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FARM NOTES.

Silage Corn and Crop Rotation.

I have a 30-acre field on which I had ensilage corn last year. Had a splendid crop. Last year I manured the high spots and planted ensilage corn this year, with better results than last, the growth being unusual. Would it be advisable to use the same ground for the same crop next year? If so, how long can I follow this up providing I manure it well? It is the most convenient field I have for the purpose and I really need it for ensilage corn, but thought possibly I might be robbing the ground of some particular ingredient that the manure would not replace in full. Also, if I use it for 1912 would you use fertilizer and if so, how much per acre? The field is in good condition and good soil, being a black loam and just nice to work. Also, I have a ten-acre field that is quite light and has been run for years. Last year I sowed it to soy beans and pastured it off with hogs. This year I put in oats and peas early and pastured it off with hogs until August then sowed it with rape and later turned in my lambs. They have it about cleaned up now. I shall sow rye on it for early sheep feed and then figure on putting it into ensilage corn. What kind of fertilizer should I use and how much? I have two silos, holding about 325 tons, which I am now filling (Oct. 7). It would make some of your southern county men take notice if they could see the stand of corn I have.

Ogemaw Co. W. H. S.

From the standpoint of the amount of plant food removed from the soil, corn may be considered an exhaustive crop. It has been ascertained that a crop of 50 bushels of shelled corn per acre will, including the stalks, remove from the soil on an average 80 lbs. of nitrogen, 29 lbs. of phosphoric acid and 55 lbs. of potash. However, the corn plant is a good forager and has a long growing season, for which reason it reduces the immediately available fertility less than some of the more shallow rooting grain crops.

The fertility removed in a crop of silage corn would probably be in somewhat different proportions, due to the fact that more nitrogen would be required to grow a heavy tonnage of leaves and stalks than would be required for the grain crop, while the mineral elements would not be drawn upon to a proportionately increased degree. Much of the nitrogen required would be provided by the application of stable manure as contemplated in this case. The stable manure would also tend to keep the land in a good mechanical condition and well supplied with humus, which is an important factor in soil fertility.

Thus it is of considerable advantage to grow a leguminous cover crop in the corn to be plowed down for green manure the following season where the crop rotation is to be abandoned and the same field devoted to corn for successive years, as is contemplated and seems desirable in this case. In much of the southeastern section of the country crimson clover is used for this purpose, while in the more southern and central states, and those of the middle west, cowpeas or soy beans are utilized. It is unlikely that these crops could be so employed in Michigan, especially in dry seasons. It seems more likely that vetch sown with rye would be the best available leguminous crop for this purpose in Michigan, and some Michigan farmers

are this year experimenting with this combination as a cover crop sown in the corn to be plowed down for ensilage corn again next year. By the growing of such a cover crop, by the liberal application of stable manure, and with a moderate application of fertilizer, it has been found entirely practicable to grow en-

down and the ground fitted for corn. The fact that corn may be grown in this manner for successive years with entire feasibility is no argument against the crop rotation theory. It simply illustrates the necessity of using some means to keep the soil in a good mechanical condition, and well supplied with humus and avail-

ence whether alfalfa can be successfully seeded with wheat in the spring in an average season or not. The writer has known of instances where alfalfa was mixed with the clover seed in seeding wheat in the spring and a fairly good sprinkling of alfalfa was gotten in the seeding. In other cases where the same mixture has been sown there has been practically no alfalfa present in the seeding.

There is probably no doubt that when a soil has become well inoculated with the bacteria peculiar to the alfalfa plant, this method of seeding will be much more likely to be successful than where this is not the case, as it would not be nearly as practicable to inoculate the land with soil from an alfalfa field where the seeding is sown in wheat as where it is sown in a spring grain crop such as oats or barley, when it can be harrowed into the surface. While the knowledge gained from experience in the sowing of alfalfa in fall sown grain would be valuable, we do not believe it would be profitable to undertake it on a large scale. It would be better to sow alone without a nurse crop or with a light seeding of oats or barley at the usual time of sowing these grains in the spring. It would also be well to take the precaution of inoculating the field with soil taken from a successful alfalfa field or inoculate the seed with a pure culture of the bacteria peculiar to the plant. It would also be a good plan to sow lime on at least a portion of the field to determine whether lime is needed on your soil for alfalfa, as is the case on a good many farms in the state.

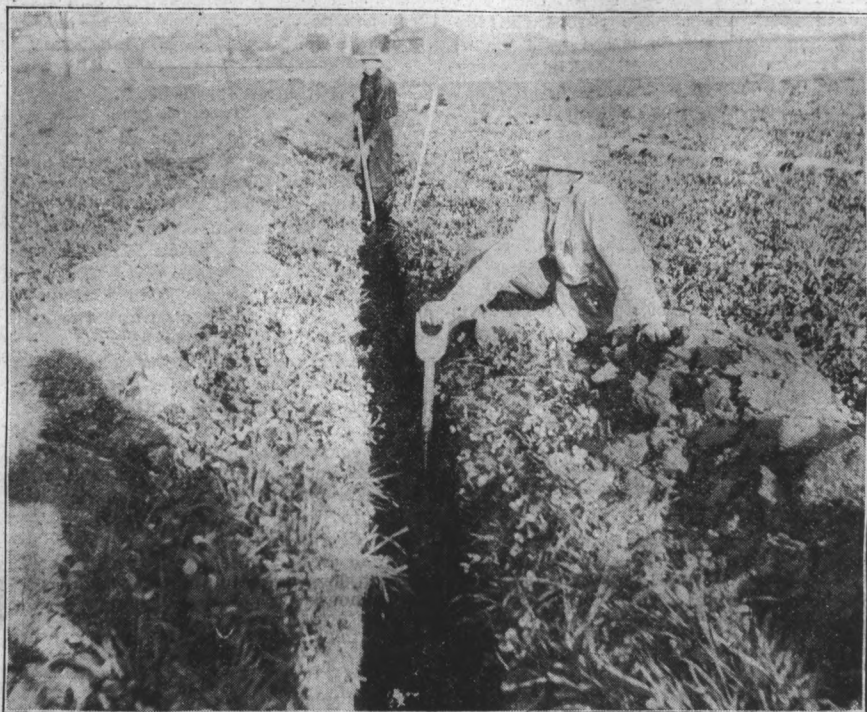
Deep vs. Shallow Fall Plowing.

Is deep fall plowing, just turning up a half inch or so of the raw subsoil, good practice here? Land to be planted to corn, some to alfalfa and to be top-dressed during the winter and spring. Land varies all over the farm from sandy loam to clay loam, with a sandy subsoil to a clay subsoil. Some of the ground to be plowed is corn stubble, some hay meadow, other oat and wheat stubble. I would be pleased to get enlightenment about this as I hear a lot of talk against it in this county. Am Minnesota S. A. U. M. graduate and was taught that it was all right in Minnesota.

Jackson Co. W. M. H.

There is not a little difference of opinion among successful farmers as to the proper depth to plow for good results. There is a growing impression, however, which is backed up by many experiences that there was more truth than its author realized in Poor Richard's maxim, "Plow deep while the sluggard sleeps." There is no doubt, particularly on deep and heavy or rather impervious soils, that deep plowing is beneficial with many crops, and particularly so in dry seasons, as it increases the ability of the soil to store and hold a maximum amount of moisture for the use of growing crops when needed.

In his work on alfalfa, Joseph E. Wing refers to the fact that European farmers plow much deeper for this crop than is the common practice in America, and in another work gives examples of cases where he has seen the crop succeed where considerable raw soil was turned to the surface. The new deep tilling machine is claimed to give very profitable results on the deeper soils by stir-



A Season of Extremes in Moisture Emphasizes the Importance of Tile Drains.
(See Notes on Tile Drainage, Page 330).

silage corn on the same ground for several years in succession, and not only prevent a decrease in the yield but to actually secure better crops.

The actual plant food requirements of different soils vary greatly and as these can only be determined accurately by experimentation, the best plan would be to use a standard grain fertilizer, putting on say about 500 pounds per acre broadcast after the manure had been plowed

able plant food where a crop rotation is not employed.

Seeding Alfalfa in Wheat.

I have a six-acre field sown with wheat this fall. The soil is a heavy clay, well drained and in good condition. Would it be advisable to seed this field to alfalfa in the spring or would you advise seeding with oats? Also state about what month would be the proper time for seeding.

Monroe Co.

It does not seem to have been clearly demonstrated as yet by Michigan experi-



Utilizing the Sprayer Engine to Advantage in "Buzzing" Up the Stove Wood without Dismounting it from Rig.

ring and mixing the soil to a much greater depth than the ordinary plow will run, and these claims appear to be backed up by many who have experimented with this method.

On the other hand, deep and shallow plowing have in other cases given similar results in seasons where the rainfall was fairly plentiful and well distributed. However, the gradual deepening of the soil by plowing below the old furrows is a practice which is approved by many good authorities and which, in the writer's opinion, would certainly be beneficial rather than harmful where the land is to be top-dressed with stable manure over winter.

Cutworms.

Would like you to tell me how to get rid of cutworms. I have 1½ acres of high sandy land that I plant to muskmelons every year and fertilize with barn manure each year, about 50 loads to the acre. This year the cutworms almost took my crop. Would it do any good to fall plow, then plow again in the spring just before planting? Any information as to how to get rid of these pests will be thankfully received.

Macomb Co.

S. L. J.

There is no better remedy than fall plowing to rid the ground of any kind of destructive larvae. In a case of this kind, where there has been an excessive quantity of stable manure applied in successive years, it might be more beneficial to omit the stable manure next year and fertilize with commercial fertilizer, fitting the ground for the crop without replowing, although the stable manure may be applied during the winter and then plowed down just before planting as suggested, with a fair prospect of minimizing the damage from these insect pests.

The Production of Timothy Seed.

What would be considered a good yield of timothy seed per acre?

Kent Co.

M. D. C.

Instances have been reported where as much as seven or eight bushels of seed have been threshed from an acre of timothy, but from three to four bushels is considered a good crop, four bushels being above the average, while in many cases not more than two bushels per acre are grown, even under favorable conditions. The crop of timothy seed has been light for some years, either due to the small amount grown for seed, or poor yields, which accounts for the unusually high price of seed at the present time.

NOTES ON TILE DRAINAGE.

The importance of tile drainage is so well known that no attempt will be made here to elongate on that phase. Tile drains are a good investment in time of excessive moisture and also in time of dry weather. However, there is far less written in the agricultural press on this vital subject than many others. One reason perhaps is, that in a great many places drains are not absolutely necessary owing to the composition of the soil and the topography of the ground. Soil that is underlain by limestone, sand or gravel near the surface, or any soil that does not have a tenacious and impervious subsoil does not need tile, but either fortunately or unfortunately, in many places tile drains are one of the best investments the land owner can make.

Why tile drains are a good investment in time of heavy rains is apparent. While on the other hand, tile drains supply air and oxygen to plants in time of dry weather which is essential. The necessity of a goodly amount of air in the soil is as important to the life of plants on upland as is water. Therefore, when seeds placed under otherwise good conditions, if free oxygen, is completely cut off germination and growth will not take place; then, if seeds have begun to sprout and the supply of oxygen is cut off they will not develop.

We are located on a farm underlain by limestone that has a level to slightly rolling topography. The limestone varies from eight to 20 feet to the surface and the farm needed drainage badly. Some 12 years ago we had placed 350 rods of tile on the farm, our first effort. The farm was operated by the writer's father who began farming in the forest and never laid any drains but made a few open ditches and used to say, "I will get it ready to tile and someone else may tile it." Since the first tile were laid we have laid a few drains each year.

We have outlined a system for the farm and are working with that end in view. We have a splendid outlet for the tile—one of the most important things to take into consideration.

We have been tiling new fields each year with the outlet in ditches other than the main one, until this year when the

outlet was to be in the tile placed some 12 years ago. The first work was systematically performed by a good, honest workman and this year we emptied some new tile into the first laid. When we dug down to these tile they were working perfectly. They are about four feet deep. The photo shows two of the men at work in the ditch in a fine clover field. The men are taking out the first and second spades; and the ditch shown is about four feet deep when completed.

The mistake we made this year in all our ditching was that we did not begin early enough in the season as the clover shown soon grew to such an extent that much of it was destroyed when laying and covering the tile, while on other parts of the farm plowing for corn was retarded very materially, owing to the laying of drains. Tile being extremely difficult to procure made the delay. Next year we will begin tiling in late winter or at times when the weather will permit.

In another section of the farm, where we joined some new tile to the old ones laid some eight years ago, we found the old tile in some places to have four inches of clay in them. They were ten-inch tile. We were compelled to take up and clean out about 12 rods of these tile. The 10-inch tile joined onto a Y sewer and here we found much clay. The junction of tile coming into the Y were in too deep and caused the trouble. We placed the tile back again and made a silt well where the sewer was. This well, we have every reason to believe, will catch all the silt and will be cleaned out at intervals. For good results never have a spur coming into a main tile on the same level, but a few inches higher. This is one important lesson we learned and we want to pass it on, but hereafter we will overcome clogged tile by the use of a silt well.

Some explanation of a silt well might be of interest. When a string of tile is running in say a westward direction and another comes from the south that is to empty into the east and west tile, a silt well should be provided right at the end of the south string in the line of the east and west drain. The well may be made thus: Dig out a hole about 20 inches square and two feet deeper than the bottom of the tile. This size was for our 10-inch tile and the size of the well will depend upon the size of the tile in use. Now make a box of either good, sound timber or cement, from the bottom of the hole made, as high as the top of the tile. Make three holes in this box, one that the water from the east may empty into the well and one that the water from the south may also empty therein and the third opening that the water in the box may flow out. All silt will be deposited in this well and no tile will be clogged. The box, of course, must have a cover that can be removed to permit cleaning the well.

In conclusion: Lay tile drains. Get them on the ground early in the season; have them put in carefully without sharp angles and curves; have them level with as much fall as possible and where there are any junctions provide silt wells and then the tile will not only give you big dividends but your posterity as well.

Ohio.

I. G. SHELLABARGER.

ALFALFA IN SHIAWASSEE COUNTY.

We have one small field of alfalfa that has been in this crop for about six years. It is in an out of the way place, 2½ acres by exact measure, that has been generally regarded as a piece of land not up in fertility to the average of the farm. This piece has been cut three times this season and we have a fourth crop ready now to be cut. We have already hauled 14 loads of hay off this little piece this year. One load was driven on the scales to give us an idea and it weighed 3,070 lbs. net. I would not say that the loads were all as large but I think there is no question but they averaged 1½ tons each, easily.

This bit of testimony is not given for those who stoutly affirm that alfalfa is not a success in Michigan, but to help those of us who have faith in and believe Michigan as a state equal to the best, to recognize our opportunities, and as far as possible live up to them.

Shiawassee Co.

C. B. COOK.

BEAN CROP OBSERVATIONS.

The most noticeable landscape feature to be seen from the car window as the writer passed through several counties of east central Michigan, was a saturated soil over which were scattered a partially harvested bean crop. It was no

uncommon sight to see piles of beans resting in and partly covered with water. Fine weather is a much to be desired condition while the harvesting of any crop is in progress, and this is especially true of the bean crop. Around the section of country where we are spending a few weeks, (southwest St. Clair county), there are hundreds of acres of beans lying exposed to heavy rains with but little show of improvement in weather conditions. Some fields of beans are yet standing and these have a much better showing than those fields where the crop is lying in small piles on a saturated soil.

Just what the loss to the present season's bean crop will be because of the unpropitious weather during harvest will never be exactly known. That this loss will be large, and that the shortage in the bean crop, arising through this loss must be instrumental in creating higher values is certain. These frequent and copious showers are interfering with the harvesting of other crops also, and delaying all farm operations in general. There is a considerable quantity of clover seed yet in the field though some of the crop has been gotten in between showers. It is said that there is no great loss without some small gain and it is so in the present instance. The abundant rains have promoted a good growth of wheat and new grass seedings and pastures are at their best.

Emmett Co.

M. N. EDGARTON.

FILLING THE SILO.

It may strike the reader at first that this topic is a little untimely, as the silos are all filled for this year, but the thought comes to me that just now, when the experience of the season of corn-harvesting is fresh in our minds, is an ideal time to discuss this question.

The man who has a silo is anxious to fill it as cheaply as he can, and the man who has not has watched his more fortunate neighbor, considering whether or not he could afford to build one and giving much thought to the matter of getting it filled.

In a community where silos are plentiful, it is possible to hire this work done at a fair price. There are some difficulties to be encountered, however. The owner of the machine is anxious to do as much work as he can and it is often impossible to secure him at the time when the corn is in proper condition to harvest for ensilage. Again, he may come at a time when it is very difficult to secure labor to cut and draw the corn.

Individuals are often urged to buy machines of their own and be independent. But this plan is expensive. When a man has put all his ready money into a silo and borrowed a little besides, he hardly feels like investing two or three hundred dollars more in machinery to fill it. It is this very fact that keeps many a farmer from putting up a silo who otherwise would have had one years ago.

A larger percentage of the farmers in this locality have silos than in any other in which I have ever been. I have studied the question of filling a great deal and am convinced that the most economical and practical method for the small dairyman is to co-operate with his neighbor in doing this work. It has been my privilege to belong to a company of this sort for years and every season strengthens the conviction that we are filling our silos in the best way possible under the circumstances. There are nine of us in the company and we could admit two or three more if necessary. We have solved the labor problem; we have enough men in our company so that it is rarely necessary to secure any help from outside. But the practice of exchanging work has another advantage. It is a means of education. Every man in the company is familiar with every silo. If there is one that possesses advantages over his own, he knows it and can profit by it. He sees every field of corn. If his corn is not as good as his neighbor's, he may learn why and do better next year. If some member of the company has planted a new variety, the others all see it harvested and learn its merits or demerits, as the case may be.

But it is often impossible to secure so large a number of men in one neighborhood, who have silos or who will co-operate in filling them. It is a question whether there is any great advantage in so large a company. The plan works well, but a smaller company might be equally satisfactory. Instead of purchasing a large machine which, like ours, would handle practically all the corn that could be gotten to it, the smaller company might purchase a lighter machine.

Four or five men could unite, purchase a six-horsepower gasoline engine and a small ensilage cutter and fill their silos very economically. Indeed, it is doubtful if they could not do the work as cheaply and as well in this way as it could be done in a large company. Of course, it would take longer to fill each silo, but less men would be required and more time would be possible for the settling of the ensilage. When a silo is filled rapidly, it will settle a good deal, and if the owner wishes to put more corn in he must get the machine back and refill. If he is unable to do this for some time, the top of the ensilage will spoil and have to be thrown off before the process of refilling begins. If the work proceeds slowly, more time is allowed for settling and consequently more corn can be put into the silo at the first filling. A small machine can be moved more easily than a large one and this is an item worth considering. Our cutter weighs about 1,600 lbs., and we move it quite readily as we have mounted it on a truck made from two old mower wheels. I like this plan of mounting very much, be the machine large or small. Wheels like these can be obtained for a nominal price in any neighborhood and the making of a suitable frame to sustain the machine is the work of only a few hours. I would not think of lifting a machine on and off a wagon every time it was used.

The distributor is a somewhat new invention but I would certainly have one. If the man inside the silo understands how to operate it, it is an excellent thing. All parts of the corn plant are thoroughly mixed and by the rapid falling of the ensilage through the distributor, packing is greatly facilitated. If a distributor is used, great care should be taken to secure the elbow where it joins the blower-pipe. In fact, this should be done in any case as otherwise it is apt to be blown off, though this is not so likely to occur, where the distributor is not attached. Dangerous accidents sometimes happen from the blowing off of the elbow at the top of the pipe. A man of our acquaintance, not far from here, narrowly escaped a serious injury this fall when an elbow was precipitated to the ground and struck his head in passing. Where the distributor is used, there is little danger of accident, as the elbow, if blown off, cannot fall, but if it happens very often, it will occasion a loss of time that is not quite as serious as a broken head, but nearly as exasperating.

Where a large cutter is used, a traction engine is a convenient power if it can be obtained without too great expense, but it has its drawbacks. It is hard to move over roads that have recently been worked and sometimes delay may be occasioned on account of the condition of the roads. A gasoline engine and a small cutter can be moved from place to place without consuming any considerable time. Two or three men can afford to purchase such an outfit if no more can be induced to unite with them, in which case it will not be long until their wisdom will be demonstrated in the neighborhood and their numbers will increase.

Oceana Co.

W. F. TAYLOR.

SOY BEANS IN THE CROP ROTATION.

Can soy beans be sown early enough in the spring to cut for hay and fit the ground in time for wheat in the fall? How much seed is required and what is the usual cost per bushel?

SUBSCRIBER.

Soy beans can be sown early enough to cut for hay and still give time to fit the land for wheat in the fall. Where this is contemplated the beans should be sown not later than June. They can then be cut for hay any time after August 20, which would give plenty of time to fit the land for wheat. The roots of the beans have about the same effect on the soil as clover roots would have, since they gather nitrogen in the same manner as clover, by means of bacteria which form nodules on the roots.

About corn planting time is as early as the crop should be sown, since, like corn, soy beans require a warm soil. This year I sowed 1½ and 1¼ bushels per acre, sowing with a grain drill over the entire ground and covering the seed about two inches deep. However, unless the ground is free from weeds, it would be better to sow the drills, say about 28 inches apart, and cultivate. This would allow room for the beans to branch out more, and I believe would give nearly as much feed as if sown broadcast. Anyway this method would settle the weed question. My seed has cost me from \$2.50 to \$3 per bushel.

St. Clair Co.

G. A. BALDEN.

BRAIN AND BRAWN.

"It is better to wear out than to rust out," hums the old "saw." Better still to do neither. However, too many of our farmers are exerting themselves to the utmost to do both; wear out their bodies and rust out their brains.

As a rule, we try to do altogether too much of our own farm work. It is commendable to have lots of pride in having the work done right, by doing it ourselves, but beware lest it becomes a "grind" and terminates in a physical breakdown.

There is a business side to farming today, and an important side, too, and it is the brain that handles this side. There are few men who, with an utterly "fagged out" body can possess the brain ability to handle the business side to the best advantage. For, if the body be tired, so the brain will be also.

We have the binder, hay loader, slings and all the other labor-saving devices of the farm; now let us leave the mostly mechanical operation of these tools to those who will do only this class of work, and set our brains to work, not to rust "on the job." The usual objection is, that help cannot be found. Yes it can, if you are big enough for the job at all, and this is one of the "brain jobs."

Yes, but many will say that it will not pay out. I answer that it will as surely pay out as that brain pays out over brawn. There are a lot of jobs on which we can set our brains at work, mighty profitable jobs at that, and the longer our brain is on the job the more readily will it find them. I do not believe there is a spot between the poles where opportunity is not poking about some corner. Let your brain loose on it.

When I was a boy I heard a very successful old farmer, (old, I say, he was probably fifty, and he seemed old at that time; to me), remark that the first thousand dollars was harder to get than the next five thousand, and I wondered thereafter. I now understand. He didn't work five times as hard; he simply formed a partnership between his thousand dollars and his brain.

Now I don't mean by this that we are to sit down and boss the job from a hammock or an easy chair. Work is all right but in moderate doses, and never to the point of physical exhaustion, for it means loss of brain power. This is an age of thinkers and thinking and there is no class of men better placed for the exercise of this gift than the farmer. So work moderately if you will, but never at the expense of that most wonderful creation, your brain.

Isabella Co.

WM. J. COOPER.

STOPPING LEAKS.

If the old saying, that small leaks sink the ship, is true then it is important to look after those small leaks, and there are usually quite a good many on the average farm; in themselves, some are so small they seem unimportant, but taken together they often spell the difference between success and failure.

One farmer has no water in his pasture, and all summer the stock could drink but twice a day, and during the hot weather, when brought up at night would run to the water and drink, and drink till they could hold no more, filling up on several gallons of cold water. I have a notion that the cream check would have been larger each week if the cows could have had free access to water, or had been driven up at noon. There are many pastures without water, and cattle suffer the same as do humans if denied a drink when thirsty. I know a well costs money, but the lack of one does, too, though it may not show up so plainly. If a well in the pasture cannot be had then it would be better to drive the cattle up at noon, instead of leaving them for so many hours without drink. I have known of sheep being left in pasture without water for weeks and weeks, the owner declaring that "sheep didn't require water," perhaps they can exist without it, but I am sure they would have done better, and given their owner a better income if they could have had water, and I am certain they would have been more comfortable. Increase of comfort for any animal on the farm means more profit from that animal, there is no getting around that fact.

One man knows that wheat makes the hens lay good, so he buys wheat and feeds his flock, and the egg basket is kept full, and he brags about his hens, but the growing chickens, and the old hens that will soon be taken to market, are with the hens that fill the basket, and all get the same ration, just wheat. A mixed ration might not fill the basket quite so

full, but it would fill the pocketbook fuller. Clear, good wheat at eighty cents a bushel is rather expensive chicken feed, and especially so for a mixed flock.

The worst leak on the farm, I think, is scrub stock; few farmers realize what a price poor stock costs them. The big-boned, long-horned cow may, when fattened, make a lot of beef, but as a dairy animal she is far from being a success. She will consume more feed than the pure-bred Jersey, and not yield half the income. While the increase from the former is worth whatever the butcher will give, the calves from the latter will make desirable additions to the herd, or can usually be sold, at several times the price the scrub will bring. At the present time good heavy farm teams are worth from \$400 to \$500, and are hard to find even at those figures, though one can get any quantity of scrubs at about half that price. It costs little more to raise the \$250 horse than it does the \$125 scrub, and there is a whole heap more satisfaction in the good colt and horse than in the poor one, satisfaction as well as hard dollars. The big-boned, long-nosed, razor-backed sow, that can root a fence down or jump over it cannot compete with the pure-bred swine, and the man who keeps the former is certainly neglecting to stop the leaks, and to his cost. Scrub sheep and scrub chickens come in the same class with cattle, horses and hogs; though a flock of mixed chickens, of half a dozen different breeds, and no breed at all, may supply a lot of the spice of life, by way of variety, yet they will supply fewer dollars at the end of the season, than the pure-bred fowls, and will consume as much, or more, feed. Poor seed as well as poor stock makes leaks on the farm; the farmer who goes to his crib or bins for seed because it is cheaper than to pay someone a good price for seed, is not only neglecting to stop leaks, but is actually making more of them. The time has gone by when any little, old potato is good enough for seed, or any good ripe ear from the crib will suffice for the planting. Our fathers did that way, and we cannot blame them for they knew no better, but it would be sheerest folly for us to select our seed that way.

There are many other leaks on the farm to be looked after, such as the neglect of crops when they should be cultivated, or when they are ready to harvest, the leaving of vehicles and tools exposed to the weather. A fine big maple tree is a good thing, but was never intended as a shelter for a binder, though I recently saw one put to such a use, weeks after harvest was over. The farmer who is the most successful is the one who looks after the small matters, stops the small leaks.

Eaton Co.

APOLLOS LONG.

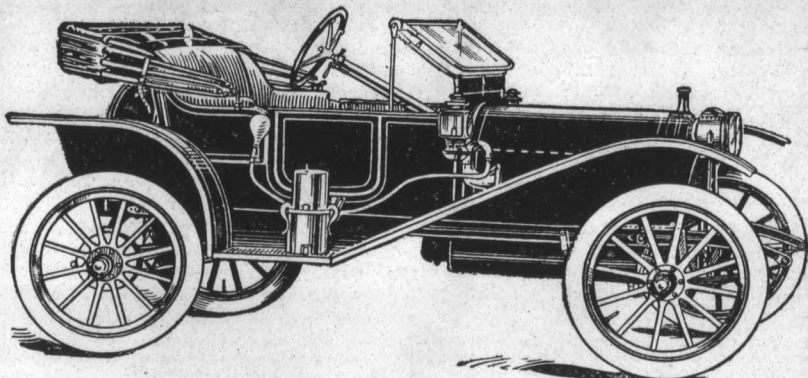
RESULTS OF DISSEMINATING AGRICULTURAL INFORMATION.

An investigation by the Department of Agriculture into the extent of the operation of agricultural instruction trains in the United States reveals the fact that 52 of the leading railroad companies had engaged in this form of disseminating agricultural information during the fiscal year which ended June 30, 1910. The number of cars employed aggregated 239, an average of 4.6 cars per train. The 52 trains traversed altogether during the year 40,771 miles of track. One thousand, seven hundred and ninety-three stops, ranging from 40 minutes to two days each, were made, during which lectures upon agriculture and domestic science topics were delivered, demonstrations made and exhibits of animals, charts, and agricultural products.

What such work has accomplished may be illustrated by the experience of one company which for eight years has been engaged in organizing farmers' associations in the districts through which it runs, until now there is hardly a town of 300 people on that line which has not an active association of farmers for the promotion of diversified crops. The result has been that the road in 1904 hauled in about 90 days, 3,500 cars of truck and fruit as against almost none five or six years before. Another company reports an increase in business of over 100 per cent in five years as the result of its efforts. Still another railroad, in a locality adapted to the growth of strawberries agreed to furnish plants and send an expert to instruct the farmers how to plant and grow this fruit. Eighty-six acres were put out the first year, and the yield was nine carloads. In 1904, about 1,000 acres were planted and 50 carloads were shipped; the next year 130 carloads and in 1906 between 250 and 300 carloads.

G. E. M.

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For three years the Hupmobile has been showing more people every year what economy in motor car operation really is.

The first cost of the Hupmobile is less than the annual depreciation of many heavier cars—to say nothing of the expense of running them.

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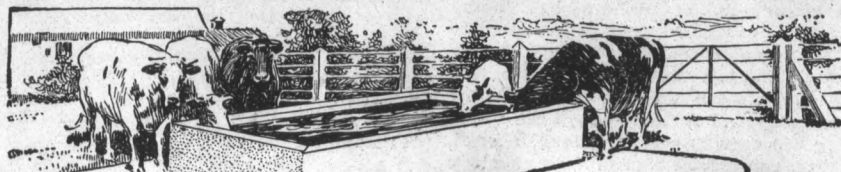
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LIVE STOCK

ECONOMY IN WINTER FEEDING.

Under the conditions which prevail this season, economy in winter feeding is even more essential than in the average season, and profit in feeding live stock always depends largely upon the degree of economy with which they are fed. True economy in feeding does not mean feeding sparingly, but rather getting a maximum of results at a minimum of cost. Nor is this so easy of accomplishment that little thought need be spent upon it. It is a problem worthy of most careful thought and persevering study on the part of every live stock owner. The first factor to be taken into account is the home-grown feeds which are available for winter feeding, and which perhaps may best be considered separately.

The Corn Crop.

The corn crop is, upon most farms, the most productive source of winter feed, and a great variety of methods are employed in its use. Unquestionably, the most economic method of feeding the corn crop is in the form of silage, a fact of which a larger percentage of live stock owners and feeders, as well as those who make a specialty of dairying, have become convinced, and more silos have been built upon Michigan farms this year than in any previous year in the history of silo development. It is now too late to provide a silo for this year's use, if that has not already been done, and it remains for the farmer who has no silo to make the best possible disposition of his corn crop.

The greatest economy to be attained in feeding the corn crop depends upon a number of factors. When the crop is to be fed to fattening steers, or even store cattle, when labor is considered, it has been demonstrated that feeding the corn from the shock or bundle as it comes from the binder, is good economy. The writer has fed a great deal of corn in this manner with very good results, not only to cattle but also to sheep and horses. It is doubtful, however, whether as great economy in the fodder value of the corn can be secured by this method as by shredding the stalks. Of course, the economy of the practice of husking with a machine husker depends somewhat upon weather conditions. The stalks must be thoroughly dry or the fodder will not keep well in the mow. Should the rainy weather which has prevailed in recent weeks continue, care should be exercised in selecting the time for this work, and if it is delayed too late snow often comes and further delays the work. Where the corn is set up in large shocks, however, this problem of outside moisture is not so serious and there is certain to be a time when this work can be safely done, if calculations are rightly made. Rather more of the fodder will be eaten and relished by the stock where it is shredded and the residue makes the best of bedding, a commodity which is scarce upon many farms where grain farming is not followed.

The same factors should be considered in the problem of feeding grain whole or ground. Where the grain is cheap and plentiful or where there are sufficient hogs to follow the cattle, it can be economically fed without grinding, and where this is not the case it will pay, in a season of high-priced corn, to have more of this grain feed ground than in a normal season.

The Coarser Feeds.

The straw, and especially oat straw, will be more generally utilized as feed for live stock this year than is usually the case, and, where judiciously used, even wheat or rye straw can be utilized for this purpose to some extent. Some years ago the writer had a surplus of stock and was short on feed, and rye straw was made the principal roughage ration for 10 head of horses and colts for many months. Where a roughage ration containing so much crude fibre is used, something must be fed with it to counterbalance this effect. In this case the straw was cut in a cutting box, moistened and mixed up with the grain feed, which consisted of a mixture of ground rye, corn meal, bran and oil meal. Some roots were fed in connection with this ration, a very little hay and corn fodder being fed once a day in addition, the rye straw otherwise forming the entire roughage feed. Of course, grain had to be fed more liberally than if a better roughage ration had been available, but the grain could be secured more easily than the

hay, and the horses were carried through with no bad results from this method of feeding, other than some irritation of their mouths caused by the rye beards. The same method could be used to good advantage when feeding wheat straw to cattle where that is necessary. Sheep will take less kindly to a wet feed of this kind and it would not, in the writer's opinion, pay to attempt it.

Where bean fodder is available it can be made a valuable factor in the roughage ration, especially for sheep, although bean fodder should not be fed as an exclusive roughage to any kind of stock. On farms where sugar beets are grown the beet tops should be utilized, although care should be exercised not to feed too heavily, and especially to the sheep, as they sometimes produce deleterious results when so fed.

Balancing the Ration.

On many farms the practice of feeding the coarse feeds such as described above, during the early part of the feeding season and feeding hay after they are gone, is not an economic one. It would be better to distribute the hay throughout the season, feeding it in connection with the other roughage, thus adding a greater variety to the ration and producing better results than where the coarser feeds are fed exclusively. The grain ration should, of course, be compounded with the idea of supplying deficiencies in the roughage ration, and giving a proper balance to the total nutrients fed. More protein should be used where clover hay is available as a large factor in the ration and this should be secured at the lowest possible cost.

The bean growers of Michigan have been unfortunate this year in having their crop badly damaged by the wet weather which prevailed during bean harvesting time. Their loss will be the stock feeders' gain, since cull beans make a very good source of protein in feeding either sheep or hogs. The various concentrates, or some of them, will also need to be used, and of these, oil meal is the best adapted to feed with coarse feeds, since it has a slight laxative effect which is beneficial where the roughage contains a great deal of crude fiber. Bran is also nearly indispensable under these conditions, and, although high in price, should be utilized in limited quantities. Some form of succulent feed should also be provided for best results. Roots will serve a very good purpose in place of silage where they are available, and where they are not the beet pulp which is a by-product of the sugar factories, can be used with profit.

Liberality in feeding is also a factor in economy, since it is only by feeding an animal a quality and amount of feed which approximates its requirements that profitable results can be secured. It is not a simple proposition, even under normal conditions, to attain a maximum of economy in winter feeding, but it is much more difficult where the best of feeds are not available in sufficient quantities, as is the case upon many farms this year; hence, the desirability of devoting more than ordinary thought and attention to this problem just now.

RAISING FALL PIGS.

I am aware that there are a good many good swine breeders, and good farmers, who deary raising fall pigs. They contend that cold winter weather is detrimental to the pigs and they do not thrive well. The trouble is in the management of the breeding stock and the pigs. The fault is not with the season.

There are several reasons why a larger percentage of pigs farrowed in the fall are raised than in the spring. In the first place, the sows usually roam in the fields in the summer time, get plenty of exercise, are allowed the privilege of subsisting on a great variety of feed and much of it is of a succulent nature. In the second place, during the autumn months the farrowing pens are more comfortable, and a greater amount of pure air can be allowed to circulate in them than is likely to be the case in early spring. As the weather is more comfortable than in the early spring the pigs get out and exercise while young and, as the milk is abundant and thinner than when the sows are fed on dry feed, there is less danger from some diseases such as the thumps while the pigs are small.

Giving the Pigs an Early Start.

One fact should be kept in mind: Success in raising fall pigs depends on giving the pigs an early start in order to get them to a size to withstand the cold weather before the cold weather comes.

Let us remember that as the pig is bent the hog is inclined. The bent of the pig depends on his ancestral influences and on the care he has while young. If neglected while young his ancestral influences may help him some if conditions are improved later, but he can never be as good a hog, in every way, as if he had been given reasonably good care all along. If given a full stomach of good food all along he will be in a condition to withstand cold weather. If farrowed near the first of October and kept growing along he ought to reach 75 or 80 lbs. weight by the first of January and be on the side of hoghood by the time "winter begins to strengthen" and hold us in a firm grasp of cold weather for two or three months more.

As the sow has had succulent feed all along which enables her to give a large flow of milk the succulent feed should be continued in order to enable her to give a good supply of milk to expand the stomachs of the pigs and enable them to be heavy consumers of feed. As the pigs are allowed to run at will they will begin to bite at the grass and chew on things that are palatable as food. Young pigs begin to eat much earlier than most people think they do. When I hear people tell about pigs not being old enough to eat until they are four weeks old, I think they have never noticed the little fellows at two to three weeks of age chewing on kernels of corn that they chance to come across while wandering around the farm yards.

Give Them a Creep.

If we wait for the pigs to begin to eat with the mother we will have to wait too long, for they will not eat the common feeds such as are given the older hogs until driven to eating by severe hunger. There is too much difference in the taste of the common sour feeds and the milk which they get from the mother. But if we fix up a dainty mess the case is different; they will begin to eat, because they have found something that tastes real good.

I like to put a shallow trough where the other hogs can not get to it, and then scald some fine middlings, stir in some sweet milk, sweeten a little with molasses, and put it in the trough while warm, carefully drive the pigs over the trough and see one get a taste, smack with eagerness to get more, and then see the whole litter pitch into the feed. They will eat as long as they can swallow and go away but will come back in a few hours.

One can easily regulate the number of times of feeding the pigs per day. I usually feed them twice, once in the forenoon and again in the afternoon, and if fitting for show once after the evening meal. This feeding the pigs by themselves relieves the sow very much. Although they will continue to nurse the sow quite regularly, they do not draw as heavily on her as when they are not fed by themselves.

After the pigs have been fed the middlings feed for two weeks some coarser feeds can be added to advantage. Take corn and oat chop, finely ground, sift the oat hulls out and mix with an equal amount of fine middlings and you have an excellent grain feed. If this grain feed is scalded and mixed with skim-milk, you have a feed which will promote a rapid growth. I am aware that in the chop, middlings and skim-milk there is a larger percentage of protein than the feeding standards call for, but the pigs can, and will, utilize it to their advantage, as a trial will prove.

In feeding little pigs give only as much at a time as they will eat up clean. If any feed is left in the trough after they are through eating clean it out, and be sure to feed in a clean trough every time. A clean trough tends to promote the appetite with pigs as well as with other kinds of animals.

As the pigs have grass to eat while running around in the fall, they will do much better if supplied with some good forage feeds during the winter. A little clover thrown to them on a clean place or some sweet cornstalks will be relished. If one wishes to take the trouble they can chaff the clover and stalks and mix a little in with the grain and slop feeds.

