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FARM NOTES.

The Bean Crop.

Will you kindly give me your opinion regarding the following, in the Michigan Farmer: I have a field, fall plowed, which I am thinking of planting to beans. The soil runs from a sort of mucky sand to a ridge of sandy loam soil, and is inclined to dry out. Is rather below par in fertility. Shall I put in fertilizer and how much, and what kind? Would you advise applying fertilizer with drill, using three hoes to each row of beans, and how much is safe to drop with the seed? What do you think of a heavy timothy sod, clay loam, spring plowed, for beans? Gratiot Co. R. J. BRECKENRIDGE.

Beans were first grown as a cash crop upon the lighter soils of the state. They were found to be a fairly remunerative crop upon these soils after wheat became an uncertain crop on them, and where made a factor in the crop rotation upon such soils for some years it was generally found to be more and more difficult to get a seeding of clover on the land, and this fact, together with a gradually decreasing yield and a greater uncertainty of the crop owing to the development of fungous diseases, the crop was gradually abandoned on these soils, until today there are very few beans grown in neighborhoods where the crop was once a common one. But the industry gradually spread out in the state in the meantime, and the crop was found to be better adapted to the heavier soils of the state, and today, while the production of beans is larger in Michigan than ever before and larger than the production of any other state, the great bulk of the bean crop is grown upon clay and clay loam soils, instead of upon sandy and sandy loam soils as formerly. Then, too, the methods which are used in growing the crop, as well as the place given it in the crop rotation have changed. Formerly the bean crop was generally given the second place in the crop rotation, quite often following corn as a preparation for the wheat crop instead of summer fallowing. But those who have stayed in the business and are making beans a staple cash crop on the farm today have found it pays to give them the very best chance, as the returns are more satisfactory, and the average yield in some of the best bean sections is probably as great as the exceptional yields were a few years ago under the methods then in use.

This bit of history is recited simply for the purpose of applying the lesson of experience which it contains. The point to be deduced is that it will not generally be found profitable in the long run to plant beans on ground, that has been somewhat run and is low in fertility, particularly if due to a poor mechanical condition or a poverty of humus in the soil. The growing of successive cultivated crops on the same field will deplete the soil of humus rapidly and make its mechanical condition worse, and thus make the clover seeding more uncertain when the land is finally seeded. Of course, the application of stable manure would supply some humus as well as plant food, but it would be

A FEW LEADING ARTICLES OF THE WEEK.

Some Lessons from Our Swiss Cousins on Utilization of Barnyard Manure.

—A special article, with illustrations, describing the careful conservation of stable manure which is universally practiced in Switzerland. 311
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Prepare for the Foals.—Some details of preparation which may be instrumental in saving the lives of valuable foals317
Helps for the Beginner in Bee Keeping.—The first of a series of articles calculated to help those who make bee-keeping a side issue320
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much easier and better to put this manure on the ground intended for corn than to top dress this fall plowed ground for beans.

Those who have experimented with commercial fertilizers for beans on good clay loam soils have found that it does not pay to use either nitrogen or potash, but that an application of 200 lbs. of acid phosphate per acre gives profitable results. On soil that is depleted in fertility, it might pay to use a little nitrogen to give the crop a good start and on sandy land it would doubtless pay to use some potash. It has also been found best to distribute the fertilizer thru three drill hoes as suggested in this inquiry, as too much fertilizer in the row with the seed may injure the seed, especially in a dry season.

When beans were commonly planted in checks, the usual amount of seed planted was around 30 lbs. per acre, but with the advent of drilling, which is now the common method of putting in the crop, a larger amount of seed has been used. The writer has had best results when 40 to 45 lbs. of seed was drilled in rows 28 in. apart and clean, level culture given the crop thruout the growing season.

Undoubtedly a clover sod is the best possible place to plant beans, but if a

timothy sod is plowed early and well cultivated up to planting time it should give a good crop, particularly if fertilized as suggested in this query.

Sowing Alfalfa Seed with Clover.

Would like to hear thru the paper what is the most successful method of growing white pea beans. I have a clay loam sod field which I plowed last fall. Would it be all right to spread manure just before planting. The land is in fairly good shape, timothy sod. How many lbs. per acre should be planted. I also have five acres of corn ground I am going to sow to oats, which was manured last year. I want to seed to clover and timothy. How would two quarts of alfalfa, the same of June clover and the rest timothy be for this purpose. The ground is high clay loam in pretty good shape. Would you seed to just one kind of clover?

