. 4 cows av 1,055 at \$6, 2 do av 990 at \$4.75, 3 steers av 723 at \$6.75.

Bishop, B. & H. sold Kamman 4 cows av 810 at \$3.50, 3 do av 826 at \$5, 2 heifers av 860 at \$6; to Mich. B. Co. 16 butchers av 1,008 at \$5.50, 3 cows av 933 at \$4, 1 bull weighing 850 at \$4.50; to Newton B. Co. 3 do av 780 at \$4.85, 1 canner weighing 720 at \$2.75, 9 cows av 872 at \$5, 8 do av 935 at \$5.25, 2 bulls av 760 at \$5, 2 steers av 970 at \$7.75, 1 heifer wgh 590 at \$6, 7 butchers av 833 at \$6.75; to Regan 3 do av 443 at \$4.25; to Sullivan P. Co. 4 cows av 982 at \$5, 2 bulls av 1,180 at \$5.50, 1 cow weighing 650 at \$3.25; to Sutton 16 stockers av 680 at \$5.50, 2 do av 745 at \$5.50, 1 do weighing 650 at \$3.25; to Newton B. Co. 2 steers av 1,010 at \$7.15, 6 butchers av 825 at \$6; to Bresnahan 2 do av 455 at \$4; to Parker, W. & Co. 2 bulls av 880 at \$5, 2 do av 1,475 at \$5.60; to Hammond, S. & Co. 1 do weighing 1,160 at \$5.50, 2 do av 855 at \$5.50, 2 steers av 880 at \$7.25, 6 cows av 833 at \$3.85; to Fromm 9 butchers av 760 at \$5.85, 2 do av 420 at \$4, 3 bulls av 800 at \$5, 2 steers av 665 at \$6; to Hammond, S. & Co. 2 cows av 925 at \$3.35.

Sharp sold Bresnahan 2 cows av 1,005 at \$4, 10 butchers av 967 at \$5.60, 1 bull weighing 1,750 at \$5.75, 8 steers av 975 at \$7.85.

Allington sold Goose 11 butchers av 801 at \$5.

Weeks sold Mich. B. Co. 13 cows av 883 at \$5.35, 4 do av 915 at \$3.80, 6 butchers av 490 at \$4.75, 3 do av 683 at \$6, 14 do av 946 at \$6.75, 10 do av 787 at \$6.50, 8 cows av 900 at \$5.35, 2 heifers av 575 at \$5, 9 steers av 785 at \$6.50.

Veal Calves.

Receipts, 1,506. Market 25@50c lower; common dull. Best, \$8.25@8.75; common \$3.75@6.75.

Bishop, B. & H. sold Goose 1 weighing

340 at \$4.50, 6 av 260 at \$5, 15 av 125 at \$7; to Sullivan P. Co. 3 av 115 at \$7.50, 18 av 135 at \$8.25, 2 av 140 at \$7, 8 av 150 at \$8.75; to Newton B. Co. 50 av 135 at \$8.50; to Thompson Bros. 11 av 140 at \$8, 15 av 137 at \$8; to Parker, W. & Co. 11 av 150 at \$8.25, 28 av 135 at \$8, 10 av 145 at \$8.50; to Newton B. Co. 14 av 155 at \$8.75; to Hammond, S. & Co. 34 av 140 at \$8, 7 av 160 at \$9, 2 av 105 at \$7, 2 av 180 at \$8.75; to McGuire 9 av 155 at \$8.50, 7 av 150 at \$8.50, 4 av 140 at \$8; to Burnstine 6 av 170 at \$8.25, 6 av 150 at \$8.75, 14 av 140 at \$8.25; to Mich. B. Co. 31 av 135 at \$8; to Parker, W. & Co. 25 av 140 at \$7.50, 29 av 155 at \$8.25, 5 av 120 at \$6.50, 19 av 150 at \$8; to Hammond, S. & Co. 41 av 145 at \$8.25.

Haley & M. sold Newton B. Co. 12 av 150 at \$8.75, 12 av 140 at \$8.50, 1 weighing 310 at \$5.50, 5 av 140 at \$8.50, 1 weighing 210 at \$5, 10 av 157 at \$8.50, 2 av 125 at \$6.50; to Patzuskus 27 av 140 at \$8.50, 2 av 140 at \$8.50.

Dancer & K. sold McGuire 3 av 95 at \$6, 12 av 140 at \$8.

Roe Com. Co. sold Rattkowsky 18 av 135 av \$7.50; to Goose 6 av 200 at \$4.50. Sandall sold Mich. B. Co. 39 av 140 at \$8.25.

Spicer & R. sold Mich. B. Co. 3 av 140 at \$8, 6 av 150 at \$8.50, 1 weighing 190 at \$9, 7 av 160 at \$6.50, 12 av 130 at \$8, 28 av 150 at \$8.25; to Hoffend 9 av 140 at \$8.15; to Goose 16 av 150 at \$5.75; to Sullivan P. Co. 17 av 135 at \$7.50; to Applebaum 10 av 140 at \$8.35; to Rattkowsky 5 av 160 at \$8.75, 1 weighing 160 at \$8.50.

McQuillan sold Hammond, S. & Co. 9 av 150 at \$9.

Allington sold same 1 weighing 220 at \$7, 17 av 155 at \$8.75.

Bergin & W. sold same 18 av 140 at \$8. Weeks sold Parker, W. & Co. 34 av 140 at \$8.55.

Sheep and Lambs.

Receipts, 2,051. Market steady with Wednesday and last week's opening; quotations for clipped stock. Best wool lambs, \$7.50@8; fair to good lambs, \$5.50@6; light to common lambs, \$3.50@4; spring lambs, \$7@9; fair to good sheep, \$3.50@4; culls and common, \$1.75@3.

Bishop, B. & H. sold Mich. B. Co. 282 lambs av 68 at \$8, 256 do av 65 at \$7.50, 2 sheep av 110 at \$3, 21 do av 125 at \$4, 14 do av 120 at \$4, 8 spring lambs av 35 at \$5.50; to Thompson Bros. 12 sheep av 50 at \$4, 33 lambs av 53 at \$5; to Sullivan P. Co. 3 sheep av 105 at \$3, 12 do av 95 at \$3, 15 do av 100 at \$3.50, 8 spring lambs av 83 at \$9, 42 common lambs av 60 at \$3.50, 15 spring lambs av 55 at \$7.50, 15 do av 50 at \$6, 8 do av 75 at \$9; to Hammond, S. & Co. 20 spring lambs av 47 at \$7.10; to Newton B. Co. 22 do av 67 at \$8.50, 28 do av 65 at \$8.75, 17 sheep av 85 at \$4; to Bray 35 sheep av 83 at \$2.25, 43 do av 80 at \$2; to Fitzpatrick Bros. 15 lambs av 55 at \$6.50, 104 do av 70 at \$6; to Bray 22 sheep av 108 at \$3.50; to Fitzpatrick Bros. 17 spg lambs av 55 at \$8, 15 do av 57 at \$8.50; to Barlage 62 lambs av 47 at \$6.50.

Spicer & R. sold Barlage 12 sheep av 105 at \$3, 5 spring lambs av 60 at \$8, 10 do av 58 at \$8.50, 8 sheep av 90 at \$3, 8 lambs av 40 at \$6, 5 sheep av 85 at \$2.50.

Haley & M. sold Newton B. Co. 5 spg lambs av 55 at \$8.50; to Protowsky 18 sheep av 70 at \$4.

Allington sold Hammond, S. & Co. 5 spring lambs av 60 at \$8.

Hogs.