The pigs will not thrive if compelled to sleep in a damp, cold place. Provide them with a warm place that is high and dry, and change the bedding often. When made comfortable and well fed, the cold weather is not a detriment to the pig feeding business, but it promotes the appetite and consequently rapid growth. Treat the pigs kindly and they will be easily handled.

Wayne Co.

N. A. CLAPP.

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FALL MANAGEMENT OF THE SWINE HERD.

Clean feed yards, comfortable sleeping quarters and sanitary surroundings are important factors in the fall management of breeding and fattening hogs. Hogs need plenty of room in the feed yards. If they are overcrowded in small yards it is almost impossible to have clean feeding ground unless the feed yard is paved. Swine, unlike other domestic animals, do not respond readily to treatment, once they become affected with disease, thus we see the necessity of precaution in preventing the spread of disease in the herd.

Science has given us much information on this subject. It has shown us that most forms of swine disease can be readily transferred from place to place. Since this is the basis of trouble we can see the importance of using every precaution possible to keep the animals in a cleanly condition. Disease germs multiply rapidly under filthy conditions. Scientists claim that these germs cannot withstand light and sunshine, thus the importance of having plenty of sunlight in the yards and houses where the hogs eat and sleep. The yards and houses should be cleaned and disinfected very often. Such practice greatly improves the general health and thrift of the herd and makes the hogs less susceptible to contagious swine diseases.

It is the writer's opinion that the most frequent cause of disease among hogs in the fall results from allowing the animals to sleep outside during cold and frosty nights. While taking a number of early morning drives through one of the leading hog growing states last fall it was common to see 50 to 100 steaming and heated hogs crawling out of bunches where they had been sleeping. Sleeping in bunches and coming out in the cold morning air creates conditions favorable for the development of coughs, colds and lung diseases. As a rule, every hog on the farm should be compelled to sleep inside as soon as the nights begin to get cold and frosty.

Caution must be used in getting the pigs and fattening hogs used to the change of food when they are placed in the feed yards. One of the greatest dangers confronting hog growers at this season of the year is the feeding of new corn. Feeders should introduce new corn gradually by cutting it up and feeding it in connection with pasture and other feeds. If fed moderately at the start hogs will consume both ears and stalks and by degrees become accustomed to the new feed. By the time the stalks have hardened they will be in condition to consume larger quantities of the grain with safety and profit. Unless hogs have plenty of pasture and forage crops the change of feed must be gradual to escape derangement of digestion and disordered stomach. It means a little more work to feed supplemental feeds and old corn with the new, but the advantages are so great that the careful and intelligent feeder will not neglect that which is safest and promises the best returns. Hogs relish new corn and we are often tempted to feed too much at the start. At least a month's time should be taken to bring them from pasture and forage crops to a full feed of the new corn. It requires more bushels of new corn to make the same gain that sound corn will produce, hence it is advantageous both from the standpoint of health and profit to feed some old corn while bringing the hogs to a full feed of new corn. Severe losses may be avoided by the exercise of care and judgment in feeding new corn to hogs.

Charcoal, ashes and salt help to keep the hog's digestive system in good condition and should be kept within the reach of the animals at all times. Corn cobs make good charcoal. By digging a pit about four or five feet deep and quite a bit smaller at the bottom than at the top it is a simple matter to prepare the corn cob charcoal in the right form for the hogs. Start a fire at the bottom of the pit and gradually fill the pit with cobs and cover with a sheet iron cover as soon as filled and in about 12 hours' time there will be a good grade of charcoal. Five bushels of this charcoal, one bushel of wood ashes, six pounds of salt, two quarts of air-slaked lime, two pounds of sulphur and one pound of copperas makes an excellent mixture to place in feeding boxes where the animals may have access to it at all times. Such a mixture is at once a food, vermifuge and tonic.

Good pure drinking water from an un-

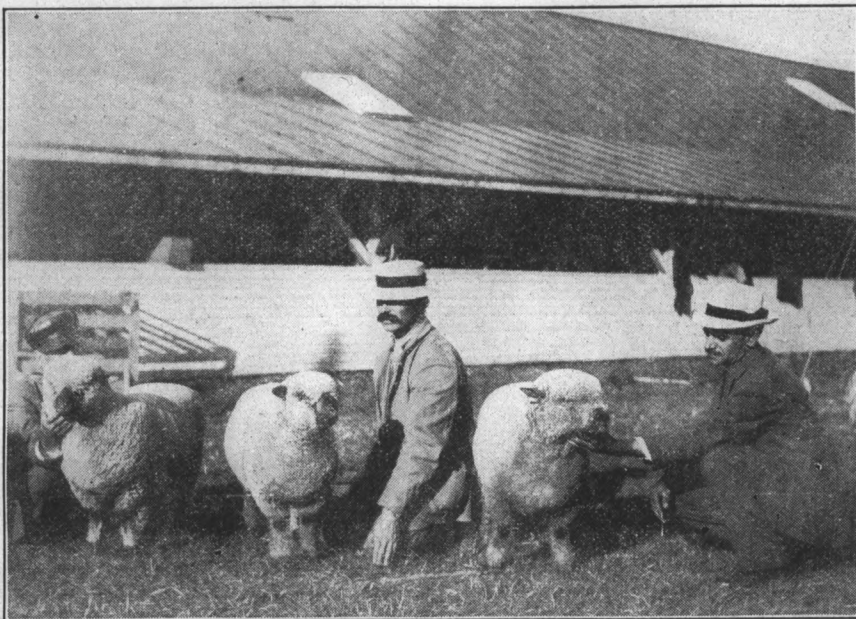
contaminated source is a safeguard to the health of the herd. It is of so much importance that every hog grower should equip his feed-yards with an adequate system of supply tanks and drinking fountains. At this season of the year thousands of dollars worth of feed is worse than wasted because the hogs do not have enough water to work the impurities out of their systems and for that reason cannot perfectly digest their foods. Ponds, brooks and springs are many times insidious sources of danger on the hog farm, besides, they frequently give out just when they are needed most. If water can be found at a reasonable depth a windmill or gasoline engine that will raise the water and distribute to the various places where it is needed will give the best satisfaction and insure a supply of pure water for the herd.

As a general proposition it seldom pays to carry hogs along after they are ready for market. Feeders who have held their hogs for a rise in the market have found that the expense for feed wipes out all of the advantages of a higher price later. After the grass and forage crops have stopped their growth, there is little cheap feed left. From now on hogs must have liberal grain rations. Gains must be made or profits will be materially reduced. Light feeding is a risky speculation, because they cannot be carried along

farm only a single lantern will generally be found, and often this is not of the sort that is the most effective aid in doing the chores or other work which must be done after dark. No one is more helpless than the man who tries to work in the dark and the light which is afforded by many lanterns does not penetrate far into the darkness; others will blow out when carried in the wind, while still others will smoke and blacken the globe so as to make them well high useless.

But the lantern problem is one upon which the average person will be apt to think not at all until the times comes for the use of this insignificant article of farm equipment. Every person should have good lanterns and plenty of them so that the work which is necessary to do after dark need not be delayed or made more burdensome for the lack of an insignificant investment. There should be a lantern for every member of the family or every hired man who is likely to need one in the accomplishment of his work; and it should be a good lantern, one which will not blow out or smoke, one that will give a maximum of light and which is of sufficient weight and size to stand firmly on its base when set down for any purpose and which will hold sufficient oil to satisfy ordinary needs.

There has been a great improvement in



First Prize Pen of Shropshire Lambs at State and West Michigan Fairs, Exhibited by W. P. Pulling, of Jackson County.

without expensive grain feeds. Heavy feeding can be continued profitably on growing pigs as long as supplemental feeds are fed along with the corn to support an increase in frame and muscle commensurate with the fat put on by the corn. In this way many 150 to 200 pound hogs can be continued on full feed to a weight of 300 pounds or more and pay larger profits.

Hogs that are to be kept over for breeders and fall pigs should go into the winter in good condition. A blanket of fat under the animal's hide is worth bushels of corn in the crib as a protection against the winter's cold. Fat can be put on during the fall easier than it can after winter begins. The fall pig that has not been well fed during the fall months has a winter of misery before it. Its hair affords but little protection and without a blanket of fat it is in a sad predicament. Fat, vigorous pigs will continue to grow during the winter, but the thin ones are expensive boarders. Older breeding animals will endure more hardships and exposure but they come out in the spring in poor condition and cannot produce as good pigs as those that go into the winter in good condition. A chilled body reduces vitality and saps the animal's reserve energy and it comes out in the spring in a weak, emaciated condition. By getting the herd properly conditioned during the fall months when every kind of farm-grown feed is available it is possible to carry them through the winter in good breeding and growing condition.

New York. W. MILTON KELLY.

A LITTLE LIGHT ON A DARK SUBJECT.

With the shortening of the days at a season of the year when farm work is still pressing, the lantern becomes an important factor in farm equipment. Often, when one is needed there is considerable search and much inquiry before it can be located because, on the average

lanterns since the old-fashioned tin case with holes punched in the side for the light to penetrate and a socket in the bottom for a tallow candle, such as our fathers were compelled to use. That improvement has gone right on up to the present time and better lanterns are available now than ever before. It is poor economy to do without the best available lanterns and enough of them upon any farm, and those who are not well supplied with this necessity should investigate the modern type of lanterns and replenish the supply without delay. Note the advertisements of the improved lanterns which appear in this paper, carefully look over those handled by your local dealer and select an up-to-date article. The cost will not be great and the satisfaction and convenience in its use will more than repay the cost of the investment.

Having secured the lanterns needed, arrange a suitable place where they may be hung around the barn or outbuildings for convenience in doing the chores. In the stable a wire should be strung in a convenient and safe place and the lantern hung on a hook arranged to slide along so that it may be moved to a convenient point as desired. Hooks should be provided wherever the lantern may be needed in the regular work of doing the chores so as to avoid danger of its being tipped over and causing destructive fires. See that the lanterns are filled and the globes cleaned at stated intervals and that they are always kept in a regular place where they can be quickly found when needed. Lantern economy is true economy, particularly at this season of the year, upon any farm.

Oakland Co.

A. R. FARMER.

There are parts of the southwest and on the Pacific coast where the supply of hogs is short, and the same holds true of parts of the east. The country as a whole has no surplus of either hogs or pigs, and there is no reason why owners of healthy, growing young hogs should not dispose of them at good prices. There is a fair crop of pigs, but it is far from a record-breaker, and they will all be needed by the packers.



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"I have twenty-two big heavy horses, and have fed them Buckeye Feeding Molasses for three years. I formerly paid the veterinary \$60 per month—now he and I are strangers." Signed JOHN FREER, Coal & Solvay Coke, Detroit, Michigan.

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Fine for Hogs—Keeps them in perfect condition. Use it and you will get more pork, more shoats. Every hog a big hog, no runts.

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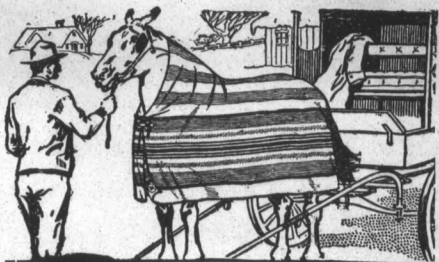
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WINTER FEED FOR THE COLTS.

The present season is likely to prove critical for many weanling colts on account of the lack of clover hay as a roughage ration for them on many farms. It is important that all young animals be kept growing from the start for the most economic results, but it is particularly true of colts, since their life of usefulness covers so many years and a lack or proper development reduces their earning power to a corresponding degree, whether they are retained for work on the farm or sold for other purposes, and in direct ratio it affects the value of the animals and the price which they will bring in the open market.

For this reason it will pay to buy the best of feed for the growing colts and if it is not available upon the farm it will pay to secure it even at a considerable expense and trouble. A load or two of good clover hay can be found and purchased within the reach of every farm, and it will pay to secure it in order that the colts may be supplied with the best of roughage for winter feed. Where it cannot be secured without too much trouble it will pay to buy alfalfa meal as a substitute, and with this and a choice bit of corn fodder, the colts, with a suitable grain ration, can be well grown without any great additional expense. In fact, the additional cost of feeding them in this manner, even where the feed has to be purchased, will be a mere pittance compared to the increased value of the colts when so cared for.

The grain ration should consist largely of oats and bran, with possibly a very little corn meal and a small portion of oil meal by way of variety.

Exercise is also an important factor in the development of colts and a good-sized paddock should be provided—preferably with some sort of a shed for shelter—in which they may roam at will during all but the most inclement weather.

With plenty of good feed regularly given, a good wholesome water supply, plenty of exercise and well bedded stalls, a maximum degree of colt comfort will be provided which will show in the early development of the animal, a development which makes for good quality in the matured horse to a greater degree than the growth secured at any other stage of its life.

A. R. F.

FEEDING THE PIG ON ROOTS.

If one can produce a pound of pork by feeding some other substance than corn or rye or barley, which have a real fixed market value at all times, and do it as quickly on a feed having no real cash value in any market, then, counting the labor of feeding, the same, which is the more profitable? But can this be done? A yield of 75 bushels of corn per acre in Michigan generally is very good; of barley, 30 bushels; of rye, 15 bushels, and average yields are more apt to be below this, estimate, one year after another, than above. One acre of mangolds will, on an average, yield 15 to 20 tons; of sugar beets, about the same. We all know that a bushel of corn will go much further in feeding than a bushel of roots, but one bushel of corn will hardly commence to go as far as eight bushels of roots based on an estimate, as above, of corn at 75 bushels per acre and roots at 18 tons per acre. Nor is the corn, whether whole or chopped, or in meal alone, as good for growing pigs, as the roots. But let us further add to both rations fed, two daily feeds, for both feed and drink it is, sufficient amounts of separated milk, morning and night. I have found that the increase, if we were to allow only three bushels of roots to one of corn fed, to be as nearly equal as possible. That is, one bushel of corn, as meal, fed with milk, gave results similar to three bushels of sound roots, fed with like amounts of milk. Then, basing the normal yields per acre as above, I found in two trials that for pigs up to six months of age I could produce over double the amount of pork per acre from the roots than from the corn, and at only a small extra expense per acre in caring for the roots.

Understand, this is not a ration intended to top them for the market, as I always feed hard corn when sufficiently grown, but is for the purpose of disclaiming the prevailing idea of many that pigs must and should have corn, or oats and barley or other grains, just as soon as they are weaned and stuff them until marketed.

There are more hogs go over the block with a loss to the farmers of this state than should be the case and just because

many cannot think otherwise than that a pig is a hog from the start and that corn is its only salvation anyway, so they are stuffed or starved or both, regardless of profit or loss, until the day they are finally sold for what they may bring.

Clinton Co.

G. A. RANDALL.

LIVE STOCK NOTES.

A. M. Welsh, one of the leading sheep and lamb feeders of Michigan, is a great advocate of silos. He says: "I cannot say too much in praise of ensilage as an economical feed for sheep, and particularly for a breeding flock. There is no other feed that will take its place and leave the ewes in such excellent shape for the lambing period. I think I can claim the honor of having had put up on my farm the first silo ever used in the state of Michigan. That was about 24 years ago. I now have three new silos, with a combined capacity of 700 tons, on my place, and silos are becoming common sights on the farms of most of the more successful stock feeders of our state. In my opinion the silo has become a part of the necessary equipment of every stock farm in the feeding belt where feeding operations are conducted for the money there is in them.

Well-informed men in the sheep feeding industry are expecting to see a large return of warmed-up sheep and lambs to market from Iowa and other feeding districts during the early winter months in a half-fat condition, although another open winter would tend to lessen such a movement, and more stockmen would hold their flocks until they could be made better in flesh. Every year sees a premature remarketing of fed stock, and there are always experienced sheep feeders who stand ready to take such stock and pay the extremely low prices usually asked. A short time ago an Iowa man who thought he was a stock feeder returned to the Chicago market two car loads of western range lambs that he had owned for a short time. They tipped the scales at 51 lbs. and were purchased by a real feeder for \$5 to \$5.05 per 100 lbs. At the same time a double-deck of western range wethers that had undergone a similar experience came on the market and went to another feeder, who secured them at \$3.10 per 100 lbs.

The September shipments of stocker and feeder cattle from Chicago to the country were far below such shipments a year ago, being but a little more than half the number, while the August output was also on a much smaller scale than last year. Eastern buyers have been taking some cheap and medium-priced stockers, and Ohio, Indiana and Illinois took to the good feeders and well-bred, thin and light lots.

Few people have any idea of the large numbers of little pigs that have been received for several weeks past at the Chicago stock yards. During the first three days of a recent week 10,000 head that averaged under 80 lbs. were received and sold at \$3.75 to \$4.75 per 100 lbs., or about \$3 per head. Cheap pig meat is going to make a big inroad into the future supply of matured hogs. But for these little fellows, the packers would be short on fresh pork. The slaughter of the pigs is not all due to the outbreak of sickness in the droves, but is attributable to a considerable extent to a desire upon the part of their owners to sell their corn at ruling high prices. A year ago farmers were extremely anxious to buy all the little pigs they could get hold of, but this year they take an opposite view, although this sacrifice is clearly a losing game.

Chicago's shipments of feeding and breeding sheep to the country show a falling off this year of about 227,000 head compared with the same period last year.

Breeding cattle are bringing the highest prices ever known down in the Texas Panhandle. Heifer calves are selling for \$21 per head for breeding purposes, and calves have been purchased for shipment to Indiana for feeding at \$17.50 per head, against \$15 two years ago.

Surplus butcher cows are not numerous, as dry pastures in many parts of the corn belt during the past summer forced a large share to early markets.

With regard to the class of cattle best adapted for feeding the coming winter season, a prominent live stock commission firm with houses at all the principal live stock markets of the country offers the following suggestions: "In our opinion, good heavy two-thirds fat steers of 1,150 to 1,300 lbs. average, bought for 60 to 90 days' feed should prove a good business venture. All signs point to a strong market for well fattened cattle during the fall and winter months. Thus, cattle of the above description, if well fattened, should be ready for sale at remunerative prices. Good quality 850 to 950-lb. steers, bought along in October, can, we believe, be handled to make money. They can be run on fall pasture and in the stalk fields until around the middle of December, then given enough corn in January and February to keep them growing well, and put in the feed lot in March. By the middle of May or June they should be in attractive beef condition and meet with a good market. We believe that the fat cattle trade during the spring and summer months will be of a kind that will please cattle feeders."

Western packers have slaughtered since March 1, 15,305,000 hogs, an increase of 3,650,000 hogs compared with the corresponding period last year. For the same period two years ago 13,605,000 hogs were packed.

The marketing of range sheep and lambs from Washington, Oregon, Nevada, Idaho and Utah is reported to have spent its force, and for the remainder of the range shipping season the largest supplies are expected to come from Montana, Wyoming and the Dakotas. These shipments will run largely to fat lots, and it is reported on good authority that there will be the smallest proportion of feeders seen in years.

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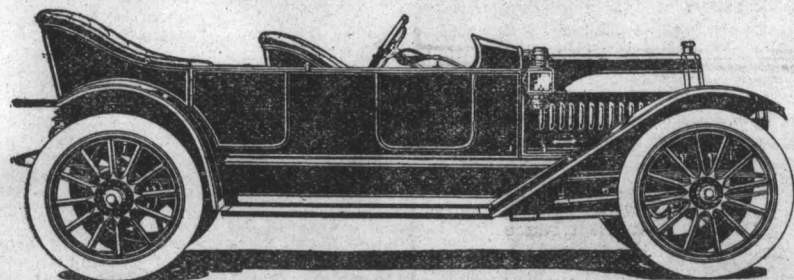
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The favorable outlook for fat cattle in coming months and improved fall pasturage have stimulated farmers to begin buying cattle in Chicago and other western markets for fattening during the coming winter season, and a good many buying orders from Ohio, Indiana and Illinois have been received by Chicago live stock commission houses recently. The demand embraces cattle of the better class, as well as medium weights and light and rough offerings. It happens, unfortunately, that the packer competition for steers of low beef quality is absorbing a large number of cattle that should be sent back to feeding districts to meet future requirements of the choice beef trade, killers paying higher prices than most stockmen feel able to. At present the best demand for beef cattle centers in medium-priced handy little yearlings, and it is generally admitted that in the long run it pays best to grow this kind of beef. Of course, there is always a certain demand for prime long-fed heavy beefs, and their growing scarcity causes these cattle to command high prices at the present time.

The Indiana Experiment Station recently bought in the Chicago market 150 head of Idaho feeding lambs at \$5.25 per 100 lbs. "We have been experimenting with silage in cattle and lamb feeding for a number of years," said Professor King, "and our opinion is that silage where fed in the right proportion is a most valuable aid in producing at cheap cost. We hope to further demonstrate this fact in the experiment which we will conduct with the lambs just purchased."

The corn crop is turning out very irregularly, being extremely good in some places and not good in others, and on the whole it is believed that the crop will not be excessive. Encouragement for high prices is found in the revived export demand, but it is well to remember that extremely high prices would quickly stop this movement out of the country. It is believed that in sections where the crop turns out well live stock will be fed extensively.

The mutton-eating public is calling mainly for fat lambs, and it is easy to glut the market with sheep. This makes prime lambs bring a handsome premium. Feeding and breeding sheep have been scarce of late in western markets, while feeding lambs have been numerous and in lively demand. The demand for good breeding ewes has been the best seen at any time this year, coming from widely scattered sections of the country.

W. J. Crow, of Webb, Iowa, does not think the packers' type of hogs is the one that is most profitable for breeders and feeders to handle. He says: "As to the best interest to breeders, my advice is to steer away from judging hogs from the packer standpoint, as they want less bone than can be bred on any hog to make him a profitable hog for the farmer to raise. Take the Meharry exhibit at Des Moines for an example. They would not have made half the size for age if developed under ordinary farmer's care and would have been completely broken down. The expense of putting them up to weigh what they do is too great. The cost of the kind of feed it took to hold and bring them up would far exceed the price they would bring on the open market. This is not profitable pork-making. A hog of a coarser nature, larger boned, will feed out on corn and grow at a profit, and yet raise a profitable litter, where the fine-boned kind will not exist at a profit. This is plain history, and whenever a breed has taken up completely with the packer idea it has lost out as a profitable hog for the farmer."

A. H. Marble, vice-president of the Stock Growers' National Bank of Cheyenne, Wyoming, was in Chicago recently and stated that range conditions were quite spotted throughout the northwest. "In some places there is an abundance of water and the feed outlook for the winter is splendid," remarked Mr. Marble, "while in other sections cattlemen and sheepmen will have to ship very closely because of the poor feed prospects this coming winter. Taking the range as a whole, however, it will average up fairly good. The season's shipments of both cattle and sheep from the northwest ranges to the markets this season will be under those of last season. Where possible owners are holding on to the young thrifty stock. The financial situation is much easier than it was, and this will be of vast help to the rangemen. While current prices for cattle are encouragingly good, sheep and lambs have been selling below productive cost."

Country buyers in the Chicago market are refusing to buy cows which are due to calve a few weeks off owing to the dearth of feed, and owners of such cows should not ship them to market at this time. As a rule, they have to be sold at low prices to killers.

Daniel Waters, the well-known stock feeder of Illinois, who always carries off prizes for fat stock at the International Live Stock Exposition, has purchased at the Chicago stock yards two head of fancy Shorthorn steers out of a consignment that brought \$7.85. He paid \$8.25 and is going to add them to a drove he is preparing for the coming show.

Recently a sale was made at the Chicago stock yards of a bunch of grade Aberdeen-Angus steers that numbered 18 head at \$7.85 per 100 lbs. They tipped the scales at 1,135 lbs., and had been fed only about four months. They brought \$2.20 per 100 lbs. more than first cost and showed a flesh gain of 326 lbs. The man who fed them was very much pleased with the transaction, while stating that the cattle needed 30 days' longer feeding to render them strictly prime. He bought them as feeders in the Chicago market on the twentieth day of last April at \$5.65, when the averaged 809 lbs. They have been given the run of pasture and given access in a self-feeder to a ration of ground cob and corn, ground oats, cottonseed meal and alfalfa hay.

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.

Scrotal Abscess.—I have a two-year-old colt that weighs 1,250 lbs., which I have treated all summer and with poor results. When this colt was one year old a swelling came on side of sheath, which I opened and allowed a quantity of yellow fluid to escape; some time later a swelling took place under belly which also opened. Our local Vet. thought he had farcy. I applied ammonia and water, which appeared to help him, and gave him medicine that Vet. left. His sheath, scrotum and lower portion of abdomen is yet swollen. During the summer I stabled him during the day and allowed him to run out nights. He has been in a sort of dying condition several times and I would like to know what to do for him. C. T. Fergus, Mich.—If your Vet. will give him the bacterin treatment it will doubtless have a good effect; however, I am inclined to believe it will be necessary to cut out bunch and shorten cord. I have operated on many hundred such cases and nearly all of them have made good recoveries. Tell the operator to be sure and cut off all the diseased portion of cord. Give him 1 oz. doses of fluid extract of gentian and the same quantity of fluid extract of cinchona at a dose three times a day. He should be well fed.

Hock Lameness.—I have a mare that has been lame in right hind leg for the past four months; she shows it most when going up hill. She has been examined by several horsemen, none of them appear to know what ails her. S. B. Buckley, Mich.—Apply equal parts tincture cantharides, turpentine, aqua ammonia and raw linseed oil to hock twice a week. Keep close watch of the whole leg and you may be able to locate the trouble correctly, then apply the liniment I have prescribed.

Obstructed Teat—Leaks Milk.—I have a cow that seems to be all right, except one teat; when milking from this quarter milk spatters and spreads too much and I would like to know what to do to prevent it. I also have another cow that leaks milk; how can it be stopped? R. W. D., Homer, Mich.—You should milk her through a milking tube. A 3½-inch tube costs 35c by mail; 3-inch, 30c. Make her wear a teat plug, that is the only way to stop her leaking milk. Teat plugs cost 35c each by mail. The Lawrence Publishing Company can supply you.

Blood Poison—Rheumatism.—My two-year-old heifer came fresh last March; she failed to clean, was helped, but work was not properly done. She is stiff and sore and has trouble in reaching ground with nose. Her appetite is good, but I believe she has rheumatism. P. M. L., Clare, Mich.—Give cow 1 oz. doses hypsulphite of soda and 1 dr. salicylate of soda at a dose in feed three times a day; also rub muscles of neck with camphorated oil once a day.

Impaction—Sudden Death of Two Cows. Two of my cows died last week and so far as we could judge they died of impaction and we would like to know how this ailment can be prevented. Our local Vet. prescribed salts and soda. These cows have been in pasture, had plenty of salt and we would like to know how to prevent any more getting sick with the same disease. Our neighbors have also lost cattle the same way. J. M. S., Plymouth, Mich.—Impaction is generally brought on by some error in feeding, want of proper exercise, or inactivity of liver, stomach and bowels. There must be a peculiar kind of grass in lot that is indigestible and perhaps the best thing for you to do is to change their feed. Watch the condition of their bowels and whenever they become constipated give epsom salts to open them. I also recommend that you salt your cattle well, for it will help keep their bowels open.

Rickets.—I have a four-months-old pig that will weigh 100 pounds, which has shown some stiffness for the past seven weeks. This soreness seems to be affecting the hind quarters. I feed skim-milk, and middlings with some corn. Neighbors tell me they have kidney worms. W. W. Remus, Mich.—Feed no corn and give pig a teaspoonful of prepared chalk at a dose in feed two or three times a day. I do not believe he has kidney worms but suffers from rickets, the result of eating perhaps too much corn and fat-producing food. Green feed for a few weeks will help him, besides more exercise will prove beneficial. If his bowels are constipated give either castor oil or epsom salts to move them.

Condition Powder.—I would like to know how to prepare my own condition powder for live stock, a formula that is not too expensive. J. E. S., Linwood, Mich.—Mix together equal parts powdered sulphate iron, gentian, ginger, quassia, cooking soda, ground nux vomica and fenugreek and give a tablespoonful or two at a dose in feed twice or three times daily.

Spinal Paralysis.—I have a seven-year-old mare that raised a colt this past summer, but when she gets down is unable to get up without help. Our local Vet. has treated her and no doubt did all he could and perhaps as much as any person could. She seems to be weak in back or

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kidneys. H. M. R., Niles, Mich.—She will be slow in recovering. Give 1 dr. ground nux vomica and a tablespoonful fluid extract buchu at a dose in feed three times a day. Her bowels should be kept open by feeding bran mash or grass.

Slavering.—I would like to know what can be done to prevent slavering. One of my horses has slobbered for the past year and two more have recently commenced doing the same. J. R. G., Bad Axe, Mich. If you will file off sharp cutting edges of upper grinder teeth and inside of lower rows your horses will soon slaver less and perhaps stop it altogether. Fall grass very often causes it.

Surfeit.—I have a valuable two-year-old colt that has a great many pimples on body and I would like to know what can be done for a case of this kind. These pimples come in patches, hair comes out in spots and skin seems to itch. A. G. D., Pontiac, Mich.—Give colt a teaspoonful of Fowler's solution at a dose in feed three times a day; also give a tablespoonful of cooking soda at a dose twice daily. Groom body well and apply one part bichloride of mercury and 1,000 parts water twice a day.

Obstructed Teat.—I have a valuable cow that lately became affected with teat trouble; now one teat seems to be blocked and it causes her pain to be milked. What can be done to relieve her? W. R., Ellsworth, Mich.—If you fail by using a sound, then use a teat opener. I usually dilate teat canal with metal sound.

Indigestion.—I would like to know what ails my cow. She is only eight years old, gives little milk, eats fairly well, but is thin and hide-bound. The bone of tail appears to be dry and I have tried several remedies, but none of them appear to effect a cure. M. B., Lapeer, Mich.—Your cow suffers from indigestion and her food supply should be changed, she should be given tonics. Mix equal parts ground nux vomica, gentian and ginger together and give cow a tablespoonful or two at a dose in feed two or three times a day.

Sow with Caked Udder.—Will you be so kind as to tell me what to do for a sow that is troubled with caked udder? This is a brood sow and I am anxious to have her cured. E. H., Adrian, Mich.—Give your sow 5 grs. iodine of potassium at a dose in feed or water three times a day and apply tincture iodine to caked parts of udder once daily.

Indigestion—Worms.—I have a five-year-old mare that is in foal which appears to be out of condition, she passes a few worms and I would like to know what to do for a five-months-old colt that is very thin and he also passes a few slim long worms. L. H., Carson City, Mich.—Horses become wormy on account of eating fodder and drinking water that contain worm embryos, therefore I would suggest a change of food; also give your mare two tablespoonfuls of the following compound powder at a dose in feed twice a day: Also give colt a small teaspoonful in his feed twice a day. Mix equal parts ground gentian, ground ginger, ground quassia and salt together thoroughly and continue giving it to them until they show a glossy coat and thrifty condition. Kindly understand, it will not do to medicate a mare in foal the same way for worms that other horses can be treated; besides, you must be careful in giving cathartic medicine to a pregnant mare.

Acute Indigestion and Acid Poisoning.—We have just lost a cow from eating too many apples; my cows have been pasturing in an orchard adjoining hay fields all this fall. The wind blew off a great many apples one day last week and before we noticed it the cows had eaten all they wanted. Next morning two cows and a yearling were sick and so weak they could hardly walk and when walking staggered a great deal, ears and nose cold, scoured some and gave no milk. We kept them in a shed and called a Vet., who treated them by giving medicine to reduce fever and strengthen them. The cow that died refused food. He gave each cow one quart of raw linseed oil and sometime later gave more oil and epsom salts. She showed so much distress and grunting before death that we thought some of the medicine might perhaps have gone down windpipe into lungs. Our Vet. thought she showed symptoms of inflammation of stomach. I would like to know what caused her death. Mrs. C. B., Attica, Mich.—Your cow died the result of acute indigestion and acid poisoning. In the treatment of such cases the stomach and bowels should be unloaded as promptly as possible, for if this is not done death very often occurs. Large doses of epsom salts given every twelve hours, or oftener if thought necessary, proves to be good treatment in such cases. It is also important to give enemas every few hours, using soap and warm water. It is also good treatment to give stimulants, because the ailment is attended with considerable weakness. It is also important to give bicarbonate of soda, (cooking soda), carbonate of ammonia or calcium chloride to dissipate the gases generated within the stomach and bowels. I prefer to use preparations of ammonia to either of the other mentioned remedies. If the animal suffers much pain give opiates or the animal will lose strength. No two cases seem to require the same treatment; however, it is well to keep in mind that cathartics and stimulants are the two remedies to be relied upon in the treatment of acute indigestion.

Bunch on Stifle.—I have a two-year-old colt that has a soft, movable bunch on stifle joint which first made its appearance last spring. This bunch is easily moved and when pressed does not appear to produce any pain. It must be free from joint for it causes no lameness. H. B., Vicksburg, Mich.—If the bunch is far enough away from joint, it could be easily cut out; however, if it hitches on joint closely, then apply one part iodine and eight parts lard three times a week. Perhaps you had better delay treatment of him until you stable him for winter.

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- 1 Grandson of Manor De Kol, 2 years old.
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- 7 Sons of Johanna Concordia Champion, the only bull in service whose two grand dams average 34.06 lbs. butter in 7 days. Also cows and heifers bred to this bull.

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REG. Rambouillets of the best breeding, rams and ewes from one to ear lot at reduced prices if taken in Sept. Breeding furnished. All in perfect health. Farm 2 1/2 miles E. of Morris, on G. T. R. and M. U. R. Come and see me or write your wants. Sheep shipped for inspection if ordered. J. Q. A. COOK

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THE DAIRY

CONDUCTED BY COLON C. LILLIE.

RAISING CALVES.

It is not new, in fact it is the original and natural way to raise calves, i. e., upon the cow. There are, however, variations of the program and in this variation lies its merits. It is several years since this farm has grown any skim-milk calves and the abandonment has been in every way satisfactory.

In most herds of cows there are found some that are defective, hard milkers, short teats, cows whose milk tests low, or cows past their prime. It is this class of cows that, instead of being the foster mothers of the human race, are the foster grandmothers whose duty it is to raise the foster mothers. Some of these cows will raise six or eight calves during the season. Sometimes it is a veal calf and again two heifer calves. The calves are early accustomed to eat grain, corn and oats, and may be weaned at 90 days without danger of stunting. The grain ration, with hay, is an important item.

The development of calves thus raised is more uniform than is usual among pail raised calves. The calf's stomach will not take the milk in all conditions, as the pig's will, and swine have paid more for the skim-milk, sweet or sour, warm or cold, than will the calves under similar conditions. The labor of milking the off grades of cows mentioned, together with the preparation of the milk and teaching the calves to drink, are items of labor in excess of the method of suckling which are not often considered.

Of all young creatures the calf is the most sinned against in the animal kingdom. The young of equine, ovine and of swine are allowed to have sustenance at nature's fountain, but the dairy bovine is cast aside with almost cruel ingenuity to get its living from a pail. Employees dislike to teach calves to drink and express their feelings in unprintable language. The calf makes its protest so determined that it decides then and there to become a "Robber Cow." For days there is a lockout between the calf and its feeder, and before the "strike" is broken the tender stomach of the calf is injured and the staring coat and pot belly are the posted notices of the dairy outlaw that consumes feed and makes no adequate return therefore. Cow testing associations are formed and the "robbers" are apprehended with all the gusto of the amateur detective when it would seem that even "Sherlock the Monk" could have discovered the cause in the unnatural and stunting process. One of the noticeable things is that range-raised beef animals are, as a rule, well formed and fulfill their function of meat makers uniformly, much more so than the average dairy cows and are usually good. There is either greater prepotency in the beef breeds than in the dairy breeds, or else lack of skill in the raising of the latter. The same reproduction of type in the other meat animals like swine and sheep is comparatively easy as compared to the continuity of the dairy line of adequate producers.

When farmers learned that the so-called process of toughening colts by raising them around the straw stack really resulted in a poorer specimen of draft animal they changed their methods, and such ideas are not now considered good practice. From the standpoint of profit, and figuring the return from some of the defective cow list, if milked, the gain is greater where calves are raised on them than their use in any other way.

The calves are tied with a broad strap around the neck and a short chain with a snap. Each calf is kept in a clean, dry, well-lighted place, and the one or two calves given the opportunity to suck night and morning. Grain feed is given in a clean trough and no grain is better than whole corn and oats. In six weeks' time the calf is a good grain and hay eater and if necessary can be weaned at three months if continued on grain feed. A fact more generally known than practiced is that calves do better on dry feed the first year of their lives and that underground grain is also better during that period than ground feed.

This plan of calf raising is more practical where a reasonably large herd is maintained, or the ability to put calves on the cows when the older calves can be weaned is the condition. In the replenishment of the cow herd in the milk shipping districts, this will be found a profitable way for maintenance.

If ever there was a time when raising good cows is demanded it is now. A cow famine looks imminent. At the state fair the deputy dairy and food commissioner made a showing of the child's milk received in the natural way and the dangers when drawn through a tube 60 miles long, i. e., shipped by rail for that distance and then fed to children. In a similar way the infantile stomach disorders of the calf, when fed sour milk and improper feed, are manifested. Where it is desired to hasten from the liquid to the solid or cheaper foods the logical way is to early establish the calf on the grain ration, which is in any event to be its feed sooner or later. The illogical way is to feed it an unbalanced and unsanitary food, as in many cases is skim-milk.

The success that comes from calf foods and skim-milk is the grain ration in these proprietary foods. Calves have been fairly raised on "hay tea" and grain and the latter was their salvation. On the range an occasional young calf is separated from its dam by death or stampede, and the calf manages to live. It resembles the poorest specimen of a pail-raised calf and lives entirely on pasture. Cowboys term them "dogies" and a "dogie" never grows into a prime beef animal. Dogie is not a word of reproach so much as of pity. Homeless

arise were held by the low ceiling and certainly would contaminate the milk in the large open pails. Several cats and a big dog were playing about, constantly brushing against the milkers or against the pails. Worst of all, perhaps, the separator was in an open pen in a corner of the barn. There it was subject to all the dust from the floor and all the filth that the wind might carry to it from off the floor.

Really, clean wholesome milk may be produced without unreasonable effort. First the cows will need attention. If they are healthy in body and have no diseased udder and are fed judiciously they will do their part. Then the cows will need a clean, well ventilated stable, with a large amount of window space to keep the stable cheerful and to destroy disease germs.

Cleanliness in every detail in handling the milk is the keynote of the whole problem. Bacteria cause milk to sour or spoil. Foreign material anywhere serves as a home for bacteria. Get rid of every particle of foreign matter or filth and you get rid of harmful bacteria. Pails, cans and every vessel used in caring for the milk should be washed and scalded after every milking. The washing does the most of the cleansing but the scalding is necessary to kill the bacteria that still

help greatly in keeping it sweet if it is cooled at once and put away where it will be kept at a uniformly low temperature.

Iowa.

H. E. MCCARTNEY.

OCTOBER DAIRY NOTES.

Saving ensilage, hay and grain for winter feeding and allowing the dairy cows to fall away in milk yields and flesh condition during October and November is very doubtful economy. Unless special care is given the cows from now until they are safely secured in their winter stable there is sure to be some rather thin boarder cows with us this winter. It is always best to have the cows go into the barn for the winter in a good, vigorous condition. They may be giving a fair amount of milk this month, but if they are drawing on their own bodies, they are certain to fall off in milk yields and condition when winter begins and their ration is changed. It is very difficult to regain a milk yield or flesh condition during the winter months.