Sanilac Co.

SUBSCRIBER.

In addition to the above comments on the bean crop little more need be said in answer to this inquiry, especially as the subject was well covered in the report of the Round-Up Institute in the last issue, on page 289. The writer would prefer using the stable manure on the sod ground intended for corn, using a little commercial fertilizer on the beans as noted above, if that necessary.

It would depend somewhat upon circumstances as to whether it would pay to sow alfalfa seed with the red clover

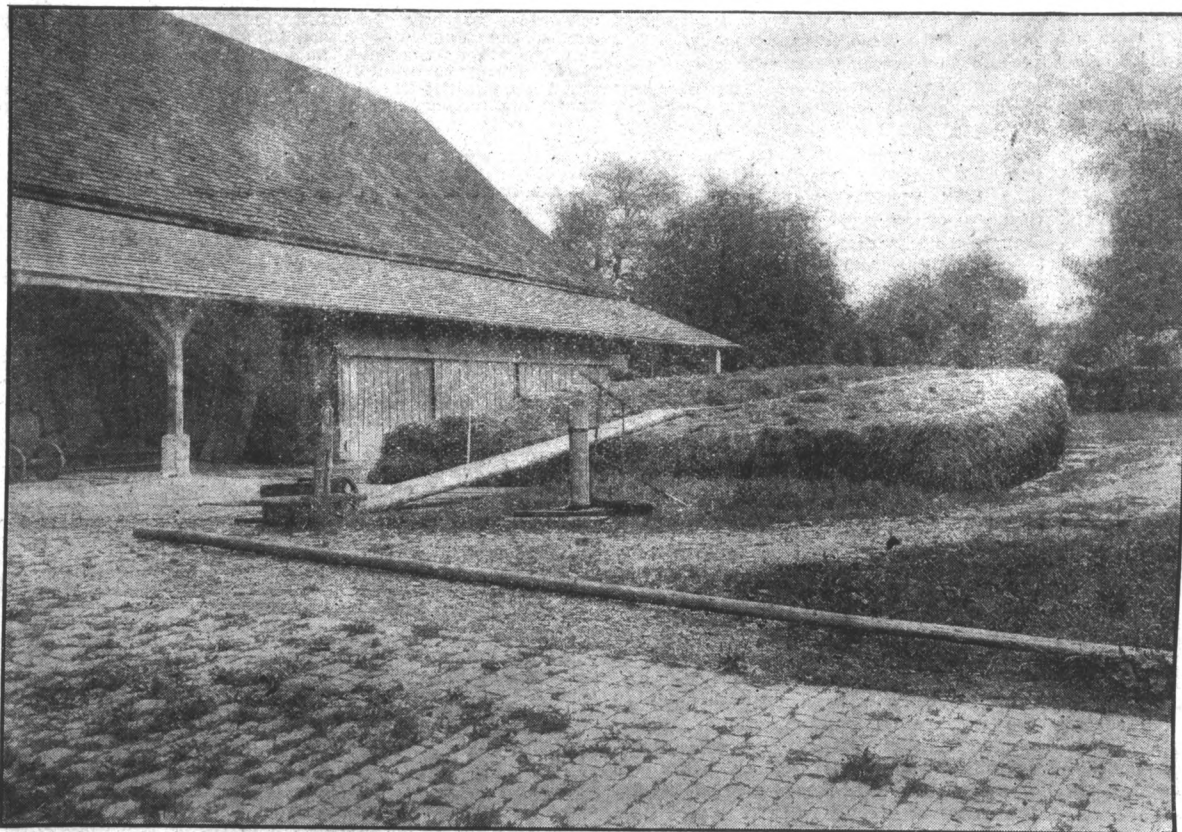
and timothy in seeding this oat field. Where it is desired to introduce the alfalfa crop into the farm economy it is a good plan to sow a little of the seed with the clover, so as to get the land inoculated with the bacteria peculiar to the plant in a natural way. It is claimed that the alfalfa will utilize the nitrogen stored up by the clover and do fairly well until it gradually develops the nodules of the nitrogen-fixing bacteria, after which the soil will become so well inoculated with this bacteria that the crop may be grown successfully without artificial inoculation. If this is not desired, however, it would be better to use the clover and timothy alone, or with alsike clover, as the alfalfa would not be as apt to survive the uncertain conditions which surround seeding with oats as would the other clovers.