Receipts, 5,592. None sold up to noon; packers bidding 5@10c lower than Wednesday of last week.

Range of prices: Mixed butchers, \$7.40; pigs, \$6@6.75; light yorkers, \$7.09@7.20; few choice \$7.45@7.50; stags one-third off.

Roe Com. Co. sold Sullivan P. Co. 236 av 180 at \$7.45, 35 av 170 at \$7.40, 69 av 150 at \$7.30, 20 av 190 at \$7.50, 44 pigs av 120 at \$6.75.

Spicer & R. sold Hammond, S. & Co. 310 av 180 at \$7.40, 130 av 180 at \$7.30, 315 av 170 at \$7.35.

Haley & M. sold same 65 av 170 at \$7.35, 27 av 150 at \$7.25, 51 av 175 at \$7.30, 227 av 180 at \$7.40.

Bishop, B. & H. sold Parker, W. & Co. 310 av 200 at \$7.50, 490 av 180 at \$7.40, 1,410 av 175 at \$7.35, 810 av 170 at \$7.45.

Friday's Market.

June 7, 1912.

Cattle.

Receipts this week, 701; last week, 603. Market steady at Thursday's prices; run very light. Extra dry-fed steers and heifers, \$8@8.35; steers and heifers, 1,000 to 1,200, \$7.50@8; do. 800 to 1,000, \$6.50@7.50; grass steers and heifers that are fat, 800 to 1,000, \$6@7; do. 500 to 700, \$5@6; choice fat cows, \$6@6.50; good fat cows, \$5@6; common cows, \$4@5; canners \$3@3.50; choice heavy bulls, \$5.50@6; fair to good bolognas, bulls, \$4.75@5.25; stock bulls, \$3.50@4.75; choice feeding steers, 800 to 1,000, \$5@6; fair feeding steers, 800 to 1,000, \$5@5.50; choice stockers, 500 to 700, \$4.50@5; fair stockers, 500 to 700, \$3.50@4; stock heifers, \$3.50@4.50; milkers, large, young, medium age, \$40@55; common milkers, \$20@30.

Veal Calves.

Receipts this week, 1,397; last week, 1,783. Market steady at Thursday's prices.

Sheep and Lambs.

Receipts this week, 1,216; last week, 3,264. Market steady; run very light; quality common. Best lambs, \$7.50@7.75; fair to good lambs, \$5.50@6.50; light to common lambs, \$3.50@4.50; spring lambs, \$9@10; fair to good sheep, \$3.50@4; culls and common, \$1.50@2.50.

Hogs.

Receipts this week, 4,344; last week, 7,592. Market steady to 5c higher than on Thursday. Light to good butchers, \$7.45@7.50; pigs, \$6.60@6.75; light yorkers \$7.20@7.30; stags one-third off.

The markets of the country have been generously supplied with fresh country eggs recently, and their cheapness stimulates consumption materially, while large

numbers of cases have been placed in big cold storage warehouses, to be removed later when prices will rule much higher. Eggs are so much cheaper than meats that they are largely used in place of beef, mutton, etc. Butter, too, has been materially lowered in price, and its use has greatly increased, while sales of oleo-margarine have decreased accordingly. Recent Monday sales of butter on the Elgin Board of Trade exceeded all former records, with prime lots of creamery bringing 27c per pound, a drop of three cents from the last sales a week earlier.

MICHIGAN CROP REPORT.

Wheat.—The average condition of wheat in the state is 58, in the southern counties 48, in the central counties 60, in the northern counties 73 and in upper peninsula 94.

On May 1 the condition of wheat was reported as follows: State 63, southern counties 53, central counties 68, northern counties 79 and upper peninsula 92.

The per cent of wheat sown that will be plowed up because winter-killed or otherwise destroyed is 24 in the state, 29 in the southern counties, 24 in the central counties, 15 in the northern counties and 4 in the upper peninsula. A much larger percentage of the wheat acreage would have been plowed up if it were not seeded. The damage by Hessian fly is 9 per cent in the state, 12 in the southern counties, 10 in the central counties and 3 in the northern counties.

The total number of bushels of wheat marketed by farmers in May, at 96 mills is 133,754 and at 90 elevators and to grain dealers 208,465 or a total of 342,219 bu.

Of this amount 185,112 bushels were marketed in the southern four tiers of counties, 47,594 in the central counties and 9,513 in the northern counties and upper peninsula. The estimated total number of bushels of wheat marketed in the ten months August-May, is 13,478,000. Ninety-three mills, elevators and grain dealers report no wheat marketed in May.

Rye.—The condition of rye in the state is 78, in the southern counties 76, in the central counties 74, in the northern counties 85 and in the upper peninsula 94. One year ago the condition in the state, southern and central counties was 92, in the northern counties 91 and in the upper peninsula 99.

Corn.—The acreage of corn planted or to be planted as compared with last year, in the state is 97, in the southern counties 98, in the central counties, 89, in the northern counties 100 and in the upper peninsula 113. The condition of corn as compared with an average is 76 in the state and southern counties, 66 in the central counties, 75 in the northern counties and 98 in the upper peninsula.

Oats.—The condition of oats as compared with an average, is 87 in the state, 90 in the southern counties, 79 in the central counties, 86 in the northern counties and 97 in the upper peninsula. The condition one year ago was 88 in the state and central counties, 84 in the southern counties, 90 in the northern counties and 100 in the upper peninsula.

Barley.—The acreage of barley sown or that will be sown as compared with last year is 87 in the state, 90 in the southern counties, 81 in the central counties, 86 in the northern counties and 95 in the upper peninsula.

Meadows.—The condition of meadows as compared with an average is 89 in the state, 85 in the southern counties, 90 in the central counties, 94 in the northern counties and 101 in the upper peninsula. The condition one year ago was 83 in the state, 69 in the southern counties, 94 in the central counties and 104 in the upper peninsula.

Potatoes.—The acreage planted or to be planted as compared with last year is 94 in the state, 96 in the southern counties, 87 in the central counties, 93 in the northern counties and 114 in the upper peninsula. The condition as compared with an average is 85 in the state, 87 in the southern counties, 74 in the central counties, 84 in the northern counties and 97 in the upper peninsula.

Colts and Calves.—The number of colts as compared with last year is 92 in the state, 93 in the southern counties, 91 in the central counties, 88 in the northern counties and 104 in the upper peninsula. The number of calves as compared with last year is 95 in the state, 94 in the southern counties, 96 in the central and northern counties and 99 in the upper peninsula.

Sugar Beets.—The acreage of sugar beets planted or to be planted as compared with last year is 88 in the state, 89 in the southern counties, 87 in the central counties, 76 in the northern counties and 108 in the upper peninsula.

Fruit.—The following table will show the prospect at the present time for a crop of the various kinds of fruit in the state and the different sections:

	State.	Sou.	Sen.	Nor.	Upper
Apples	78	76	80	89	69
Pears	53	49	56	60	98
Peaches	12	11	10	18	..
Plums	55	51	52	67	88
Cherries	65	58	68	87	88
Strawberries	91	92	87	94	97

VETERINARY.

(Continued from page 652).

time. F. R., Belleville, Mich.—Dissolve ¼ lb. sugar lead, 3 ozs. sulphate zinc and 3 ozs. carbolic acid in a gallon of water and apply to sore heels every evening. Apply one part oxide of zinc and four parts vaseline to sores every morning. Give each horse a dessertspoonful of Fowler's solution at a dose in feed two or three times a day.