Pastures and meadows may look green and thrifty during the fall but the grass contains far less nourishment than it does during the spring and summer, consequently, supplemental feeds must be supplied or there will be a loss of milk yields and flesh. Corn fodder and hay will help to balance the detrimental effects of green, washy grass and bring good returns to the feeder. I would much prefer to waste a few loads of corn fodder, ensilage or hay than to carry the herd along on short rations until December. A little grain food at this season of the year when all kinds of dairy products are bringing high prices will also bring good returns. In fact, unless the cows are getting plenty of nutritious pasture grass and forage crops it will pay exceedingly well to feed a little wheat bran and gluten, and perhaps a little linseed oil meal. I always make a practice of feeding some kind of feed known to possess laxative qualities when the cows are being changed from pasture grass to dry winter feeds and find no feed better than oil meal. Grain feeds are particularly needed by the cows that have freshened during the summer and autumn. Cows that have been milking seven or eight months can waste valuable feed rapidly if fed expensive concentrates near the close of their lactation period. Cows differ widely in their ability to consume feed at a profit and it requires the hand of a master feeder to plan their rations so that he will secure a profit and at the same time maintain the cows in good, vigorous condition.

If we pasture our best meadow lambs and give the cows the run of the whole farm during the fall months considerable feed may be saved for winter, but few practical farmers find that it pays them to turn their fields into pastures and allow the cows to trample down the meadows and new seeding. It is not profitable to hire a man to herd the cows and the writer will say, for one, that he is not in favor of having his fields subdivided into small lots by cross fences and having to work around these fences while plowing and cultivating.

New York.

W. MILTON KELLY.

A NEW FIELD FOR CO-OPERATION.

..Probably one of the most objectionable features to the dairy business is milking. It often happens in securing help that a man will refuse to labor because the employer desires him to milk cows. This condition is made worse from the fact that men in the market for employment are in such demand these days that they can discriminate much to their liking.

The arduous work connected with the making of cheese and butter in the home, has driven these two businesses into the hands of specialists who are either employed by the community or work in their own interests. The household has been relieved, however, of the duty and the attitude of the farmer's wife, as well as of the farmer himself, protects the home against a re-invasion, at least to any general extent, of butter making and cheese making.

Now we ask the question, why is it not just as possible that the daily milking of the cows be placed in the hands of expert milkers? We realize that this would need to be conducted upon a much smaller basis, but we contend that the outlook for such a co-operative scheme appears as bright now as did that of the other industries before they had actually been established. Such a scheme would seem actually commendable where a number of small dairymen lived in close prox-



Bunch of Calves Nurtured by Foster Mothers.

and orphan children are, in cowboyesque terms, referred to as dogies. The word is pronounced with the long sound of O, as in dog. I never see an ill-favored calf but the word dogie comes into my mind.

In the photograph there is shown a "bunch of grafters" on their foster mothers, who will not grow up to be dogies. In the stock yards such animals as dogies are referred to not so kindly, but as sunfish, knotheads, yellow boys, etc. There is a good opportunity for changes in the ordinary methods of calf raising. Shiawassee Co. JAS. N. MCBRIDE.

CLEAN MILK.

Clean milk is what milk consumers are demanding everywhere. Little or no objection is raised as to price. Everywhere people are saying that they would be perfectly willing to pay a higher price per quart if they could feel sure that they were getting milk that is perfectly pure and clean and from healthy cows. Besides that, every man who keeps a single cow or a large herd wants pure, wholesome milk for his family use.

Milk from any cow which is diseased in any way is not wholesome. While most cow diseases are not transmitted to man through the milk it is against the taste and feeling of any normal person to use such milk. Of course, the great scourge among cows is tuberculosis. The consensus of opinion today seems to be that this awful disease is contracted by babies fed on milk from tuberculous cows. No one wants to drink milk from infected cows. No considerate man would sell milk from tuberculous cows. Now, the only way to be sure that the herd is free from this disease is to have the cows tuberculin tested. Then, if any react they should be disposed of. It will spread and infect all the cows, thus causing the loss of all the cows in the herd if it is not stamped out.

But it is chiefly in handling the milk that most concern need be given now. A barn visited a few days ago showed many things that were undesirable and unwholesome. The milking was done in a dark basement. All foul odors that might

remains after even the most thorough washing. The high temperature of boiling water or steam, if it is available, kills nearly all kinds of bacteria. The separator must not be allowed to escape this thorough cleansing. There are enough grooves and crevices in the ordinary separator bowl to harbor millions of germs. Unless the bowl and all its parts are kept thoroughly cleansed all cream that passes through it will be infested.

The proper location of a separator room needs more attention than it commonly receives. It should never be in a corner of the cow barn where it will be a dumping place for filth that floats through the air and where it will act as a collector of bad odors. The separator room, it is true, needs to be close to the barn for the sake of convenience, yet it must be far enough away so that the above objections are overcome. Sometimes the separator room is built as an annex to the barn but with two pairs of swinging doors between this does very well.

At milking time a few simple things may be easily observed which will greatly aid in producing clean milk, or cream. If the udder and body are kept well brushed over those parts, the small particles that may be clinging to the hair will be kept from falling into the pail. Then the milker should have his hands clean and wear clothes that are not soiled. There are no particular advantages in wearing white milking suits, except that white shows dirt more readily.

The writer prefers the pail with a covered top and which has an opening of about four inches. He objects in his own work, to putting a cotton strainer over that opening. To the minds of some people that cotton strainer would be a perfect excluder of foreign matter of all kinds. However, it never seemed to work out just that way. The trouble was that a bit of foreign matter would fall upon the cotton pad. Then the streams of milk falling constantly upon it would dissolve it completely and carry most of it through the strainer pad.

When once the milk has been produced in as clean a manner as possible it will

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imity. The use of machinery for milking purposes lends added force to the reason for such co-operation, inasmuch as it would do away with the necessity of duplicating the machinery; also, the interest on the investment in barns, stables, milk-houses, cream separators and other equipment and the depreciation thereon would make a much smaller percentage of the cost of the production than where the cows were milked in several different localities. A better control of sanitary conditions could be provided, thus enhancing returns by increasing the selling price of the products. The changing of the milk to butter, or cheese, or ice cream, would become a part of the co-operative enterprise, thus placing the whole course of the milk, from the cow to the manufactured product, under the eye of a specialist. We realize that this idea will be considered insane by some, but it appears to grow as it is given more thought, and we believe that future dairying will find this part of the work specialized, the same as butter making and cheese making have become.

Wayne Co.

A. B. H.

CO-OPERATIVE BUYING OF DAIRY FEEDS.

I wish to speak of this matter now because it is timely. Winter will soon be here, and the dairy that yields a profit for the next few months must be liberally and properly fed. It will pay to feed liberally, providing the feed that must be purchased to supplement what has been grown on the farm is bought economically. Since our Canadian friends have summarily declined the offer of our markets, the price of butter has risen rapidly and dairymen everywhere may renew their courage.

We have co-operated in the purchase of dairy feeds in this community for years and I speak from considerable experience in saying that the plan is in every way satisfactory. We have handled a good many carloads of bran, cottonseed meal, wheat and corn flake feeds, etc., and in so far as we know every obligation for money has been met in full. We make up our orders in any and every convenient way: at the Grange, over the telephone, when we meet in town, or when we pass each other on the road. It does not matter how, so long as every man gets what he wants. We buy our cottonseed meal of one of the large companies and have it shipped to us directly. If we have any doubts about the quality of the meal, we send a sample to the College for analysis. The company sends a sight draft to the bank in the town where the feed is delivered; the man who delivers the feed just bids the banker a pleasant "good-morning," receives the bill of lading, goes to the freight office, pays the freight, opens the car and work begins in earnest. Twenty tons of cottonseed meal can be delivered in much less time than one would think. I have seen five or six teams in waiting at once, and it would be only the work of a short hour to tumble the sacks into the wagons and send the last man home satisfied. During the day, the car would probably be entirely emptied. Each man receives a slip containing the number of bags in his load. He presents this at the bank and pays there for the feed. Thus the trouble of handling money and making change at the car is saved and the danger of loss from this source is avoided. On the occasion of our first delivery of cottonseed meal, payment was made at the car and the neighbor who had charge of the work lost a ten-dollar bill. It was probably blown away. We got our lesson from that circumstance. Since then everybody pays at the bank, there is a record of every load, no mistakes are made and consequently nothing is lost. But someone will say, "You must have a very obliging banker." Well, yes, we have but on the other hand, while there is not a rich man, nor even a very large farmer, among us, we keep our credit good at the bank. Every man can do this if he will and it is not only right in principle, but it pays out in practice. Every rural community should keep on the best possible terms with the business men of their town. But, some will ask, "What is the effect of co-operative buying? Does it not tend to sever the kindly relations that ought to exist between town and country?" Well, under certain conditions it might. But our friends in town must adapt themselves to these new conditions. The right of farmers to combine and co-operate in the purchase of raw materials used in their business or of anything needed upon the farm ought to be as clear

to the individual of average intelligence as any other human right. It is certainly just as well founded as the right of the dealer to buy a farm and grow corn and potatoes and keep a dairy in competition with the farmer. Every sensible dealer knows this to be true and will tacitly admit it and there need not be the least trouble if farmers engaged in co-operative buying are careful not to do so in a spirit of opposition to the man who is handling the same line of goods. In other words, all we farmers need to do, in order to live in peace and harmony with our friends in town, is to go right on about our business, quietly but earnestly, and treat the dealer always exactly as we would have him treat us.

Co-operative buying of dairy feeds advertises the business of the dealer. All men will not buy in this way, not even a majority will do so. In many localities the great majority of men underfeed their cows during the winter season to an extent that not only destroys their profits but leads to the loss of the major part of the scrimp ration that they reluctantly feed. But one or two of these men come along while the car is being unloaded. "What is that stuff?" they ask. "What is it good for? How much does it cost? Can I get a bag to take home? I want to try it." They are told that the dealer handles it, and they can get some of him. Then if they want to buy when the next car is ordered, their chance will be good. So the parties get valuable information, the dealer sells some feed and both are pleased. I am sure there is not a dealer in this part of our county that has not profited indirectly from the practice of co-operative buying prevalent among us, but this is not all. The practice is in itself a means of education. It tends to make the farmer a better business man. It teaches the value of cash in the making of purchases. It leads to the discussion and comparison of dairy rations and this tends inevitably to better methods of dairy feeding.

In every dairy section where the cream is marketed at the creamery on shipped to some other point, large numbers of hogs are usually kept. It is very important that these animals should be finished off and marketed at the right time, if the largest profits are to be made. To do this it is often necessary to buy some feed, as the corn may not be matured. There are feeds that can be purchased for this purpose which will yield a handsome return for the labor and money expended. These feeds can be bought in the same manner with quite as large a percentage of profit. We want to grow all the feed we can at home, but it is often profitable to supplement our home-grown feeds with purchases from outside and co-operation will be found the best method of making these purchases.

Oceana Co. W. F. TAYLOR.

DON'T EXPOSE THE DAIRY COWS.

Dairy cows will not stand the exposure that beef cows will stand. With the latter the fat is distributed through the flesh and forms a layer under the skin, which serves to keep the animal heat in the body and gives the cows a certain amount of protection when they are exposed. The cow of a dairy breed turns all this fat into milk and does not have it to use as a protection from cold. If the dairy cow is exposed to the cold rains of fall and spring, or the cold winds of winter, the flow of milk is invariably lessened. A neighbor not infrequently blankets his cows when turning them out into an open field where there is no shelter, on especially cold days.

Virginia. F. H. SWEET.

In some foreign experiments with dairy cows, according to report received by the department of agriculture, when the intervals between milk are about 12 hours, for example cows milked at 6:00 a. m., and 6:00 p. m., then the morning fat exceeds evening fat by .18 per cent on the average of 22 tests. When the intervals between milking are about 13 and 11 hours, for example, cows milked at 6:00 a. m. and 5:00 p. m., then the evening fat exceeds the morning fat by .33 per cent on the average of 19 tests. When the intervals between milking are about 14 and 10 hours, for example, cows milked at 6:00 a. m. and 4:00 p. m., then the evening fat exceeds morning fat by .70 per cent on the average of 18 tests. When the intervals between milking are about 14½ and 9½ hours, for example, cows milked at 6:00 a. m. and 3:30 p. m., then the average evening fat exceeds morning fat by 1.09 per cent on the average of 391 tests.

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CROPS FOR AN IDEAL DAIRY FARM.

Some time ago we published in these columns general descriptions of four dairy farms, each containing practically 160 acres of land. The net profits on one of these farms was 1,616 times the profit with the reasoning and conclusions which led to the adoption of the system. most profitable farm is conducted.

The crops raised in the system followed upon the farm in question are, corn, alfalfa and rye, the rye being sown in the corn at the last cultivation as a catch crop for pasture. There is sown 95 acres of corn and 57 acres of alfalfa. Four acres of land are required for buildings, and yards. It will require six horses to do the work upon this farm. A daily ration of 13 lbs. of corn and 15 lbs. of alfalfa hay has been demonstrated by the University of Illinois as a practicable ration to feed horses. At this rate it would take 7.98 acres of corn and 4.05 acres of alfalfa, or 12.03 acres in all, to care for the horses. The roads and fences would take out another four acres, thus leaving 139.97 of the 160 acres available for dairy purposes.

During the six months of summer when the cows should produce an average of 13 lbs. of milk per day, they should receive on an average 40 lbs. of silage and 13.5 lbs. of alfalfa hay per cow per day. These two feeds fed in the above proportion would furnish 1.85 lbs. of protein, 9.86 lbs. of carbohydrates and .45 lbs. of fat, giving as a nutritive ratio of 1:5.9. Now, according to our best information, a cow weighing 1,100 lbs. and producing 13 lbs. of milk daily demands 1.38 lbs. of protein, 10.51 lbs. of carbohydrates and .32 lbs. of fat, which we see is practically provided by the above ration, there being a slight deficiency in carbohydrates. This amount of feed would demand 7,280 lbs. of corn silage, to which we should add five per cent for waste, making 7,644 lbs. of corn silage required per cow for the six summer months. It would, therefore, require .32 acres of land to feed one cow during the six months with corn silage. Of alfalfa it would require 2,457 lbs., or .31 acres, to feed one cow during the same six months. Summing up we find it would take .63 acres to supply the summer feed for one cow.

In the winter six months the cows should produce 24 lbs. of milk per day on an average. It requires that they be fed 40 lbs. of corn silage, 5.5 lbs. corn meal and 11 lbs. of alfalfa hay per cow per day. Now, this combination of feed would supply digestible nutrients as follows: Protein, 2 lbs.; carbohydrates, 12.55 lbs.; fat, .65 lbs., making a nutritive ratio of 1:7. Scientific calculation shows that a 1,100-lb. cow, producing 24 lbs. of milk daily requires 1.88 lbs. of protein, 12.88 lbs. carbohydrates and .49 lbs. of fat. Calculating as above for the summer months we find that in the six months of winter each cow would demand .28 acres of corn in the form of silage, .27 acres of corn to supply the corn meal and .22 acres to provide the alfalfa, making in all .77 of an acre to support a cow during the six winter months.

Fifty seven acres of corn ground is sown to rye in the fall, which provides pasture for both fall and spring. It is calculated that the cows could be turned on the field for about 33 days during the year, and while feeding on this rye, the ration of silage could be diminished and the grain discontinued altogether during that period of time. From the above calculation we see that where it required .55 of an acre of corn to feed the cow in the winter six months and .32 of an acre in the summer six months, that .87 of an acre of corn would be required to feed a cow per year, and if it takes .22 of an acre of alfalfa in the winter six months and .31 in the summer six months, it would require .53 of an acre to supply the alfalfa part of the ration per cow per year. Dividing the cropping of the farm so that we would have sufficient alfalfa and corn to feed an equal number of cows, we find that the division would require 87.02 acres of corn and 52.95 acres of alfalfa, which would practically support 100 cows the amount that could be kept on the 139.97 acres available for this purpose. Each cow would need 1.4 of an acre per year. But this sized herd would demand the keeping of bulls and heifers to the number of about 16 in order that the old cows could be replaced with younger ones and breeding properly carried on. This would leave 84 milch cows, which, if they would produce 6,000 lbs. of milk per year apiece would give a total of 504,000 lbs. during the course of a single year.

It is to be understood that the above

calculations are figured on the average yield of the above crops as nearly as can be estimated—the corn being expected to grow 55 bushels per acre and yield two tons of stover, while the alfalfa is expected to provide four tons of hay per acre. The system was worked out by Chief in Dairy Husbandry Fraser, of the University of Illinois, and his assistant.

WHITEWASHING THE DAIRY STABLE.

All progressive dairymen understand the value of whitewashing in stables. However, we find a very small percentage of men who keep dairy cows that follow this practice. The lime in the whitewash destroys insects and harmful bacteria with which it comes in contact, and besides, it keeps the stables sweet and is a good material for lighting up dark barns.

Just how often whitewash can be applied to get the maximum of benefit from it is, of course, a mooted question. The whole stable should be gone over once in the spring and again in the fall. However, it is better to give them one good painting a year than not to do it at all. If, in conjunction with the two applications, the stalls themselves could be treated about once every month during the six months, practically ideal conditions, so far as covering for the stable walls and stalls are concerned, would be maintained.

One of the greatest objections to this work is applying the mixture. The usual manner of putting it on is to take an ordinary whitewash brush and go over the walls to be treated. The ingenuity of the Yankee has overcome this difficulty to a very large degree by using an ordinary spray pump for putting on the whitewash. By this means the mixture can be applied very quickly, and the operator is not made uncomfortable by having the mixture come in contact with his person. Sprayers used for applying solutions to fruit trees can be employed in this service.

The ordinary whitewash is made by simply slaking lump quicklime in hot water. This is probably the cheapest wash that can be had. It, however, flakes off and makes the walls look spotted in a short time after application. Its merits lie in the fact that it is cheap and is a good disinfectant. There are a number of cold water paints on the market that make a good coating for this purpose. Possibly the best material, however, and one that will last for years, is what is known as the government, or white house whitewash. This material is not only valuable for ordinary work but can be used where it is exposed to the elements and will cling almost as well as paint, thus making it valuable for treating the fences about the barn where stock is kept.

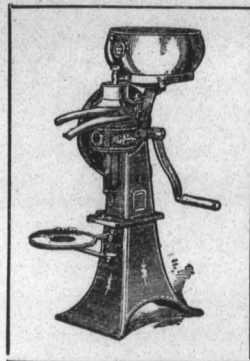
Formula for Making Government Whitewash.

Use a half bushel of unslaked lime, a peck of salt, three pounds of ground rice, a half pound of powdered Spanish whiting and one pound of glue. To make, slake the lime in warm water, having the receptacle covered during the process, and strain the liquid through a strainer with a fine mesh sieve. Dissolve the salt in warm water and add it to the slaked lime. Have the ground rice boiled to a thin paste and stir it in the above mixture while boiling hot. Add the Spanish whiting and glue, which has been dissolved over a slow fire. Five gallons of hot water should next be added to the mixture, which is stirred well and allowed to stand for a couple of days. The receptacle in which it is contained should be covered to prevent dirt from getting in. The mixture should be applied hot and it is well to strain it a second time before using, in order to remove any lumps that would interfere with its application.

Should one desire to make a material of a different color, it can be done by adding either common clay, Spanish brown, yellow ochre, or other material to produce the shade or color wanted.

By the careful use of the whitewash about the stables, it is possible to produce a much better quality of milk than can be secured where this precaution is not taken. There is no question about its utility, and the farmer who wishes to be up-to-date should certainly not overlook a matter of such importance as this part of his dairy work.

Progress is being made in the dairy business but all dairymen are not in the line of march. Some will need to be drafted into service.



Make Your Fall and Winter Dairying Profitable

The wasteful losses of any "gravity" setting system or poor cream separator are always greatest when the milk is often cool or the cows are old in lactation, and under these conditions, with butter prices highest, the use of the best cream separator becomes even more important than at any other season, so that a

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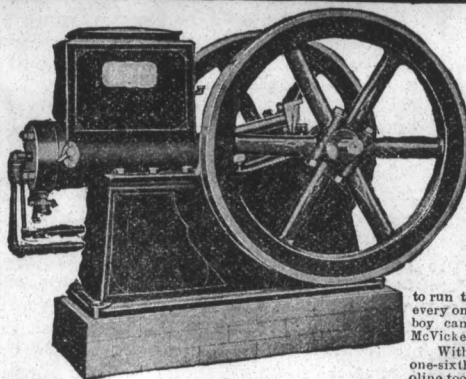
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BARTLETT & CO., Jackson, Michigan.

The Michigan Farmer

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Avoid further trouble by refusing to subscribe for any farm paper which does not print, in each issue, a definite guarantee to stop on expiration of subscription.

The Lawrence Publishing Co.,
Detroit, Mich.

DETROIT, OCT. 21, 1911.

READ THE ADVERTISEMENTS.

We desire at this time to urge every reader of the Michigan Farmer to read the advertising columns of the paper as thoroughly and carefully as they do the matter published in its different departments. To neglect this is to miss much which will be of practical value and interest to every farm family.

There are several reasons why this is true. The enterprising manufacturer or the dealer who advertises his goods in our columns has learned the important lesson that by doing a large volume of business at a moderate profit, he increases his prosperity to a degree which can be accomplished in no other way. The commodities which are advertised in a reputable farm journal, are not in the nature of experiments; they are commodities of proven value, in which the manufacturer or dealer has sufficient faith to conduct a campaign of publicity, depending upon the quality of the goods to sustain a patronage thus obtained.

In addition to this natural economic law, the publishers of the Michigan Farmer exercise a careful censorship over their advertising columns. No deceptive, unclean or dishonest advertisements are accepted at any price. Only advertisers of established reputation are solicited by us or permitted to use our publication as an advertising medium. Thus a liberal and select advertising patronage not only enables its publishers to send the Michigan Farmer into the farm homes of the state at a moderate subscription price, but in addition to the valuable reading matter which it provides for every member of his family, the subscriber gets an up-to-date buyers' guide which will keep him in touch with all the latest improvements in farm equipment and the most economic market in which to purchase a large proportion of the supplies which he may need.

Thus any reader of the Michigan Farmer who fails to scrutinize the advertising columns each week is not getting the greatest possible benefit from the paper or the money which he has invested in it. From all the carefully prepared matter which is presented by advertisers, a vast amount of valuable information can be gained by every progressive farmer and every member of his family. If the Michigan Farmer is mentioned when writing to advertisers we guarantee a prompt response and fair treatment in every instance.

CURRENT COMMENT.

Winter Study for the Farmer.

With the closing of the fall campaign of farm work and the approach of the winter season, when there will be more time for reading and studying, every farmer should consider well what line of study he will take up, since, unless there is some systematic plan outlined, the farmer's reading and studying will be done at random and not much of practical value will be accomplished. As an idea which might be followed out with profit by every farmer, we would again refer to our Practical Science Department, which was recently established for the study of science as applied to agricultural problems. Of necessity the early lectures of this short course in agricultural science were rather elementary in character and less interesting reading than will be the case as the course advances and the exact knowledge of the scientist is made plain in its application to the complicated problems of agriculture.

The farmer, and particularly the young man, who becomes interested in this department, will find that it will suggest lines of profitable study and reading which will go far to equip him for success worthy the name in his chosen following. We bespeak the careful attention of every Michigan Farmer reader to this new department as a means of outlining a more profitable line of winter study for the farmer and his entire family.

Solving the Marketing Problem.

Scarcely a week goes by that one does not hear or read of an instance in which the farmers of some neighborhood are associating themselves together for the more economic solution of the marketing problem. In a recent issue of the Michigan Farmer was published a notice of the organization of pickle growers in Montcalm county. Last week there was noted a movement among some of the farmers in Barry county to organize a co-operative elevator company. This week comes news of the organization of a new Grape Growers' Association in Van Buren county, for the purpose of marketing the grape crop produced in two townships of that county next year. This association will be organized and conducted along the lines which have been successful in other sections of Van Buren county, where two other similar associations are now in operation. These associations have had a wholesome influence, not alone in the grading and marketing of fruit, but as well in negotiations with the railroads in regard to more equitable service in the icing of refrigerator cars, which has been a source of contention for so many years.

An instance has just come to public attention in Michigan, which illustrates the important work which a co-operative organization of this kind can do in solving and maintaining the standard of the products marketed by it for its members, and thus making the locality noted for the staple and standard quality of the products which it furnishes. Recently the Florida Citrus Exchange, through which most of the citrus fruits of Florida are marketed, communicated with Michigan authorities, and stated that for more than two years the Exchange had been making strenuous efforts for the prevention of shipments of green oranges, which efforts included the passage of a special law in Florida forbidding such shipments. Notwithstanding this fact, shippers were said to be arranging to flood the country with poisonous green oranges, masquerading as food, to Florida's shame. Appeals were made for assistance by the Michigan authorities for annihilating this trade by the seizure and destruction of all unripe oranges arriving from Florida, and offering a reward of \$100 to the food inspector who discovered the first car destroyed in Michigan for such violation of the law. Appeals have also been made to the health officers to act without reservation in dealing with this situation.

By this action, this co-operative marketing association has sought and will succeed in sustaining the reputation of the oranges grown in the section of the country which it covers. This is simply an illustration of one of the advantages which may be derived from such co-operative marketing of any product, and particularly of all perishable products like fruit.

There are, doubtless, some lessons to be learned by the consumer as well as the producer in this matter of eliminating excessive profits of the middlemen and bringing the producer and consumer closer together. Not long ago the mayor of Indianapolis, deciding that the middlemen

were holding up potatoes in that city to an unreasonable level, took matters into his own hands and purchased potatoes in car lots for distribution at cost to consumers in his city, with the result that the cost of this article of food was greatly reduced, and that even though subsequent shipments cost more money, the prices were still lower to the consumer than when purchased from the middlemen on a basis of lower cost at shipping points.

There are many opportunities for Michigan producers to enter the field of co-operative marketing, and this is a good season of the year to discuss the matter and take some action toward the end of organizing for the purpose. As has been many times stated in these columns, the most successful forms of co-operative organization have been those developed along the line of community production. This has been the case in practically every country where co-operative selling has attained any great importance, and there is every reason to believe that it is the best method of organization for Michigan farmers. All that is needed in many localities is for some enterprising man to take the initiative in the matter, take up the proposition with his neighbors, call a general meeting for its consideration and work out the details of final organization, when the attainment of success will be comparatively easy.

An example of what may be done within a short period of time is furnished by the Burlington County Exchange, which was organized in the state of New Jersey something like a year ago. Within ten miles there are fifteen stations at which supplies are bought and products sold, all business being done through a central office to better advantage than where individuals sold the produce from their wagons. The total amount done by this association was \$600,000 the first year. Produce was shipped into 21 different states and 110 cities. This organization sold 167 cars of strawberries; seven cars of gooseberries; 1,012 cars of potatoes; 3,486 baskets of peaches; 18 cars of cabbage; nine cars of hay, and 99 cars of pears, aside from large consignments of garden truck and other small fruit which were received in less than car load lots.

The time is, we believe, near at hand when the marketing problem will be solved in many communities in Michigan in a manner similar to that above illustrated, and it is not too early for the farmers of many communities to get busy on the proposition.

Michigan Fruit with the Best Flavor.

That Michigan has this year produced the best fruit crop within a decade is the declaration of Professor Taft, State Superintendent of Orchards and Nurseries. There has been a good crop of peaches, pears and plums, while the grape crop is larger than ever before, and cherries were plentiful in southern Michigan. There is also a plentiful supply of early apples, although the crop of winter apples is estimated to be about 25 per cent below a full yield.

Most Michigan farmers are realizing the importance of the fruit end of their business and orchards are being better cared for and more fruit being planted from year to year than has ever before been the case in the state. It has been generally found that satisfactory prices have been received wherever prime fruit has been grown, while an inferior product does not pay well for handling. Gradually Michigan is coming into her own as a fruit state, for which purpose her soil and climate is excelled by that of no other section of the country.

We read and hear much about the western fruit section which has been boomed and developed and advertised, but which in reality does not compare with Michigan for natural advantages for fruit growing. A recent report from Washington is to the effect that serious deterioration of orange, apple and other orchards on the irrigated lands of the western states where intensive methods of production are followed, has resulted in the beginning of an investigation by the Department of Agriculture to determine the cause. It is stated that the decline in value of established orchards has amounted to millions of dollars, while in Michigan, orchards and orchard lands have rapidly increased in value as their adaptability to the growing of "fruit with flavor," for which Michigan is famous, has become better and more generally appreciated.

The Bean Crop.

Michigan bean crop, resulting from the exceedingly wet weather which prevailed

throughout the harvesting season, is variously estimated, but it is generally conceded that it will exceed \$1,000,000. When it is considered that Michigan is not only the largest producer of beans among the states of the Union, but grows more than one-half of the total bean crop of the country, it will be seen that this loss is a very considerable one. The effect of the wet weather has been noted in the bean market appearing on our market page from week to week, and it has been still more noticeable in the retail market or the sales to retailers and peddlers as made by the wholesale dealers in this product, which have been as high as \$2.90 per bushel during the past week.

With this very general condition of the bean crop, farmers will do well to market conservatively this year. The plan which the organized bean dealers have been using for some years past of purchasing upon a hand-picked basis sometimes operates to the disadvantage of the growers, particularly where the price for the commodity is unusually high. This should be carefully figured out by every farmer who has beans to sell, and any offer which does not give him a square deal on the crop which has been damaged should be refused, the beans carefully screened and cleaned through a good fanning-mill and hand-picked at home if need be, to place them in first-class market condition. Of course, this work will not be necessary if this plan is generally followed by producers, but it will be a means to the end of securing a fair share of the consumer's dollar by the bean grower who has a damaged crop for which he cannot get offered a fair price upon the basis of the market value of the good beans as proportionate to the whole crop. The cull beans will be of no small value as feed for the following up of the corn ration for the hogs or sheep.

The marketing of the bean crop is a factor of the marketing problem which should be given the most careful consideration by every grower this year.

HAPPENINGS OF THE WEEK.

National.

Effort is being made by the beet sugar raisers to properly present to the coming congress testimony showing the necessity for tariff protection of sugar. They contend that should free sugar be admitted it would mean the end of the beet sugar industry.

The Philadelphia-American and New York-National leagues are competing for the world's championship baseball honors this week—the first game having been played at New York last Saturday. A scandal resulted from the management permitting speculators to secure large blocks of tickets, which they were disposing of to the public at outrageous prices.

The Presbyterian Synod of Michigan, passed a resolution appealing to President Taft to remove the bans of silence imposed on protestant teachers in the Philippine Islands—they contending that the regulation savors of the inquisition and is contrary to the American constitution.

Seven persons were killed and 22 injured, four of them seriously, in a collision between a passenger train and a fast freight at Fort Crook, Neb., last Sunday morning. The accident is believed to have resulted from a misunderstanding of orders on the part of the freight crew.

An attempt to wreck President Taft's train while traveling over the Southern Pacific, near Santa Barbara, Cal., was frustrated by the watchfulness of the railroad employees. Explosives were placed so as to wreck a bridge when the President's train passed over it. A watchman however, detected the plotters and scared them away by firing upon them before they had time to perfect their plot. The President's train would have been due in a few hours.

Assistant Secretary of Agriculture Hays suggested to the national farmers' congress, at Columbus, Ohio, that that organization be changed to form a federation similar to the German agriculture society, a powerful factor in German rural life. The plan contemplates a body consisting of delegates selected from state federations, as well as existing farmers' organizations, agricultural colleges, experiment stations, etc.

At a meeting of 200 progressive republicans at Chicago, Monday, unanimous endorsement of United States Senator Robt. La Follette, of Wisconsin, as a candidate for President, was voted.

Four accidents have occurred on the D. U. R. since Sunday night. A rear end collision near Farmington between two interurban cars resulted in the death of one person and the injury of 20 or more others. A collision between a Fourteenth avenue and Myrtle street cars seriously injured a 17-year-old girl. A Port Huron Limited interurban car struck an unidentified man at Gratiot avenue and the Seven Mile road, killing him instantly. Two men were injured in a collision between two cars at Shelby and State streets, Detroit.

Plans have been completed for the establishment of a steel plant at Detroit. The cost will be around one and one-half millions.

The death rate in Michigan during August of this year was only 12 persons per thousand. A year ago the rate was 15.9 per thousand.

(Continued on page 349).

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

EXPLORING THE NAKIMU CAVES.

By James Cooke Mills.

THERE is a little valley in the heart of the Selkirk Mountains, far above the summit of Rogers pass and enclosed by towering peaks and glistening glaciers, which has been appropriately named the Valley of the Caves. For a distance of nearly a mile, and far beneath the floor of the valley, the Nakimu caves honeycomb the strata of dark-blue limestone, and in almost a score of places the broken and much ruined passageways lead to the surface. Some of the openings are mere cracks in the rocks through which the explorer must wriggle and squirm to effect an entrance. In other places the caverns gap wide with precipitous drops for a hundred feet or more to narrow ledges over which the subterranean torrents plunge to further depths, filling the vaulted space with their dull reverberating roar.

The beautiful glaciated valley lies almost in the center of Glacier park, which has been set apart by the Canadian government as a national reserve. It embraces the Great or Illecillewaet glacier, Mt. Sir Donald and other lesser peaks, whose rough and rugged scenery more nearly approaches the alpine type than any in America.

In its devious course through the Selkirks, the Canadian Pacific railway reaches its summit near the base of the Great glacier; and at a most favorable scenic point on the line, which happens to be on a long loop along the base of Sir Donald, the railway has established Glacier station. The view from this high altitude in the Selkirks is most impressive, and fills the beholder with wonder and delight. On two sides the frowning steep of Sir Donald and Mt. Cheops reach beyond the clouds. On the south, the vast face of the glacier presents a glittering front of ice from peak to peak, its head clouded in a filmy mist. So near is the huge mass, said to be fully a half mile in thickness, that its chilling breath is plainly perceptible. Its ice tongues feed numerous rivulets which tumble down the mountain side and finally unite in the head waters of Illecillewaet river.

To the west, the silvery course of the stream rushes onward, and beyond the distant peaks and snowfields show but dimly.

From the Glacier House as a base of supplies, the trip to the Valley of the Caves may be made in about four hours. The distance is nearly six miles, and for the first four miles the exploring party has a choice of two trails. The one more frequently used leads along the south base of Mt. Cheops, through a magnificent forest growth of Douglas fir, spruce and hemlock, to the mouth of Cougar creek. Here, at the crossing of the railway, is a water tank where the huge "battle-ships" refill their tanks after the long steep pull up Ross peak.

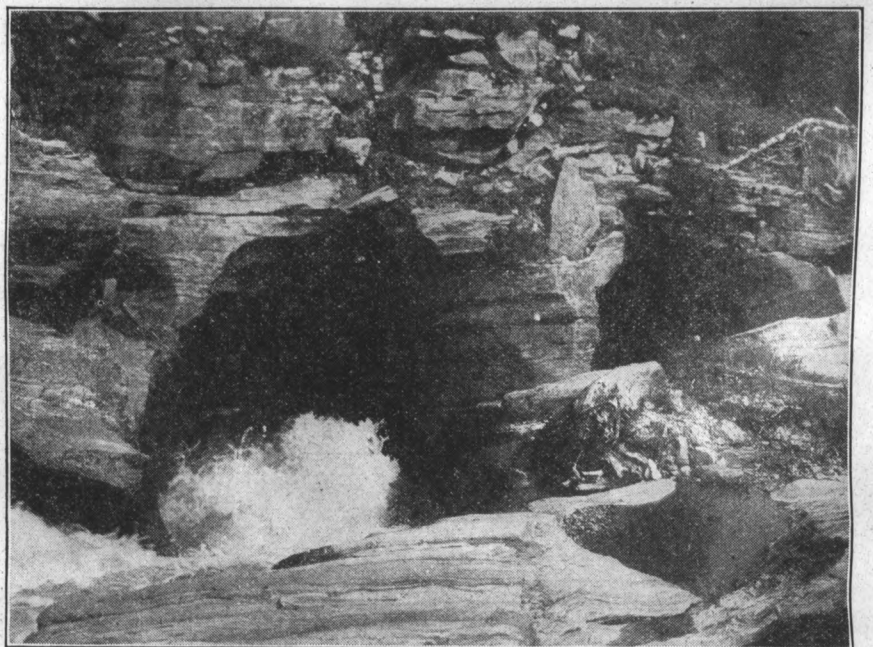
The slightly shorter route, sometimes used by explorers making the journey to the caves on foot, is along the railway for perhaps two miles, to a point where the steel-bound trail turns off in a broad loop, to effect an easier grade. By clambering down a narrow and rough path among jagged rocks the exploring party again strikes the railway nearly a hundred feet below, the line above being almost overhead. After crossing the river the railway twists sharply to the west, and the other trail meets it there. For another mile the first trail is followed to the above mentioned water tank.

Near by, on the edge of the creek, is the cabin of Charles H. Deutschman, the mountain habitant, who discovered the caves in section, in May, and, in October following, entered the little valley and the caves as a mineral claim. The work this intrepid mountaineer has done in exploring the underground waterways, in many instances unaided and without ladders, bridges or ropes, shows a character entirely devoid of fear. The descent into deep caverns and along narrow ledges above yawning chasms, where the thick darkness is scarcely penetrated by the feeble rays of lanterns, requires more than courage; it demands strength of purpose and power of will far beyond the

ordinary. Huge crevasses had to be crossed and the subterranean stream forded above precipitous descents to the unknown, where a misstep would have meant death.

With Deutschman as guide an exploring party, headed by the official topographer of the Dominion, made the ascent of

a wild mountain torrent, leaping from boulder to boulder in swirls of foaming spray. About a mile from the railway and 900 feet above it, the party came to a place where a mammoth spring wells up out of the bed of the creek, adding a considerable volume of water to the rushing stream. Above this point the creek dwindles to a small trickling brook among the rocks, and it is evident that the spring in its bed is fed by the subterranean tor-



Cougar Creek Entrance to Mill Bridge Series at Foot of Flume.

the lower valley of Cougar creek. It was a most arduous climb along the steep mountain side, over rocks and through tangles of logs and black alders, the trail being merely a narrow path, in some places hardly accessible for a mountain goat. Besides, heavy packs were carried, consisting of tents, blankets, provisions and camp appliances.

The creek through its entire course is

rents hurtling and dashing along within the caves. A little farther on, where the gully narrows between the deep ridges, the explorers were suddenly chilled by a fierce blast of wintry wind belching from narrow cracks in the rock strata—from somewhere in the interior of the mountain. Crossing the little stream the trail swung to the left and soon brought into view a beautiful waterfall, sixty feet high, which was named Goat Falls. The waters drop over the cliff, and, instead of flowing away in a mountain rivulet to lower levels, they enter a cavity in the ground where they fall and disappear to unknown depths. A further climb of a few hundred feet brought the party to Point Lookout, a high projecting ledge of rock at the turn of the cliff to the north. This is the entrance to the Valley of the Caves, beyond which the trail leads, in a mountain paradise, to cave entrances, within whose dark recesses and vaulted chambers are things weird and mysterious.