How Should We Sow Clover Seed?

I have 16 acres of rye drilled in last fall and secured a good stand from the seed. I want to sow Mammoth clover on same this spring and wish to know thru the columns of your valuable paper, how is the best way to cover same after sowing. The soil is of a light, gravelly sandy nature, with a good subsoil underneath. I can sow with disk drill, or broadcast, and harrow in with light spike-tooth drag after drilling in with disk, or after sowing broadcast. Please advise the best way to do to secure good crop of rye and sure catch of clover. Gladwin Co. C. S. BLISS.

This inquiry raises an old question upon which even good farmers will never agree, largely because of the different conditions under which they grow the clover crop. Many farmers adhere to the belief that it is better to sow the clover in the winter or early spring and depend upon the freezing and thawing of the ground and the wash of the spring rains to cover it, while others are as firmly convinced that it is better to harrow in in April. But the latter class are divided in opinion as to whether the seed should be sown before or after the harrow, and some contend that it is better to distribute it right in the harrow or to harrow both before and after sowing. Again, the farmers in the northern counties who are making such a phenomenal

success with clover find that in the loose and open sandy soils it is necessary to cover the seed deeply in order to secure best results. But as between the methods suggested in this inquiry on the kind of soil described, the writer would prefer sowing with the drill, providing the depth can be controlled so as to not get the seed in too deep, then going over the land with a weeder, light harrow or roller as may seem best to firm the soil down and fill the drill marks. We have a drill equipped specially for sowing clover seed. It has a drag tooth attachment running just ahead of the drill hoe which opens a furrow into which the seed falls. If this little furrow is not closed as above advised the young plants may be destroyed by a heavy rain coming after the first leaves have formed and covering it up in this furrow. However, the method does not matter so much as that we get the seed into the ground and cov-



A Characteristic Swiss Manure Heap with Pump Over Liquid Manure Reservoir. (See Article on Page 311).

ered at the right depth to insure its germination under the weather and soil conditions which prevail. The same method may not be best two years in succession as the condition of the soil may be different, owing to the difference in the way it has been handled and to the different weather conditions which prevail in different seasons. If the drill is used it is better to drill crosswise of the drill marks in which the rye is growing as the grain will be less disturbed and the seed better distributed. The same rule holds good in harrowing.

Fertilizing Corn.

In discussing fertilizers you give formulas like this: "1:8:10." What does it mean in English? I have a field I wish to plant to corn, using a hand planter—"stabber." I wish to fertilize it. At an institute last year I heard a farmer describing his method of fertilizing corn and getting a large yield. He said he marked the field out 3 ft. 8 in., then dropped a handful of fertilizer on the hill (a handful making about 300 lbs. per acre), and then planted the corn with a hand planter, stabbing it down thru this fertilizer. He said the seed did not come in contact with the fertilizer enough to hurt it, and that the first rain washed what was left on top of the ground down into the hill. Three years ago I planted a field with what is known as a "fertilizer planter," (hand planter), a quantity of the fertilizer being released and dropped into each hill along with the corn. The corn came up spotted, many of the hills not germinating. Examination showed a bunch of mold where the seed should have been. I always thought the fertilizer burned up the seed. Where one has to choose between one of the two methods above mentioned, or put the fertilizer in broadcast with a fertilizer drill before planting, which method is preferable?

H. J.

The figures "1-8-10" when used to describe a fertilizer formula, means that the formula contains 1 per cent of available nitrogen, generally in the form of ammonia, 8 per cent of soluble phosphoric acid and 10 per cent of potash, either in the form of muriate or sulfate of potash. For the fertilizer to be used for potato or other root crops, the potash contained should be in the form of sulfate, as the muriate is considered injurious to those crops.