Garget—Obstructed Teat.—I have a cow that came fresh last Tuesday that I find it almost impossible to get milk from both fore quarters of udder, the teats seem to be blocked. W. A. McCQ.,

Snaver, Mich.—Apply one part extract of belladonna and four parts vaseline to lower part of quarter and teats once a day and use milking tubes to draw off milk. Be sure and boil milking tube for five minutes before it is used each time.

Bruised Abdomen.—I have a cow with two or three bunches under belly which may have been caused by a blow; these bunches are as large as a man's fist and the cow does not give as much milk as usual. J. B., Newaygo, Mich.—It is possible that the bunches contain pus and if so it should be let out, then apply one part carbolic acid and 50 parts water or one part coal tar disinfectant and 30 parts water twice a day. If the bunches are hard apply tincture iodine daily.

Abortion.—I have a cow that slunk her calf last fall some six weeks before she was due to calve. Is this likely to occur again? J. D. H., Burton, Mich.—Give your cow 30 drops of carbolic acid at a dose in either feed or drinking water twice a day for ten days, discontinue giving it for ten days, then repeat.

Septic Arthritis.—I have always read with interest your veterinary column and have been greatly benefited by it. I have a lamb six weeks old which, when three weeks old, showed lameness in one fore leg and in a day or two both knee joints swelled and now both of his fore legs are affected and within a day or two all four legs are swollen. This lamb is so stiff that he can hardly move and when he does move seems to suffer pain. H. B., Mount Salem, Ont.—I have no doubt this is a case of septic arthritis (navel infection) and had you treated the navel of lamb it would have doubtless been all right. Apply one part carbolic acid and five parts glycerine to navel if it is yet sore, but avoid applying it to skin. Give the lamb ¼ gr. salicylate of soda at a dose twice a day and if you can conveniently give it "hypodermically" small doses of polyvalent bacterins. I have considerable faith in bacterin treatment for this ailment; however, it is a little too late.

Loss of Appetite.—Have two pigs ten weeks old that seem to have lost their appetite and would like to know what to give them. F. C. S., Evart, Mich.—Give the pigs enough castor oil or epsom salts to open their bowels, then give a teaspoonful fluid extract gentian at a dose to each one three times a day.

Diarrhoea.—Will you please tell me what is the matter with my goslings? When hatched out they appear to be lively, but when a week old a diarrhoea sets in which weakens them quickly and they soon die. Twenty of them have died. Their feed consists of mostly grass and bread crumbs. Mrs. S. R., Royal Oak, Mich.—You should ascertain if the grass they eat is infected or if the bread crumbs are covered with mould or in any way sour; it may be causing them to sicken. Toast the bread, then crush the toast before mixing it with boiled water or scalded milk and be sure they have clean water to drink. Mix a little sub-nitrate of bismuth with their feed. Their food supply has a whole lot to do with keeping them well or making them sick.

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My income for 1911 per cow is as follows:

260 pounds of butter fat, at 29c.	\$75.40
6,100 pounds of separated milk, at 30c per cwt.	18.30
8 tons manure, at \$1.50	12.00
1 calf	3.00
	\$108.70

My expenses per cow were:

Five months winter feed	\$28.50
Seven months pasture	8.00
Depreciation	2.50
Equipment and renewals	1.00
Interest on investment	3.00
Sundries	2.00
Labor, 6c per cow per day	21.90
	\$66.90

This leaves a net profit of over \$40 per cow above all expenses, and, as I am keeping twenty cows, it amounts to over \$800 per year, which is not bad for a herd of common cows.

By using a Sharples Tubular Hand Separator I get 18% more butter fat than I averaged from the same cows before I bought it, and my skim milk is worth at least 25c more per hundred pounds for stock feeding purposes, and I am paid 2c per lb. more for butter fat from the Tubular cream than before I used it. My increased income per cow, due to the use of the separator, is \$11.31 increased quantity in butter fat, \$5.10 for the better price realized and \$15.25 more value in the skim milk, owing to its being fresh and warm. Thus \$31.66 of my profit per cow is due to the use of the Tubular Separator.

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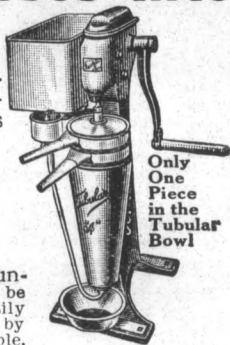
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THE DAIRY

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MARKETING DAIRY PRODUCTS.

One of the greatest problems in dairying today, it seems to me, is that of selling the products. Great changes have in recent years come about in the handling and marketing of milk and its derivatives. It has followed the trend of every other industry toward concentration and specialization until the manufacturing and selling end of the business has shifted from the farm to the cheese factory, condensary, creamery and the city milk and cream trade. This makes it possible for farmers in most vicinities to sell milk or butter-fat for as much, and in many instances more, per pound than they would receive for the butter that might be made on the farm.

There are conditions, however, that warrant the making of butter on the farm. In many instances the farm is not situated close enough to a shipping station, condensary, cheese factory or creamery so that the owner can obtain the best prices for his products. True, there may be a cream wagon passing his farm twice a week that will take his cream, haul it to town and ship it one or two hundred miles to be made up into as good butter as can be made from cream gathered in this manner, but no firm can pay the true value for good cream cared for under those conditions and the farmer loses from five to ten cents per pound on every pound of butter-fat his cows produce for him.

Farmers located under such conditions should make butter on the farm. The over-run will pay for the extra labor of ripening the cream and making the butter, and with very little effort a market can be found that will pay a nice profit for the extra work. As an example, suppose the farmer is selling weekly 80 lbs. of 30 per cent cream, or 24 lbs. of butter-fat at 24 cents per pound, when the price of butter on the market is 29 cents per pound. There is an income of \$5.76. Churn into good butter this same fat, incorporating 20 per cent of moisture, salt and curd as the good butter maker does, and the result is 28.8 lbs. of butter. Will the 4.8 lbs. of extra butter over-run sold at 29 cents and netting \$1.39 cents for the labor of churning? If not, sell the 24 lbs. at 29 cents, or five cents more than you would have received per pound for the fat, and there is \$1.20 more in your favor, making in all \$2.59—not a big sum it is true, but at the end of the year it will amount to \$134.68. If it had been the product of five cows, as such a yield certainly should be, for it means but an average of 4.4-5 lbs. of butter-fat per cow weekly, each cow has to her credit \$26.93 additional. How many cows have you in your herd that yield you a profit all told, of \$26.93 each year under present existing conditions??

Farm buttermaking is not a disagreeable business if certain well known rules are followed, and if enough interest is taken in the manufacture to make a choice product. Only a very small equipment is necessary to make good butter, but it should be used properly and always be kept sweet and sanitary. A hand separator provides cream that is easier to churn than any other system of milk skimming for it is of more uniform consistency and can always be secured and handled in the same manner each time. Another important instrument is a dairy thermometer that can be purchased for 10 cents. Enough pails and cans must be used so it will not be necessary to mix cream of different temperatures. The churn, a butterworker and a supply of parchment paper complete the necessary equipment.

In determining between selling his milk to the creamery, cheese factory or condensary one should be guided by the prices paid for milk and butter-fat and the value of the by-products returned to his farm for feeding. Any good feeder should be able to realize from 20 to 30 cents per 100 pounds for skim-milk by feeding it to calves, pigs and poultry. Whey (the by-product from cheese-making) has a feeding value of about 10 cents per 100 pounds. The selling of whole milk to the condensary or the city milk trade leaves no by-product to feed on the farm. Therefore, in figuring a reasonable scale of prices I will submit the following relative prices which I think are nearly correct: Creamery, \$1.00; cheese factory, \$1.10; condensary, \$1.25. Fortunately the prices paid by creameries and cheese factories seldom vary more

than from 10 to 15 cents per 100 pounds, for the reason that most of the progressive factory owners have the necessary equipment to make butter in case the market for cheese falls below that for butter. The necessity of having the skim-milk returned to the farm to feed young stock and poultry and increase soil fertility is a matter that should be given greater attention in every dairying locality.