The upper valley, extending from Point Lookout to Cougar pass, is a most pronounced type of the "hanging valley," one that has been carved out by the eroding power of a glacier at one time filling its bottom, and is quite different from the V form of the lower valley, worn so by water erosion alone. The entire length of the upper valley is two and a half miles and the floor is on a comparatively low grade. At one point it is covered for about half a mile by a small lake-bed, in which some water lies during the summer.

In all the Rockies, it would be difficult to find a more beautiful example of the alpine valley. In every direction silver waterfalls leap down the sides from the glaciers and melting snows of the surrounding peaks. These collect at the bottom of the valley in one central stream which bounds, in foaming cascades, to the little lake-bed, from which it rushes through luxurious meadowlands in a second series of cascades that have worn down to bed rock, showing a thin veneer



Mount Sir Donald and Illecillewaet Glacier, looking Southeast from Just below what is known as Lookout Point.

of soil overlaying it. The alpine meadows and park lands, as well as the open mountain slopes of the valley throughout the spring and summer, are decked with a gorgeous array of flowers of varied hues which, in places, are so profuse and brilliant that it seems as though nature had spread a carpet of rainbow colors for the delight and wonder of her visitors. In early spring, the giant Adder's Tongue covers whole acres with a brilliant yellow, and are the first to push their heads up through the snow. Like all spring flowers in this region, they follow the melting snows and may be found higher up in the valley as late as August. There is also the Globe flower, a plant of much beauty and great wealth of blossom. Next comes the scarlet and crimson Painter's Brush, showing everywhere in the opens and on the lower slopes with a blaze of glory. Later still the blue Larkspur and purple and pink Asters replace the earlier flowers, while the crimson and yellow Monkey flower is found in the beds of the streams and where moisture is prevalent. High up the valley, below the rocks, are seen the False Heaths and, highest of all, the pink flowering moss found in magnificently flowered bunches directly below the ice. There are many other species more rare and just as beautiful in blossom, but of not such frequent or noticeable occurrence.

The timber, in this upper valley, consists chiefly of spruce and balsam; trees which, at this elevation in the Selkirks, attain a grace and beauty that is not noticed in the more crowded areas of lower altitudes. Here they rise symmetrically to a great height and their sweeping lower boughs form shaded canopies that are most inviting during the sultry summer days. As the head of the valley is approached, a short climb brings the explorer to the ice of several small glaciers where he may study with ease their formation and action, look into miniature crevasses and see how moraines are formed by the downward flow of the ice.

From a natural history point of view the upper valley is of especial interest, due in a great measure to the absence of visitors in the past. The Rocky Mountain goat may be seen frequently, and his tracks are everywhere along the heights. The grizzly bear and also the black bear are plentiful at the head of Bear creek, and it is unlikely that they fail to visit Cougar valley—the Valley of the Caves. Of the smaller animals, the hoary marmot or whistler is found in both the upper and lower valley, and is seen in great numbers, larger in size and giving forth a louder and more shrill whistle than those in the main range of the Rockies. Say's squirrel and Pary's marmot are also found, and the Little Chief hare is frequently seen disporting itself among the rocks, its comical antics and quaint squeak, resembling that of a toy rabbit, being very amusing.

The birds are few and, in the upper valley, are confined chiefly to the Ptarmigan, of which a flock may nearly always be seen, and the Water Ousel or Dipper, a funny little dark-grey chap who flits from stone to stone along the cascades and falls of the valley, continually bobbing and dipping as though it were the object and aim of its existence. This bird has a very sweet note.

Taken as a whole, and quite independently of the attractions offered by the caves, this wonderful valley illustrates in a marked degree the various phases of nature in the Selkirks—scenery, geology, natural history and botany.

Following the natural rise of the valley toward the west, the principal glacier, forming Cougar creek, came in plain view. It was named Grizzly Glacier because a grizzly bear, only a few weeks before, came down over it into the valley and disputed with Deutschman his right to invade the sacred precincts of the animal kingdom. On a level grassy bench, on the north side of the creek, the camp was pitched, the magnificent assemblage of balsam firs with their spiral forms welcoming the party as stately hostesses. The afternoon was spent in taking views of the cave entrances from points of vantage, and in exploring the upper waters of Cougar creek. A mile and a half from the camp, through a narrow ravine with lofty peaks on either side, the party came upon the little lake, at this season of early summer, still covered with a spotless counterpane of snow and fed by the glacier itself. On turning around to retrace their steps to the caves, a view of Mt. Sir Donald and the Great glacier in the distance, and the valley up which the journey had just been made, greeted their eyes and never can be forgotten.

Nearing the camp two cascades were noticed, several hundred yards to the north on the side of Mt. Ursus Major, which descend with many leaps and plunges to join the creek farther on. The cascades were named "Whistler Falls" because of the great number of whistlers, hoary marmots, that have their burrows in the neighborhood. Three hundred feet below the waters disappear in a cavernous opening, called the "Gopher Hole."

That night there was a heavy fall of snow that decked the balsam firs about the camp and on the mountain sides with the most dainty crystal drapery. These perfect specimens of an exceedingly attractive tree, range in age from 150 to 250 years, are tall and straight, and create a spicy fragrant atmosphere peculiarly their own. The following morning the "Gopher Bridge" series of caves was first explored.

These caves are immediately south of Whistler Falls. The first entrance was effected by crawling through a narrow crack in the rocks opening into a small passage, which evidently, in bygone days was the old bed of Cougar creek. Another and larger opening was discovered about midway to the cavern where the creek now drops from sight into a shallow hole. This entrance leads to passageways found to be rare specimens of nature's handiwork. They are water channels cut into solid rock, with many round pot-holes in the floors and along the sides. The characteristic water-carved walls of white and grey marble are everywhere to be seen. In many places, however, the change of the limestone into marble is not complete. The parts of the rock not fully changed stand out as little knots or lumps, while the marble between them has been dissolved and eroded to an unusual degree, thus giving the walls a strange and weird appearance.

Standing on a narrow ledge that overhangs a deep cavern of stygian darkness, the explorers were attracted by a subterranean waterfall heard roaring on the left. The rays of acetylene bicycle lamps disclosed the foam-flecked torrent tumbling down a steep incline until lost in

dense shadows. Overhead, fantastic spurs of rock reached out into the darkness and the entire surroundings were so unearthly and uncanny that it was easy to imagine Dante seated upon one of these spurs deriving impressions for his Inferno. As the brilliant light of magnesium wire went out the thick darkness was felt, and instinctively the explorer turned, half expecting to find Charon standing beside him. The subterranean stream, with its wild and magic confines, is strongly suggestive of the Styx, and incidentally supplied the name "Avernus" for the cavern of the waterfall.

The creek has a tortuous course under the bridge, the first portion of it being inaccessible because of the low roof, the last portion because of the deep water in the creek. In the 450 feet of its underground course the fall is only thirty feet, and by bridging the deep and swift portion of the creek, the party found it quite possible to form a continuous passage under the bridge. The exit of the creek at the east end of Gopher bridge is in a deep rock cut, only eight or ten feet wide, through which the stream races in a series of cascades and falls for a distance of about 350 feet. It has been named "The Flume" because of its resemblance to a millrace. At the lower end the creek again disappears below the surface of the valley and in a whirl of flying spray, and for 300 feet continues its underground course under the "Mill Bridge" series. This name was suggested by the roar of the water as it rushes underground through the choked entrance, resembling the noise made by the many swiftly revolving wheels and grinding gears of a big mill in full operation. About seventy feet farther east a larger opening was discovered which seemed to have been at one time the main entrance of the creek. Upon close examination, one of the explorers concluded that, as the rush of water cut deeper in the rock channel it took advantage of a handy crack and gradually carved out for itself the opening where the full volume now descends. (Concluded in next Magazine Section).

GOING BACK TO THE ROAD.

BY MARIE OSBORN.

The sun came up that morning attended by a radiant "dog," at which the wise-acres shook their heads. "Sign 'v storm," said Grandma Billington, as she came from across the way, with her shawl over her head, after a little sour milk "to wet up a few biskit," and borrow a "pinch of salaratus."

It was "give and take" with sour milk, or sweet either, for that matter. The ones who didn't happen to "hev" were made welcome by those who "hed," but "boughten things," from "the store" were borrowed and paid back.

Except in case of sickness it was seldom that anyone went calling in this primitive community. No one "entered." "Functions" were unknown. Now and then some woman would "send word" a day or two in advance, that she was "coming over to spend the afternoon." Sometimes two, seldom more, would go together. These were serious and ceremonious occasions, to be elaborately prepared for. The afternoon began at two o'clock and lasted till after supper. The supper, to which the husbands sometimes came, was usually something to invite dyspepsia or nightmare. Once in two or three years, perhaps, someone made a quilting. Then the gathering was at one o'clock.

The sociabilities were kept up mostly by "running in," when there was some errand. And what delightful seasons of friendly gossip, or harmful perhaps, when the gossip was unfriendly. That depended entirely upon the medium, the point of view, just as light is this color or that, according to the tint of the glass through which we see it. It had been known to take a thrifty housekeeper a full hour to borrow half a teacupful of molasses at seasons when the proverbial slowness of that semi-liquid was in no way responsible for the length of time consumed.

And there were those whom keen observers more than suspected of borrowing before they were "out," when some especially delectable morsel of news needed circulating, though this was not often self confessed. "I'm much obliged to you for the sour milk," said Grandmother Billington as she arose to go, adding with great frankness, "I ain't out o' wettn'." I saved up agin our cow should go dry, but its froze up so solid down in the well room I knew 'twould

take all day for it to thaw. Besides I wanted to find out how Anny's throat was whilst I could git here. She's fell away turrible. This bright sunshine's a weather breeder. The fire talked about snow last night. It'll be deeper 'fore it's lower. Tell Mr. Lee to come over. Grandfather's rheumatiz is dretful bad," and she closed the door and took her way across the snowy road.

"I remember her telling me once when I was there," said Anna to her mother, "that the fire 'talked about snow'. It was the funniest little fluttering, murmuring sound, quite unlike the common sound of burning. She says there always is a heavy storm directly after it. It is a little like the waves lapping the shore."

"Old people often speak of it," said Mrs. Lee. "The Billingtons are descended from the Pilgrims."

"Yes," returned Anna, "she told me once that her forefathers came over in the Mayflower, explaining that it was a good while ago."

"When I was young," said her mother, "Grandfather Billington's Aunt Polly lived with them. She was an old maid, and died nearly a hundred. I loved to hear her tell the stories of old times."

"I wish I could have heard them," said Anna, who was a teacher taking a sore-throat vacation, and interested in Pilgrims folk lore. Anna closed her eyes and wondered if the fire learned its stories in those times of the early settlements, when wood was more plentiful than anything else, and the homesick families used to sit about the wide fireplaces through the long winter evenings and talk in low tones of the life they had left beyond the seas, while there was mingled with their voices the sound of the storms raging on the bleak New England coast. But it told them no tales of the growth that was to rise and spread from their dreary planting.

Directly Mr. Lee came in with a "crick" in his back. "Just as I expected," said his wife, resignedly, "when I saw you and Sam go out with a crosscut saw!"

"Yes, I know it," answered Mr. Lee. "It nearly always gives it to me when I pull a saw but we couldn't seem to find anybody to help with the wood. Mebby 'twont last long."

"Maybe not," assented his capable wife, and then there was inaugurated a season of rubbing, and of hot-water fomentations, "stopping just short of the blister- (Continued on page 344).

FROM TEXAS

Some Coffee Facts From the Lone Star State.

From a beautiful farm down in Texas, where gushing springs unite to form babbling brooks that wind their sparkling way through flowery meads, comes a note of gratitude for delivery from the coffee habit.

"When my baby boy came to me five years ago, I began to drink Postum, having a feeling that it would be better for him and me than the old kind of drug-laden coffee. I was not disappointed in it, for it enabled me, a small delicate woman, to nurse a bouncing, healthy baby 14 months.

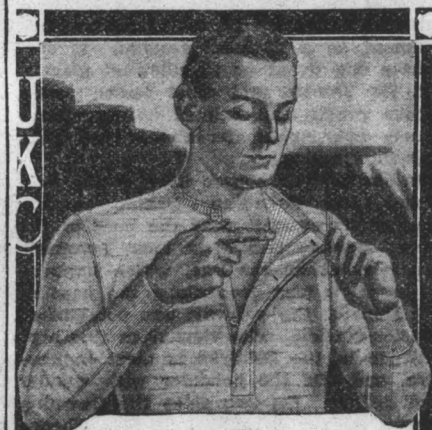
"I have since continued the use of Postum for I have grown fond of it, and have discovered to my joy that it has entirely relieved me of a bilious habit which used to prostrate me two or three times a year, causing much discomfort to my family and suffering to myself.

"My brother-in-law was cured of chronic constipation by leaving off coffee and using Postum. He has become even more fond of it than he was of the old coffee.

"In fact the entire family, from the latest arrival, (a 2-year-old who always calls for his 'potie' first thing in the morning), up to the head of the house, think there is no drink so good or so wholesome as Postum." Name given by Postum Co., Battle Creek, Mich.

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CURIOUS PUMPKINS—By W. R. GILBERT.

Many different kinds of pumpkins are cultivated, and these, together with melons, gourds, and bitter apples are the most curious representatives of the cucumber family. Some of these vegetables reach extraordinary dimensions. For example, there was exhibited, several years ago, an enormous specimen which was grown on the plains of Colorado. It measured not less than five feet in length and weighed 386 lbs. Other members of the same family grow into strange and picturesque shapes. Some resemble turbans or serpents, some are like the domes of mosques, and some even like the head-dresses at a carnival.

In France the seeds of the pumpkin are sown in April in a hotbed under glass; then they are thinned out and finally transplanted to a bed in the open air during the month of May. This operation necessitates several preliminaries. A few days before the final transplanting it is necessary to dig holes from four to six feet away from each other, according to the kind of seed planted. These holes are then filled with manure, to which a little potash has been added, and the whole is covered with good earth. When this is done a gourd seedling is planted in the middle of each hole, care being taken to cover it with earth as far as the first leaves. The plant must be watered frequently in order to facilitate growth, and if the heat of the sun is too strong it is covered with a little straw. In cold, frosty weather it is usual in France to place a hand-glass over each seedling. In hot weather the plants are watered more frequently.

When the gourd stems are about three feet in length they are layered, that is to say, pegged down so that they may take root. This method of procedure hastens the growth. As soon as a fruit forms, the extremity of the branch bearing it is cut off just above the next knot, and

the extraordinary number of excrescences covering the surface.

Square melons, also called Spanish artichokes, although they probably came originally from Mexico, are not the least curious specimens of the members of the cucumber family. Their color varies from yellow to green. Certain kinds are long in shape and of a yellowish green color. On seeing them one would be more inclined to think they were clubs belonging to old-time stave players at a fair rather than fruit. Portuguese gourds, too, with their reddish sides—do they not seem like the top of certain oriental mosques that a hurricane has hurled to the ground? These last two kinds of gourds demand more heat than the others; they are cultivated chiefly in the south of Europe and in the Antilles. Their surface is covered with a kind of powdery down, and the flesh, firm and not stringy, varying in color from pale yellow to blood red, possesses a more or less perfumed taste.

Even French gourds are seldom eaten in their natural condition. They are made into soup, with water or with milk, and thus prepared they form a very healthy food. Peasants in the south make pies and sweetmeats of them for their children; they also fry them as they would potatoes. In olden times they used to take the seeds out of a gourd and then dry it and serve it with different sauces. Roman slaves were thus fed. This practice has been kept up for a long while in Italy, and is still carried out in the neighborhood of Genoa.

In conclusion, let it be noted that the growers collect the seeds themselves each year, women breaking open the very hard skins of the gourds with a hammer to take out the seeds, while other workers cut the fruits into four parts and tear away the interior pulp. In Anjou an edible oil is extracted from the pulp, but



Field of Mammoth Pumpkins—What Huge Jack-o-lanterns They'll Make!

naturally it is taken off altogether if it seems misshapen. The market gardeners on the outskirts of Paris have learnt how to raise splendid gourds, and never allow more than one fruit to grow on one stalk. They cultivate all the edible varieties and even grow bitter apples, which are rather ornamental than otherwise when grown in gardens.

The different kinds of pumpkins grow in the shape of a more or less flattened sphere. The best known varieties are Mammoth pumpkins, which are of such an enormous size and such a well rounded appearance as to distinguish them from all others. The gourds called the Gardener's Favorite, or the Yellow Dutch, are cultivated exclusively in the surroundings of Paris. The flesh of this kind, from one to three inches thick, is found slightly sweet and of a beautiful orange yellow. Other kinds are the tea gourds of Etampes, and the grey gourds of Boulogne that are frequently seen in the kitchen gardens in the middle of France and which differ from the other kinds mentioned in the greenish grey tinge of the skin. The Turban pumpkins are remarkable on account of their shape. People say that the Turks have let fall their peculiar hats or head covering upon the field.

Among pumpkins with leaves bearing stiff and prickly hairs, ovoid or elliptical fruits are found of variable size and with or without longitudinal sides. One of the best known is the pumpkin of Touraine, with a smooth skin of pretty green color. There is a large pumpkin, whose diameter lengthwise often exceeds nineteen inches, which is chiefly noteworthy for

"She just loves—no, likes—pumpkin pies," put in Ernie, "and when she saw ours that we had for lunch today, she said so; an' she said 'Did we have pumpkins?' An' I said yes, an' she said, 'Couldn't we bring her a little one?' an' I said yes, we could if you'd let us," finished Ernie, breathlessly.

"Can we?" asked both boys at once.

"I'll see," said their mother.

After tea she spoke to Grandpa about sending a pumpkin to the boys' teacher, for the garden was Grandpa's especial care, and pride in its products was his greatest reward for his work therein. Grandpa could not understand, at first,

she still thanked every one as gratefully as possible.

While she and the children were eating their dinner Mr. Adams drove up and unloaded three more pumpkins, calling out as she appeared at the door: "The children were saying that you wanted some pumpkins for pie, and as I was driving over this way I brought along some. Entirely welcome—more than welcome," he declared, as he drove away, catching her stammered thanks. Three more out-of-town scholars brought each a pumpkin before night, making eighteen in all.

The next Monday Mrs. June brought Grandpa could not understand, at first, pumpkin pie for her lunch; but the little



The Serpent Variety—Clearly Not a Halloween Favorite.

what a school teacher could possibly want of a pumpkin; but mother explained that this school teacher was Mrs. June, a widow, who, with her two children, had rooms in the Widow Brown's house and "boarded themselves." Then Grandpa said "Why, certainly! Send her two or three—pick out good ones, too."

The next day was Saturday, and thinking that Mrs. June would probably wish to do her baking on that day, for the next week, Mrs. Dorrance selected a fine, large pumpkin and dispatched Jimmie and Ernie with it to Mrs. June's rooms, with Grandpa's compliments, quite early in the morning.

Jimmie and Ernie Dorrance lived half a mile from Mrs. Brown's cottage, and between was the home of the Jones children. Willie Jones was hanging over the gate when the Dorrance boys came past with the pumpkin in their little express wagon, and he called out, "Where you goin' with that pumpkin?"

"To the teacher," answered Jimmie briefly.

"Oh, yes!" said Willie, "I heard her say she wanted a pumpkin, an' I meant to take her one, an' I forgot."

Mrs. June was apparently much pleased with the gift and insisted upon giving each of the boys a warm cookie. When they reached home again their mother asked, "What did Mrs. June say to you?"

"I couldn't 'member what Grandpa sent 'sides the pumpkin, but she said she was awful welcome, an' made us take some cookies," said Ernie.

Mrs. June began at once cutting the pumpkin for stewing, in order to convert it into pies as soon as possible. She was soon interrupted by another rap at the door, and, upon opening it, found Willie Jones with another pumpkin. She accepted it, thanking him cordially, and also presented him with a big round cookie. A little later the Harris boys brought another pumpkin; then the Gregg children brought two more; and before noon Mrs. June had twelve fine pumpkins. She had discontinued the offering of cookies as a reward for each gift, but

givers had heard of her oversupply of pumpkins, and hardly knew whether to expect praise or blame for their generosity. Mrs. June took occasion, early in the day, to thank them generally, for their kindness in acting so promptly upon her request, assuring them that she had double cause for thankfulness, both for the practical good the pumpkins would do her and Mrs. Brown, who had offered to dry and otherwise preserve them for winter use for both, and quite as much for the knowledge she had gained of the number of kind, thoughtful friends which she possessed. Then she invited all the school to a Halloween party, at her rooms, where she and Mrs. Brown would try to give everyone who came a good time.

Of course, every scholar of them accepted the invitation, and it was to them all the event of the season. Long it furnished a gratifying topic of conversation; and always the rehearsal of the delights of Mrs. June's Halloween party ended with, "And didn't we eat a lot of pumpkin pie!"

A HALLOWEEN PARTY FOR THE LITTLE FOLKS.

BY MARY MASON WRIGHT.

The younger children will enjoy a Halloween party just as much as their older brothers and sisters, but the games and refreshments should be more simple, and it is best to omit the weird and uncanny features that are usually found in connection with Halloween parties for older folks. The invitations can be sent out in the shells of English walnuts, from which the meats have been removed; these can be glued together, or tied together with baby ribbon and finished with a pretty little bow, the ribbon being kept in place with a little mucilage.

Decorate the rooms with branches of autumn leaves, festoons of nuts, and plenty of Jack-o-lanterns of all sizes: of the last named there should be no two alike, so that the children may readily recognize Peter Piper, Simple Simon, Jack Horner, Old King Cole and other familiar characters. Also have a few lanterns made out of odd-shaped squashes, large ripe cucumbers, and large red apples. Have a pumpkin man in one corner of the room made by using a small Jack-o-lantern for the head, a ripe cucumber for the neck, and a very large pumpkin for the body. Paint on this a bright green waistcoat with black buttons. Long squashes can be used for the legs, or sticks can be used incased in crepe paper trousers, and sticks for the arms with sleeves made of green paper. The trousers can be red. Place a jaunty red cap on Mr. Pumpkin's head, and he is ready to receive the guests with a broad smile.

Supply a table with vegetables and fruit of various kinds, washed until they shine, nuts of different varieties, also toothpicks and pins, and let the children make men and animals. It is wonderful what possibilities are in these simple materials for the children, and what comical and striking beings can be evolved from them. A tall, thin man can be made from rad-

THE TEACHER'S PUMPKIN PIE.

BY GERTRUDE K. LAMBERT.

"Oh, mama!" said Jimmie Dorrance, laying down his knife and fork and looking across the table at his mother, "Our teacher wants a pumpkin."

"A what?" asked his mother.

"A pumpkin—she wants a pumpkin."

"What in the world does she want of a pumpkin?"

"To make pies of," explained Jimmie.



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ishes, parsnips or carrots; or an apple can be used for the head, a turnip for the body, and carrots or parsnips for the legs. An Indian can be evolved by using an onion with a top for the head, a turnip for the body and carrots for the legs. A fine Chinaman can be made from mandarin oranges, and queer animals can be made as well as men. There are also great possibilities in nuts, since owls and odd men can be made with peanuts; fish and ducks with almonds; pigs with pecans, and little baskets and sailboats with English walnuts. Give a prize for the most real looking animal or man, and one for the most grotesque object.

A game which nearly all children will enjoy is played by placing in the center of the room a large pumpkin which has been hollowed out, with an opening in the top. Let the children try throwing a ball into the pumpkin through this opening, standing a certain distance from it. Give each one so many trials, and the one who succeeds in getting the ball into the pumpkin the greatest number of times is considered the winner and should be given some simple prize, such as a little pumpkin filled with bon-bons.

Nearly all children like a hunt of some kind, and a nut hunt is especially appropriate for Halloween. Give each child a number, then paste numbers on the nuts, allowing at least six nuts for each child. Hide these nuts about the rooms and let each child hunt for his number. Tiny baskets should be provided for gathering them in. Have one nut among the lot collected by each child contain some little toy or trinket.

For the centerpiece for the table have a pumpkin receptacle filled with golden-rod or yellow chrysanthemums, or else a mound of red and yellow apples. Unique place cards can be made by mounting pumpkin seeds on cards which have been decorated with queer little faces done in ink. The favors should be gingerbread men. Cookies decorated with faces will please the children, putting on eyes, nose, mouth and hair with chocolate; also frosted cookies with the names of the guests put on in pink icing or red candies.

The ice cream can be served in little pumpkin receptacles, or in little baskets. The sandwiches should be cut in fancy shapes, or rolled up and tied with yellow ribbon. There should be a ball of popcorn for each guest.

AN OPPORTUNITY FOR FARM BOYS.

The season is at hand when preparations are being made by trappers for the taking of the season's catch of fur-bearing animals. This proves a profitable industry for many men are making it a specialty. It is, however, stated by one of the leading fur dealers that a very large percentage of their shipments come from those who take up hunting and trapping as a winter sport and thousands of dollars are made annually in this manner.

Many a farm boy could earn considerable pocket-money by doing a little trapping on his own account during the winter season, and owing to the increased demand for furs of all kinds, prices for pelts are much higher than for many years, which adds to the opportunity of the farm boy who may not be as skilled in the business of trapping as the expert who follows it as a profession. However, the boy who studies this problem and carefully observes the habits of animals, which he seeks to catch, will soon develop into an expert himself. It is not too early to be considering means of profitable winter employment and this opportunity is one which should not be neglected when the subject is being considered.

WHEN THE CORN IS IN THE SHOCK.

BY MILLIE GRISWOLD REILEY.

When the corn is in the shock,
And the pumpkins, lying 'round,
Scattered here and there amongst it,
Dot with color all the ground;
When the cellar's full of apples,
Other fruits—a goodly stock,
There's a feeling of contentment
When the corn is in the shock.

When the wheat is in the granary
With great bins of oats and rye,
And the silo's nearly bursting
And the hay is stacked up high;
Though the birds begin to migrate,
Every now and then a flock,
Still there is the old contentment
When the corn is in the shock.

When the nights are clear as crystal
And the days are growing brief,
With a gust of wind or rainfall
Sent from heaven for our relief,
We begin to think of winter,
And Jack Frost is right on dock,
But we do not fear his coming
For the corn is in the shock.

GOING BACK TO THE ROAD.

(Continued from page 342).

ing point," Mr. Lee declared. The external treatment was assisted by a bowlful of something for the inner man, the active principle of which, judging by the taste, was equal portions of wormwood and cayenne pepper. Mr. Lee submitted patiently, if not thankfully, to these attentions, even to being set behind the stove to "cool off so he wouldn't catch cold."

"Now, father, if you can have faith you will be well," said Anna.

"I don't care whether he has any faith or not," protested her mother. "If you're sick you need doctoring. Thinking you're well, nor taking a teaspoonful of cold water once an hour, won't make you well." And to the credit of her system be it said that at dinner time her patient was able to stand nearly erect, and at night was quite himself again.

By noon the sun was obscured, and at two o'clock the air was filled with flying snow. Apparently it all stayed in the air, for it seemed to be swept horizontally by the force of the wind, which tore at the branches of the trees and battled with them, while it raved and stormed at every solid object as if the snow did not provide half enough resistance to its strength and fury. Albeit an hour later Mrs. Lee said, "I declare for it if there isn't a drift between the kitchen window and the garden fence that I don't believe a team of horses could go through. It hasn't been so deep there this winter."

When evening came Mr. Lee said: "My back feels pretty well again, so I guess I'll go over and read the paper to Grandfather Billington, and see how the old couple are in this storm."

When he had been gone an hour they were surprised to hear steps on the porch; all wondered that he was back so soon, for reading the paper to Grandfather Billington was well known to be only a pretext, as the evening was always spent in a very little reading and a large amount of talking politics, beginning with Whigs and Tories and ventilating every party and measure clear down to the present administration, as if the fate of the nation depended upon their opinions.

The family were still more surprised when the footsteps were followed by a rap, for surely nothing but necessity would bring anyone out on such a night as this. Mrs. Lee, being nearest, opened the door and found standing there a stranger, ragged, dirty and shivering, his lower garments stiff with frozen snow.

"Can I get a night's lodging?" he asked, hesitatingly. "I've no money. I'm broke."

"I don't see how we can take him in," objected Anna, who had a constitutional fear of tramps, as well as dislike, owing to some unpleasant experiences with "remains," after entertaining those who proved to have been not at all like angels.

"I've been turned away a good deal," said the man with a hopeless air.

"A pretty tough night to send anyone out," remarked Sam from behind his newspaper. Sam was Mr. Lee's nephew and helper, and having once taken a rather long trip in midwinter with a friend in a wagon, he knew better than Anna the misery of being refused admittance to a house.

"You may stay," said Mrs. Lee. "There's a broom in the corner to sweep off the snow with."


She closed the door, and it was so long before he came in that they began to think he had gone on. Presently he re-appeared, and then they saw that he had no overcoat, his trousers were worn to a deep fringe at the bottom, and his feet were covered, but not protected, by worn shoes and arctics. Mrs. Lee gave him a seat by the fire and warmed some beef soup for his supper, while Sam, by way of being hospitable, plied him with questions as to where he came from, where he was going, and the object of his journey.

He claimed New York city as his home and professed to have left there in consequence of some misleading advertisements of work in the west. He had followed one will-o-the-wisp after another, finding now and then a few days' employment, and was trying to make his way back to New York.

"Did you ever use a crosscut saw?" asked Sam.

"Yes, a little," he answered. "I could have got a job sawing yesterday if I had had a partner, but there was no one to saw with me."

"We need someone to saw," said Sam, "so maybe we can give you a few days' work if you want."



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After being fed and warmed he was shown to a bed, and Sam brought down his clothes to be dried through the night.

"If he's good for anything we'll keep him a few days," commented Mr. Lee when informed of his coming. That he should be there was a matter of no surprise to him, for Anna had been known to declare that "Father never would refuse anybody, and we might just as well have a sign of 'Tramp Hotel' on the front of the house." "I guess you're in their good books all right," Sam would answer consolingly.

The next day the man went with Sam to saw wood. The storm had spent itself in the one day and night and gone rushing away on its mission, which was to spread discomfort as far and wide as possible. There were deep drifts, however, in the lane that led to the woodlot. Sam was dressed suitably for such exposure, but Frank—Frank Dalley was the name he gave—by night was wet to the hips. Mrs. Lee ransacked Sam's wardrobe and appropriated a pair of overalls. To the bottom of these she sewed straps to go under his feet, and then by tying them down around his ankles with strings his limbs were kept comfortably dry. As his atmosphere was somewhat malodorous, Mrs. Lee gave him a rocking chair near the kitchen stove, with a table and lamp on the other hand, and here he read most of the papers and some books.

After a day or two Sam asked him what wages he wanted.

"I'm not very particular," he replied. "I'd rather work than be tramping;" so day after day he kept diligently at work. He never arose until daylight, about the time breakfast was ready, and always came into the house as soon as it was dusk. At first he was very awkward with an axe, and his blows were like a child's, but gradually practice made him more skillful.

He was rather slight in build, and below medium height. His hair, though fine and thin, was straight and black at an Indian's. His features were rather sharp. His voice was low and he used good language, with a slightly foreign accent. He seldom spoke voluntarily, but his few remarks were sensible and to the point. No one could decide his nationality, either from looks or speech, though, after the rural fashion of finding diversion in trifles, the family often speculated upon it, trying by this sign or that to locate the place of his nativity.

With the idea that he possibly was not one to make good use of money, Mr. Lee, from time to time, when business called him to their market town, brought home to him foot and hand wear, underwear, new overalls, and after about six weeks an entire new suit of dark clothes. On each occasion Frank accepted the articles given him with a quietly spoken "thanks," and wore them as necessity required.

The trousers which he was wearing when he came, besides the dirt and fringe, were now further embellished with a large three-cornered tear on the knee. Mrs. Lee pronounced them "not worth washing and mending," and they were left hanging in his room, he meanwhile making use of the new ones.

After a pretty general change had been made in his clothing, assisted by a bath, Mrs. Lee had invited him to come into the sitting room, but he declined, saying that he was out of the way in his corner. He was well read for one in his position, and had a quiet dignity which won respect. He seemed retiring in disposition, and apparently rather gloomy. "No," he said on one occasion in reply to some bantering remark from Sam, "I never went in company much. It's no good to go if the girls don't like you." He gave his age as thirty-five, said his mother had been burned to death in a kerosene lamp accident, and that he never had been home much after his father's second marriage.

No word further had ever been said about wages. Week followed week until ten had slipped by since the wild night when he first sought the shelter of Mr. Lee's hospitable roof.

Anna, who had finished her winter term and was well begun with the spring, had long been reconciled to Frank as a member of the household and was about persuaded that they probably would not have to be applying insecticides to his room once a week all through the summer.

Mr. Lee, with another pair of willing hands always ready to do their part, had not found it necessary to tempt a return of his "crick." "Frank is attentive and faithful as the day is long," he said at one time. "After I have told

him how to do a thing once, I never have to watch it any more. He will do it just the same every time. For any work that he has done so far, he is one of the best men I ever had, but there must be a screw loose somewhere or he never would be a tramp."

It began to look as if Frank might be what Florence Dombey's nurse called a "permanency," in the Lee home. Even Grandmother Billington had ceased to wonder "what the feller was anyhow."

The snow was gone and the lengthening days were growing more spring like, when one Sunday morning Frank asked the way to the church. Mr. Lee directed him, but added that if he wanted to go he could have a horse and buggy and drive down. He said he "wanted to take a walk anyway," and started in the direction of the church, wearing his entire suit of new clothes.

He returned early in the afternoon, saying he went to the church but not inside. He seemed less sociable than usual the rest of the day, not replying to any remarks addressed to him as cordially as was his wont. Monday morning while at his work he kept looking across the fields to the road which ran past the farm.

"What are you looking for?" asked Sam.

"I dursn't tell you," answered Frank, "for fear you'd 'jump your job.'"

After working about half an hour longer he laid down the fork which he was using and said, "I believe I'll 'pack my freight,'" then he started toward the house. On the way he passed through the barn where Mr. Lee was feeding his sheep; he stopped a moment to say to him, "I'm going to 'pack my freight.'"

Mr. Lee, after puzzling a little over his meaning, answered, "Just as you like, but you needn't go till you get ready. I'll be in the house in a minute."

As Mr. Lee went through the room where his wife was he remarked, "Frank says he's going to leave."

"How much money does he want?" asked Mrs. Lee.

"He hasn't asked for any," returned her husband, "but I'm going to give him some," and taking a bill from his desk he went upstairs where Frank was already. Finding him arrayed in the respectable garments in which he first appeared, he said in surprise: "Why, Frank, are you going to wear the old clothes and carry the new ones?"

"I'm not going to take the new ones," returned Frank, quietly.

"Why not?" asked Mr. Lee. "I want you to take them, and here is some money for you."

"I don't want it," stolidly replied Frank, and started down stairs, leaving clothing and money lying on his bed.

Mr. Lee followed him, saying, "Why, Frank, I don't want you to go this way; I want you to take what belongs to you."

"You wouldn't want me to take them if I didn't think it was right, would you?" asked Frank with some show of temper.

"No," replied Mr. Lee, "but I think it is right. You've earned them, and they are yours."

"I've tried to do the best I could for you," observed Frank, rather irrelevantly, as Mr. Lee thought. However, he answered: "I'm perfectly satisfied with what you've done. I'm not finding any fault."

"Neither am I," retorted Frank, and he started down the road with no more ceremony, leaving the family feeling as if someone had struck them, and with a riddle on their hands that they have never been able to read.

"Never had a word with him while he was here," said Mr. Lee as he watched him turn the corner, "and I can't understand it."

Anna suggested that if "tramping" was his profession, he might have felt that he could better sustain the character in the old clothes.

"That needn't have hindered his taking the money," answered her mother.

About noon it turned colder and one of our cheerful spring blizzards set in. A neighbor who stopped on his way home from town said he "hadn't suffered so from cold all winter."

"Well," said Sam that evening, as the wind was howling and the storm trying to beat its way through the kitchen window, "I wonder if Frank doesn't wish he was here in his rocking chair. Blamed if his corner don't look lonesome."

"I hope he's comfortable, somewhere," said Mrs. Lee. "The warm days called him too early."

"He'll be back agin come fall," prophesied Grandmother Billington. But he never came back.

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Woman and Her Needs

At Home and Elsewhere



Why Young Women Dislike Housework.

THE growing distaste of women for housework has for some time back been a source of alarm to those who are watching the trend of things. Scarce a public speaker or writer but has touched on the subject, and if we are to believe these savants, scarce a woman exists who really loves this, her natural vocation. Among the younger women especially is this true, the women who have married, say, in the last decade.

And great are the crimes which are laid at the door of this abnormal (?) tendency. Indeed, not a few philosophers charge that nine-tenths of the divorces in America may be traced to bad cooking, which again is directly traceable to woman's dislike to work with her hands in her own home.

Where there is much smoke, there must be fire, runs the old saying. So we must admit there is something in this charge that women are turning with disgust from housekeeping to other lines of work, or to idleness if they are so situated as to make idleness possible. Ask your acquaintances who are housekeepers if they like their work, the baking and brewing, washing, ironing and mending, and the thousand and one tasks which are grouped under the general term, housework, and probably only one out of ten among the younger women will give you an affirmative answer. If you turn to the older women a larger percentage will honestly say they enjoy their work, and know of nothing they would rather do.

It is the young women, then, who are the sinners, and why? Why is it our American girls dislike housework and would rather work in sweatshops or stuffy offices than in a kitchen? Whose is the fault? Three are to blame equally, the mother and the writers and publishers of modern fiction.

Among my acquaintances are many mothers of growing daughters. With one exception money is not plentiful in any of these homes. There is enough, by stretching it, to pay expenses and put a little by, but there is none to squander, and yet not one of those daughters ever so much as washes a dish. The mothers work hard, usually far beyond their strength, the daughters are old enough to be of a great deal of help, yet they are never set to work at a single household task. And for this lamentable wrong there are many excuses. "Mary works hard enough in school," "Mary can't wash dishes, it would make her fingers too stiff for the piano," "Mary needs the time for study," "Mary needs the time for play," and, most pitiful of all reasons, "None of Mary's friends do housework." The girls in her set would cut her if they knew she had to work."

So Mary is not only allowed to grow up with no knowledge of housework, she is encouraged to think that some sort of stigma attaches to dishwashing and cooking. The probabilities are that if Mary ever marries, she will wed a man without money and have to learn at that late day the things she should grow into as unconsciously as she does into truth-telling. But the eyes of the mothers are hidden so they can not see, and the daughters go on to join the multitude of young married women who "just hate housework."

And why blame the writers and publishers for this nation-wide affliction? Because they join with the mothers in putting housework under the ban. The average novel and short story deals only with heroines who toil not nor spin. Lady's maids, butlers, housemaids, and servants appear, but only as minor incidents, and as creatures of different blood from the lovely heroine. The real center of the stage is held by a woman who never does anything more menial than pour a cup of tea, the while she archly assures the hero, or villain, whichever is due to appear, that she never remembers whether he takes one or two lumps. If

a servant appears she is placed in the light of a clown or assistant to the villain. Housemaids are never painted as intelligent, dignified women.

Books for girls are little better. If the book deals with school days, it is always a select, private school which is pictured, where the girls have wealthy parents or guardians, and where their lily white hands are never soiled with kitchen work. We never hear of the girl in public school

who hurries home at night to take care of the children while her mother goes shopping, or to get supper for her father and a hungry brood.