Many farmers have an idea that there is a fortune to be made in producing certified milk. It is easy to write about producing milk under surroundings that approach the ideals of sanitary experts, but we do not especially need a campaign in urging farmers to cater to that trade. I think I am correct when I say that the market for this class of milk is pretty well supplied. Milk retailing from 15 to 20 cents per quart is, after all, used only in families where economy of expenditures is a very minor consideration, and sometimes by people of moderate means who have a delicate child, for whom the best is none too good. The business appeals very forcibly to the dairymen who figure profits carefully and who like to see things nicely done. But there is no use of arguing against the facts, no matter how unreasonable they may seem. There are ten farmers waiting to make certified milk for every market that can be developed for one. I am not writing this to discourage any man who desires to clean up about his premises and undertake the work of sanitation, sterilization, dust-free air and grooming, along with the necessary equipment that goes with the making of certified milk, but what we do need in the milk producing business in general is an inspiration to improve the great mass of market milk now being made and be able to put it on the market in condition and at prices that will increase its use among city consumers. It seems to me that the best interests of the dairy farmer as well as the consumer will be attained by keeping prices as low as consistent with the cost of production.

The prices obtained by dairymen who supply the city milk trade seem very attractive to many farmers who patronize the cheese factory or creamery, however, the city milk producer who has a contract to supply a certain number of gallons of milk every day in the year has his trials and perplexities. He has to feed large quantities of high priced grain feeds, buy new cows and plan his dairy management so the cows shall not fall below his contract at any time during the year. Selling milk removes from the farm approximately two dollars' worth of fertility with each ton of milk, besides it leaves the farm without calves and pigs and has a tendency to narrow things down to the industrial circle of buying feed to make milk to buy more feed to make more milk, and so on hopelessly to the end. Such farm management can not compare favorably with that which affords 400 or 500 pounds of skim-milk a day to raise a nice bunch of heifer calves along with a few choice brood sows to utilize the farm wastes and by-products. The building up of choice herds of dairy cattle seldom succeeds nearby to a milk shipping station or condensary. Further argument is not needed to show that selling whole milk is poor dairy practice. If a dairymen sells whole milk he must receive enough additional money to buy back an equal amount of fertility if he maintains the productivity of his farm for a long series of years.

One of the most encouraging features of our present-day dairying is the broadening outlet for market cream. In New York city it is estimated that the amount of butter-fat used as cream is approximately one-half of that used as milk. Evidently if it were not for this demand many dairymen would be doing business at a loss, and yet the consumption of cream is the outgrowth of recent years. The factors in producing market cream are essentially the same as in producing milk. Clean methods, refrigeration and a uniform percentage of fat constitute good cream.

Everything considered, the selling of cream at remunerative prices is the highest type of dairy farming. It is true that the market for high-grade cream direct from the farm is limited, but there are more possibilities in developing a satisfactory market for cream than in any other branch of the dairy business. I know it is no easy task to go into a large city and contract for the sale of a certain number of gallons of cream daily. You may find confectioners, restaurants and hotel proprietors who are glad to buy cream according to their daily or weekly needs which will mean in varying quantities, but they will not agree to take so

many gallons each day. On the other hand, if a market can be secured at all it will almost always pay better to sell cream and have the skim-milk left on the farm for feeding. In many instances one may arrange with the local public creamery to take his surplus cream on a butter basis and supply a few city customers with cream when they need his product.

The public creamery is valuable to many dairy farmers, but it is far from satisfactory to the progressive dairyman. The financial returns seldom compare favorably with those received from the sale of whole milk. The skim-milk is not in as good condition for feeding as is the case when the milk is separated on the farm. Another serious objection to the public creamery is the fact that by sending the milk to a public creamery a man takes greater chances of introducing disease into his herd. This one fact alone should commend the use of the farm separator and the sale of cream, to many farmers who are raising a herd of purebred dairy cattle or even a herd of grades to replace their present herd.

When the milk is fed to pigs the results are more easily noted, for the disease develops much more quickly in swine than in other animals, and at the present time there are certain dairy districts where buyers will not buy hogs unless they can obtain them at a figure that will make them safe in having from five to eight per cent condemned by the meat inspectors. This state of affairs in many dairy sections shows us that something is radically wrong when these by-products are allowed to be returned to the farm and fed to young animals before being properly sterilized.

New York. W. MILTON KELLY.

FUNCTIONS OF NUTRIENTS.

(Continued from page 653).

fats and carbohydrates, starvation continues in the animal despite the fact that enough fat is being supplied which likewise is digested and which as far as quantity is concerned, is ample to fulfill the body requirements. A certain function which scientists call vital requires, however, that nitrogen must form an integral part of the food. As neither fats nor carbohydrates contain nitrogen and as nitrogen continues to be eliminated in the urine from the animal, it is very evident that the time will speedily arrive when the circulatory protein of the body will be completely exhausted and muscular emaciation begins, followed by death.

We are forced, therefore, to the conclusion that a complete ration for an animal is a ration containing not only fats and carbohydrates but a ration containing likewise protein and in this ration the protein must of necessity form such an important part as will permit of the replenishing of the nitrogen supply.

Economic conditions require that certain more or less definite relationships between these various compounds shall be considered but that we shall discuss in detail in referring to the balanced ration.

The Tonic of Milk Fat.

Much of the impetus to the above investigations was furnished by the popular opinion that the quantity of fat in relation to other ingredients in the milk could be controlled by the feed. Numerous experimenters have attempted to solve this question. It has been known for a considerable time that it was impossible, no matter how the animal was handled, to raise the percentage of fat in the milk of a dairy cow beyond a certain point. Certain breeds, for example the Jersey and the Guernsey, are, of course, well known because of the high content of fat which quite uniformly is found in the milk. On the other hand, certain other breeds, such as the Holstein, it is known as a rule, do not reach as high a point of fat as is shown in the milk of the Jersey and Guernsey. To say that it is possible by proper feeding to increase appreciably the percentage of fat in the milk would be to infer that the average Holstein cow could raise in fat percentage to equal the average Jersey cow through feed alone. It is well known that this is not the case although Holstein cows are given fully as nourishing feed as are the Jersey. The individual characteristics of the race and the individuality of the cow seem to set the maximum upon the content of fat in the milk, and beyond this maximum it is not possible for the feeder to get.

Jordan's Experiments.

The final word in this matter has, we think, been quite aptly put by Jordan, of the Geneva station. He prepared a

ration of practically fat-free food and fed a cow for about three months on this food containing but 5.7 lbs. of fat in the total amount of food consumed in the three months. During this period she gave 62.9 lbs. of fat in the milk, thus proving absolutely that the 57.2 lbs. of fat found in the milk must have been derived from some other source than the fat in the food.

It is very clear from this experiment that by far the greater content of the fat in the milk must have been derived from some other source than the fat in the food. This, therefore, deals a death-blow to any supposition that by feeding a ration high in fat the content of fat in the milk may be correspondingly increased, and we would think, therefore, must settle the question for once and all.

PREPARE FOR AUGUST DROUGHT.

The excessive rains so far this spring give assurance of fairly good pasture, and with an occasional rain from now on the good pasture will probably continue later into the summer than it did last year. Nevertheless, one cannot depend upon the pasture for the entire summer season. Although it is wet now and the grass is abundant there is apt to be a drought the last of July and August, when cattle will suffer for a full ration if pasture is the sole dependence. The dairyman, especially, should be provided against this drought. He is indeed fortunate if he has enough left over ensilage to bring his cattle through until September rains come or until new ensilage comes. If he hasn't this supply of old ensilage then he should not neglect to plant crops which will mature about that time to be fed as a supplement to pasture. Evergreen sweetcorn is a splendid thing. I know of nothing better, and it will keep in good condition to feed longer than other varieties of corn. You don't want the corn ripe to feed the cattle as a supplement to the pasture, and yet it should not be too immature. It ought to be good roasting corn before you commence to feed it, and with good evergreen sweetcorn it will keep palatable for a longer period than any other variety or kind of grain. If it is not planted until the weather becomes thoroughly settled and warm one can get a good stand and on rich land grow a good tonnage. This can be cut when the drought comes, fed to the cattle, and will thereby save, in many instances, a heavy loss.

THE UDDER OF A DAIRY COW.

In selecting a dairy cow particular attention must be paid to the udder. Many a large udder is fleshy and deceptive in more ways than one, and buyers should never be led astray by a tightly stocked udder of restricted dimensions. A good udder should be well balanced, both before and behind. It should also be broad and fairly deep, without being inconveniently close to the ground. Feel the udder to see that the skin is soft and elastic, not stretched drum-fashion. Coarse, misplaced teats are often regarded as no serious fault by the typical buyer, but the man who desires to improve his stock must give them a wide berth. Teats should be regularly placed, and be neither too small nor too large, and like the skin of the udder should be soft and elastic. Next let the eye pass from the teats to the milk veins; these must be long, large and crooked, finally terminating in one large or several smaller orifices.

Canada.

W. R. GILBERT.

THE SUMMER PADDOCK.

The paddock is an economic part of the dairyman's equipment. It is economical in that it reduces the cost of production in a majority of instances. On the average farm the summer pasture is located some distance from the stables. Someone goes every evening to bring the cows to the stables for milking. Should there be no enclosure the animals are quite certain to wander back to the pasture lot before milking time in the morning, requiring another trip for the morning's milking. This extra trip would be eliminated if the cattle were confined to the paddock for the night. By having two or even three small paddocks about the buildings they would not only save this additional labor but would also provide considerable feed; this being accomplished by turning on one while the other or others is growing up.

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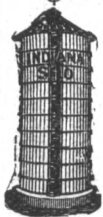
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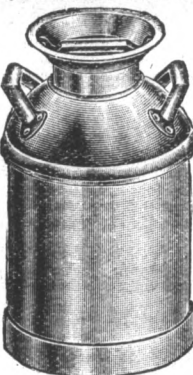


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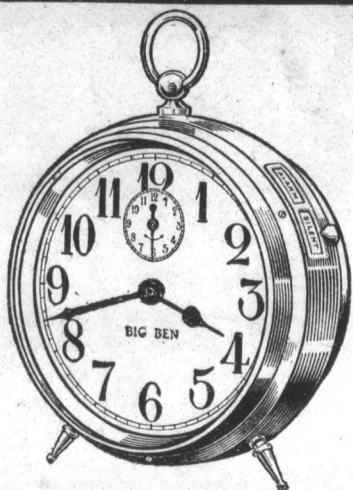
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HORTICULTURE

PEACH YELLOWS AND LITTLE PEACH.

For the past two or three years peach yellows and little peach have been steadily gaining ground in the peach orchards of many parts of the state. In some sections the advance has been very rapid and destructive, many orchards being so badly diseased that they have had to be completely destroyed and their owners have been so discouraged that they have entirely given up raising peaches. In some of the more northern counties, the diseases are still unknown or, at any rate have never been identified there. That these northern counties are always to be free, is not to be thought of, for the diseases made their first appearance in the southern part of the western Michigan fruit belt and have gradually spread northward and doubtless will continue to do so, perhaps to the northernmost limits of peach growing.

No variety of peach is immune and Japanese varieties of plums, including Burbank, Satsuma and Red June, are often attacked. Both diseases are equally contagious in old and young, healthy and unhealthy trees. Their cause is still unknown and the only recognized method of control is destruction of the tree-root, fruit, and branch—as soon as discovered. Both diseases may be present in a tree at the same time and while it seldom occurs, yet they are undoubtedly sometimes spread by the means of nursery stock, the diseases having gained admission to the nursery through either the bud or pit. The most critical time, however, for either disease to spread, from one tree to another or from one orchard to another, is believed to be at the blossoming time when bees and many other insects are visiting blossoms frequently and indiscriminately.

Symptoms of the two diseases are somewhat similar and sometimes difficult to identify and confusing even to the best informed and most experienced men. However, if peach growers would thoroughly familiarize themselves with the symptoms of the disease as given below and then keep close watch of their orchards so that affected trees will be noticed, marked and destroyed as soon as possible, instead of depending entirely on the "yellows commissioner," who is usually only able to examine an orchard two or three times in a season, much more satisfactory control would be secured and peaches could be grown much more profitably. Many orchards that are not entirely dead will not bear any crop this season because of the severity of the past winter and in these orchards double vigilance should be exercised because there will be only the foliage to indicate the diseases.

Peach Yellows.

Peach yellows may be identified by several symptoms any one or all of which may be present in a tree.

The first symptoms in a young tree, previous to bearing, are indicated by the leaves of one or two limbs growing more slender than ordinary and turning from a rich dark green to a yellowish green or reddish, rusty green color, this usually accompanied by a rolling of the leaves from their edges. These leaves ripen and fall earlier than normal leaves. Fruit buds are longer and more mature in appearance and in the spring invariably bloom earlier than normal buds. In some instances, the symptoms are not confined to one or two branches but many of the leaves in the center of the tree are slender, turn yellowish, roll slightly from their edges and droop considerably. These latter symptoms are often present in cases of little peach.

Upon bearing trees, there may be any one or all of the following symptoms: The fruit may ripen prematurely one to three weeks, upon one or two branches or over the entire tree. The fruit may have numerous red spots on the surface, the spots sometimes extending in red streaks partially or wholly through the flesh to the pit. Often the flesh about the pit is full of radiating streaks of red. The surface of the fruit is often roughened and the flesh more or less stringy and very insipid. The leaves may be slender yellowish, or reddish rusty green in color, usually rolling and drooping. In advanced stages, numerous finely branched shoots, bearing slender, sickly appearing leaves on the trunk or main branches and sometimes in the extremities of the branches.

Winter injury to the bark of the trunk or main limbs, mechanical injury by mice,

rabbits, peach borers, cultivators, etc., or a serious lack of moisture or nitrogen in the soil may discolor the foliage and cause premature ripening of the fruit and should not be mistaken for yellows.

Little Peach.

In little peach characteristic symptoms are: The leaves of a part or the whole of the tree have a bunched appearance, and are shorter and broader than leaves on healthy limbs or trees. They are usually yellowish green in color with the veins appearing dilated and darker than the intervening tissue. The fruit is usually undersized and ripens from a week to two weeks late. The flesh is more or less stringy, watery, and very insipid, while the pit is most always small. One or all symptoms may be present and unless they can be positively attributed to some other cause the tree should be condemned, pulled out and burned.

Mich. Agri. Col.

O. K. WHITE.

THE ROSE CHAFER IS A HORTICULTURAL PROBLEM.