It would be well for those magazine editors who run editorials monthly bewailing the fact that American women refuse to do their natural work, to scan their fiction honestly. Example has more weight than precept, and it will do no good to preach to women of their duty, while the ideal creatures held up to them in stories are always ringing for the maid.

DEBORAH.

Really, it isn't any more trouble to cook French fried potatoes than the pretended German fry you find on the breakfast table of so many workingmen and in restaurants and cheaper hotels every morning, and the breakfast would be infinitely more appetizing and enjoyable if the intelligent housekeeper would serve them far oftener than she does, both for breakfast and dinner. It would be much better if the housekeeper cooked only enough potatoes for dinner each day for that meal, had none left over to be warmed for breakfast and eaten in order to "save" them.

French Fried Potatoes.

To cook French fry take raw potatoes of uniform size, not too large. Let them be smooth, straight and say about one and one-half to two and one-half inches long, and about half as thick as long. Wash, peel and cut lengthwise in slices about a quarter of an inch thick, that is, if small and slender, cut them in quarters, or each half into three slices, making six in all, but if larger cut into eight, ten or twelve slices. It is best to let the slices remain in cold water an hour or so, then take out and dry on a clean white cloth, but where they are to be served for breakfast this may be dispensed with. Simply put them immediately into clear, bubbling hot lard.

Before they are quite done, and for the purpose of making them puff out their sides, lift them out a moment and drain, then return them to the lard and fry until done, a bright orange yellow, or a shade less yellow. They should be neither too pale nor too brown. Sprinkle a very little salt and pepper over them immediately after taking out of the hot grease, and serve at once. French fried potatoes are best when served immediately upon being cooked, when they are hot and crisp, but anyway they should be served within an hour after being cooked, and should be kept hot in the meantime.

The best utensils for cooking French fried potatoes are a large, deep, bright frying pan, with a woven wire potato holder the shape of the frying pan, and just large enough to fit inside of it, without quite touching the bottom, with a long wire handle, and with hooks at the top edge of the holder to catch on the top edge of the pan. In this way the potatoes are kept off the bottom of the pan, and do not become soiled. The grease should be clear, bubbling hot when the potatoes are put in, so as to sear over the outside and prevent the escape of the potatoes' flavor and also to prevent too much of the grease from striking in. Put a handful or two of the slices (not enough to lower the temperature of the grease too much), into this wire holder and lay in the pan of bubbling grease, when they will cook in three or four minutes. This grease should be strained every two or three days through a clean, finely woven cloth.

Another convenient vessel is a pan four or five inches high, to set back on the stove where the heat is not so great, with a deep tin vessel having a rounded, perforated bottom, and with hooks at the top to catch upon the top edge of the deep pan, this perforated vessel to hold the potatoes as they are cooked, when the grease will drain off through the holes in the bottom into the pan underneath. If the potatoes are put into a pan or dish where the grease gathers on the bottom they will soon become saturated with it, and be heavy and sodden with grease. Every good hardware store sells such vessels.

With these fixtures the potatoes may be cooked as required, starting the meal with only a few, for if the grease is kept as hot as it should be they can be cooked in three or four minutes, and will be much hotter, fresher, more crisp and delicious. This is the way French fry is cooked in the greatest hotels in the land.

Care must be used to see that the grease doesn't scorch, for then it will give the potatoes a dark, dirty look, and will have to be thrown away. For this reason a good coal or wood stove is far preferable to a gas stove for cooking

Women Who Are Doing Things—No. 3.

[Charlotte Perkins Gilman.

WE are apt to connect the term "Woman Suffragist" with a mental picture of a female who scorns feminine occupations and devotes her time to the "cause," to the neglect of all else. When the suffragist is also a lecturer and a writer of deep and weighty magazine articles all bearing directly on woman's questions, we are doubly sure she can have no strictly frivolous occupations.

Imagine our surprise, then, to learn that Charlotte Perkins Gilman can cook as well as talk, and thinks it not beneath her dignity to design and fit her own clothes. Add to this the fact that she draws and colors exquisitely, and you get a new idea of this woman who is certainly "doing things."

Mrs. Gilman's name is known to every reader of magazines, for it appears in practically all of the best. Just to show the sort of things she writes about, here are the titles of a few of her articles: "Children's Clothing," "Irresponsible Nursemaid," "Naughtiness in Our Children," "Child Labor in the Schools," "Pets and Children," "Race Improve-

litical Science, American Sociological Association, and the League for Political Education.

As a platform speaker Mrs. Gilman is more of a conversationalist than an orator. She speaks with much deliberation and handles her subject exhaustively, enlivening it with flashes of quaint humor. She is tall, dark and slender and a very quiet dresser.

THE MUCH ABUSED AND MISUSED POTATO.

BY ISAAC NOTES.

No other vegetable served upon the table in the American home is subjected to such poor cooking as this good old stand-by, indispensable alike to the table of the workingman, the tradesman and the professional man. The way it is too often served for breakfast in the average hotel and restaurant, and in the home of the poor and the middle classes, is almost revolting when we consider how well it might be cooked, with no more trouble or thought, for if you learn to do a thing right it takes no more mental energy to do it that way than to do it the wrong way.

It is always the left-over potatoes, cooked the next morning for breakfast, which are subjected to such poor cooking. In 19 cases out of 20 they are stale, tasteless, without seasoning, and almost unfit to eat, considering that they could so easily be made into excellent dishes, and considering, too, how fine and mealy they were the day before when freshly boiled or steamed. When put into hash the proportion of potato to meat is ten times too large, and the meat often nothing but gristle.

In the homes of poor workingmen these cold boiled potatoes are put into a frying pan and heated, often without the addition of any lard or butter, and called German fried potatoes, when there's no resemblance whatever to German fry. When a frying pan full of potatoes are cooked at once they cannot be browned nicely. They can only be heated. Or they may be made into soggy, tasteless, flat, unsalted and unseasoned cakes, with no grease in them except on the outside, what little attaches to them from the frying or heating in the greasy pan, with the middles as unpalatable as so much ground up rotten wood. Many times leftover potatoes are served for breakfast when they should be thrown away, but the wife doesn't know that they are unfit for food, or else she is unwisely economical and wants to utilize them.

In the homes of the average workingman, and even those making from \$100 to \$150 a month, not one housewife out of a hundred cooks French fried potatoes. It is, always boiled or mashed potatoes for dinner, and these warmed over, hashed or imitation German fry for breakfast and luncheon the next day. They say it is too much trouble to cook French fry. The real reason doubtless is that these housekeepers do not know how to cook French fried potatoes easily, quickly and conveniently, but a still better reason is that they have cold boiled or mashed potatoes left over from the previous day, and economy impels the housekeeper to utilize them warmed over for breakfast.



Charlotte Perkins Gilman.

ments," "New Home Conditions React Upon the Family," "What Are Women Anyway?" "Five Kinds of Love," "Suggestions of the Negro Problem." A book from her pen has also recently been issued, "What Diantha Did."

Mrs. Gilman is the daughter of Frederick Beecher Perkins, the great granddaughter of Lyman Beecher, and the wife of George H. Gilman, of New York, whom she married in 1900. She began lecturing on ethics, economics and social conditions in 1890, and has always been identified with labor problems and the movement for the advance of women. She lectured in Europe in 1896 and again in 1899 and 1905. She is a prolific writer, not only of serious articles and stories, but also of verse. Since 1909 she has been the editor of the *Forerunner*.

Among the societies to which she belongs are the American Academy of Po-

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BIG CATALOG FREE

these potatoes, for gas makes such a hot fire that the grease burns before you know it.

German Fry.

If you have some boiled potatoes left over from the previous day and want to make German fry, cut the potatoes into even slices crossways of the potato, about one-fifth of an inch thick, and brown them nicely on both sides in a large, bright, flat-bottomed frying pan slightly greased with butter, lard or clear bacon grease, cooking only one layer over the bottom at a time, and turning them once or twice as you would a steak or a chop, in order to brown both sides, salting and peppering them a little while cooking. It is absurd to think of browning a whole frying pan full of potatoes at one time, and calling them German fry. The bottom of the pan should be hissing hot when the potatoes are put in, but not smoking. German fry is best made from potatoes which have been boiled specially for this purpose, with their jackets on. If any of the potatoes break or crumble in slicing, use them for hash, to be made of equal portions of good lean meat and potatoes.

THE MATTER OF CHILDREN'S DRESS.

BY ELLA E. ROCKWOOD.

PARENTS owe it to their offspring to dress them in proportion to their means. I do not advocate dressing children other than simply, and overdressing is both vulgar and in poor taste. Yet, to be well and suitably clothed means more to a child than might at first thought be imagined.

Pretty and neat frocks for little girls need not be expensive either in material or in making. For school wear in winter some soft cloth of pretty color has the advantage of not showing dirt and does not require doing up. Aprons may be worn over such a frock, indeed, they are quite necessary.

Little boys' suits are very cheap these days. A little money buys a serviceable suit. Yet, with a ten-cent pattern a good suit can be made out of a man's discarded coat, dyeing it if necessary. Usually all that will be required is to turn the goods.

To be well clad gives a most comfortable feeling to an adult, why not to a child? Never let the boy or girl get the impression that anything is good enough to insist upon personal neatness and care of all clothing. That will be a help to them all their lives. To compel a child to wear shabby clothes when there is no necessity for so doing is cruel and makes them a target for ill-natured remarks from their mates. Self-respect is a virtue and has no kinship with vanity. This virtue is largely dependent upon so-called a matter as clothes. Is this not true?

IMPROMPTU REFRESHMENTS.

BY MRS. FRED NISEWANGER.

A couple of afternoons ago, a telephone message informed me that half-a-dozen young people would drop in to spend the evening with us: "Just after supper, you know, and not to make any trouble." But a hostess feels that an evening of music and games should be supplemented by light refreshments, particularly when guests drive out in the winter, but—the time was short and the cake box contained only a little more than enough for the family supper.

A brief review, however, demonstrated that a satisfactory little lunch could be prepared without much trouble. Sandwiches, pickles, chocolate and three kinds of cake were decided on while the fire was being started.

There was not time for the mixing of three elaborate cakes, but the old standby was called into use after this fashion while the oven was heating: Three cups of sugar and three large tablespoonfuls of butter were creamed together in a large crock. To these were added three well-beaten eggs, three cups of milk, and six cups of sifted flour, into each of which a small teaspoonful of baking powder had been mixed. Eighteen patty cake tins were first filled, then a sheet of the batter was spread in a very large bread tin (to make layer cake) and to the remainder fruit and spices were added, this being turned into a granite basin to bake.

The materials for a favorite boiled icing were then put in a skillet and set on the range: Three cups of granulated sugar, with a tablespoonful of corn starch mixed in to prevent graining, and 15 tablespoonfuls of milk. Boil till it hairs, cool and beat till white and creamy.

While the cakes were baking, sand-

wiches and chocolate were made and put in the fireless cooker—the chocolate to keep hot and the sandwiches to keep cool and moist.

There wasn't an abundance of boiled ham for the sandwiches, so it was run through the food chopper, some cracker crumbs were added, the whole seasoned with celery salt and pepper, moistened with rich cream and spread on thin slices of buttered bread cut in various fancy shapes with cookie cutters.

The patty cakes were sprinkled with "cake candy" after being iced; icing for the layer cake was colored pink with red sugar dissolved in a little milk and sprinkled with cocoanut; grated chocolate made the icing for the fruit cake brown.

About ten o'clock, plates containing a sandwich, mixed pickles, fork and napkins were passed, followed by the three little girls with plates of patty cakes, slices of layer cake and wedges of fruit cake, and mother with a tray of hot chocolate.

BURY YOUR BULBS IN SAND.

BY LALIA MITCHELL.

After bulbs have bloomed, the bed in which they grew is often wanted for other plants, and yet the gardener is unwilling to throw them away, with the prospect of buying new in the fall. Some cover the bed with several inches of loam and then sow seeds or set plants over the tops of the bulbs. This is seldom satisfactory, however, as the roots are disturbed when the soil is removed, or else they are buried so deeply that they will not blossom the coming spring.

A better way is to put a load of sand in some shady place in the back garden. As soon as the bulbs have bloomed lift them very carefully and put in a cool shaded place to dry out. Direct sunshine injures their vitality. As soon as all the little roots are thoroughly dry, bury them in the bottom of the sand heap, being careful that they are not close enough to touch each other. When fall comes, dig them out and set them in their beds, confident that the bloom of the second spring will be even finer than that of the first.

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No. 4845—Children's Dress. Cut in sizes ½ to 5 years. For 3 years size it requires 1½ yards of 36-inch material. Price, 10 cents.

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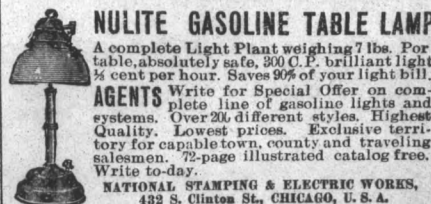
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THE MOTHER'S OPPORTUNITY.

BY A. W. S.

As I sit on the porch this bright autumn morning and watch the merry youngsters go trooping by to school with books and dinner pails I fall to wondering if many mothers realize the great and blessed opportunity that comes to them in school days for influencing the lives, and making lasting impressions upon the hearts of their children.

As I look back upon my own childhood, the mornings when I started for school, and the evening's return to the dear shelter of home, stand out with peculiar vividness. I have only to close my eyes to outer things and I can hear my mother's loving words of farewell and admonition, as I set out for school in the sweet summer mornings, and can see her dear face light up with a smile of welcome when we came home at night.

Mothers are busy people and the morning hours, especially on the farm, are filled to overflowing, and with the added tasks of filling the lunch boxes and making the children tidy there is surely scant time for sentiment, but mothers, let us learn to put first things first, at any cost. And I adjure you not to send your little ones from you with frowns and unkind words. Rather let them carry each morning to their day's work in school the memory of mother's loving tones in council and farewell, and the sweet assurance that her loving thought will follow them through the day.

And then at night, when the noisy little troop return to you, is your golden opportunity for writing ineffable lessons upon the tablet of your children's hearts; lessons that they will read from memory's page long after your voice is still; lessons that will endear their childhood's home to them in such a way that its memory will be to them a tower of strength in the temptations that will surely come with mature years.

Children, like plants, thrive best in the sunshine. They have been away from you all day, and the average child is eager to be at home again when school is out; but the day has been a trying one for mother, your hands and feet are weary, your heart is burdened with thoughts of unfinished tasks, and I fear that sometimes when the little homecomers rush breezily in they are made to feel and are told by her who loves them best, that their presence is not an unmixed joy, and that they are intruders in their own home. But weary mother, forbear! Do not dampen your child's eager joy in his homecoming. It may cost you some effort, but it will repay you well in future years, to greet them with loving smiles and words of welcome, to assure them once more of your joy in having them at home. (For you really do feel thus, only you are tired and burdened).

When the children come from school their hearts are especially susceptible to the influences of the home, and each night a new opportunity is given you, mothers, to forge with stronger links the chain that binds their hearts to you, and to their childhood home.

Schooldays will soon be over. All too soon, since the dear children drift away from you out into the busy world. Mothers, do not slight or neglect your blessed opportunity; and, too, now is the best time to win their confidence and gain a knowledge of things that perplex and trouble them, for children have their troubles.

While they are flushed with joy of home-coming and of seeing mother after the day's separation, you can perhaps enter into their heart life, as you cannot at another time, and you will sorely need this bond of sympathy, this confidence when the world begins to attract your child from you and from his home. Then, mothers, let us be wise and make the most of the opportunity that comes with the school days, to endear home to our children and to write lessons of love and hallowed associations upon their hearts that time and life's cares will not be able to erase.

SHORT CUTS TO HOUSEKEEPING.

When making cake if the icing "runs" as it often does, put in a teaspoon of baking powder and keep beating until it is thick again and foams.—M. A. P.

Keep lemons in a jar covered with cold water, which should be changed every week, and they will not dry out.—M. A. P.

For burns from whitewash apply vinegar at once.—J. P. H.

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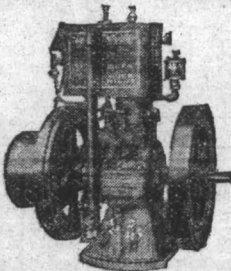
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(Continued from page 340).

Foreign.

The famous picture, Mona Lisa, has been found in a little town east of Paris. American troops are arriving in Pekin, China, from Manila, to protect the American legation at the Chinese capital.

Indian rebels are reported to be in complete control of the State of Chiapas, Mexico, and are threatening to invade neighboring states. Indian officials have been installed in all offices, the Mexican incumbents having been deposed.

General Malvar, who was chief commander under Aguinaldo during the Philippine rebellion, died at Manila last Friday. Since the war he had become friendly to America.

A formal declaration has been issued by Commander-in-Chief Li, of Kankow, China, informing foreign consuls of the establishment of a defacto government in southern China. The declaration states that all existing treaties will be respected and that the defactor government will assume responsibility for the safety of the lives of property and foreigners. This is the most recent result of the efforts of the natives of southern China to revolt against the old government and form a republic. The movement appears to be general over the southern part of China and extends well into the center of the country. Disorders prevail in many places and the imperial government seems too weak to combat the situation. Yuan Shi Kai, who was recently appointed viceroy of Hu-peh and Hunan Provinces, has declined to accept the appointment unless certain reforms are guaranteed by the federal government, as well as the enforcement of the constitutional measures such as are demanded by the insurgents. The contention of the insurgents is that they are not taking a stand against the government, but that the present national officials have not abided by the conditions of the constitution granted by the late Emperor. The government has taken charge of the telegraph wires and is using railroads for the transportation of troops to the seat of trouble. It appears that the activity of the insurgents is forcing a crisis upon the ancient government, the end of which is likely to be a general change in the political status of the Orient.

The situation between Turkey and Italy has not changed to any great extent, according to reports. The news appears to show Italy in the better position, and her forces will likely succeed in gaining the desired ends. Italian colonies located in Turkish territory are being harshly treated at the hands of troops and citizens. Reports are being closely watched and full details of movements are not allowed to get beyond the confines of the two countries when possible to prevent.

Spanish forces have been engaging the tribesmen in Morocco. After ten hours of fighting the natives were driven from their stronghold in the Kert River region.

A papal bull will shortly be issued, reorganizing the Catholic Church of England, considerably reducing the dignity of the See at Westminster.

FARMERS' NATIONAL CONGRESS.

The Farmers' National Congress met at Columbus, O., Oct. 12-16. A welcome was extended by Governor Harmon in an address at the opening session. He said that farmers derive less individual benefits than men in other professions. Dr. W. O. Thompson made one of his characteristic addresses and evoked great applause. He sympathized with farmers for the comparatively small share of the consumer's dollar that reaches them, declaring that the problem of the high cost of living is not founded on the price the farmer gets, and branding as misleading the cartoons and newspaper articles showing the farmers rolling in wealth.

This was the 31st annual meeting of the congress. The delegates are appointed by the governors of the various states but they attend the meeting at their own expense. Ohio had by far the largest representation. The purpose of the congress is to discuss matters of economic importance to farmers and pass resolutions. In past years these resolutions have not been placed in printed form, but at the late session a popular subscription by the delegates made the printing of the resolutions possible. This is important, as resolutions do no good unless they can be placed before members of the congress of the United States and other official bodies in some compact form for reference.

In his address President Joshua Strange left the impression that President Taft had broken his word with farmers in calling a special session of congress to pass the Canadian reciprocity pact. He was cheered when he referred to the pact as a "dead issue." He praised Dr. H. W. Wiley, government chemist, and declared that the most important conservation issue was that which would maintain upright manhood and womanhood.

The leading demands of the Farmers' Congress were for parcels post, good roads and the improvement of inland waterways. The resolutions passed were as follows, in brief: Favoring the early enactment of general parcels post; favoring federal aid for improved highways; favoring immigration restrictions; urging the speedy passage of the Page educational bill to aid and encourage the teaching of agriculture in the rural schools; favoring a fair and equal tariff protection of all industries needing it, but opposing any tariff discrimination against the interests of the farmers; favoring the direct election of United States Senators; favoring the enactment and rigid enforcement of a federal pure seed law, which will also prohibit the free seed distribution by members of congress; favoring legislation that will restrict undesirable legislation; expressing implicit confidence in Dr. H. W. Wiley and his honest purpose in enforcing the federal pure food laws; urging the rights of states to regulate commerce within their boundaries; real pro-

hibition of the liquor tariff in dry territory.

Special attention was paid to the reciprocity pact with Canada, approved by the congress of the United States but repudiated by the voters of Canada, in the following words: "We will never submit to selling on a free trade market and buying on a protected market. We approve the action of the executive committee in going on record officially through our legislative agent against the passage of congress of the so-called Canadian pact in the form in which it was introduced."

Addresses were delivered by the following men: Willet M. Hays, assistant Secretary of Agriculture, "Possibilities of Advancement in American Agriculture;" W. M. Bates, former commissioner of navigation, sent a paper on "American Marine for American Commerce," which was read by Secretary Sandles. This address was discussed by Hon. Lewis Nixon, of New York City. Prof. Alfred Vivian, of the Ohio State University, spoke on "To what extent have agricultural colleges improved agriculture?" Dudley Grant Hays explained the plan of the National Soil Fertility Society to have soil chemists, supported by the state and federal government who should assist farmers in putting into practice the best methods of maintaining soil fertility. Secretary Jesse Taylor, of the Ohio Good Roads Federation and C. A. Kenion of Indiana, talked "Good Roads." Jas. L. Cowles, secretary of the Postal Progress League was present and presented his usual unanswerable arguments for parcels post and other postal reforms.

The following officers were elected: President, George M. Whittaker, Washington, D. C.; first vice-president, C. F. Sanborn, London, O.; second vice-president, Col. H. R. Kirby, of New York; secretary, O. D. Hill, of West Virginia; treasurer, W. L. Ames, of Wisconsin.

MICHIGAN FAIRS.

The Three Rivers Fair.

The Three Rivers' Fair Association held a successful show from October 3 to 6, inclusive, notwithstanding the unfavorable weather conditions. On Tuesday, the first day of the fair, rain prevented exhibitors from getting their exhibits in place. The weather was again threatening on Wednesday but the morning gave opportunity for the placing of exhibits, and by noon there was a fine show of everything that goes to make up a successful fair. Thursday was the first "fair" day, although the third day of the fair, and by noon there were 6,000 people on the grounds. Friday was to have been the last day of the fair, but as it again rained nearly all day the program was carried over until Saturday in order that the races might be finished. The show of live stock was not as large as usual but the entries were of good quality. Had the weather been more favorable, the fair would have been one of the most successful of the season.

Northern Michigan State Fair.

The Northern Michigan State Fair, held at Escanaba, September 27-30, inclusive, was a successful event considering the cold stormy weather, which necessitated extending the date of closing to September 30, and considering that it was the first fair held under the auspices of the Delta County Agricultural Society. The exhibits were housed under large tents provided for the purpose and were gotten in place the first day. The quality of the exhibits is illustrated by the praise accorded to the apple display by an Oregon man who was present. The vegetable display was also exceptionally fine as to quantity and quality, one exhibitor having over 40 entries. The display of Dent corn of many varieties was visible proof that the upper peninsula can grow good corn as well as fruit and vegetables. The amusements were of a high class with no fakirs or gambling devices on the grounds. The weather was threatening and rainy on Wednesday afternoon and Thursday, on which account the management did not close the fair until Saturday. The show proved an inspiration for the boosting of Delta county agriculture, and the first Northern Michigan State Fair was generally conceded to be the best event of the kind ever held in the upper peninsula.—M. S. G.

BOOK NOTICES.

"The Harvester," by the well-known author, Gene Stratton Porter, is deserving of the same popular approval which has been accorded her other works. It exhibits the same broad knowledge of nature which characterizes all her writings. The plot, which is laid in the country in a spot which abounds in the wild beauty of nature, is strengthened by the introduction of strong characters whose lives as depicted exemplify the better element of humanity and makes the work one which the man or woman, boy or girl, will be the better for reading. The reader's interest is maintained throughout, from the opening to the closing chapters, and many wholesome and valuable lessons are presented in a most entertaining and charming manner. Published by Doubleday, Page & Co., New York.

Government in the United States—National, State, and Local. By James W. Garner, Professor of Political Science in the University of Illinois. The author's aim in the preparation of this book has been to present in an elementary way the leading facts concerning the organization and activities of national, state, and local government in the United States. Cloth, 12mo, 416 pages. Price, \$1.00. American Book Company, Chicago.

Shakespeare's Merchant of Venice. Edited by Gilbert Sykes Blakely, Department of English, Morris High School, New York City. 112 pages. Price, 20c.

George Eliot's Silas Marner. Edited by May McKittrick, Head of Department of English, Cleveland Technical High School. 220 pages. Price, 20c.



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Don't be caught by mere looks and mysterious terms. Find out what the roofing is made of.

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is made of natural asphalt.

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Artificial asphalts are residual products. Same way with coal tar. They are mixed with oils which makes them pliable for a while, but the oils evaporate quickly when exposed to sun and air; they leave the roofing lifeless, and it cracks and leaks.

When you get Genasco you can be sure of roofing that lasts. And roofing that lasts is the only kind worth having.

The Kant-leak Kleet is the lasting waterproof fastening for seams—prevents nail-leaks, and does away with unsightly cement.

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THE MOTHER'S OPPORTUNITY.

BY A. W. S.

As I sit on the porch this bright autumn morning and watch the merry youngsters go trooping by to school with books and dinner pails I fall to wondering if many mothers realize the great and blessed opportunity that comes to them in school days for influencing the lives, and making lasting impressions upon the hearts of their children.

As I look back upon my own childhood, the mornings when I started for school, and the evening's return to the dear shelter of home, stand out with peculiar vividness. I have only to close my eyes to outer things and I can hear my mother's loving words of farewell and admonition, as I set out for school in the sweet summer mornings, and can see her dear face light up with a smile of welcome when we came home at night.

Mothers are busy people and the morning hours, especially on the farm, are filled to overflowing, and with the added tasks of filling the lunch boxes and making the children tidy there is surely scant time for sentiment, but mothers, let us learn to put first things first, at any cost. And I adjure you not to send your little ones from you with frowns and unkind words. Rather let them carry each morning to their day's work in school the memory of mother's loving tones in council and farewell, and the sweet assurance that her loving thought will follow them through the day.

And then at night, when the noisy little troop return to you, is your golden opportunity for writing ineffable lessons upon the tablet of your children's hearts; lessons that they will read from memory's page long after your voice is still; lessons that will endear their childhood's home to them in such a way that its memory will be to them a tower of strength in the temptations that will surely come with mature years.

Children, like plants, thrive best in the sunshine. They have been away from you all day, and the average child is eager to be at home again when school is out; but the day has been a trying one for mother, your hands and feet are weary, your heart is burdened with thoughts of unfinished tasks, and I fear that sometimes when the little homecomers rush breezily in they are made to feel and are told by her who loves them best, that their presence is not an unmixed joy, and that they are intruders in their own home. But weary mother, forbear! Do not dampen your child's eager joy in his homecoming. It may cost you some effort, but it will repay you well in future years, to greet them with loving smiles and words of welcome, to assure them once more of your joy in having them at home. (For you really do feel thus, only you are tired and burdened).

When the children come from school their hearts are especially susceptible to the influences of the home, and each night a new opportunity is given you, mothers, to forge with stronger links the chain that binds their hearts to you, and to their childhood home.

Schooldays will soon be over. All too soon, since the dear children drift away from you out into the busy world. Mothers, do not slight or neglect your blessed opportunity; and, too, now is the best time to win their confidence and gain a knowledge of things that perplex and trouble them, for children have their troubles.

While they are flushed with joy of home-coming and of seeing mother after the day's separation, you can perhaps enter into their heart life, as you cannot at another time, and you will sorely need this bond of sympathy, this confidence when the world begins to attract your child from you and from his home. Then, mothers, let us be wise and make the most of the opportunity that comes with the school days, to endear home to our children and to write lessons of love and hallowed associations upon their hearts that time and life's cares will not be able to erase.

SHORT CUTS TO HOUSEKEEPING.

When making cake if the icing "runs" as it often does, put in a teaspoon of baking powder and keep beating until it is thick again and foams.—M. A. P.

Keep lemons in a jar covered with cold water, which should be changed every week, and they will not dry out.—M. A. P.

For burns from whitewash apply vinegar at once.—J. P. H.

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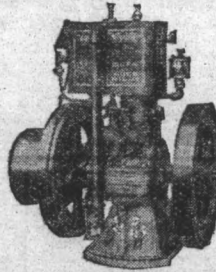
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(Continued from page 340).

Foreign.

The famous picture, Mona Lisa, has been found in a little town east of Paris. American troops are arriving in Pekin, China, from Manila, to protect the American legation at the Chinese capital.

Indian rebels are reported to be in complete control of the State of Chiapas, Mexico, and are threatening to invade neighboring states. Indian officials have been installed in all offices, the Mexican incumbents having been deposed.

General Malvar, who was chief commander under Aguinaldo during the Philippine rebellion, died at Manila last Friday. Since the war he had become friendly to America.

A formal declaration has been issued by Commander-in-Chief Li, of Kankow, China, informing foreign consuls of the establishment of a defacto government in southern China. The declaration states that all existing treaties will be respected and that the defactor government will assume responsibility for the safety of the lives of property and foreigners. This is the most recent result of the efforts of the natives of southern China to revolt against the old government and form a republic. The movement appears to be general over the southern part of China and extends well into the center of the country. Disorders prevail in many places and the imperial government seems too weak to combat the situation. Yuan Shi Kai, who was recently appointed viceroy of Hu-peh and Hunan Provinces, has declined to accept the appointment unless certain reforms are guaranteed by the federal government, as well as the enforcement of the constitutional measures such as are demanded by the insurgents. The contention of the insurgents is that they are not taking a stand against the government, but that the present national officials have not abided by the conditions of the constitution granted by the late Emperor. The government has taken charge of the telegraph wires and is using railroads for the transportation of troops to the seat of trouble. It appears that the activity of the insurgents is forcing a crisis upon the ancient government, the end of which is likely to be a general change in the political status of the Orient.

The situation between Turkey and Italy has not changed to any great extent, according to reports. The news appears to show Italy in the better position, and her forces will likely succeed in gaining the desired ends. Italian colonies located in Turkish territory are being harshly treated at the hands of troops and citizens. Reports are being closely watched and full details of movements are not allowed to get beyond the confines of the two countries when possible to prevent.

Spanish forces have been engaging the tribesmen in Morocco. After ten hours of fighting the natives were driven from their stronghold in the Kert River region.

A papal bull will shortly be issued, reorganizing the Catholic Church of England, considerably reducing the dignity of the See at Westminster.

FARMERS' NATIONAL CONGRESS.

The Farmers' National Congress met at Columbus, O., Oct. 12-16. A welcome was extended by Governor Harmon in an address at the opening session. He said that farmers derive less individual benefits than men in other professions. Dr. W. O. Thompson made one of his characteristic addresses and evoked great applause. He sympathized with farmers for the comparatively small share of the consumer's dollar that reaches them, declaring that the problem of the high cost of living is not founded on the price the farmer gets, and branding as misleading the cartoons and newspaper articles showing the farmers rolling in wealth.

This was the 31st annual meeting of the congress. The delegates are appointed by the governors of the various states but they attend the meeting at their own expense. Ohio had by far the largest representation. The purpose of the congress is to discuss matters of economic importance to farmers and pass resolutions. In past years these resolutions have not been placed in printed form, but at the late session a popular subscription by the delegates made the printing of the resolutions possible. This is important, as resolutions do no good unless they can be placed before members of the congress of the United States and other official bodies in some compact form for reference.

In his address President Joshua Strange left the impression that President Taft had broken his word with farmers in calling a special session of congress to pass the Canadian reciprocity pact. He was cheered when he referred to the pact as a "dead issue." He praised Dr. H. W. Wiley, government chemist, and declared that the most important conservation issue was that which would maintain upright manhood and womanhood.

The leading demands of the Farmers' Congress were for parcels post, good roads and the improvement of inland waterways. The resolutions passed were as follows, in brief: Favoring the early enactment of general parcels post; favoring federal aid for improved highways; favoring immigration restrictions; urging the speedy passage of the Page educational bill to aid and encourage the teaching of agriculture in the rural schools; favoring a fair and equal tariff protection of all industries needing it, but opposing any tariff discrimination against the interests of the farmers; favoring the direct election of United States Senators; favoring the enactment and rigid enforcement of a federal pure seed law, which will also prohibit the free seed distribution by members of congress; favoring legislation that will restrict undesirable legislation; expressing implicit confidence in Dr. H. W. Wiley and his honest purpose in enforcing the federal pure food laws; urging the rights of states to regulate commerce within their boundaries; real pro-

hibition of the liquor tariff in dry territory.

Special attention was paid to the reciprocity pact with Canada, approved by the congress of the United States but repudiated by the voters of Canada, in the following words: "We will never submit to selling on a free trade market and buying on a protected market. We approve the action of the executive committee in going on record officially through our legislative agent against the passage of congress of the so-called Canadian pact in the form in which it was introduced."

Addresses were delivered by the following men: Willet M. Hays, assistant Secretary of Agriculture, "Possibilities of Advancement in American Agriculture;" W. M. Bates, former commissioner of navigation, sent a paper on "American Marine for American Commerce," which was read by Secretary Sandles. This address was discussed by Hon. Lewis Nixon, of New York City. Prof. Alfred Vivian, of the Ohio State University, spoke on "To what extent have agricultural colleges improved agriculture?" Dudley Grant Hays explained the plan of the National Soil Fertility Society to have soil chemists, supported by the state and federal government who should assist farmers in putting into practice the best methods of maintaining soil fertility. Secretary Jesse Taylor, of the Ohio Good Roads Federation and C. A. Kenion of Indiana, talked "Good Roads." Jas. L. Cowles, secretary of the Postal Progress League was present and presented his usual unanswerable arguments for parcels post and other postal reforms.

The following officers were elected: President, George M. Whittaker, Washington, D. C.; first vice-president, C. F. Sanborn, London, O.; second vice-president, Col. H. R. Kirby, of New York; secretary, O. D. Hill, of West Virginia; treasurer, W. L. Ames, of Wisconsin.

MICHIGAN FAIRS.

The Three Rivers Fair.

The Three Rivers' Fair Association held a successful show from October 3 to 6, inclusive, notwithstanding the unfavorable weather conditions. On Tuesday, the first day of the fair, rain prevented exhibitors from getting their exhibits in place. The weather was again threatening on Wednesday but the morning gave opportunity for the placing of exhibits, and by noon there was a fine show of everything that goes to make up a successful fair. Thursday was the first "fair" day, although the third day of the fair, and by noon there were 6,000 people on the grounds. Friday was to have been the last day of the fair, but as it again rained nearly all day the program was carried over until Saturday in order that the races might be finished. The show of live stock was not as large as usual but the entries were of good quality. Had the weather been more favorable, the fair would have been one of the most successful of the season.

Northern Michigan State Fair.

The Northern Michigan State Fair, held at Escanaba, September 27-30, inclusive, was a successful event considering the cold stormy weather, which necessitated extending the date of closing to September 30, and considering that it was the first fair held under the auspices of the Delta County Agricultural Society. The exhibits were housed under large tents provided for the purpose and were gotten in place the first day. The quality of the exhibits is illustrated by the praise accorded to the apple display by an Oregon man who was present. The vegetable display was also exceptionally fine as to quantity and quality, one exhibitor having over 40 entries. The display of Dent corn of many varieties was visible proof that the upper peninsula can grow good corn as well as fruit and vegetables. The amusements were of a high class with no fakirs or gambling devices on the grounds. The weather was threatening and rainy on Wednesday afternoon and Thursday, on which account the management did not close the fair until Saturday. The show proved an inspiration for the boosting of Delta county agriculture, and the first Northern Michigan State Fair was generally conceded to be the best event of the kind ever held in the upper peninsula.—M. S. G.

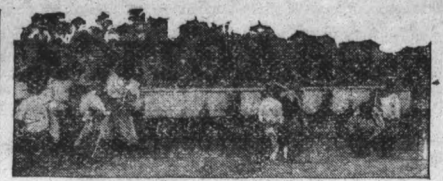
BOOK NOTICES.

"The Harvester," by the well-known author, Gene Stratton Porter, is deserving of the same popular approval which has been accorded her other works. It exhibits the same broad knowledge of nature which characterizes all her writings. The plot, which is laid in the country in a spot which abounds in the wild beauty of nature, is strengthened by the introduction of strong characters whose lives as depicted exemplify the better element of humanity and makes the work one which the man or woman, boy or girl, will be the better for reading. The reader's interest is maintained throughout, from the opening to the closing chapters, and many wholesome and valuable lessons are presented in a most entertaining and charming manner. Published by Doubleday, Page & Co., New York.

Government in the United States—National, State, and Local. By James W. Garner, Professor of Political Science in the University of Illinois. The author's aim in the preparation of this book has been to present in an elementary way the leading facts concerning the organization and activities of national, state, and local government in the United States. Cloth, 12mo, 416 pages. Price, \$1.00. American Book Company, Chicago.

Shakespeare's Merchant of Venice. Edited by Gilbert Sykes Blakely, Department of English, Morris High School, New York City. 112 pages. Price, 20c.

George Elliot's Silas Marner. Edited by May McKittrick, Head of Department of English, Cleveland Technical High School. 220 pages. Price, 20c.



Loading carriers with asphalt at Trinidad Lake

Go to the bottom of the roofing question—if you want to save money on your roof.

Don't be caught by mere looks and mysterious terms. Find out what the roofing is made of.

And the time to find out is before you buy—it is often costly to find out afterward.

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You owe it to yourself, to your family to at least investigate this big opportunity for saving.

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No. 5.

BY FLOYD W. ROBISON.

Phosphorus is another element of exceedingly great interest and of prime importance to agriculture. Phosphorus in its free, pure state is a solid substance, whereas Nitrogen was a gas. Whereas Nitrogen was exceedingly inert in its free condition, Phosphorus in its free condition is exceedingly active. It is quite inflammable and in its pure state is dangerous to handle. Phosphorus occupies a place, so far as plant and animal food is concerned, which is not essentially different in many of its particulars to the element Nitrogen. It is one of the elements which go to make up the various protein bodies which are so intimately associated with the vital principles of life in animal structure. The seed, or center, of growth in the plant contains a considerable quantity of this element Phosphorus, and coupled with the element Nitrogen it forms, therefore, a very essential constituent of the life center of plants. We do not deal with Phosphorus in its free, or pure, state in our study of agriculture, but it is usually in combination primarily with Sodium, Calcium and Potassium, as salts, or in animal nutrition in combination with Nitrogen, Iron, etc., in the protein bodies. We usually speak of Phosphorus in terms of its compound called Phosphoric Acid, which is a union of two parts of Phosphorus with five parts of Oxygen (P_2O_5) and in reporting or in studying the Phosphorus content of manure it is this latter compound, Phosphoric Acid (P_2O_5) that we generally mention when we speak of the element Phosphorus. Phosphorus is one of the elements which in certain soils of our country has become rapidly exhausted and, unlike the element Nitrogen, there has been no observation of the restoring of the element to the exhausted soil except by the hand of man in applying it as a fertilizer. Hopkins, of the Illinois station, has laid great stress, and sounded the warning with vigor, in his home state, Illinois, regarding the removing, by continual crops of this element Phosphorus, or its compound, Phosphoric Acid, without returning again to the soil an equivalent of the Phosphoric Acid removed by the crop. The principal amount of Phosphorus in the body is found in the bony structure of the body and consequently one of the most common sources of Phosphoric Acid Fertilizers is ground bone. Since the importance of Phosphorus to agriculture has been proclaimed there have been discovered in this country large deposits of phosphate rock which is an insoluble phosphate of lime. This product is now drawn upon heavily as a source of Phosphorus in fertilizers. As Hopkins has thoroughly demonstrated, crops respond beautifully to the intelligent addition of Phosphorus to the soil. The conditions which seemingly call for the addition of Phosphorus, we will discuss somewhat in detail in our discussion of fertilizers and their relation to the soil and crops.