For many years the rose chafer has been known to be a pest, yet not an understood insect. Its habits have not been studied like those of the potato beetle yet it is nearly if not as destructive during its short time of being in sight and much more harmful while in the ground. The difference consists in the fact that it eats many things, while the potato beetle narrows his efforts to a few things if he can.

Many years ago, with a class of young people who were studying the common insects and learning how to distinguish the good from the bad that one might be cherished while the other could be fought, I paid money, time and much patience to learn what I could of insects' habits, and among others studied about the rose chafer, so-called, I believe, because it was first noticed on roses. As a class we not only studied by personal observation but corresponded with several well-known entomologists, bought books teaching about our work and for several years tried in our way to learn of the farm insect life.

One of our tools was an insect pen. Boards were sunk into the ground to about three feet, tightly matched, penning in a space seven by 15 feet, mostly grass land. Above ground there was a frame about four feet high covered with the finest wire netting we could buy, a door, and the space cut up into several divisions. In one division we placed our captive rose chafers, the females of which commenced laying eggs in the ground from one to two inches deep during the second week in July. In no two years did the time of laying differ by more than three days or the hatching for about three weeks, conditions of the weather having an influence, but our records may be imperfect as the matter was an underground study. As soon as hatched the tiny insect, or worm, commenced to eat. Nothing was too good for it and no root that we could supply was neglected; by fall the larva was well developed and burrowed deeper during the winter. By spring it was on hand again and at work. Weeds, grasses, flowers, vegetable, shrub and even maple tree roots were very acceptable to our captives. They took much delight in gathering under stones, chips, bunches of refuse lying on the surface, under which they built their pupate cells. Before leaving the food question of the larva let me say they are death to all egg-pods of grasshoppers and several other insects who deposit their eggs in the ground; that they are destructive to all grain roots, grass roots, and any newly set plants, although grass land is a preferred home.

The appearance of the common June bug is a notice to beware of the adult rose chafer. The large number and quiet work allows it to eat and destroy many fine flower buds, corn and grain heads, before the farmer realizes anything is at work.

Its rose work is but a small part of its destructive energy; plums, strawberries, raspberries, and even standard fruit suffers. It is a great pest in the garden, especially among vegetables going to seed. Its wings give it much freedom and one man in a neighborhood cannot do much execution in fighting it alone. It being a chewing insect poison can be used but to be effective it must be a continuous application. I have killed the larva on small pieces by turning the top soil and using kerosene emulsion, but that and hand-picking is only adapted to small patches. I have also had much success in cleaning plants of the adult insect by using a pan of water that was covered with a film of oil; this scum of kerosene keeping them in place. I have

also used sheets covered with oil, placed on the ground and the insects shaken on to it, the dry sheets not being much better than nothing. One of the best ways to catch them is to provide certain plants in among the grape vine, and fruit trees and gather the insects often from these traps. I have seen the flowers of the ox-eyed daisy, sumach, spiraea, white rose, deutzia covered with the beetles, while not one would be on other roses, grapes or plums. The best time to catch the adult insect on oiled surfaces is in the early morning just as the sun is coming up.

Hens and turkeys relish the larva if allowed to work on newly turned over sod.

The potato beetle is not very numerous or so very destructive, when in the adult state its destructiveness is limited to the potato field and tomato patch but the rose chafer is very destructive in all conditions of life and you do not realize its work as it is not confined to any one or two plants.

Wisconsin.

OLD AGRICULTURIST.

A FEW OF THE INSECT PESTS OF THE GARDEN.

In this locality the chief insect pest of the onion is the onion maggot. Like the cabbage maggot it is the larva of a small fly and has many habits in common with that insect. The eggs are laid on the young plants and as soon as they hatch out the larvae begin burrowing into the bulb just below the surface of the ground. Only a small portion of the plant is actually eaten, the center is tunneled then the maggot passes to the next onion where the operation is repeated. In this way one larva will destroy a large number of seedlings before completing its growth. Later in the season as the onions get larger it requires fewer to bring a maggot to maturity and in some cases where the bulbs are of good size they will support two or three.

When a maggot has completed its growth it leaves the onion and enters the soil where it remains while passing through the pupal stage. A few days later it emerges as an adult fly ready to lay eggs which will start a new generation of which there are several during the summer.

The onion maggot passes the winter in both the adult and pupal stages which makes it harder to control than though only pupae wintered over. If the latter were the case fall plowing of infested soil would be effective in destroying many of the pupae but when some individuals hibernate as adults in out of the way places it is practically impossible to exterminate them. Nevertheless, fall plowing is a partial check and should be practiced.

From the nature of its feeding habits this insect cannot be poisoned by the use of arsenicals, nor for that matter will a contact spray be practical. The remedies must be preventive rather than curative. Fall plowing will destroy many of the pupae and clean culture will furnish less opportunity for the adults to find a safe harbor. For some reason many insects prefer to feed upon weak or unhealthy plants and the onion maggot belongs to that class so cultural methods which promote a vigorous growth lessen the chance of attack.

Last season one neighbor attempted to grow onions upon land that was deficient in plant food. As a result the maggots destroyed practically all of the bulbs, while another neighbor, who had onions upon rich soil was bothered very little. The onion is a hearty feeder and will respond to liberal applications of fertilizers. From what I have observed I have more faith in a high state of fertility as a preventive of the maggots than in any spray mixture which may be applied to the plants.

Carbolic acid emulsion is a spray which acts as a repellent and it is claimed that when applied as often as once a week that very few flies will deposit eggs upon treated plants. To make it dissolve a pound of soap in a gallon of hot water and while still hot, add a pint of crude carbolic acid. Emulsify this mixture either by vigorous stirring or by pumping it through a spray nozzle. When well emulsified dilute to 30 gallons by adding water and spray on the young plants early in the season to repel the first flies. To be effective the spraying should be repeated often enough to keep the young onions smelling of the spray.

Wayne Co.

W. POSTIFF.

The roots of currant bushes grow close to the surface of the ground, consequently all tillage subsequent to planting should be shallow.

GRANGE

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

THE JUNE PROGRAMS.

Suggestions for Second Meeting.

Music.
Discussion—Canning vegetables.
Importance of getting our crops well started. How shall it be done?
Exhibit of political cartoons, collected, arranged and explained by a member.
Talk—Making first grade hay—cutting, curing, cost.
Recitation.
The pros and cons of making Saturday afternoon a half holiday. 1. The advantages. 2. The objections.
Songs by the Grange.

THE GRANGES OF LAKE COUNTY.

The story of the development of a new country is always interesting, and the forces which have their part in its building are ever attractive to the individual who is interested in human progress.

The patrons of Lake county are mainly pioneers. Some of them were there when the woods stood in all their grandeur, before the lumberman had laid the forest low, taken his harvest of logs, and left upon the ground a thick covering of brush to invite the flames that rushed madly on, leaving in their track a wilderness of old charred logs and blackened stumps. But, for the most part, the pioneers of whom I write are engaged in redeeming this wilderness and building in its stead pleasant homes and productive farms.

The Grange is a wonderful organization in that it adapts itself easily to the needs of people who live under a variety of circumstances. It has a mission to the men and women who live in the older portions of the state; it brings to the people of the upper peninsula the opportunity for which they have waited too long already, and to the people of the southern peninsula it comes with an opportunity which, in some cases, is not being neglected. I have said in some cases, for the fact is that most of us are living far below our privileges in this respect as in most others.

Most of the Granges of Lake county are doing pretty well, and some of them very well indeed. I am telling the readers of The Farmer about them in the hope of encouraging some of the patrons in other localities by the story of what the Grange means to people who are living under the limitations of life in a new country like Lake county. Luther Grange meets in the village from which it derives its name, and numbers among its members a goodly number of young people who are competent to help in the programs and thus give and receive much good. The presence of these young people gives an opportunity to use the Grange life insurance which should be improved.

Elsworth Grange has a small membership. Among them are some old settlers who can tell you many a good story of "the long ago." They meet in a schoolhouse, but are considering the building of a hall. Bristol Grange meets at the little town of Bristol, and also has a small membership. The pastor of the Baptist church is the worthy master, and is a great favorite among the younger people especially. In this Grange is an opportunity for excellent lecture work, and here are just the people to form and drill a degree team. The soil in this part of Lake county is as good as the best, and the farmers here are prospering and contented.

Harmony Grange is the largest in the county, having over 100 members and being located in one of the best farming sections in Michigan. This may surprise some who have been wont to look upon Lake county as "a part of the great American desert," but in support of the statement I only wish to say that on soil in this locality five good crops of wheat have been grown in succession. Harmony Grange is here to stay. The membership is large from "The Hoosier State," and one can but wonder, when he sees how naturally these people take to the order when they get to Michigan, why there are so few Granges in Indiana. The fact is that every farmer needs the Grange, and most of them will unite with it when the matter is brought to their notice in a convincing manner.

Wisconsin has only a few Granges, but it is not because the people there will not join the Grange. It is simply that they have never been urged to do so. The people in northern Wisconsin, who live near the Michigan line, join Granges in our state as willingly as do our own citizens, and if men like those who organ-

ized Michigan could be put into Wisconsin and Indiana, the results would surprise some of the older patrons who have gotten into a rut and find it hard to climb out.

Sable Grange has been lately organized, but seems destined to become one of the best in Lake county. Most of the members are beginners in agriculture, clearing farms from land upon which a stump machine is almost as necessary as a plow. When one considers the mass of roots joined to one pine stump, and then proceeds to count the stumps on a single acre, the clearing of a stump farm seems well nigh a hopeless task. The farmer, however, seldom counts the days spent in clearing up his farm, and in building his home, with intent to charge them up against the business. He puts in his spare time, now and then a day, and occasionally a week at a time, and the neighbors note the change. When the stumps are out they make a substantial if not a very slight fence. When one tires of a stump fence and feels like investing in something better, he can buy woven wire and convert the stumps into wood. This last item is well worth considering in a country where every tree large enough to yield a board has been converted into cash.

It would require long and hard search to find a more zealous lot of patrons anywhere than the members of Elk Grange, located in the northern part of the county. They keep up the lecturer's hour, they patronize trade contracts, they insure their buildings and will soon insure their lives. When they meet a new settler they ask him to join their Grange, and if he refuses they keep on asking him until he joins. Brother Griffiths has been worthy master of this Grange for a long time. Elk Grange will soon build a hall.

Lake County Pomona recently arranged for a corn contest for the boys, and a contest in needlework for the girls. The girls, however, will be permitted to grow corn under the same rules as the boys if they wish to do so. In these and in many other ways of which there is not space to tell, the Grange is opening the door of opportunity to all who live in the country. Oceana Co. W. F. TAYLOR.

Nunica Grange, No. 1329, which was organized about five years ago, is still growing, though in a steadier way. Its influence for good has been recognized and those who failed to join in its earlier stage, doubtful of its stability after the first great wave of enthusiasm had passed, have watched its steady growth and are now ready to give the helping hand. The meeting of May 18 was another red-letter day for the Grange. Deputy State Master W. F. Taylor, of Oceana county, was present and gave a bright, inspiring talk to a very large number of patrons. In his topic, "What the Grange is for," he expressed such thoughts as these: That the primary object of the Grange is progress in agriculture and education; that the farmer should be a better farmer through being a Granger; that he should be able to secure better results through his more efficient labor. The farmer should bring his problems, which he may have solved for himself, and give them for the benefit of his neighbors, and vice versa. Again, in the lecture hour which should be bright with inspiring songs and recitations, the discussions should inspire the diffident with confidence in themselves and faith in their subjects to appeal, and the result must be of a brighter, better and more intelligent home and the recognition of the worth and nobility of the farmer's occupation. Think you that a lecturer could fail to get new life from such food for thought? Besides his talk he gave some of the unwritten work to candidates who were being obligated. Other features of the program were a song by the Grange; recitation, "Sweeping Cobwebs from the Mind," by Bro. Andrew Peterson; recitation, "Rock me to Sleep, Mother," by Sister Ella Gordon; song by Bro. Andrew Peterson; song by Sister Ethel Gordon; recitation by Miss Wilkey and a paper on "Our Lawns," by Sister Augusta Easterly. Under the good of the order, the worthy master, V. A. Martin, again agitated the question of hall building and secured many offers of \$25 loans and there is now little question but that sometime in the near future there will be a hall sufficiently adequate for our order. The ladies also had a beautiful quilt ready to sell by tickets, the proceeds of which will go towards the hall. An attendance contest is now being started and also a singing school of the old kind, by means of which interest is to be kept stimulated. After the program refreshments were served and all enjoyed a short period of sociability. The next meeting will be in charge of Sister Edna Edwards. This is to be a mother's day program and all the mothers are to join in the entertaining.—Minnie Viebrock, Lecturer.

COMING EVENTS.

Pomona Meetings.

Wayne Co., with Huron Grange, Friday, June 21. Miss Jennie Buell will speak.
Ingham Co., with West Hadley Grange of Livingston Co., Friday, June 21.
Newaygo Co., with Sitka Grange, Wednesday and Thursday, June 26-27.

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.

SOME ADVANTAGES IN BELONGING TO A FARMERS' CLUB.

In a recent issue, under this heading, we mentioned some of the purely material advantages of a membership in a local Farmers' Club, where that opportunity offers itself to the reader. In that article we sought to show that it would pay any farmer in dollars and cents to belong to a Farmers' Club, to say nothing of the other benefits which would accrue to him, and we believe that practically every reader who is a member of such an organization will concur in that assertion. But, as was intimated in the article above referred to, there are other and greater advantages than those which are purely of a material or monetary nature, and in a brief manner we shall undertake to enumerate a few of them here for the benefit of the chance reader who does not belong to a Farmers' Club.

First among these advantages we may possibly place the opportunity which the Club offers for pleasant social intercourse with our friends and neighbors, whom we would not see very often if some common interest did not call us together at stated intervals. This has a broadening influence on the mind and counteracts the untoward effects of isolation, which we are apt to suffer without being conscious of the fact. Also, it is perhaps an even greater benefit to the housewife, who suffers even more from the effects of isolation, and it will be a welcome diversion for the young people who must be given a degree of social advantages, than which none could be more wholesome than those to be derived from the Farmers' Club. Then, from the standpoint of recreation, generally sadly needed by every member of the farm family, particularly in the busy season, a membership in the Farmers' Club will prove profitable. In no other way could a pleasant day or afternoon be more thoroughly or cheaply enjoyed by every member of the farm family. The pleasant drive to the place of meeting, the diversions of the social hour and the program and the more substantial enjoyment of the ample meal partaken in common with friends and acquaintances are all well worth the while and may be counted as substantial advantages accruing to all who are affiliated with a Farmers' Club.

But perhaps the greatest of all the advantages which might be enumerated in this connection is the training in thought and speech which the Club member will unconsciously derive. The average man has not the happy faculty of thinking quickly and reaching accurate conclusions, or expressing the ideas which may come to him fluently or in a manner which is a source of personal satisfaction to him. There is no better place in which to get needed experience along this line than in the monthly meetings of a Farmers' Club, and this alone will prove an advantage to any man which will compensate him manifold for the time required to attend the meetings.