The third element of great concern to agriculture is the element Potassium. Potassium in a way, like Phosphorus, is not ordinarily found in the free condition. It is an alkali metal and is dangerous to handle when in the free condition. It has the property of decomposing water, liberating the Hydrogen of the water and itself combining with the Oxygen to form the Oxide of Potassium, or Potash. It has been considered that Potassium, or as we commonly speak, Potash, is likewise another constituent of fertile soils which is quite subject to exhaustion. Unlike Phosphorus, however, it is not now being so rapidly exhausted, because of the fact that very few of the crops which are taken from the soil carry away with them a considerable amount of Potash. In animal nutrition Potash is largely a medium, it might be said, assisting in the supply of starch, sugar, albumin, etc., to the animal without being an active constituent of these substances itself. The excrement of farm animals, if properly conserved, will return to the soil practically the whole amount of Potash which the crop removed. Certain crops, however, require for their best development a large percentage of Potash in the soil and we may undertake the discussion of these particular crops in our course.

We may now recapitulate briefly regarding these three important soil con-

stituents. Nitrogen, Phosphoric Acid and Potash have been called by the modern agricultural scientists the great tripod of agriculture, and well we may understand why this importance was attached to these three substances when we know their exceedingly great influence upon agriculture and their intimate connection with plant and animal nutrition.

Calcium in the free state is not known in agriculture. One of the most common forms in which we find calcium is as lime—a union of calcium with the element Oxygen and yet lime (CaO) of itself is not a very common product, due to the great affinity which lime has for water. Its exposure to water or even to air for a short period is ample to cause a slaking of the lime whereby it takes up water and changes its chemical relationship. Another common form in which we find calcium is Calcium Carbonate ($CaCO_3$), or, as is commonly spoken of, carbonate of lime. In various sections of this state there are immense deposits of limestone, or carbonate of lime. This element is in this form being constantly removed from the soil by solution in water and at the same time by means particularly of marine organic life it is being continually laid down as lime rock. The field of circulation of this element, therefore, is perhaps more definite and more restricted in this way than are many of the other elements which we have briefly discussed. Carbonate of lime is used as a source of Carbon dioxide, or carbonic acid gas, and is made of use in sugar factories in the process of clarifying the juice. The limestone is roasted, or heated, at a high temperature, the carbon dioxide being driven off, leaving the quick or caustic lime behind. The Carbon dioxide is stored in large tanks under pressure. The beet juice is treated with caustic lime whereby many of the impurities in the beet juice are removed. It then becomes necessary to remove what lime may have gone into the solution in the juice and then the stored carbon dioxide is again allowed to bubble up through the liquid when the lime in solution is precipitated again as carbonate of lime. Lime is not very soluble in water, a saturated solution containing less than one-half of one per cent of lime. In other words, it would take over 200 pounds of water to dissolve one pound of lime.

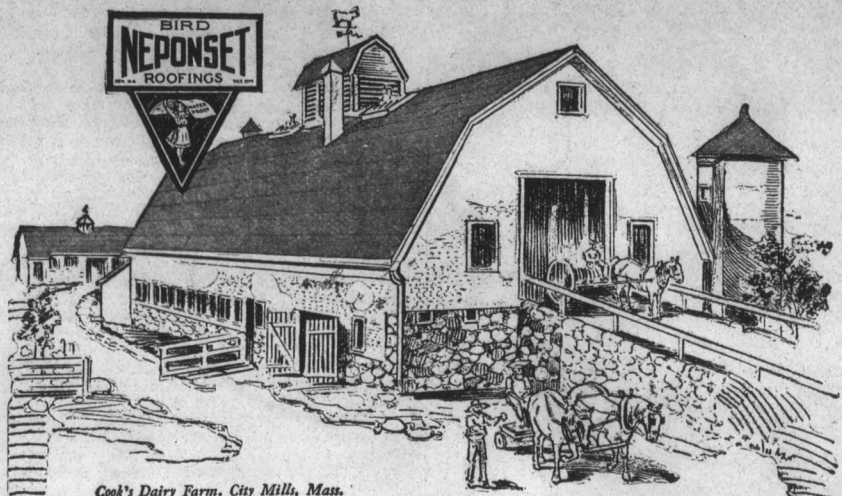
Calcium as a fertilizer has been in and out of favor, and in again, during the last fifty years. At one time it was supposed that the proper addition of lime to the soil would solve all of the fertility problems of that soil and as a result lime was added indiscriminately and injudiciously and the injury as a result of this indiscriminate use militated against its remaining in lasting favor. We have a period at the present time in agricultural development in which interest is again being revived in lime as a fertilizing material. There is little doubt that many soils are greatly benefited by the judicious use of lime in one or another form. To soils that need lime it matters little in what form the lime is introduced providing it is exceedingly finely divided. One may add ground limestone rock, or if available he may add quick lime, using the precaution in case quick lime is used that it does not come in contact with any vegetation on the ground at the time. In whatever form it is used it will be converted in the soil into carbonate of lime.

The conditions which would prompt the student farmer to use lime are worthy of consideration in some detail. The indiscriminate use of lime as well as the indiscriminate use of other fertilizers is to be severely condemned. Both have their proper field and when considered and used in their proper places the soil will usually respond but neither can be used indiscriminately without using good judgment in connection therewith.

Calcium is also found extensively in the immense deposits of phosphate rock and we may see that in one way or another nature has provided for an abundant supply of calcium. It is rather unevenly distributed, it is true, but the supply is accessible, nevertheless.

WHAT DIGESTIBILITY OF FEED MEANS.

When chemical analyses were first resorted to as a means of determining the value of a feed stuff, it was ascertained that in many instances the analysis did not seem to give the true index of the



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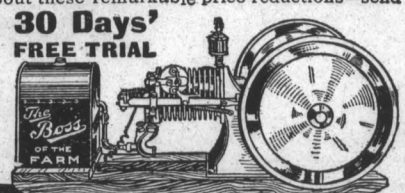
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THERE ARE MANY REASONS WHY DOWAGIAC MANUFACTURING CO. DOWAGIAC, MICH.

value of certain feeds. This observation was a more or less general one among feeders and it soon became apparent that the different analyses left out of consideration some very important points.

Chemical Analysis and Digestibility.

Popular opinion among feeders, based upon their experiences, led them to give to certain feeds values entirely different than the chemical analysis would warrant. There is usually some basis for a public opinion. It may not be well directed but as a rule there is some fundamental truth underlying that opinion. In these instances it was observed that perhaps two known feeds which analyses showed to be quite different in composition had practically the same feeding value.

These observations paved the way for a study of the physiological differences of these feeds, and it was observed in this way that one was more completely utilized than the other. In other words, that the one perhaps was quite completely digested while the other was much less completely digested.

This study of the digestibility of these different feeds resulted in the analysis and publication of the digestibility of nearly all of our well-known feeding stuffs. The general method of determining the digestibility upon which these tables were based was to make an analysis of the excrement, to determine just how much of the particular feeding stuff in question had been utilized by the animal in the process of metabolism. These factors of digestibility left out of consideration one very important factor, namely, that of two feeds which may be equally digestible, by which we mean equally completely digestible, the actual amount of energy obtained from the one would be very materially less than that obtained from the other. In determining the cause of this it was discovered that, on the feed which the animal utilized to the last degree, a considerably larger amount of actual bodily energy was expended in converting that feed into soluble form so that it would be taken up by the circulation. Armsby, in his experiments on cattle at the Pennsylvania station established this point very nicely, and in his work he demonstrated that the net available energy, as he called it, of one food was essentially different from the net available energy of another and that this factor influenced very materially the value of that feed to the animal.

The "Cost" of Digestion.

In the writer's experiments, conducted at the Michigan station, this same point was observed and corroborated. A feed which takes considerable effort on the part of the animal to digest and utilize is usually accompanied by the voiding along with the excrement the remains of membranes and muscle fibres, and worn-out fragments of cells, etc., together with rejected products from the digestive juices of the body, all of which represent in a measure the actual cost of the digestion of that feed material to the animal body. It is obvious that when the cost of the digestion of one feed is greater and materially greater, than is the cost of the digestion of another feed, that the value of that particular feed to the animal economy is lessened by just the amount that it cost the animal to digest it. In order to establish, then, the real value of feed stuffs, the factors of digestibility should be supplemented by an estimate of the cost of digestion of that particular feed, or, in other words, the value of any particular feed to the animal depends not alone upon its digestibility but upon the net available energy which that feed has.

We have observed that about the clearest index of the net available energy of a feed stuff may be had by observing, together with its digestibility, the percentage of crude fibre which that particular feed has. We have therefore urged in our study of feeding stuffs that of prime importance to the feed is to learn how to judge of the amount of net available energy in a feed stuff by the study of its crude fibre content. Therefore, we have placed, as of at least secondary importance in the analysis of a feed, the study of its crude fibre content. Many states require that the percentage of protein and the percentage of fat or oil shall be stated on the guarantee which accompanies the feed. This is in the right direction but does not go far enough, for without the guarantee that a minimum content of crude fibre shall not be exceeded, and without a knowledge of the crude fibre content of any particular feed, its feeding value cannot be very closely determined.

FLOYD W. ROBISON.

LABORATORY REPORT.

Comparative Value of Feeds.

1. What is gluten meal? 2. What is the difference between old process oil meal and the new process meal? 3. What is the difference between beef meal and beef scraps, and which is best?
Kent Co. M. D. C.

1. Gluten meal is a by-product obtained in the manufacture of glucose and starch from corn. It is the portion of the corn grain that lies just beneath the hull. Care should be taken to discriminate between gluten meal and gluten feed. The terms have been confounded frequently and gluten feed has been sold when gluten meal was ordered. Gluten feed is a mixture of gluten meal, corn bran and frequently the starchy residue of the steep water. Gluten meal is of considerably greater value than is gluten feed because of its higher content of protein and its lower content of crude fibre.

Below we compare the analysis of the two products:

Gluten Meal.	p. c.	Gluten Feed.	p. c.
Protein	29.00	Protein	24.00
Crude fibre	2.25	Crude fibre	6.40
Ether extract..	3.00	Ether extract..	2.50
N. free ex.....	55.25	N. free ex.....	54.10
Moisture	8.50	Moisture	8.00
Ash	2.00	Ash	5.00

2. The difference between the old process and new process oil meal lies in the completeness of the removal of the oil from the linseed meal. In the old process the meal was heated and the oil pressed out by hydraulic pressure. In this way from five to eight per cent of oil was left in the oil meal. In the new process this remaining oil is extracted by the aid of naphtha and therefore the new process oil meal contains very little oil. On this account the new process oil meal is slightly higher in its protein content than is the old process meal. The variation in the oil meal in the new and old process, so far as protein content is concerned, is so great that one cannot place reliance without resorting to an analysis of the product. It is by no means unusual for this product to vary from four to six per cent in its content of protein.

3. The only difference between beef meal and beef scraps is in the fineness of grinding. Beef meal is ground very finely. In fact, it is in reality a meal while beef scraps are very coarse. They are one and the same thing so far as the identity of the material is concerned. To advise which is better, therefore, depends upon the purpose for which it is to be used. If it is finely ground it can, as a rule, be better incorporated for feeding and in this way it it probably more desirable but the grinding has not enhanced its value so far as its feeding qualities are concerned except as stated. Beef meal properly used should be a valuable adjunct to the ration inasmuch as it carries a high content of protein. A typical analysis of beef meal or beef scraps would be as follows:

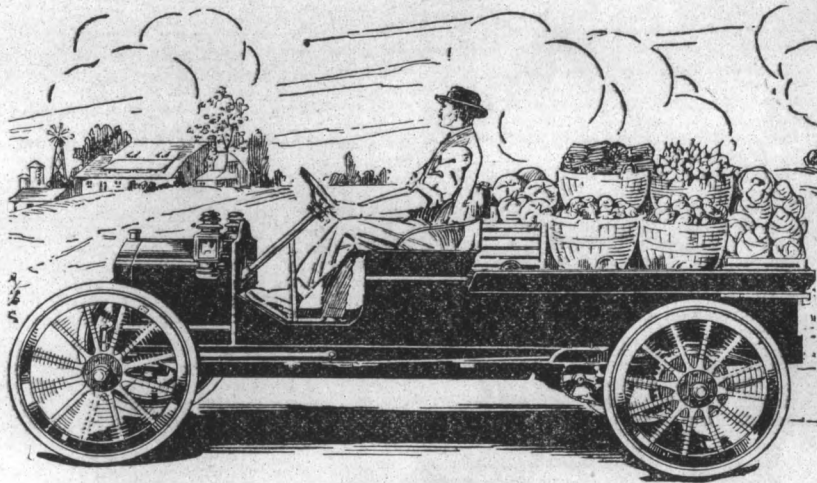
Protein	40 to 60 per cent
Fat	6 to 8 per cent

Effect of Salt on Cement.

If salt is sprinkled on cement steps to remove ice, will salt injure the steps?
Lenawee Co. READER.

It is the consensus of opinion from this laboratory that if the cement is well made and the proportion of cement to gravel is quite high, the application of salt in the removal of ice will not damage the cement at all. Where cement is poorly made and it has not been properly bound together it is possible that the continual absorption of salt, especially if that salt contains some considerable amount of magnesium as an impurity, might in time injure the structure of the cement and cause crumbling. However, as stated before, if the cement is properly made we do not believe salt will injure it. To support our contention, it will be remembered that in the harbors along the ocean, docks and piers are being built of cement and concrete and subject as these are to the continual washing with salt water it would appear to us that this affords an excellent example of the high resistance of cement, when properly made, to salt. Again, it is by no means uncommon for salt to be actually mixed with concrete when it is manufactured in very cold weather in order to lower the freezing point of the water which is held so that building operations may go on unaffected by the temperature. We are conscious of the fact that complaint has been made of the use of salt in the above purpose and that it has been supposed that the salt caused injury to the cement. It is our opinion, however, that this injury, if any, was caused by imperfections in the cement itself rather than to the fact that salt was used in removing the ice.

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MARKETS

DETROIT WHOLESALE MARKET.

October 18, 1911.

Grains and Seeds.

Wheat.—Farmers are rejoicing over the steady advance of wheat prices this last week. The improvement has been greater in cash wheat than in futures, however, both have enjoyed a substantial change. The general news over the world does not appear to warrant the advance that has been made. Conditions in Argentina are of the best. The world's visible supply had a heavy increase although the world's total stocks are now a little over 11,000,000 bushels less than a year ago. The Liverpool market was a little easy and lower on Tuesday when an advance was made in the markets on this side. The Russian crop is a bullish feature to the trade, it being certain that she will market a much smaller crop than usual; but this condition is overcome in part, by the superior yield in other European countries. The demand from millers in this country is forcing the upward trend of prices. They are encouraged to do this by the low grading of the wheat crop in the northwest and the great damage that has been done since harvesting by the heavy rains, much of the grain spoiling in the shock. One year ago Cash No. 2 red wheat was quoted at 95c per bu., which was 2½c below the price on Tuesday of this week. Quotations for the week are as follows:

	No. 2	No. 1	Red.	White.	Dec.	May.
Thursday	94	91	.91	.99	1.04	1.04
Friday	95½	92½	1.00½	1.00½	1.05½	1.05½
Saturday	96	93	1.00½	1.00½	1.05½	1.05½
Monday	96½	93½	1.00½	1.00½	1.05½	1.05½
Tuesday	97½	94½	1.00½	1.00½	1.05½	1.05½
Wednesday	98½	95½	1.01½	1.01½	1.06½	1.06½

Corn.—Corn enjoyed a fractional advance during the past week. This grain appears to be steady considering the high price it is commanding. The past week has witnessed little or no improvement in conditions of the new crop which is suffering considerably from excessive moisture in many instances. The corn is spoiling in the shock. There is little dealing on the local market. Fall delivery is likely to be delayed owing to the inability of farmers to get the crop in the crib. One year ago the price for No. 3 corn was 51c per bu. Following are the leading quotations for the week:

	No. 2	No. 3	Yellow.
Thursday	74	74½	74½
Friday	74½	75	75
Saturday	74½	75	75
Monday	74½	75	75
Tuesday	74½	75	75
Wednesday	75	75½	75½

Oats.—This grain seems to have found its high point, for instead of advancing with other cereals it showed a tendency to fluctuate and the average price is about on a par with that of the previous week. No news of importance has materialized, the demand and supplies are constant. One year ago the price of standard oats was 34½c per bu; this is practically 15c below the present figures. Following are the leading quotations:

	Standard	No. 3	White.
Thursday	49½	49	49
Friday	50	49½	49½
Saturday	50	49½	49½
Monday	49½	49	49
Tuesday	49½	49	49
Wednesday	50	49½	49½

Beans.—This has been a most discouraging season for growing beans. The farmers who succeeded in getting their crop secured without rain are very few indeed. Many fields are totally destroyed so far as producing any marketable beans. It is believed that the damage done is greater than the trade recognizes. Crop reports and other letters to this office indicate that the Michigan offerings to the bean trade will be very small compared with other years. The price on the market here takes a drop every time the sun comes out, but no amount of sunshine will remedy the damage that has been done and farmers who have good beans will take little chance in holding them, providing the beans will keep well. Quotations for the week are as follows:

	Oct.	Dec.
Thursday	\$2.40	\$2.30
Friday	2.30	2.20
Saturday	2.27	2.20
Monday	2.27	2.20
Tuesday	2.27	2.20
Wednesday	2.30	2.23

Clover Seed.—No material change has occurred in this market and the offerings are small for this season of the year because of the small acreage harvested and the small yield of fields hulled. Quotations are as follows:

	Oct.	Alsike.
Thursday	\$12.25	\$10.50
Friday	12.25	10.50
Saturday	12.25	10.50
Monday	12.25	10.50
Tuesday	12.25	10.50
Wednesday	12.25	10.50

Timothy Seed.—This product advanced 20c in price the past week, sales being made on Tuesday at \$7.20 per bu.

Rye.—Cash No. 2 rye advanced 1c the past week and is firm and quiet at \$1.01 per bu.

Flour, Feed, Potatoes, Etc.

Flour.—There is a brisk demand for flour, with prices unchanged.

Straight	4.10
Patent Michigan	4.75
Ordinary Patent	4.40

Feed.—All grades steady with last week Carlot prices on track are: Bran, \$27 per ton; coarse middlings, \$29; fine middlings

\$32; cracked corn, \$30; coarse corn meal, \$30; corn and oat chop, \$28 per ton.

Hay and Straw.—Prices are steady with last week. Quotations: No. 1 timothy, \$19@20; No. 2 timothy, \$18@19; clover, mixed, 17@19; rye straw, \$8@8.50; wheat and oat straw, \$7@7.50 per ton.

Potatoes.—The continuous wet weather has so delayed potato digging that the trade is catching up with the deliveries and an improvement in prices has resulted. Quality of the tubers is a little off. Car lots on track are quoted at 60@65c per bushel, which is a 5c advance over last week's price.

Provisions.—Family pork, \$18@18.50; mess pork, \$15; medium clear, \$14.50@16; hams, 10c; bacon, 12½@14½c pure lard in tierces, 10½c; kettle rendered lard, 11½c per lb.

Dairy and Poultry Products.

Butter.—The advanced prices of last week are maintained with the trade firm and enjoying a lively demand. Quotations: Extra creamery, 29c; firsts, do., 28c; dairy, 20c; packing stock, 10c per lb.

Eggs.—The week's quotation is higher than the improved price of last week, the decrease in supplies being responsible. Fresh receipts, case count, cases included, are now quoted at 24c per dozen.

Poultry.—Broilers, hens and young ducks have made another drop. Other kinds steady. The market is easy owing to the liberal supply. Prices are: Live Hens, 10c; turkeys, 14@15c; geese, 8@9c; ducks, 12@13c; young ducks, 14c; broilers, 11c per lb.

Cheese.—Michigan, old, 17c; Michigan, late, 15½@16c; York state, new, 16@16½c; Swiss, domestic block, 16@18c; cream brick, 15@16c; limburger, 12@13c.

Veal.—Market steady. Fancy, 11@12c; choice, 8@9c per lb.

Fruits and Vegetables.

Cabbage.—Steady. Selling at \$1.50@1.75 per bbl. for home-grown.

Onions.—Steady; 80@90c per bu.

Pears.—75c@1 per bu for average offerings.

Apples.—Market about steady with the bulk of offerings of inferior quality. Average offerings are going at 50@75c per bu; Snows are selling at \$2.50@3 per bbl.

Grapes.—Niagara 8-lb. basket, 15@18c; concord, 14@15c.

From Farmers' Wagons on Detroit Eastern Market.

There was a dearth of buyers on the market Wednesday morning which made selling a little slow. A good variety of produce was offered and prices are little changed from last week. Squash was fairly plentiful and offered at 50@60c per basket; turnips from 35@40c per bu; cabbage, 30@35c per bu; cauliflowers around 75c per bu; carrots, 40c per bu; good celery was commanding 35c per bunch; butter beans of an inferior quality were going at 50c per bu; tomatoes were in fairly large quantity for the season and were selling at 50@60c per bu; potatoes showed the effect of the wet weather, they having much dirt clinging to them; a good quality was commanding 80c per bu. Chickens were going at 14c per lb. Pears ranged from 75c@1.15 per bu; there were a very few good apples to be found on the market and prices ranged from 50c@1.10 per bu. Hay is still quoted at \$20@25 per ton, but loads were not freely offered.

OTHER MARKETS.

Grand Rapids.

Potatoes range from 40@45c at upstate loading points and farmers are quite free sellers at these comparatively low prices. Frosts have cut the vines in the territory north of Cadillac, though in lower sections of the state the tubers are still growing and are of large size. Stock is green and the continual wet weather threatens great damage from rot. The rains have badly damaged the bean crop of the state. White beans are worth \$2.10@2.20. Eggs are higher, fresh stock being worth 22c, jobbers to country shippers. The poultry market is weak, with fowls and spring chickens off to 8½c. Dressed hogs are worth around 8c. Wheat is worth 91c; corn 71c and oats 50c.

New York.

Butter.—The advance of last week was not sustained, and the better grades of creameries are off 1@2c. Market steady at the new figures. Creamery specials are quoted at 31c per lb; extras, 30c; firsts, 27@28½c; seconds, 25@26c; thirds, 23@24c.

Eggs.—Steady. Fresh gathered extras, 30@31c; extra, firsts, 26@28c; seconds, 20@22c; western gathered whites, 26@30c per dozen.

Poultry.—Market lower and in bad shape. Turkeys, 10@20c; do., young, 25c; fowls, 8@16½c western chickens, 10@16c.

Chicago.

Wheat.—No. 2 red, 98½c@1; Dec., \$1.00½; May, \$1.04½ per bu.

Corn.—No. 2, 71½@72½c; Dec., 64½c; May, 65½c per bu.

Oats.—No. 2 white, 47@47½c; Dec., 47½c; May, 50c.

Barley.—Malting grades, \$1.00@1.25 per bu; feeding, 75@95c.

Butter.—Supplies the past week have more nearly met the requirements of the trade than for some weeks, checking for a time at least, the tendency toward still higher values. Market steady at last week's figures. Creameries, 23@29c; dairies, 21@26c per lb.

Eggs.—An undertone of firmness pervades this market, due to meager receipts, especially of prime stock. Top grades are quoted ½c higher; miscellaneous receipts unchanged. Quotations: Prime firsts, 22c; firsts, 21c; at mark, cases included, 15@18c per dozen.

Potatoes.—With receipts for the first two days of this week more than double those for the same days last week prices have declined fully 10c. Demand showing some improvement. Michigan stock is

now quoted at 55@60c per bu; Wisconsin, 50@58c; Minnesota, 55@60c.

Beans.—Pea beans are 20c higher; market very firm. Choice hand-picked pea beans are quoted at \$2.48@2.55 per bu; prime, \$2.37@2.41; red kidneys, \$2.75@3 per bu.

Hay and Straw.—Market easier with the better grades of timothy quoted \$1 lower. All kinds of straw 50c@1 higher. Quotations: Choice timothy, \$22@23 per ton; do., No. 1 \$20@21; do., No. 2 and No. 1 mixed, \$19@20; do., No. 3 and No. 2 mixed, \$14@18; clover, \$15@17; do., No. 2 and no grade, \$8@13; rye straw, \$9@10; oat straw, \$7.50@8 per ton; wheat straw, \$6@7 per ton.

Boston.

Wool.—During the past week there has been an increased demand for Michigan fleeces. A general revival of the clothing market has given a new impetus to the wool trade. Lower grades of fleeces, however, are commanding the greater attention, while in territory lines the demand seems to be more general. Prices appear steady with a week ago. Quotations for the leading domestic grades are as follows: Ohio and Pennsylvania fleeces—Delaine washed, 30c; XX, 28c; fine unmerchanted, 22@23c; ½-blood combing, 25½@26c; ¾-blood combing, 25c; ¼-blood combing, 24@24½c; delaine unwashed, 25c; fine unwashed, 21c. Michigan, Wisconsin and New York fleeces—Fine unwashed, 19@20c; delaine unwashed, 23@24c; ½-blood unwashed, 24½@25c. Kentucky, Indiana and Missouri—¾-blood, 25c; ¼-blood, 23½@24c.

Elgin.

Butter.—Market firm at 29c per lb., which is last week's quotation. Output for the week, 693,700 lbs., as compared with 705,800 lbs. for the previous week.

THE LIVE STOCK MARKETS.

Buffalo.

October 16, 1911.
(Special Report of Dunning & Stevens, New York Central Stock Yards, East Buffalo, N. Y.)

Receipts of stock here today as follows: Cattle, 215 cars; hogs, 125 double decks; sheep and lambs, 145 double decks; calves, 1,500 head.

With 215 cars of cattle on our market here today, and 27,000 reported in Chicago, had there been any strictly prime cattle here today, they would have readily sold at an advance over last week. It is a positive fact that there wasn't a single straight load of good cattle on the market here today. There were a couple of loads of cattle sold for \$7.25 per cwt., but they were far from being strictly good. All other grades of cattle ruled about steady at last week's prices.

We quote: Best 1,400 to 1,600-lb. steers \$7.60@7.75; good prime 1,300 to 1,400-lb. steers, \$7@7.25; do., 1,200 to 1,300-lb. do., \$6.50@7.25; best 1,100 to 1,200-lb. shipping steers, \$5.75@6.15; medium butcher steers 1,000 to 1,100 lbs., \$5.25@5.75; light butcher steers, \$4.65@5.15; best fat cows, \$4.50@5; fair to good do., \$3.65@4.25; common to medium do., \$2.50@3.25; trimmers, \$1.75@2.50; best fat heifers, \$5.25@5.75; good do., \$4.75@5.25; fair to good do., \$4@4.75; stock heifers, \$3@3.25; best feeding steers dehorned, \$4.75@5; common do., \$3.50@4; stockers, all grades, \$3.25@3.50; prime export bulls, \$5@5.25; best butcher bulls, \$4.25@4.75; bologna bulls, \$3.25@3.75; stock bulls, \$3@3.75; best milkers and springers, \$5@6; common to good do., \$2.50@3.5.

With liberal receipts of hogs here today, market opened slow; prices on the bulk of the hogs ruling about 10c lower than the close of last week. The best quality yorkers, mixed and medium weights, sold at \$6.65@6.70, the bulk at the latter price, with a few decks of a strong weight of choice quality selling at \$6.75. Pigs show a 10c decline on the bulk of the sales; majority going at \$5.90, with quite a number of the stronger weights and best quality at 6c. The good quality rough sows sold generally at \$5.70@5.75; stags, \$4.50@5.25; light skip pigs ranging from \$4.25@5, according to weight and quality. After the opening, the market ruled fairly active at the prices. The hogs are well cleaned up except a few late arrivals.

The sheep and lamb market today was in a demoralized condition. Most of the choice lambs sold from \$5.50@5.55; few at \$5.60. Wethers from \$3.50@3.75. Don't look for much improvement the balance of the week, unless the run should be very light Friday. There will be plenty here to last until Thursday.

We quote: Best spring lambs, \$5.50@5.55; cull to common do., \$4.50@4.75; wethers, \$3.50@3.75; bucks, \$2.50@2.75; yearlings, \$4@4.25; handy ewes, \$3.25@3.50; heavy ewes, \$3.25@3.50; cull sheep, \$1.50@2.25; veals, choice to extra, \$9@9.25; fair to good do., \$8@8.75; heavy calves, \$4@5.

Chicago.

October 16, 1911.

Cattle. Hogs. Sheep. Received today 27,000 28,000 75,000 Same day last year 41,140 23,880 63,743 Received last week 58,072 124,315 218,826 Same week last year 73,919 83,730 227,748

The week opened today with an overwhelmingly large supply of sheep and lambs, a moderate run of cattle and no excessive offerings of hogs. Cattle ruled steady for the general run and about a dime higher for choice offerings, with several transactions at \$8.50 and a sale of a consignment of six car loads that averaged 1,541 lbs. at \$8.55. Any fancy beefs would have sold at \$8.60 or perhaps higher. Hogs were called steady at first, but before the close the best sold 5c higher a sale being made of 68 prime hogs that averaged 233 lbs. at \$6.80. Sales were made all the way down to \$6.05, and the top price was only a dime lower than a

week ago in spite of the greatly increased receipts last week over those for a week earlier. Common to choice light bacon hogs sold at \$6.05@6.57½; fancy light shipping hogs at \$6.60@6.80; mixed pigs weighing 110 lbs. and under at \$4@5.25; selected pigs weighing 100 to 130 lbs. at \$5.30@6.05 and stags at \$6.60@6.90. Hogs marketed last week averaged 209 lbs., a gain of eight pounds over the preceding week. Sheep and lambs met with an excellent demand today from local slaughterers, as well as from eastern shippers and feeders, but the liberality of the offerings forced further reductions of 15@25c in prices, lambs going at \$4@6; ewes at \$1.50@3.50; wethers at \$3.25@4 and yearlings at \$4@4.50. Feeder lambs sold freely at \$1@5.25. The market showed the least weakness in the choicer offerings, but even these were affected in a marked degree by the heavy supply from farm and range.

Cattle sold to better advantage last week, as country shippers pursued a more conservative course than a week earlier in making shipments, and the aggregate supplies showed quite a falling off. Western range cattle also arrived much less freely, and they, as well as farm-fed offerings, brought higher prices. Range cattle were as much as 25c higher, and choice native heavy beefs made two new high records by selling first at \$8.50 and later at \$8.60. The previous high record was made a week earlier, when steers sold up to \$8.35. Beef steers went largely at \$5.90@8, but there was a surprisingly good showing on Wednesday of prime steers that sold at \$8.05@8.50. The sale of a car load of fancy 1,480-lb. Illinois fed Angus and Shorthorns on Wednesday for \$8.60 was the highest price paid on the open market since July last year, when the top was \$8.85, while the top for the years 1910 was \$8.85 paid in June. The poorer class of grassy native steers sold last week at \$4.75@5.75, and export steers were slow and quotable at \$6.60@7.25 for medium to pretty good lots. Desirable yearlings sold at \$7.25@8.25. Cows and heifers on the butcher order went at \$3.30@7, and sales were made of cutters at \$2.80@3.25; canners at \$1.75@2.75 and bulls at \$3@5.75. Western range cattle had a good outlet, steers selling at \$3.85@7.25, and cows and heifers at \$3@5.75, with such steers as went at \$5.35 and under taken largely for fattening. The general stocker and feeder market was fairly active at \$10@15c higher prices under reduced offerings, stockers bringing \$3@5.05 and feeders \$4.40@5.90, and choice lots were scarce and very firm. Stock heifers sold at \$3.10@3.85 and feeding heifers weighing 700 to 800 lbs. at \$4@4.40. Milk-ers and springers had a good sale at \$30@75 per head, it being one of the best weeks of the year for choice cows, with not enough offered to go around. Backward springers, however, were largely a packing proposition, and such cows went at killers' prices. Western range cattle advanced 25c or more last week and native cattle 10@15c or more.

Hogs were marketed freely most of the past week, and the larger purchases made much of the time by eastern shippers helped to check the downward course of prices. Local packers were as averse as ever to paying advanced prices, however, and they usually held back and took the cheaper lots late in the day at weak to lower prices than early quotations. Little pigs rushed to market from Illinois feeding points continued to make a large part of the daily offerings and sold at a big discount from prices paid readily for matured healthy hogs. This incessant marketing of pigs is causing a revision of opinion regarding future supplies of hogs, and it is now admitted that hogs will be much scarcer than was at first expected. The spread in prices for hogs has narrowed in recent weeks a good deal, the heavier packing lots selling much closer to prime lighter weights, and prime light hogs are now going at lower figures than choice medium butcher weights. Fresh pork is still having a large sale, and there is a large cash trade in provisions, which are wholesaled much lower than a year ago, although the decline has been checked lately. On the opening day of October the five principal western markets held aggregate stocks of 168,847,000 lbs. of provisions, compared with 244,340,000 lbs. a month earlier and 119,326,000 lbs. a year ago.

Sheep and lambs were received in greatly increased numbers last week, and prices pursued a downward course much of the time, even the choicer offerings selling off. Feeding lambs had such a large decline that country buyers were able to pick up some rare bargains, and liberal numbers were shipped to feeding districts in near-by states, Michigan and Ohio obtaining their shares. Before long winter weather will shut off further range supplies, and range sheepmen have been hurrying up shipments. At the same time natives have been offered in liberal numbers, receipts hailing from all parts of the corn belt states, including Wisconsin, Minnesota and South Dakota. Breeding ewes had a good demand at \$3.75@4.50 per 100 lbs., yearlings going the highest. Sheep sell at much lower prices than in most former years, and the best lambs make an even worse showing, but after the range shipping season is over a better show will be seen for sellers. Prices declined during the week 35@75c for lambs and 15@25c for sheep and yearlings.

Horses of the better class have been selling all right, with hardly enough prime heavy ones offered to meet the good demand, while the inferior animals were hard to dispose of at steady prices. Too many horses weighing around 1,400 lbs. are shipped in, while the demand calls for a high-class grade of drafters weighing at least 1,600 lbs. A good to prime grade of heavy drafter goes at \$225@325 per head, with a lighter kind going at \$175@220 and wagoners fetching \$160@200.

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.

October 19, 1911.

Cattle.

Receipts, 950. All grades steady at last week's prices; quality very common. We quote: Best steers and heifers, \$5.50; steers and heifers, 1,000 to 1,200, \$4.50@5.25; do. 800 to 1,000, \$4@4.50; grass steers and heifers that are fat, 800 to 1,000, \$4@4.50; do. 500 to 700, \$3.50@4.25; choice fat cows, \$4@4.50; good do. \$3.50@3.75; common cows, \$2.75@3.25; canners, \$2@2.50; choice heavy bulls, \$3.75@4; fair to good bolognas, bulls, \$3@3.25; stock bulls, \$2.75@3; choice feeding steers, 800 to 1,000, \$4.25@4.75; fair do. 800 to 1,000, \$3.75@4; choice stockers, 500 to 700, \$3.50@4; fair stockers, 500 to 700, \$3@3.50; stock heifers, \$3@3.25; milkers, large, young, medium age, \$4@5.50; common do. \$2.50@3.50.

Roe Com. Co. sold Parker, W. & Co. 4 cows av 900 at \$3.50; to Regan 8 butchers av 527 at \$3.35; to Hammond, S. & Co. 1 cow weighing 1,000 at \$2.75; to Bresnahan 1 do weighing 740 at \$2.50; to Rattkowsky 3 butchers av 787 at \$3.50; to Kamman B. Co. 15 steers av 987 at \$4.85; to Hammond, S. & Co. 1 cow weighing 1,000 at \$2.75, 4 cows av 930 at \$2.75; to Sullivan P. Co. 1 bull weighing 1,170 at \$3.75, 1 steer weighing 550 at \$3.75, 11 butchers av 791 at \$4, 1 canner weighing 740 at \$2.50; to Regan 7 butchers av 593 at \$3.25; to Parker, W. & Co. 3 canners av 583 at \$3, 2 bulls av 910 at \$3.50, 22 butchers av 605 at \$3.75.

Bishop, B. & H. sold Bresnahan 4 canners av 900 at \$2.25; to Parker, W. & Co. 1 steer weighing 930 at \$4, 1 bull weighing 1,330 at \$3.75, 5 butchers av 650 at \$3.50, 1 cow weighing 810 at \$2.50, 1 do weighing 910 at \$3, 1 do weighing 1,030 at \$3.25, 1 do weighing 920 at \$3, 2 canners av 775 at \$2.50; to Kamman 5 butchers av 876 at \$4.50; to Rattkowsky 2 bulls av 690 at \$3.50; to Fromm 10 butchers av 635 at \$3.25; to Hammond, S. & Co. 10 steers av 880 at \$4.50, 15 do av 953 at \$4.75; to Newton B. Co. 2 bulls av 750 at \$3.25, 1 do weighing 940 at \$3.50; to Fromm 4 butchers av 553 at \$3.35; to Rattkowsky 5 steers av 880 at \$4; to Hammond, S. & Co. 2 cows av 960 at \$3, 4 do av 885 at \$2.50, 4 canners av 950 at \$2.50, 4 bulls av 925 at \$3.50; to Parker, W. & Co. 4 heifers av 532 at \$3.15, 2 cows av 895 at \$3, 5 do av 910 at \$2.50, 4 butchers av 655 at \$3.75, 2 cows av 765 at \$2.75, 6 do av 1,063 at \$3.40, 2 bulls av 705 at \$3, 1 do weighing 930 at \$3.50; to Sullivan P. Co. 8 butchers av 731 at \$4, 3 do av 770 at \$4.25, 2 do av 1,145 at \$4, 1 steer weighing 1,020 at \$5.50, 2 do av 825 at \$4.40; to Bresnahan 4 cows av 890 at \$2.65.

Spicer & R. sold Kamman 4 butchers av 835 at \$4.05; to Sullivan P. Co. 1 bull weighing 970 at \$4, 1 do weighing 920 at \$3.50, 1 do weighing 430 at \$2.75, 1 do weighing 1,350 at \$4, 5 heifers av 680 at \$3.25, 4 cows av 945 at \$3.50, 3 do av 883 at \$2.75, 1 do weighing 820 at \$3; to Bresnahan 4 canners av 835 at \$2.50, 1 do weighing 850 at \$2, 3 do av 880 at \$2.50, 3 do av 790 at \$2, 7 heifers av 620 at \$3.35; to Sullivan P. Co. 4 steers av 732 at \$4.50, 4 cows av 895 at \$3.75, 2 cow and steer av 715 at \$3.25; to Mich. B. Co. 1 bull weighing 530 at \$3, 1 cow weighing 930 at \$3.25; to Gust 2 stockers av 475 at \$3.50; to Breitenbeck 9 butchers av 857 at \$4.25; to Hammond, S. & Co. 1 canner weighing 870 at \$2.50, 2 do av 875 at \$2.25, 1 do weighing 1,020 at \$2.75.