These advantages might be enumerated at greater length, but enough has been offered to prove to any thinking reader that it would be a profitable move for him to join a Farmers' Club if one already exists in his neighborhood, or to take the initiative in the organization of such a Club in case there should be none available within easy reach. Practically every Farmers' Club in the state of Michigan today is the result of just such an effort, and the permanence and prosperity of these organizations is sufficient proof that a membership in them is considered advantageous by some thousands of progressive Michigan farmers.

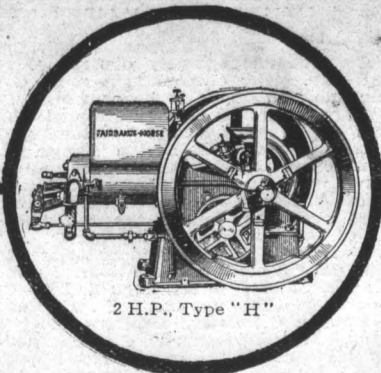
CLUB DISCUSSIONS.

Observe Memorial Day.—The Marion Farmers' Club held their monthly meeting May 29 in the Lake schoolhouse. The busy season and frequent showers had a marked effect on the attendance—but seemed to increase the interest of the plucky men, women and children who filled the house. President Clark called to order and the Club, led by Miss Lydia Brown, sang "America." F. W. Munson

offered prayer; secretary's report was read and approved. President Clark made some brief remarks. Thinks Marion the only Club which regularly observes Memorial Day. The custom is a most desirable one and ought to be continued in all future time. Whoever started the custom did a good thing. Following a recitation by Miss Catherine Lange, F. W. Munson reviewed causes leading up to the Civil war—the fierce struggle between men of brains and grit—which either crippled or placed under the sod thousands of the nation's worthy sons. The Misses Esther Witty and Marguerite Wright gave a concert recitation, "Meaning of the Colors," using flags and colors in a very pleasing manner. H. E. Reed read Lincoln's Memorial address at Gettysburg. Miss Norton spoke of the necessity of teaching the children to appreciate the blessings of this country and a proper observance of Memorial Day. Mrs. Hall read a poem entitled, "His Last Call." A bouquet was given to Mrs. Hall, widow of a soldier, and John Lowe, Mark Smock, Civil war men and John Martin of Spanish-American service. In the marching line to Lakeside cemetery the boys carried flags and the girls flowers, which were placed on the graves of 15 soldiers, including two Revolutionary heroes and one bugle boy who served in the war of 1812. Flowers were also placed on graves of veteran workers in the once well known Lake Sunday school.

The Telephone Girl.—The Conway and Handy Farmers' Club met at the home of Mr. and Mrs. Wells Fuller, May 31. The day was fine for work in the much belated corn fields and many men felt it a duty to remain at home; nevertheless a good crowd was present and as usual, a pleasant meeting. President W. M. Horton called for order at 2:30. The first on the program was singing by the Club and prayer by Rev. W. G. Stephens. Subject, "Experience of a telephone girl, its good and bad features, the remedies." Mrs. F. Rathbun said a telephone operator comes in contact with all classes of people, has a chance to know more about the people than most any other person. They have a great many responsibilities, they are held up for their own mistakes and the mistakes of others. Some people are very abusive and ill-tempered to the telephone girl, they believe the line is not busy when told it is. Many people misuse the telephone system and abuse the operator by listening, causing poor service and the blame is laid to the operator. Telephone girls are saluted in various ways, by cuss words and silly trash, and by men that are considered gentlemen. They are called down oftentimes by women who pride themselves on being called ladies. Subscribers make mistakes in not calling at the telephone office and learn for themselves the many things connected with the workings of a telephone office. The trials and tribulations of a telephone girl, there are three things an operator needs to remember, to control temper, tongue and conduct. A great deal of the success of a good telephone system depends upon having a good manager. One girl at the noon hour or supper time is not sufficient help; they cannot do the work satisfactorily. A telephone girl is at all times a busy person; calls from rural lines, stat, lines, collections, and still she is expected to give each and every one good service and at all times. Blame the telephone girl and the world blames with you, praise her and you praise alone. Discussion was led by A. E. Cole. Much depends upon the operator; first, they must be conscientious and honest; trying to do their work well. The public have less patience than they should have. People, ordinarily gentlemen and ladies, will say things to her over the telephone they would not say in her presence. From the aristocrat, who thinks he owns the world, to the man who has not money to pay for a telephone. Girls have been criticized for making collections, the people that do not own a phone and will not pay a cent to talk over one being the grumblers generally. Peculiar measures are taken by many to get around paying the ten cents. J. B. Fuller said, the telephone girls have my sympathy; they are ladies in every sense; as a rule they are not to blame for a line being busy; you cannot blame them for being saucy when the public demands, instead of being courteous and reasonable. F. Grant said, pay the girls a good salary and then give them a percentage on all of the money collected from the deadheads; let them collect it and have it; people who will not pay the necessary fee of ten cents the owners of a telephone should be fined, as the law requires when they refuse to charge. Several others joined in the discussion of this highly interesting topic.

School Books were Discussed.—"Are free and uniform text books desirable?" A. E. Cole said, I am in favor of free and uniform text books; I know of no reason why I am not; years ago the student had to pay a rate bill for his schooling, money to go towards the teacher's salary; in time it was done away with. Who would return to the method? Some men were opposed to the change, some were opposed to the system; they did not believe in supporting a school for young ones to attend. We met with opposition when the new tuition law came into effect not long ago, but all these have worked well and the book question is a burden to many a large family. It would advance the cause of education. Mrs. H. Wilkinson led the discussion. I agree with Mr. Cole. I think we should have them; teachers would have a better chance. Pupils do not always have books on time, have them there ready; would be better for teacher and also the pupils. Mrs. C. Gordon said, I am in favor of them by all means; have taught where they were furnished; in fact everything used in the schoolroom, and it was very satisfactory. Have taught where there were four different kinds of readers, etc. Some children have no books, the teachers get along the best they can.



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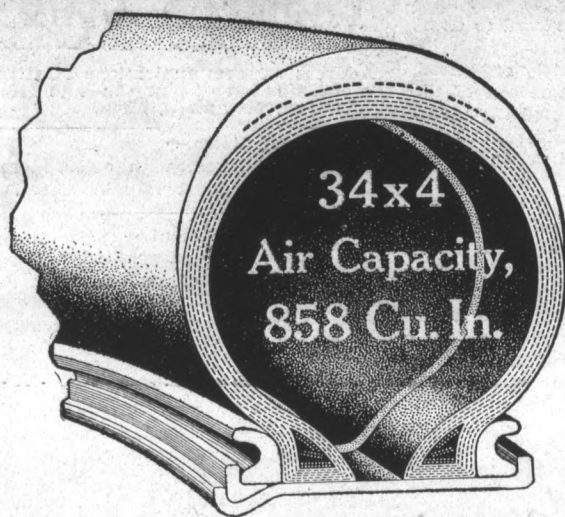
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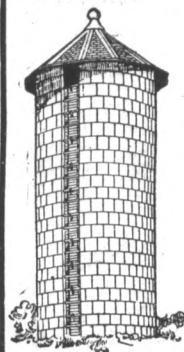
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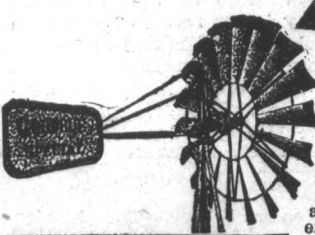
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