Haley & M. sold Sullivan P. Co. 1 steer weighing 1,070 at \$5, 1 bull weighing 1,460 at \$4.10, 1 do weighing 1,580 at \$4, 2 do av 790 at \$3.60, 1 do weighing 1,000 at \$3.75, 9 butchers av 840 at \$3.90; to Regan 4 bulls av 562 at \$3, 8 heifers av 542 at \$3.40; to Schlischer 8 butchers av 740 at \$3.80; to Applebaum 4 do av 925 at \$3.60, 1 cow weighing 1,050 at \$3.25; to Goose 1 cow weighing 1,000 at \$3.25, 10 butchers av 528 at \$3.40; to Kamman 6 do av 641 at \$3.90, 1 cow weighing 1,170 at \$3.90; to Hammond, S. & Co. 8 do av 859 at \$2.75; to Schlischer 15 butchers av 770 at \$4.30; to Mich. B. Co. 1 bull weighing 1,030 at \$3.65; to Houghton 13 stockers av 620 at \$4, 8 do av 665 at \$4.

Adams sold Parker, W. & Co. 4 cows av 982 at \$3, 2 bulls av 1,000 at \$3.75. Same sold Mich. B. Co. 7 butchers av 743 at \$4.

Veal Calves.

Receipts, 572. Market 50c lower than last Thursday. Best, \$8@8.50; others, \$3.50@7.50; milch cows and springers steady.

Roe Com. Co. sold Mich. B. Co. 3 av 140 at \$7.50; to Newton B. Co. 7 av 130 at \$8, 3 av 150 at \$7.50.

Lewis sold Mich. B. Co. 5 av 145 at \$8.50.

Spicer & R. sold Nagle P. Co. 33 lambs at \$8, 5 av 145 at \$8.50; to Applebaum 4 av 130 at \$3.75; to Goose 6 av 130 at \$7.50. Haley & M. sold Burnstine 15 av 140 at \$8.50; to Goose 4 av 120 at \$8; to Newton B. Co. 11 av 145 at \$8, 4 av 120 at \$6; to Mich. B. Co. 9 av 150 at \$7.75.

Bishop, B. & H. sold Mich. B. Co. 1 weighing 130 at \$8.50, 2 av 150 at \$8.50, 3 av 140 at \$8.50; to Goose 2 av 260 at \$3, 2 av 330 at \$3; to Friedman 9 av 140 at \$8.50; to Rattkowsky 4 av 120 at \$7.50; to Thompson Bros. 11 av 150 at \$8; to Nagle P. Co. 6 av 150 at \$8.25, 3 av 140 at \$8.

Receipts, 3,933. Quality considered, market is steady with Wednesday and last week's close. Best lambs, \$5.35@

5.50; fair do. \$4.75@5; light to common do. \$3.25@4.50; fair to good sheep, \$3@3.50; culled and common, \$2@2.75.

Roe Com. Co. sold Mich. B. Co. 8 sheep av 120 at \$3, 20 do av 110 at \$3, 14 do av 120 at \$3; to Sullivan P. Co. 22 lambs av 60 at \$4, 51 av 62 at \$4.25; to Nagle P. Co. 158 do av 75 at \$5, 37 do av 83 at \$5.25; to Newton B. Co. 52 do av 80 at \$5.

Harland sold Nagle P. Co. 18 sheep av 70 at \$3, 61 do av 60 at \$4.90, 89 do av 77 at \$5.

Spicer & R. sold Nagle P. Co. 3 lambs av 70 at \$5.15, 28 do av 85 at \$5.40; to Sullivan P. Co. 65 do av 70 at \$5.

Johnson sold Sullivan P. Co. 46 lambs av 70 at \$4.85.

Haley & M. sold Nagle P. Co. 23 lambs av 70 at \$5.25, 43 do av 70 at \$5.25, 49 do av 70 at \$5.25.

McLachlin sold Newton B. Co. 17 sheep av 80 at \$3, 42 lambs av 77 at \$5.25.

Groff sold Hayes 8 lambs av 65 at \$5, 10 sheep av 117 at \$2.75.

Bishop, B. & H. sold Mich. B. Co. 4 sheep av 125 at \$3.25, 3 do av 135 at \$3, 32 do av 85 at \$3, 11 do av 100 at \$2.75; to Hayes 29 lambs av 47 at \$3.60, 15 do av 56 at \$5; to Newton B. Co. 27 sheep av 110 at \$3.25, 34 lambs av 45 at \$3.50; to Sullivan P. Co. 104 lambs av 75 at \$5.25, 70 do av 77 at \$5, 65 do av 70 at \$5, 51 do av 82 at \$5.25, 11 sheep av 115 at \$3, 18 do av 80 at \$2, 28 do av 75 at \$1.50, 8 lambs av 60 at \$4.50; to Thompson Bros. 10 do av 79 at \$5, 38 do av 75 at \$5; to Nagle P. Co. 12 do av 70 at \$5, 116 do av 68 at \$5.25, 139 do av 70 at \$5, 45 do av 67 at \$5.25; to Breitenbeck 9 do av 52 at \$4.25, 12 do av 55 at \$4.25, 65 do av 73 at \$5, 18 do av 75 at \$4.25; to Barlage 46 do av 65 at \$5, 17 sheep av 55 at \$3; to Fitzpatrick Bros. 49 sheep av 87 at \$3.25, 5 lambs av 82 at \$5.50; to Mich. B. Co. 96 do av 75 at \$3.35; to Young 50 do av 75 at \$5.25; to Fitzpatrick Bros. 37 do av 72 at \$5.25, 29 do av 70 at \$5.50, 16 sheep av 95 at \$3.

Hogs.

Receipts, 6,488. Good grades 5c higher; 215 av 200 at \$6.65, 350 av 180 at \$6.60, 150 lower than last week. Range of prices: Light to good butchers, \$6.40@6.60; pigs, \$5.75@5.90; light yorkers, \$6.40@6.60.

Spicer & R. sold Hammond, S. & Co. 215 av 200 at \$6.55, 350 av 180 at \$6.60, 150 av 170 at \$6.55.

Haley & M. sold same 580 av 190 at \$6.65, 180 av 170 at \$6.50, 150 av 150 at \$6.40.

Bishop, B. & H. sold Parker, W. & Co. 1,640 av 190 at \$6.65, 1,615 av 170 at \$6.60, 525 av 150 at \$6.50.

Roe Com. Co. sold Sullivan P. Co. 325 av 180 at \$6.60, 176 av 170 at \$6.40.

Good hogs closed 5c higher; pigs steady with opening.

Friday's Market.

October 13, 1911.

Cattle.

Receipts this week, 2,019; last week, 1,302. Market dull at Thursday's prices. We quote: Best steers and heifers, \$5.50@5.60; steers and heifers, 1,000 to 1,200, \$4.50@5.25; do. 800 to 1,000, \$4@4.50; grass steers and heifers that are fat, 800 to 1,000, \$4@4.50; do. 500 to 700, \$3.50@4.25; choice fat cows, \$4@4.50; good do. \$3.50@3.75; common cows, \$2.75@3.25; canners, \$2@2.50; choice heavy bulls, \$3.50@4; fair to good bologna bulls, \$3@3.25; stock bulls, \$2.75@3; choice feeding steers, 800 to 1,000, \$4.25@4.75; fair do. 800 to 1,000, \$3.75@4; choice stockers, 500 to 700, \$3.50@4; fair do. 500 to 700, \$3@3.50; stock heifers, \$3@3.25; milkers, large, young, medium age, \$4@5.50; common milkers, \$2.50@3.50.

Receipts this week, 900; last week, 909. Market very dull and 25c lower; common grades \$1 lower; best, \$8.50@8.75; others, \$3.50@8.

Milch cows and springers steady. Receipts this week, 9,817; last week, 7,568. Market 10@15c lower than on Thursday. Best lambs, \$5.35@5.40; fair lambs, \$4.75@5; light to common lambs, \$3.50@4.50; fair to good sheep, \$3@3.25; culled and common, \$1.50@2.50.

Receipts this week, 7,539; last week, 7,957. Market steady at Thursday's prices. Range of prices: Light to good butchers, \$6.40@6.60; pigs, \$6@6.15; light yorkers, \$6.40@6.55.

Recent prices for range feeding lambs, yearlings and sheep have been greatly under those paid last year, and buyers have been able to pick up so many first-class bargains that it is no wonder they have embraced the opportunity so extensively. The losses involved in feeding lambs and sheep usually come from paying too high prices at the start, and men who have been buying of late should come out well ahead, providing they make their holdings good and fat.

Before very long the ranges will cease marketing sheep and lambs, and then feeders throughout the country will stand a much better show for marketing fat stock at satisfactory prices. There have been liberal numbers of range lambs and sheep shipped to feeding districts in recent weeks, but the season's shipments of such flocks have fallen far behind last year, and prime live muttons are expected to make good profits for their owners.

ENTRIES FOR INTERNATIONAL CLOSE NOVEMBER 1.

The entries for this year's International Live Stock Exposition, to be held at the Union Stock Yards, Chicago, Ill., December 2-9 inclusive, will close on November 1. Thus prompt action is necessary on the part of all who would exhibit stock at this greatest of American shows. Write at once to Secretary B. H. Heide for a classified premium list, if entries for the show are contemplated. Also prepare to attend this greatest of educational shows and profit by the many lessons which it affords for the practical farmer and feeder, as well as the breeders of pure-bred animals.

CROP AND MARKET NOTES.

Livingston Co., Oct. 9.—The weather conditions have been anything but favorable for securing the bean crop, it having rained about every other day since after the first week of bean harvest. Many fields have been nearly ruined and the heavy rains have wet those that have been stacked so they are rotting in the stacks. These conditions, coupled with the extremely dry weather during the summer, have made the growing of this crop very unsatisfactory this season, but the price for beans is now soaring so those few who secured their crop early will likely get a big price. Pastures and new seeding making a good growth since the rains. Corn fodder has been injured considerably by the continued wet weather. Not much husking done yet. Not many bean fields have been sown to wheat, owing to the wet weather and as a result more rye will be sown than usual. Late potatoes promise a good yield.

Ottawa Co., Oct. 9.—The first killing frost of the season occurred on the morning of October 8. It may injure the corn some that is intended for ensilage, but otherwise no material damage has been done. A few silos in this immediate vicinity have been filled, but there is quite a number yet to fill. The reason for this is on account of so much rainy weather for the past two weeks. The ground is so thoroughly saturated with water that it is impossible to use binders, and some have been trying to cut ensilage corn by hand, but they have found this a slow and tedious job, because so much of the corn has been blown down and badly tangled. Most of the beans grown in this section have been secured before the heavy rains. There is still some clover seed in the swath in the fields, and it has commenced to sprout on account of the wet weather. Some farmers who intended to sow wheat after the corn was removed, have had to give it up.

Eaton Co., Oct. 7.—A light frost the morning of the 5th, not enough to do much damage. Farmers with a late bean crop are having strenuous times, as it has been raining almost daily for the past two weeks. Beans that have been out will be worth little except for hog feed. It will mean quite a loss for this section, as they are extensively grown. Corn was mostly cut before the rains began, and the rains have boomed the wheat crop in fine shape, and have given new life to pastures. Farmers are busy gathering the apple crop, which is good where the trees were sprayed. Farmers are realizing more and more that it pays to spray thoroughly. Beans, \$2; wheat, \$3@3.75; rye, 85c; corn, 68c; oats, 42c; potatoes, 90c; butter, 25c; eggs, 18@24c, according to size; hogs, \$5.50@5.90; lambs, \$2.50@5; calves, \$4@7; apples, \$1.25 for best winter fruit. Best timothy hay \$15.

Emmet Co., Oct. 3.—Weather cool and rainy. Yield of grain, especially oats, is light. An average acreage of fall grain being sown. Some up and showing green and more going in. County fair very successful, with an especially fine showing of fruit. Silos being filled and other farm work going forward. Prospects good for an average yield of late potatoes. A fair crop of apples, buyers paying \$1.25 per barrel.

Indiana.

Laporte Co., Oct. 9.—The first frost of the season was here yesterday morning. Mercury 32 degs. at 5:00 a. m., after a rainy period of nearly two weeks. Corn mature and mostly cut. Cowpeas and buckwheat mostly cut, but in the field. Potatoes are a fair crop from late planting. Apples plentiful and most perfect crop in years, cheap in price. Wheat seeding late for fear of Hessian fly. Pasture has grown since the rain. Stock mostly in good shape. Dairy cows have the lead now in profit. Buter, 35c; milk not very plentiful. Farmers are building silos and have them filled with corn. The labor problem is a great question on the farm, and how to economize feed and labor is before them. Autumn tints are on the trees and it bids fair for an early winter.

Ohio.

Carroll Co., Oct. 2.—The weather down here is damp and we had a few big rains. The creeks got so high that they did some damage to farmers who had crops in the bottoms. The corn is nearly all cut and it is a fair crop. Buckwheat is nearly all threshed and it was a very good crop. The grass in the pastures freshened up a lot after the recent rain. Potatoes will be a poor crop. Sheep and hogs are doing well. Corn, 75c per bu; oats, 50c; buckwheat, 85c; rye, 95c.

Montgomery Co., Oct. 2.—Rains the past two weeks have wet the ground and renewed the pastures. Some seeding done but the ground is too wet to work now for a few days. We have had no frost as yet. Harvesting the corn is the order of the day, it being a fairly good crop. The spring seeding is almost a failure on account of dry weather that prevailed the fore part of summer. Hay scarce and high in price.

Wayne Co., Oct. 2.—The weather has been very changeable, having lots of rain on the night of September 14, when four inches of water fell in the night, raising small streams, overflowing all bottom land and washing some corn that was cut, entirely away, besides killing all low land pastures. The Wayne county fair was in progress and the heavy rain flooded the fair ground to a depth of about three feet, on account of which they postponed the fair. Corn is nearly all cut now, and is shocking up good. Wheat not nearly all sown yet on account of wet weather, the ground being soggy and not fit to work. What wheat was sowed before heavy rain nearly all drowned out. Markets about steady. Wheat has advanced a little and pork is somewhat lower in price. Potatoes are worth about 90c per bu. at retail; butter, 25c per lb; eggs, 20c per dozen.

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POULTRY AND BEES

MEETING THE WINTER DEMAND FOR YOUNG POULTRY.

The practice of breeding in late fall or winter is one which has always to some extent been adopted by those who go in for special branches of table poultry production, but under ordinary circumstances the general poultry keeper does not attempt breeding during the winter months, especially where his main object is egg production. In France it is customary among poultry keepers generally not to commence setting hens until after Shrove Tuesday, and in Denmark I found that the bulk of the hatching takes place during the latter part of March and the month of April. Under these circumstances it will be seen that the work is simplified to a considerable extent, but that the period during which young fowls are available for market is considerably shortened. Still, where egg production has been the main object, poultry farmers have seemed averse to extending the period of hatching and rearing, many even failing to appreciate the necessity of getting chicks out of the shells three or four weeks in advance of the natural hatching period if they would insure an egg supply for the following winter. Anyhow, such an advance of the hatching season would hardly be termed winter breeding.

The main purpose in breeding in the winter season is that of placing upon the market chickens, ducklings, etc., at a time when they command the highest price by reason of their scarcity. This work has been largely in the hands of those who may be termed breeders of table poultry, yet there is no good reason why the ordinary poultry farmer should not produce such young fowls for the winter market.

Increased Interest on Incubator Investment.

To the man who has adopted the incubator system of hatching, as well as to the one who contemplates obtaining a machine during the coming winter, hatching during the cold months will suggest some advantages aside from meeting the demands of a good market. It will at least serve to prevent the incubators standing idle through so large a part of the year and, under right conditions, should make them yield a materially greater return on their purchase price. As to whether the conditions and facilities warrant engaging in this line of production, however, is a question which can only be answered by the individual himself, but there can be little doubt that there are many farmers who have the time and can easily provide the facilities that would enable them to have chickens and ducklings available at the time when prices are highest if they would only take the necessary trouble, and this without seriously interfering with their efforts at egg production.

Where winter breeding is undertaken it is necessary to take steps to carry it out properly. One of the first things to consider is the fowls themselves. It has been proven that we can breed from a single pen for eight or nine months of the year, but I question very much whether this is desirable. A good deal more experience, especially experience which has been under careful observation, is necessary to determine the effect of prolonged breeding upon the vigor of the chickens so produced. Therefore, I am inclined to think that wherever winter breeding is taken up it will be better to use special breeding stock. In fact, in some directions it is essential to do so. Take the case of ducklings; if we go in for breeding ducklings we must have young fowls to give us eggs early in the season. If we depend entirely upon older fowls, as a rule, we shall be disappointed.

Young Breeding Stock Will Do for Producing Market Stock.

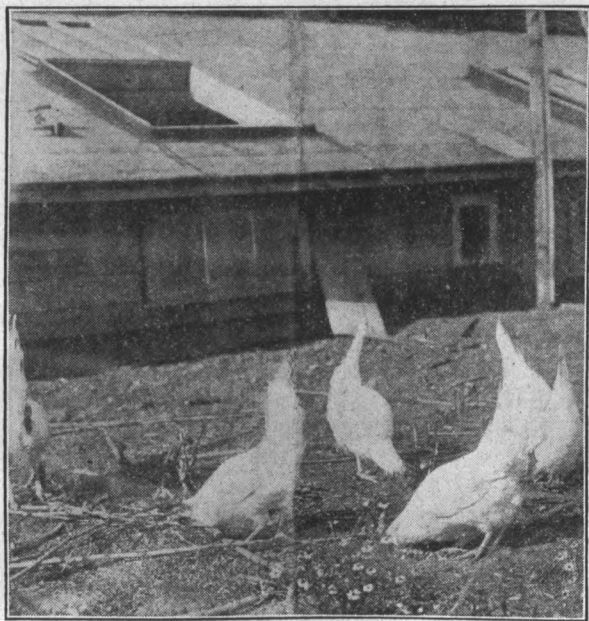
Under these circumstances breeders generally are obliged to resort to the use of young stock in the breeding pens in order to secure the necessary eggs at the right time. This in itself is undesirable, unless the progeny are all to be marketed, and should not be resorted to more than we can possibly help. Very often the progeny from these young fowls appear, in the first instance, pretty nearly as vigorous as those from older stock, but it is known that there is a certain amount of loss of vigor as a result of breeding from immature fowls, and that this practice, carried out season after season, has a good deal to do with re-

duced vitality and greater tendency to disease on the part of our domestic poultry. Still, we cannot help ourselves and must, if we go in for this branch of the trade, utilize the earlier laying qualities of the young stock.

Where, however, the chief mistake is made is that, say, a pen is mated in October or November consisting of a cockerel and several pullets. From these we obtain eggs which are used for hatching winter chickens. The right way to proceed would be, as soon as the older hens begin laying as they will probably do in December or January, to break up the pen of young breeders and make the pullets a part of the laying flock. If that were done systematically and regularly it would tend to strengthen the race; but many poultry keepers, finding that they are breeding good chickens from a pen of young fowls, and also that the eggs are coming bigger in size and better, are tempted to go on breeding and producing stock fowls from the pullets that were mated for the special purpose named above. This is a serious mistake. Even in the case of mature fowls there must always be a tendency towards reduced vitality on the part of offspring if the parents have been used for breeding for a prolonged period, but this tendency is enormously increased in a case of young stock mated prematurely. Therefore, what might be done with two-year-old hens ought not to be attempted with yearlings or those even younger.

Something, however, can be done in another way. If a male bird has been used for, say, three months with a flock of hens, it is a very excellent plan to substitute another and in this way bring a stronger and fresher influence to bear. As a principle, however, we ought to use the two-year-old hens and not the yearlings for producing breeding stock. I know it is sometimes difficult to apply this rule, but it is nevertheless one which should be kept in view. I was interested to find that in some of the best poultry establishments in Denmark, the rule is consistently practiced of using yearlings only as layers and not employing them for breeding purposes until twelve months afterwards. I would like to see this rule more commonly adopted in our own country.

For winter breeding we want the proper conditions. There are many places



which would be utterly unsuited to the production of poultry in winter, and even such matters as the lay of the land have a bearing. During the winter it is desirable to have as warm a place as we can secure, naturally warm, that is, not artificially, and therefore any position which enables us to get the advantage of all the sunshine that is going, and where the ground is dry and kindly, will be likely to yield the best results. On the other hand, a cold, sunless place, where the ground is harsh, would not be conducive to success. We do not want a place which is too much closed in by woods. In fact, the less we have of woods in winter, except to break wind, the better. Then it is a prime necessity that we adopt artificial methods, and to that end the use of incubators and brooders is a factor which cannot be ignored. Anyone who took up winter production of poultry and was dependent entirely upon natural methods would have to keep a race of fowls such as the Huttegens of Belgium, the hens of which become broody after having laid seven or eight eggs. Artificial methods are surely preferable to this.

Canada.

W. R. GILBERT.

THE DUCKS IN WINTER.

It is time to prepare winter quarters for the ducks and to educate them up to occupying them these cool nights. This can be done by driving them in for a few nights and closing the door. It is easy to drive the ducks wherever you want them to go. They will soon learn where they belong and will go in every night of their own accord.

Many people allow their ducks to wander about at will all day, sleep where they can at night, and pick up for themselves what food they can find. This method may do in summer, but in winter we must look after them well, giving them good quarters and a variety of food if we are to get the greatest number of eggs from them and are to realize the largest amount of profit.

An old house or shed, even though it is not very warm, will serve as winter quarters for ducks if it is dry and substantial enough to give them protection from cold winds. Ducks can stand a good deal of cold, as they are well protected by feathers, but dampness does not agree with them, causing lameness. The quarters should be kept well bedded with dry straw through the winter months. As soon as the old bedding becomes damp or soiled, replace it with fresh material.

Ducks require the least time and attention of any fowl. Supplying them with food and water, and keeping their quarters clean, is about all the attention they require. Ducks lay their eggs on the floor, so we need not provide them with nests.

For the morning meal in winter a mash composed of bran, cornmeal and cooked vegetables is excellent. Then give them a supper of whole grain. Too much hard grain is not good for ducks and they should not have more than one meal a day of it. Between meals they may be given some cabbage to work at. The ducks must have plenty of water while they eat. A good supply of grit should be kept before them also.

Indiana.

WM. PURDUE.

ROOF WINDOWS AS A MEANS OF ADMITTING SUNLIGHT.

The accompanying reproduction of a photograph taken upon a farm in Gratiot county shows a section of a poultry house which is unlike most poultry houses in the provision made for admitting sunlight to the building. The builder of this house, instead of depending entirely upon windows in the walls, devised a satisfactory way of inserting windows in the roof of the building. The house was covered with prepared roofing material and this was so fitted about the frame or rim of the window as to obviate all chance of leaking, a difficulty which in the past has caused the construction of roof windows to be looked upon with disfavor. A good tight sash was then hinged to the upper edge of the frame, this sash being large enough to extend beyond the frame on all sides. The sash is fastened down securely during inclement weather and thrown back, as shown in the picture, on warm sunny days.

NEEDS OF POULTRY AFTER THE RANGE SEASON.

It goes without saying that winter production of eggs is a craft about which most of us are woefully ignorant. In fact, there is no part of poultry raising that requires more skill and judgment than winter feeding. In these times, when fresh eggs readily command remunerative prices, it pays to cast about us and find out if possible what methods of feeding and what varieties of feed will produce greatest results.

In summer time, especially where hens are running at large, provided a reasonable allowance of grain is fed they will balance their ration and the question of egg supply is practically solved. With poultry kept in confinement, of course, the question of proper balance is ever present. The feeder who throws out a quantity of corn or other grain to his hens and says poultry feeding is easy, is laboring under a mistaken idea which

Stops a Deep-Seated Cough in a Hurry

A Family Supply of Unequaled Cough Remedy for 50c—Money Refunded if It Fails.

Cough medicines, as a rule, contain a large proportion of plain syrup—a good ingredient, but one that anyone can make. A pint of granulated sugar, with ½ pint of warm water, stirred for 2 minutes, gives you as good syrup as money can buy.

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Pinex has often been imitated, but never successfully, for nothing else will produce the same results. The genuine is guaranteed to give absolute satisfaction or money refunded. Certificate of guarantee is wrapped in each package. Your druggist has Pinex or will get it for you. If not, send to The Pinex Co., 232 Main Street, Fort Wayne, Indiana.



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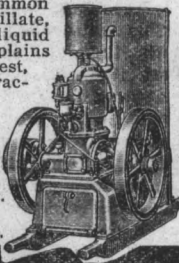
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BUFF & White Orpingtons, Buff & White Leghorns Buff & White Rocks, & R. C. Rhode Island Reds Ckls. Selects \$3. Mediums \$2. Utility \$1.50 each. Satisfaction guaranteed. H. H. KING, Willis Mich.

"EGGMAKERS"—S. C. Brown Leghorn Cockerels State wide reputation. I can sell you. Write me. Wm. J. Cooper, Mt. Pleasant, Mich.

THOROUGHbred S. C. BROWN LEGHORNS. A fine lot of COCKERELS at right prices. LEWIS T. OPPENLANDER, R. No. 4, Lansing, Mich.

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

SILVER, Golden and White Wyandottes of quality, young stock after November 1st. Fine circular free. A few white roosters, C. W. Browning, Portland, Mich.

WHITE WYANDOTTES—Useful and beautiful. The kind that weighs, lays and pays. A. FRANKLIN SMITH, Ann Arbor, Mich.

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TRAINED running Fox Hounds, and some partly trained rabbit dogs, and Shetland Ponies. Ferrets wanted. Send stamp. W. E. LECKY, Holmesville, O.

For Sale, Collies—Extra fine brood matrons. Best of breeding, open and bred. Also puppies. W. J. ROSS, Rochester, Mich.

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will surely be rebuked or disputed by the egg supply.

The shell of the egg is largely composed of lime, and no other known element will form the shell. So if we have eggs at all they will have soft shells unless the lime content of the food is ample. The feathers, the white of the egg, the lean meat and muscles contain a large proportion of nitrogen, and that element must be present in the food in order to produce a healthy, well-developed hen capable of egg production. Chemists call this element protein, but a simpler form of English is muscle-making material. The fat of the body is made from sugar, starch and like materials, which are known as fat-makers, but they can by no possibility produce either lime, white of the egg, feathers or muscles. So we have only to exclude the foods containing these latter elements, and give a ration in which the fat-producing elements predominate to make the hen stop laying and put on fat.

When the food is so prepared or compounded that all the above elements are present in proper proportion, and there is not an oversupply of one or a lack of another, it is said to be a balanced ration.

Left to run at her own sweet will and seek the food she desires, as insects, weed seed, grass, etc., the hen is smart enough to balance her own ration and will do so, provided the foods are obtainable. She is endowed with instinct to properly supply her needs and so combine them that every requirement is satisfied and all parts of the body are sufficiently nourished; and this fact is the principal reason for the feast of eggs in summer time and the famine in winter.

Now what is the remedy, and how may we reverse conditions sufficiently at least that the egg basket may be filled in winter as well as in summer? In a general way we cannot do this in the fullest sense of the word, for the reason that in cold climates we cannot give the fowls summer conditions in the winter time. We may, however, remedy present evils and make a long stride toward the desired goal by simply getting down close to nature. This means that we must closely study the hen, her habits and requirements. It also means that the foods must be so selected that they shall combine, in proper proportion, all the essential elements that go to make up the well developed business hen.

Wayne Co.

J. E. MORSE.

PREPARING BEES FOR WINTER.

As to passageways through the combs, there is difference of opinion. However, my experience leads me to conclude that they are unnecessary. It is true they afford an opportunity for an outer portion of the cluster to reach an adjacent inner comb space, if the bees happen to be located directly over the passageway and the weather is warm; otherwise, they serve no purpose. I have settled down, for my own part, to using a woolen blanket or carpet cover, placing on top of it porous and absorbent material, such as sawdust, chaff, cut straw and forest leaves. The woolen material next the bees conveys the moisture to the other side of the piece of blanket or carpet, where contact with the absorbent material causes it to pass upward, so rendering it harmless to the bees. I suppose there is the slightest possible ventilation, a sort of slow percolation of air and moisture, but it works well, provided the entrance of the hive is not too narrow and contracted. Bees exhale vapor, and when this vapor strikes the cold walls of the hive it sometimes congeals into frost there, melting into water and running out of the hive as soon as the weather is warm enough. Sometimes it merely condenses into water and runs out of the hive as soon as enough is collected. Whether cold or warm, this vapor is being sent off at all times, only when it is warm enough it does not condense into water or ice, often mistaken for mold.

The bees must be kept dry and also warm. A substantial hive, with a tight roof, will keep rain and snow from the cluster. A few inches of dry porous material, such as chaff or ground cork, packed between the cluster and the roof, will have a good effect in keeping the bees comfortable by allowing the moisture to pass off slowly. A draft would be injurious. I advise a windbreak of some sort on the north and west sides of the hives. Also guard against mice; have the hive entrances shallow and long, rather than round. In conclusion I would say, do not delay in preparing the bees for winter. Commence early and feed if necessary.

New Jersey.

F. G. HERMAN.

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Crackers
Grew
on Trees

Nature would cover them with shells, like nuts, protecting from moisture, mildew, dirt and insects.

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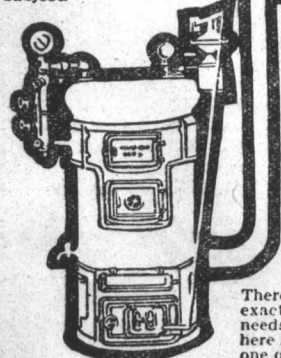
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It tells, in non-technical language, just what you ought to know about the various methods of heating houses. It tells how hot water heats and how steam heats and the difference between the two. It points out the shortcomings of hot air—in fact, covers the whole subject.

There is another
winter coming. Does it
mean stove drudgery, excessive
coal bills and only a partly
heated house for you?

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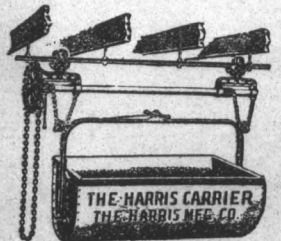
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HORTICULTURE

FEEDING THE SOIL FOR FRUIT GROWING.

The above is far from a new subject. To those who have been carefully following this line for several years the following article may contain little new. In the older fruit sections of our country this subject has been under careful advisement for a long time and problems that have been fairly solved in many places may be just now presenting themselves to others.

The soil question is the greatest subject before the American people today. Local in its manipulation, far-reaching in its aspect, and to a high degree the victim of every tiller of the soil, this question comes to us with appalling complexity. A community becomes great in any line in direct proportion to the way the rank and file of its farmers apply themselves to the many problems affecting maximum production. Hence the first fertilizer we must use in fruit growing, is brains, and it is the very best article we can commend.

A good soil, locally speaking, is one that contains all of the elements necessary for crop production in such a shape that they can be readily assimilated and at the same time furnishes a congenial home for the plant.

New soils are not necessarily ideal for the production of fruit plants. Often they contain too much nitrogen and possibly too much humus, and where new areas have been badly burned they may be quite lacking in one or both of these vital elements. Again old soils that have been well handled may furnish an ideal location for a fruit area. We must know as far as possible the conditions necessary and supply those conditions to the best of our ability.

Some Essentials for Soil Feeding.

1. Learn, as far as possible, the history of your fruit area. A piece of land that has been heavily cropped for a long period will require different handling from a like soil recently reclaimed. The older soil may be short in mineral fertilizers even if a good system of farming has kept the soil in good mechanical condition.

2. Note the natural formation of the soil. Soils of either gravel or sandy origin are likely to run short in potash salts first and are often likewise wanting in sufficient phosphoric acid. A clay loam usually carries enough potash to run it for many years, while the phosphoric acid content often runs short with a few years of heavy cropping.

3. Note the physical or what is termed the mechanical condition of the area. Mechanical conditions means generally two things—a soil well supplied with vegetable matter, so as to render it loose and friable, and likewise make it a congenial place for the trees to live. A soil wanting in the necessary vegetable matter becomes too subject to changes of temperature for good results. Also, it is more easily influenced by drouth. In strong lands the opposite extreme is easily found and a soil too rich in vegetable matter not only causes fruit trees generally to produce an excessive growth of wood that is sappy and immature but such conditions rarely produce good fruit buds.

4. Note, if possible, what has been the behavior of similar soils in the past under like conditions. Observation in this line may save some serious mistakes in subsequent operations.

It is a matter of common observation that soils vary greatly in their wearing ability. A soil that is quick to feel the drain of constant cropping must be more heavily fed than stronger soils. However, it is axiomatic that a system of fruit growing that soon exhausts a poor or light soil must in time render the stronger areas unprofitable. Michigan's fruit belt is already old enough to have many of her best orchard lands completely worn out by intensive cultivation. Every careful student of the soil has come to recognize thorough tillage, or cultivation of the soil as an exhaustive process. The farm or orchard that is run under neglect is being robbed of its virgin fertility much less rapidly than is a similar piece of land subjected to the most intensive methods in constant cultivation. Do not let me be misunderstood, for best results the fruit area must have in the growing period constant cultivation. The resources that we tap in so doing are our "stock in trade." Nature does not object to our drawing on the reserve, she

only requires that, like our bank deposits, we must keep the balance on the right side or we must in time come to grief.

It is evident from the foregoing that it may take years of mismanagement on some strong soils to bring mistakes to the surface. As a people, traditionalism and prejudice rules us to a high degree. The simple subject of feeding the soil often stirs up more feeling in a farmers' meeting than a heated political debate. Theories are attractive but often misleading. Liebig's theory of mineral manures was fine to contemplate but in practice it ruined the farms.

Fruit growers' experience everywhere has proven that:

1. Most soils gradually play out when subject to a heavy cropping of fruit.
2. The necessary cover crops and elements can furnish what the fruit plants must have.
3. These elements must be carefully and systematically applied if we would get best results.
4. We learn the personal needs of every kind of soil in the fruit area by experimental plot work.
5. We should not expect the chemist with a sample of our soil to tell us what it will take one or more years to learn for ourselves.

Thorough cultivation, then, is our great recourse to what the soil already has to give us. It also must conserve moisture,

ed. It is easy for the fruit grower to look well to cultivation, supply cover crops as regularly as possible and rest his case there. As the strength of a chain is measured by its weakest link, so in orchard management the fruit output in amount as well as quality and appearance will be measured by the extent of the essential element of plant food that is running short. If this element is phosphoric acid or potash the application of those forms of plant food is the most direct road to better results. There is no better way to find out what is wanted in this line than to put the question right to the trees and plants by taking different elements or combinations for different trees or rows in the fruit area and let the trees speak for themselves. Often times the negative results as registered by a check plot will speak most emphatically, for in the last analysis results are the safest guide.

Shiawassee Co.

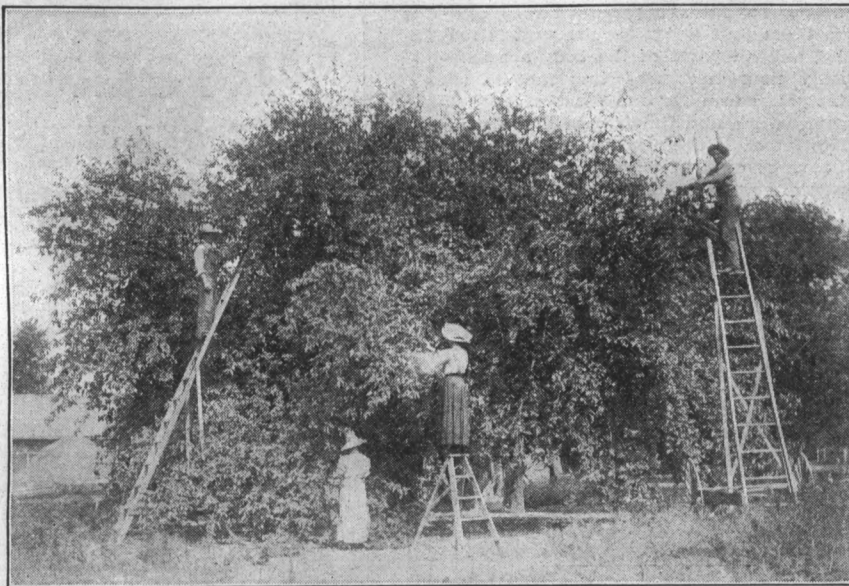
C. B. Cook.

Gratiot Co.

G. A. RANDALL.

KEEPING APPLES FOR HOME USE.

Again this season the apple crop on the whole is light and the continued rains and winds are constantly thinning them more and more, looks as though some of us, unless we pick immediately, will have none to gather when the cooler weather of late October comes. Will apples keep if picked now? Yes, and no. It depends altogether on how they are handled and



Snow Apple Tree on the Farm of C. B. Cook, Shiawassee County, which yielded 20 bbls., Mostly First-class Fruit, this Year. Note Portable Ladders Used.

and help keep the soil in an open aerated condition. We must supplement this culture with cover crops whenever they can be grown to advantage. They furnish some plant food, protect the ground against frost, check the vegetative function of the fruit plants when they should be ripening wood and maturing fruit buds, and keep the soil in good physical condition by adding a fresh supply of humus.

The leguminous class of cover crops must be used advisedly in the fruit area. Where considerable quantities of nitrogen are needed they furnish it most economically. But to the grower of tree fruits on strong soils their use may force too much wood growth.

Stable manure likewise must be regarded as a one-sided fertilizer in the fruit field and one that must be used advisedly. On less productive soils there is little danger from its liberal use, while on the heavier lands it may be better left out. The behavior of the trees must be our guide.

Lime surely has its place among the list of fertilizing agents for the orchard. It goes without saying that the land for fruits must be well drained and sweet. To keep it so and to subdue any hard clay areas is the mission of lime on the fruit farm.

Phosphoric acid and potash are two more elements we must consider in this article. They are the mineral elements that experience has proven repeatedly may be lacking in our soils in a soluble or available condition. They are most important elements in the production of good fruits. An excess of these foods in the soil is the orchardist's safeguard. In general, clay soils need phosphoric acid early in their history while the supply of available potash may run short later. Likewise the potash salts must be used with phosphoric acid on the sand and gravel soils if we would insure our fruits against shortage in this line.

The importance of these, so-called, mineral elements can hardly be over-estimated.

the subsequent method of packing and storing whether they keep well or not. Here is a method I have employed of packing and storing apples for home use in past seasons when conditions were similar to those now prevailing and while it may not be new, it has the virtue of being cheap and very effective.

If not on hand, procure of the grocer as many new, clean cracker barrels as desired, they are frequently given away and seldom cost more than ten cents each. Be very careful in picking the apples and reject all wormy and bruised ones, as they seldom keep well. If in doubt as to bruised places, as frequently they do not show when first picked, place the apples in cold water about ten minutes, then drain and wipe dry and the spots, if any, will usually show a darker hue than the rest of the apple. I follow this plan anyway, as it cleans them of all dirt, rust and other foreign particles and spores that often prove disastrous to the packed product. Invert your barrels and bore half-inch holes spaced about two inches apart through the bottom of each, at least two or three dozen in all; now select apples as uniform in size as possible for each layer and after placing excelsior or straw chaff loosely one inch deep over the bottom, inside, arrange the apples in a snug manner but not to bruise them. Over this layer, place a circular card or pasteboard, cut to fit and this, as all subsequent ones, should have perforations through them to admit of a free circulation of air, these should correspond in size to those in the barrel bottom, also in number. After each layer of apples are in, cover with the fitted papers until the barrel is filled flush with the top; this layer should also be covered with the paper and afterwards a coarse gunny sack, one thickness tacked snugly around the edges of the barrel top. Make a platform three or four inches high on a dry cellar bottom, two 2x4's, the desired length, are just the thing and these are placed edgewise and parallel about 8 in. apart, a cleat nailed across each end

holds them rigid. On this the barrels are placed in a row and the place kept well darkened and free from frost, yet quite cool and an abundance of pure air always on hand. They will keep if any apples keep, and splendidly, too. The perforations both in the barrel bottoms and the cardboards permit of a free and continual circulation of air, which carries off any and all moisture, foulness, etc., liable to collect otherwise. The papers keep the apples in position as well as each layer separate and tend also to exclude frost if present. The barrels may, previous to filling, be lined with paper of any sort if desired to make them more proof against inclement weather. I have kept early September picked apples in this manner in fine condition until the next spring. The method is well worth the while to all who really appreciate the healthfulness and enjoyment of eating good apples through the long winter season.

Gratiot Co.

G. A. RANDALL.

A GOOD YIELD.

The accompanying cut shows one of our large snow apple trees just before the fruit was picked this fall. The tree is probably about fifty years old and a fine specimen. Heavy feeding, good cultivation, and six times spraying has made this tree produce over sixty bushels of apples this year, nearly all of which are first-class stock. Forty such trees well maintained on an acre of land would produce a yield of high quality apples that would compare favorably with many of the glittering apple stories that come from the west and in addition to that, Michigan puts flavor into her product that may be equaled but never excelled.

Shiawassee Co.

C. B. Cook.

GARDEN TOPICS.

Fall vs. Spring Manuring.

The first essential in preparing the "stew," is the capture of the rabbit, and applying this same principle to soil-feeding, the first and chief requisite is to provide the manure. With this provision made the time for applying it becomes the principal issue at stake.

The writer long ago became convinced both through experience and practice, that there is no time like the present, just now, for this work. Without manure sheds, with which unfortunately, it is impossible to keep the manure for any length of time without serious loss. Piled in the open yard, exposed to the elements the best values either go up in smoke or leach downward into the yard soil which we all know has already grown too rich by the waste with which it is constantly being fed. If that pile accumulating there in the yard were only hauled now and spread, not piled again, on the ground where it is to finally go, the cost of hauling would be more than paid in the better quality of the manure. Suppose the ground is rolling, what then? Only let the plow follow the spreading and the work is all the more complete. And this we believe, is the best possible treatment, either for rolling or level land. I would not plow deeply, only sufficient to cover the manure; and this is the best place on earth, or under it, to winter the next season's plant food. Of course, as the winter advances the accumulations are increasing; but let that be hauled out and spread on the level ground as, what cannot be plowed under is far better spread upon the soil than lying in the yard. It is a matter of surprise to see the manner of handling the manure which is hauled out of the cities on to adjacent farms; but by far the greater portion is left in piles to winter this rather than being spread from the wagon. The result is a feast and famine combined, part of the soil is overfed and the balance, which is the greater part, is left to starve. Queer economy, isn't it? But thus it is.

Keeping Tomatoes.

It is not a difficult matter to keep tomatoes up to Thanksgiving and, in fact, well up to Christmas. As to the manner of keeping them, I have tried various and sundry ways, and in divers places. Many ways are suggested and each writer has thought his the best. I have tried placing them in layers on a litter of straw in the hotbed and putting on the sash and have had very fair success. Others pull the vines and hang them in the cellar; but my success with this plan has not been very flattering. Some pile the vines (not too thickly), and cover with hay or straw. This plan I do not like as the vines, or at least the foliage, decays very quickly and the tomatoes very soon go the same way. The most satisfactory plan I have tried is to take

only the best ones and pack in bushel baskets, putting clover chaff or fine, short hay between the layers. Cover over all, with the chaff or a blanket and sit in a moderately warm place. I have had better success with this plan than any other. If the cellar is too cool, they can be easily moved to warmer quarters and they ripen more evenly and with better color than in any other way of which I know. However, it is best after all, to take the fruits from vigorous vines, and not from those that have exhausted themselves bearing through the hot weather. If they can be brought to the stage of nearly full growth and taken in before heavy frosts, the majority of them will ripen under fair conditions and make very desirable fruits.

Wayne Co.

J. E. MORSE.

CANKERS ON APPLE TREES.

Owing to the extended damage from this inconspicuous trouble growers cannot be too strongly impressed with the necessity of getting busy this fall and winter to aid the apple trees to overcome the enemy, or to recover from present injury. Valuable advice has been published by the Ohio station at Wooster upon this disease, which we commend to our readers. Where dying branches occur, the cause of local death should be learned; if from a local dead area with roughened dead bark one may have reason to suspect apple canker. If at the same time dead pruning stubs from other years are found surrounded by an area of dead bark or wood, then such infection of the pruning wounds would indicate the prevalence of this disease. The spores of the canker fungi are carried by such agencies as wind, rain, etc. Between now and next March is the proper time to seek out the cankers and prepare for their destruction; better results are promised by early fall removal. While picking apples keep eyes open for these contagious diseases.

Three forms of canker are quite frequent over the state and one of these, the blister canker, has been found by the experiment station to be exceedingly abundant especially on bearing orchards in southern and eastern Ohio. The black-rot canker and the cankers caused by the pear blight organism are well distributed. Other canker forms are known and all are being studied. All forms are shown by death of the bark and threaten the life of the bearing orchard, they are in a way to inflict heavy losses if neglected. Blister canker seems to enter through wounds which are unprotected. To meet canker, early pruning and burning of the dying branches and removal of canker spots on living trunks and branches are urged. The diseased bark, etc., from such spots must be burned if spores are to be destroyed and infection reduced.

Treatment.

The treatment of apple orchard cankers involves also the treatment of large wounds or pruning wounds as well as those caused immediately by the removal of cankers. Dead limbs will require to be cut off close to the trunk or large branch. The same applies in all pruning. No dead stub should remain to open the way for further infection.

Where local cankers with bark dead to the wood are discovered upon branches or trunks, or in crotches, the dead bark should be removed with a chisel, drawing knife, or other suitable instrument back to the sound, healthy, living tissue. When these surfaces, such as those caused by the sawing off of branches, or by shaving off all cankered tissue, have become free from moisture and the surface is dry they should be treated with melted asphaltum or asphaltum; the branches should be removed and the bark from cankers should be promptly burned to destroy the spores of the fungus. When pruning in the fall it will be easy to secure the dry surfaces spoken of, usually without preparatory dressing. At times when trouble arises from moisture the freshly cut wounds may be covered temporarily with white lead paint or linseed oil and Venetian-red, and later treated. Permanent covering of all wounds is required to protect from infection by wound parasites.

The asphaltum to be used for dressing has a high melting point, running from 250 to 285 degrees, or even 300 degrees F. This is carefully melted until thoroughly liquid, necessarily in a metal vessel, and then in this condition is applied by means of a short brush, swab or stiff broom to the surface one desires to cover. When freely liquid a thin coating is run over the surface—this may be increased by a second coating after the first has partly

cooled. Of course, the asphaltum should be put over on the edge of the live tissues, which will usually not be injured if the asphaltum is of the right grade. Asphaltum of low melting point which has been thinned with benzine, such as coal tar or regular roofing paints, will injure the living tissue underneath the bark.

FEDERAL REGULATION OF SPRAYING MATERIALS.

A bill was enacted at the last congress giving the department of agriculture authority to look after and control insecticides and fungicides entering into interstate commerce, and those offered for sale in the territories and insular possessions. Under the provisions of Section 4 of the act, the department is charged with the duty of examining specimens of insecticides, paris greens, lead arsenates and fungicides for the purpose of determining from such examination whether such articles are adulterated or misbranded within the meaning of the act, and subsequently recommending such legal action, if any, as the findings may warrant. Sections 1 and 2 of the act are especially applicable to persons engaged in trade in the above articles in the territories, and insular possessions of the United States, viz., Alaska, Arizona, Hawaii, New Mexico, Philippine Islands, and Porto Rico, in view of the fact that the manufacture or sale of any adulterated or misbranded insecticide, paris green, lead arsenate or fungicide within the territories is punishable by fine or imprisonment.

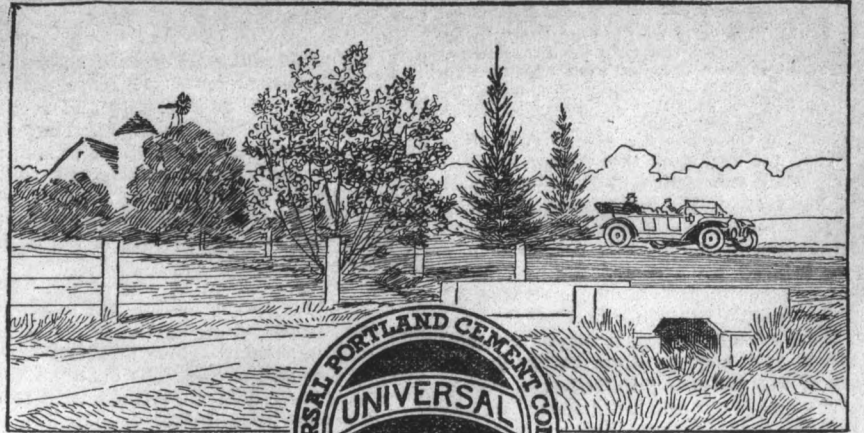
An insecticide or fungicide is any substance or mixture of substitutes intended to be used for preventing, destroying, repelling or mitigating any insects or fungi in any environment whatsoever. The insecticide and fungicide board has been established for the purpose of carrying out the terms of the act. The board is composed of four members selected from the scientific staffs of the department.

EASTERN APPLES SUPERIOR.

The eastern portion of the United States is coming into its own as to apples. While the apples grown on the Pacific slope are splendid in size and beautiful in color, those from the orchards of the eastern states which have been grown under up-to-date methods are equally as fine in size and as lovely to look upon. The apples grown under conditions of natural rainfall also possess a flavor all their own—a flavor delicious to the palate and one that those of irrigated Washington and Oregon will never have. This, Secretary Wilson says, may be due to some defect in knowledge regarding irrigation, but it is true nevertheless. Certain it is that the fact has been proven by comparison, and will be demonstrated when the seat of government has its first apple show, which is to be held at Washington, D. C., in December. Our western competitors have been much quicker to recognize the advantage of high cultivation and spraying against the codling moth worm and other pests and diseases; but eastern growers have now come to realize that the application of science to apple growing brings as sure results as it does in the chemist's laboratory. Apples are probably the most wholesome of all fruits, and thousands of new orchards are being planted every year. Within the next decade the apple will become the king of fruits as never before.

EXPERIMENTS WITH LIME-SULPHUR.

The department of agriculture has published a report of some experiments made last year in Virginia with lime-sulphur sprays. In these experiments four applications of each of the following sprays, viz., 1:5:50 commercial lime-sulphur, 2:4:50 home-boiled lime-sulphur, and 3:4:50 Bordeaux mixture, were tested on Winesap, York Imperial, and Ben Davis apples. Two pounds of arsenate of lead was added to every 50 gallons of the spray used. The evidence obtained from these and other experiments seem to warrant the following conclusions: Lime-sulphur solution containing four pounds of sulphur to 50 gallons of spray is a good substitute for Bordeaux mixture in the treatment of apple scab, fruit spot, leaf spot, and cedar rust, but is not satisfactory in controlling bitter rot. When necessary to spray for bitter rot the early applications of lime-sulphur for scab may be followed at the proper time with Bordeaux mixture for bitter rot, thus avoiding the russet and yet controlling the rot.



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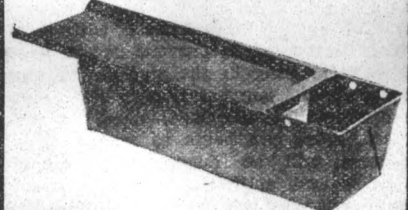
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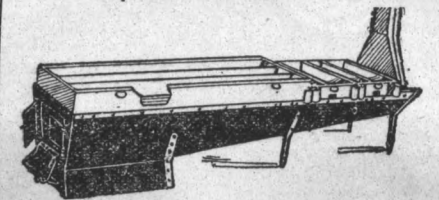
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APPLE VARIETIES.

I would like your opinion of the winter Banana apple and the C. de Nantes pear. Would like your opinion also of the five best and most profitable varieties of winter apples to set on light hardwood land.

Traverse Co.

W. F. J.

I can not speak of the winter Banana apple from experience in handling them. We have 45 young trees of this variety set four seasons, and most of the trees bore a few specimens this year but they were injured by hail and did not hang well, most of them being matured and off by the middle of September. I am told by those who have grown them that they have a tendency to drop early in this part of the state, but in Traverse county they might be more persistent. In appearance they are much like the Maiden's Blush, and have the objection of color to overcome, as the market at present prefers a red apple. They also have a tendency to scab quite badly if not well sprayed. Their quality is quite good, the flesh being yellow and quite rich. Without a thorough knowledge of the variety my advice would be to try them on a small scale first. I doubt if they will prove as profitable commercially as many other standard varieties.

I am not familiar with the C. de Nantes pear. It is quite highly recommended by a certain nursery in this state, but all nurseries have a few leaders, generally new varieties, which they boom and for which they ask a higher price. It is a pretty safe rule to steer clear of new and highly boomed varieties and let the other fellow pay the advanced price and try them out, or do it yourself by setting only a few trees if you feel the variety is one of merit. It takes too long to grow a tree for a grower to try out many novelties on a commercial scale.

It is probable that no two growers would give the same list of the five best varieties of winter apples for your section. The best varieties for you to set will depend not only upon your soil and location, but upon your market. If you have a local market for your fruit you can often handle tender varieties or those which ripen unevenly or special fancy sorts to advantage when the commercial grower who depends upon selling to a shipper or consigning to a general market could not use such varieties to advantage. Some of the varieties which are classed as fall varieties here are almost winter varieties in the Traverse section, and might prove quite profitable on some seasons, but I take it that the question refers to late winter sorts.

I believe one of the best apples for Michigan is the Northern Spy. It is always in demand, and the demand is growing. Our calls locally and for private shipping orders are about three-fourths Spys, and if a large proportion of one's orchard is Spy the buyers are more anxious than if there are too many green or poor quality varieties. The Spy is a standard both for cooking and eating, and the tree is hardy and long lived. It has its faults as a commercial apple, however, being very irregular and packing fewer firsts than many other varieties. It is also irregular in season of ripening and needs two pickings to get the apples at the proper stage. The keeping qualities of different trees and different apples on the same tree will vary also, and the same tree will vary on different seasons, depending upon the season and the size of the crop. The Spy is very late in coming into bearing also, and should be used in connection with an early bearing filler, like the Wagener or Jonathan. But in spite of its faults the Spy is, and will continue to be, a leading winter apple for Michigan.

The Jonathan is another excellent apple, and, although it can not be grown quite as large in Michigan as farther south and west, we can get good quality, color, and keeping qualities, and the dark red fruit sells well on the market in early winter and for holiday trade. The tree is a rather slender grower and can be used as a filler between the larger later sorts. I should include the Jonathan in the five most desirable winter varieties.

Steele's Red is an excellent variety and is grown very well in Michigan, especially in the eastern part. It has a fine color, good quality, and runs even in size and shape. It also keeps well in storage. It will class next to the Jonathan as a fancy apple, and if one expects to cater to the box trade it will make an excellent variety for this purpose. The tree is a rather slow grower and of medium size, not making a good tree in the nursery, but it is quite thrifty when well started. This variety has a tendency to scab badly if not well sprayed, but if the

orchard is to be given good care the scab can be controlled.

The Wagener is an apple which works in nicely in planning an orchard as a filler between larger sorts. It bears early, and the fruit is of good quality and keeps quite well. We find it has a tendency to produce fruit somewhat irregular in shape and size, but when well grown will, with a little grading, produce a nice lot of fruit. The tree is rather small and not as long lived as many, hence it works in nicely as a filler.

The Grimes Golden is one of the best of the yellow winter apples and is about our only fancy yellow apple. The tree is strong and seldom splits, and the fruit even in size and of excellent quality. We have not had much experience with this variety, our trees being young, but it promises to be a very desirable sort.

Among other desirable sorts are the Baldwin, which I hesitate to recommend highly on account of its tendency to dry rot and its quality not being the best; the R. I. Greening, which will grow a large number of even apples of good size which will grade well, and the tree grows low where it can be cared for. Its color is about the only drawback. McIntosh promises to be a leader in northern Michigan, especially for a fancy and local market, and Hubbardston would be one of the very best if its color were better. Stark will grow a large number of excellent keeping apples, but its coarseness is against it.

The list might be increased, but I think we have named enough from which to make a good selection. The first five will not lead the average grower far astray, but some would prefer to substitute other varieties for one or more of these. If W. F. J. will stick to the sorts that have been thoroughly tried and proved true he will be safer than if he does the trying himself.

Calhoun Co.

S. B. HARTMAN.

PRUNING APPLE TREES AFTER HARVESTING THE FRUIT.

Would the trimming of apple trees, after the fruit is picked, be in any way less beneficial than spring trimming?

Lenawee Co.

READER.

There is much controversy as to when is the best time to prune fruit trees. Many people have decided to their own satisfaction on one season or another and declare theirs to be the only time when this work can be done to the best advantage of the trees. Others are just as positive that the time of the season matters little so long as the trees are dormant, and that the success or failure of the job depends entirely upon the manner in which the work is done. Because of this controversy, it would seem, (since many prune in the fall and continue to grow successful crops), that there would be no danger at least in doing this work after the apples are secured. Of course, it is just as essential that the limbs be cut so as to leave no stub and the larger exposed surfaces be covered with some white lead paint to prevent decay, as it is when pruning in the spring. In fact, reason would suggest that a little more care should be exercised, since the time when nature can begin to cover the cut surfaces will be delayed five or six months, and artificial protection should be provided in the meantime. However, we believe that our readers would find no serious handicap in pruning his apple trees this fall and especially so if he delayed the work until the latter part of November or the first of December.

APPLE MARKET NOTES.

Constant rains have delayed harvesting apples in the Hudson River Valley. Help is short and heavy winds have caused much of the fruit to drop. These two factors will very likely reduce the amount of No. 1 fruit from this section, while the cider mill and evaporator will have a much larger service to perform.

Buyers are taking advantage of the unfavorable weather conditions in Central New York and are securing apples at a much lower value today than they would under normal conditions. Prices range at anywhere from \$1.50 to \$2.75 per bbl. delivered.

There has been an improvement in the Chicago apple market this past week. Extra Jonathans are selling at \$3.50 per bbl. Other varieties range mostly between \$2.25 and \$2.50, with attractive lots going at \$2.75.

The failure of the storage people at Dayton, Ohio, to make good on their apple contracts a year ago has discouraged activity in that line this year, and as a consequence little of this fruit is being put away.

Montana

COMPARATIVE CROP YIELDS FOR 1910

	Bu. Acre Wheat	Bu. Acre Oats	Bu. Acre Barley	Bu. Acre Rye	Bu. Acre Potatoes
Montana	30.6	51.3	38.0	29.0	180
Illinois	17.4	36.6	28.0	17.8	91
Iowa	18.1	27.0	22.0	17.8	89
Missouri	14.7	27.0	25.0	15.0	85
Kansas	13.0	28.2	18.0	14.2	79
Nebraska	16.7	25.0	22.0	16.2	78
Minnesota	16.8	33.0	26.6	19.0	115

Grows Most Grain Per Acre

Boomer Crops for 1911

Montana this year will have the largest and best crops in her history. It is estimated 20,000,000 bushels of wheat, which in some districts is running 50 to 60 bushels per acre, will be produced, and equally large crops of other grains, potatoes, and small fruits.

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ard hopper-cooled engine can be used. The Sandwich All-Steel Motor Press bales 2 1/2 to 3 1/2 tons per hour. Has self-feeder equipment. Takes double charge of hay. Has no condenser box—needs no foot tamping—feeds direct from fork. No balance wheels, no high-speed machinery. Fast, simple, strong, light of draft.

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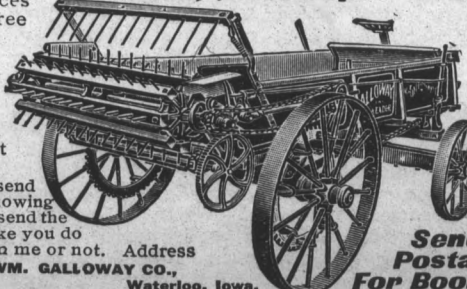
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Address all communications relative to the organization of new Clubs to Mrs. C. P. Johnson, Metamora, Mich.

Associational Motto.

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

PREPARE FOR THE ANNUAL MEETING.

Already preparations are well along for the annual meeting of the State Association of Farmers' Clubs, which will be held at Lansing in December. These plans, which will shortly be announced through this Department, promise a meeting of unusual interest, at which questions of the most pressing economic importance will be discussed. It is not too early for the local Clubs to be planning for this meeting. The general custom is to elect delegates to the State Association at the November meeting. In some cases these delegates are left free to act for the Club on any question which may arise during the deliberations of the meeting. In other cases it is considered expedient to instruct the delegates regarding the ideas of the local Club upon some one or more matters of general importance, and in case this is desired, some preliminary thought and study should be given to such matters.

Unquestionably it is to the interest of every local Club to send one or more delegates to this meeting. Unfortunately, in previous years, not every local Club in the state has availed itself of this opportunity. It is unnecessary to here enumerate the advantages accruing to the local Club from affiliation with the state organization, these advantages are too self-evident to make argument necessary. The expense of sending delegates is small in comparison to the benefits derived, from their participation in the meeting, by the Clubs which they represent. Every local Club in the state should elect one, and preferably two, delegates to this meeting on the occasion of the next local meeting, and should be prepared to advise the delegates so elected if there are any matters of special importance which the Club desires to have brought to the attention of the State Association.

THE MEMORY DAY IDEA GROWING.

With each passing year the Memory Day idea is taking a firmer hold upon the people of Michigan. The publicity which has been given this movement has had the effect of interesting city people, as well as country people, in the proposition of making the observance of September 30 universal throughout Michigan. This year the metropolitan press devoted considerable space to giving publicity to this movement, and in some of the large city cemeteries special work in the way of decorating was carried out by the management, in order to call more general attention to the event.

In addition to this general interest in Michigan, an attempt will be made by Mr. Daniells, with whom the idea originated, to secure action by congress at the coming regular session setting apart September 30 as Memory Day throughout the nation. This movement should have the support of every Farmers' Club member in Michigan, to the end that this wholesome idea may become nation wide in practical application.

FARMERS' CLUB FAIRS.

The annual fair of the Cambridge Farmers' Club was held Saturday in connection with the regular October meeting. A good exhibit of vegetables, canned fruit, apples, melons, fancy work, etc., was made. A school exhibit by Miss Florence Carr was particularly noticeable. A chicken pie dinner was served, to which all did ample justice. The judges made their decisions, giving to Miss Arvah Hand first prize for largest and best collection, which contained, pie, cake, bread, fruit, a large variety of seeds, canned fruit and flowers. Alice Shultz received the second prize and Vivian Sherrard third. These little misses are seven years old. Roy Laur and Edgar Hubbard each received a prize of 75 cents. The older ones were also given prizes for their exhibits.

Much more might be said of interest to members of the Club, but for want of

space, the regular program was taken up. Mrs. Nellie Hand presented a paper on "Essentials in Poultry Raising," which was followed by discussion. C. H. Reed said wood ashes would drive away hen lice. Miss Lotta Mason keeps books, so she knows just how much profit she makes, sells her chicks as soon as they weigh one and one-half pounds and makes money. Miss Ethelyn Shugar sang "Down by the Old Mill Stream." Vivian Sherrard recited, "How to Pronounce Garage." Recitation, "Woman's Suffrage," Julia A. Reed. Recitation, "Too Many Dogs," Curtis Shepherd. The meeting closed with song. The November meeting will be held with Mr. and Mrs. Fred Reed.

North Shade Farmers' Club held their annual fair at the pleasant home of Mr. and Mrs. George Crismore, Friday, Oct. 6. Owing to the very stormy day it was not very largely attended, although the day proved to be a very pleasant one to those who were there. After a big chicken-pie dinner was served the exhibits were brought in. A fine display of corn, watermelons, squash, pumpkins, apples, beets, canned fruit, jellies, fancy work and flowers. The secretary, Mrs. Valois Todd, then appointed the judges: Mrs. Frank Ellsworth and Miss Lydia Naldrett. There were 25 blue-ribbon prizes awarded. George Naldrett and Nettle Todd got first prize on their beautiful flowers. The day was spent in visiting, music and eating watermelons.

CLUB DISCUSSIONS.

Will Hold Joint Club and Grange Fair.—The Wixom Farmers' Club met at their hall, October 11, with a good attendance. A greater part of the time was devoted to making further arrangements for our Club and Grange Fair, which will be held at the Maccabee Hall in Wixom, October 28. Then question, "What is the present outlook for the country?" Generally speaking, the outlook is good. We are capable of caring for ourselves, live on a higher plane than they can produce in any nation. During the discussion of the question a parallel between the state capitol and the state was drawn by one of the speakers. He said the capitol was typical of the character of the people. The sturdy columns that supported the magnificent structure with its marble columns and scintillating skylight windows, might very fairly represent the sturdy farmers who carry the great burden of the state upon their shoulders. If the columns that support the great capitol building were to fail the whole structure falls. So, if the farmers fail the whole state falls.—Mrs. R. D. Stephens, Cor. Sec.

Farm vs. Business Life.—The Salem Farmers' Club was pleasantly entertained for its September meeting at the home of Mrs. Lottie Hammond. The program consisted of selections, music and general discussion of the question, "Which pays best, farm or business life?" Many interesting points were brought out, all of them tending to show a satisfied state of mind in Salem Farmers' Club. Charles Ross opened the discussion with the following points: Statistics show that the farmer only averages \$500 gain each year, while the laboring man realizes a return from his labor averaging \$600 per year. The average farmer also gets only about three per cent on the amount of money he has invested. This brought on a lively discussion. Mr. Vanvoise said this average is unfair to the farm, as a good many farmers half work a large number of acres, thus bringing down the average of those who make good profits. He said he had been running a street car before he was a farmer and often had to work double time and far into the night. The farmer doesn't have to do this. Robert Ross said he got a lot of pleasure out of his work, besides a good deal of profit. He said when you live in the towns a while and pay the rent you will be obliged to you will have little profit left. It was also suggested that much that is of value to the farm home is not estimated. Such as a good garden, etc., which greatly adds to the real farm assets but is not counted in the average. On the whole, the Club expressed themselves as well satisfied with their farm homes and the profits they are gathering in. The new executive committee is: Mr. and Mrs. Robert Ross, Mr. and Mrs. W. B. Rorabacher.—H. C. Thompson, Reporter.

Will Hold Charity Fair.—The Rives and East Tompkins Farmers' Club met at the home of Mr. and Mrs. Edward Jones, October 7, with an attendance of 53. After dinner the Club was opened by singing America, followed by a prayer by the chaplain. It was decided to hold our annual fair for the benefit of the Friendly Home for Old Ladies, October 25. After the necessary committee was appointed an excellent program was rendered. After the question box, which contained many interesting questions, the Club adjourned to meet with our chaplain and wife the first Saturday in November.—Ina Stringham, Cor. Sec.

The Retired Farmer.—The Indianfields Farmers' Club met at the home of Mr. and Mrs. D. Vanburen, Saturday, Sept. 21. Owing to the very busy time there were only 50 members and visitors present. As the president and vice-president were both absent, the secretary appointed I. N. Taggett to take the chair. The meeting was called to order by singing, followed by prayer by Rev. Denman. The program was opened by a solo by Mrs. C. Taggett, which was followed by several good literary and musical numbers. A discussion which brought forth a number of remarks was, "Which is the better, to stay on the farm or go to the city when one retires?" Some thought there was no pleasure to go to the city and sit around and do nothing and be in the way, while the majority thought it best to stay on the farm and look after it. The question box was nearly empty. It is hoped it will be full, as the next meeting will be an all-day meeting which will be held at the home of Mr. and Mrs. Grant Ross.—Mrs. J. M. Miller, Cor. Sec.

GRANGE

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

THE NOVEMBER PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Co-operation Day program, recognizing the rapid increase of co-operative enterprises.

Debate—Resolved, that to sell farm produce through co-operative societies, organized on the Rochdale plan, would be of more financial value to the farmer than to increase the production of his farm.

Recitation.

Why can the Grange run a fire insurance company more economically than a farmers' mutual covering the same territory?

What are the special features of the Michigan Grange life insurance company? Roll call—responded to by each member giving a thought, quotation or instance of co-operation.

Music, interspersed throughout by orchestra and choir.

Cake contest, in charge of social committee.

FACTORS IN RURAL EDUCATION.—III.

The Grange.

In the preceding articles bearing the above general heading, which were published in another department of this journal, I have spoken of the literary or debating society and the singing school—two institutions which, in their day, exercised a very beneficial influence upon those who participated in them. At this time I desire to speak of the Grange, an institution of the present and one possessing far greater possibilities for good. In this connection I shall discuss it mainly from the standpoint of education.

There is no obligation more sacred or more binding upon us as individuals or citizens of a great republic than to fit those who come after us rightly to discharge the responsibilities of life, and no circumstance of the present bears stronger testimony to the fact of human progress than our growing interest in childhood and youth. Notwithstanding this, thousands of our young people from the farms fall every year for want of something which is lacking in their environment.

The Grange is very properly interesting itself in this question. The country boy and girl who have finished the eighth grade and are not away at school are in danger if they have not the right sort of mental occupation. The Grange should see to it in every community that this is furnished in some way. Wherever possible it should promote the literary and debating society. It should see that singing classes are organized at all points where a sufficiently large attendance can be secured, and should give to each of these agencies for good its most hearty support.

I fear sometimes that we people in the Grange are not active enough along many of these lines of human betterment. I know a great political party whose advocates in every campaign for twenty-five years, at least, spent much of their time boasting that it had saved the Union. Long, long, after the white dove of peace should have nested among us and filled our land with her descendants, these good people persisted in fighting over and over again the war for the Union. Like them, we dwell too much upon our victories of the past.

The reform of our patent-right laws, the breaking of a plaster monopoly, the progress of interstate commerce legislation, the oleo law and free rural mail delivery are monuments to the success of our order and its service to mankind. But, we may well turn from them all and ask, what can we do today? How shall we interest our young people in the calling of agriculture, to the end that live stock may be improved, the fertility of our soil be maintained and a hungry world be fed? The boy of today must know far more about farming as a business than his father knew or we shall come short of these ends. The girl of today must become a better home maker than her mother or the forces of evil will overpower the influence of the home and moral retrogression will follow. It means more to be a citizen today than it ever meant before. The responsibilities resting upon the shoulders of the individual are far greater. But we are slow to bear even the burdens we have sought for ourselves.

Just a little while ago we were clamoring loudly for primary reform, and now that direct nomination is a fact, what are we doing about it? Have we used

the best means at hand to inform ourselves concerning opposing candidates, and will we attend the primary though the day be fair and we have to leave our work undone? While the "Con-Con" was in session we lashed the air into a fury with our tongues by our demands for a number of reforms. In some degree we were successful, but if we had won out in everything, what would have been the result? Would our interest in the public good have been greater, or would the majority of us have remained inactive, thus leaving all the hustling and all the work for a willing, but overburdened, few?

If there is one thing we need to do more than another as American citizens, it is to impress the young with a sense of public obligation. We need to teach them the dignity and the joy of service. Over and over again we need to hear, in our busy and often self-centered life, the voice of the Great Master, as He said to His disciples while they disputed among themselves who should be greatest, "Him who would be chief among you, let him be your servant."

W. F. TAYLOR.

(Concluded next week).

AMONG THE LIVE GRANGES.

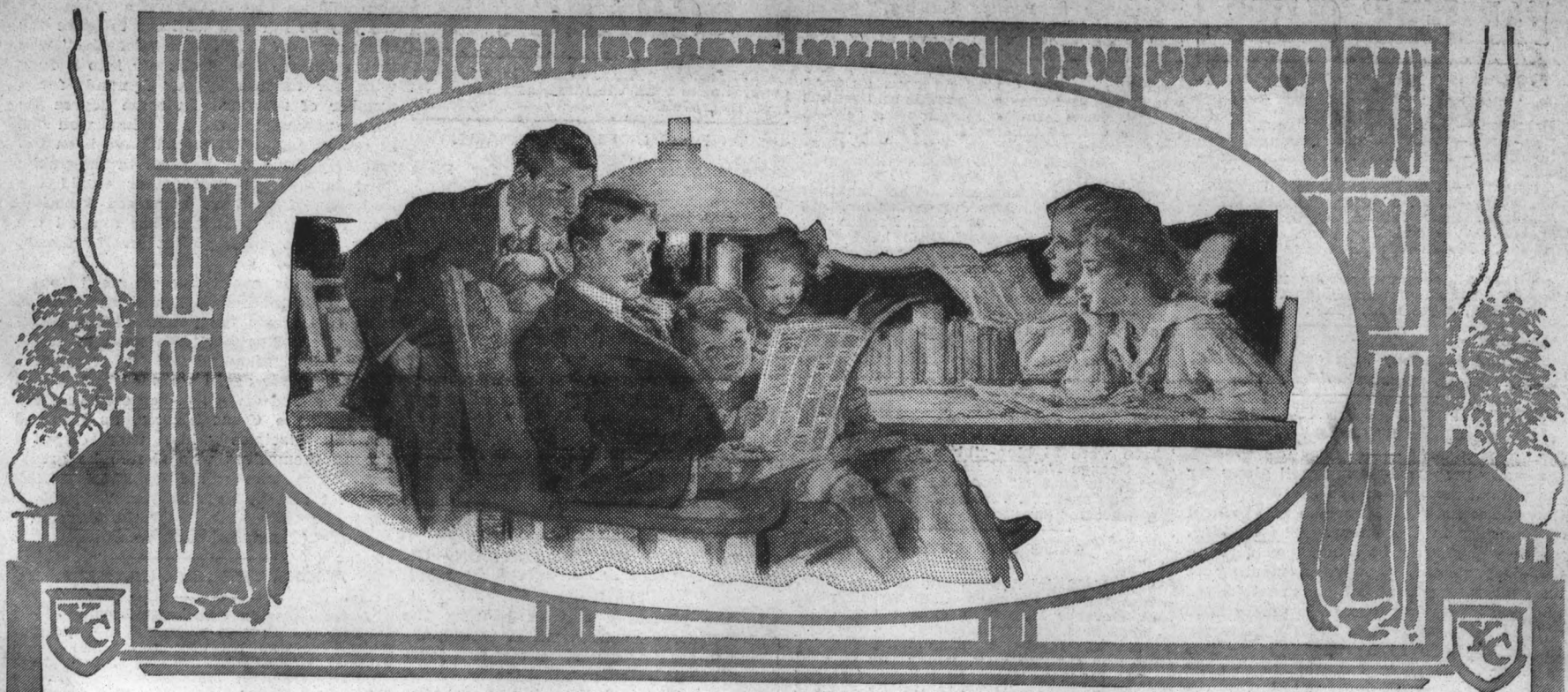
A New One in Charlevoix.—The organization of a Grange at Bay Shore, Charlevoix Co., was recently accomplished by Deputy Master McClure and County Deputy Newville. A charter membership of sixty was secured and this new subordinate will be known as Bay Shore Grange.

Chestonia Grange Re-organized.—Deputy Master Warner, of the Grand Traverse region, recently made a trip into Antrim Co., and succeeded in re-organizing the Grange at Chestonia, which has been dormant since 1905. This Grange starts out anew with a good membership. Deputy Warner also visited other Granges in that section and reports a strong sentiment in favor of the Grange with prospects that during the coming winter there will be several new subordinates organized and placed on a good working basis. Modern conditions have shown the farmers the necessity for organizing and they are confident that the desired results can best be secured through the Grange.

Grand Traverse Delegates to State Grange, recently elected at the county convention held in Traverse City, are Edward J. McMullen and wife, of Grand Traverse Grange from the northern section of the county and Leonard Baker and wife of Fife Lake Grange from the southern section. The alternates chosen were John Daw and wife of Elk Lake Grange and Elizer Case and wife from Fife Lake Grange. The above named delegates, along with those elected by the Pomona, will represent this county. The Pomona delegates are R. H. Ellsworth and wife, of Grand Traverse Grange, and the alternates, George Arnold and wife of Williamsburg Grange.

Sumner Grange, of Gratiot Co., last month completed its plans for a contest beginning with the meeting of October 14 and ending with the close of the year. Sisters Myrtle Kneer and Maud Peacock were selected captains and the Grange is equally divided, Sister Kneer's side furnishing the first program. The points are to score as follows: Attendance 30 each meeting; roll call response 10; anecdotes, when not given as roll call, 10; new members, 200; reinstatements, 100, the monies to accompany both; recitations, 30; monologues, 50; original poems, for each stanza of four lines, 10; original dialogue, 100; dialogue, for each one taking part, 10; acting charades, for each one taking part, 30; tableaux, for each taking part, 10; instrumental music—solos, 50; duets, 60; orchestra, for each one taking part, 30; vocal music—solos, 30; duets, 40; trios, 50; quartets, 60; quintets, 100; for each item for Grange Gossip, 20; minstrel group for each, 30; illustrated songs, 80. At the end of each month 100 points to be credited to the side furnishing the best program as decided by the judges.

Mt. Tabor Grange Homecoming.—The members of Mt. Tabor Grange, of Berrien county, held their second annual homecoming at their hall on October 12. The dining-hall had been beautifully decorated with flowers and fruit, as had also the Grange meeting room, and an excellent exhibit of apples, potatoes, corn, grapes and garden vegetables had been installed. About 125 patrons and their friends enjoyed one of the best Grange feasts ever prepared. The program opened with singing in which all present joined, after which Sister Pearl Schriver, secretary of the Grange, delivered the address of welcome. Recitations by Mrs. John Hollenbeck, Marion Miller and Pearl Schriver, and vocal selections by Mrs. Dean Clark and Wm. McMullen comprised the entertainment features supplied by local talent. Deputy Master McClure, who was present in the capacity of state speaker, addressed his remarks to the value of such annual home-comings, pointing out that the Passover of the Hebrew race, the Olympic games of the Greeks, and the Roman feast days were in reality homecoming reunions which served to fix the ideals and develop the best side of these great nations. He paid a glowing tribute to the home, to the mother and teacher in educational matters, and to the great work of the Grange home and of individual homes. He highly commended the idea of the annual homecoming as it is being carried out by Mt. Tabor Grange. Several applications for membership were received at this meeting and this Grange is looking forward to a general revival of interest in the work of the organization.



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