Now, with regard to fertilizing corn for the best results, the proper method to use would depend somewhat on the condition of the soil upon which the corn is to be planted. Too much fertilizer dropped right into the hill with the seed might injure its germinating qualities, especially in a dry season. When dropped on the surface, however, as described in this query, especially if the soil is harrowed before the corn comes up, it will be pretty thoroughly mixed with the soil and no difficulty of that kind should be experienced. The application of fertilizer in the hills will give the corn a better start than it would otherwise get, encouraging its growth at a time when its roots will reach down into the soil to get the benefit of the manure which may be plowed under, or fertility which is not right at hand. Consequently, in a fairly fertile soil, or especially one which has been manured, a little fertilizer applied in the hill may have a very beneficial effect. On the other hand if the soil is low in fertility it may pay to sow a larger quantity broadcast, so that the corn roots may find available fertility as they reach out into the soil between the rows. The choice of the method of applying should be made after a careful consideration of these factors.

Crops and Grass for Swamp Land.

I have three acres of cat-tail swamp that I ditched and plowed last fall. I plowed it 8 inches deep. The soil is muck with a blue clay bottom; the muck is from one to two feet deep. Now I thought of putting this field into potatoes in the spring and to oats or barley next spring and seeding it. What kind of grass seed would you advise me to sow, or would you advise putting some other crop on this field and seeding this spring the balance of the field in wheat, and I want to get it seeded as quick as I can. Also, I have a fertilizer attachment to my two-horse corn planter and I don't seem to get any good from the fertilizer. This planter drops the fertilizer about three inches from corn. I don't think that is close enough. Can someone with experience tell me if that is close enough or not?

Tuscola Co.

A. MAYER.

Probably a fair crop of potatoes might be grown upon this swamp land, although swamp lands are deficient in the mineral elements of plant food and success with the crop would be more certain if these were supplied in the form of a commercial fertilizer. However, as the clay is not very far below the surface and is more liberally supplied with these elements of plant food, a better crop could doubtless be grown without the fertilizer than if the muck were deeper. In seeding this land a mixture of alsike clover, red top and timothy, would give

good results and it may be sown with a grain crop as suggested, but if you are anxious to get it seeded at once, this could be better accomplished by cultivating the land for a time and then sowing a liberal quantity of this mixture without a nurse crop, as a thick stand is necessary for a meadow or pasture upon this kind of land.

Most fertilizer attachments used on corn planters distribute the fertilizer on one side of the hill, but provided a fairly liberal quantity is used and the ground is harrowed before the corn comes up so as to mix it with the soil, fairly good results may be expected. The writer has noticed a very marked difference between the early growth of the corn to which a small amount of fertilizer was applied in this way in comparison with the corn on which no fertilizer had been used. Of course, the better one can get the fertilizer distributed about the hill and mixed with the soil, the better the results which may be expected, but where it is within two or three inches of the corn, good results should follow, particularly in a season when there is plenty of rainfall to wash the soluble plant nutrients in the fertilizer into the soil so as to bring them in reach of the roots of the young plant.

A GANG, OR TWO-BOTTOM, PLOW.

I am intending to buy a gang-plow. Would like to know thru the columns of The Farmer, from someone of experience, if they are a practical tool. My farm is divided into fields of 10 and 15 acres each, 40 and 60 rods long, respectively, and level. Would also like to know if I will be as sure of getting a catch of clover by seeding with oats and peas as to seed with oats alone. If the oats and peas are left to ripen, can they be cut with binder? Ground is sandy loam in a good state of fertility. It would seem to me that the pea vines would smother the young clover.

Montcalm Co.

E. S. C.

A two-bottom plow, or sometimes called a gang plow, is a practical tool on fairly large sized fields that are comparatively level and free from stumps and stones. You can't use one of these plows where there are large stone, nor where there are lots of roots. I can speak from experience with regard to this kind of a plow because I have one of them and have been using the second one now for several years. Of course, you must have a man to use it who can drive four horses abreast and not get them tangled up, but any good man can do it. They are just as easily handled as the common sulky plow. You can turn them around with just as much ease. I consider them entirely practical.

Seeding with Peas and Oats.

No, you are not as sure of getting a catch of clover with peas and oats as you would be with oats alone, because the pea vines have a dense foliage and are liable to lodge in some places and smother out the clover. It's a little risky to seed clover with peas and oats. Unless the peas and oats are exceedingly heavy and lodge badly there is no trouble in harvesting them with a common self binder. The object of sowing the peas with the oats is to help hold the peas up so that you can cut them with a self binder. Otherwise it would be more advisable to harvest them with a pea pulper, or pea harvester. If you will sow about a bushel of oats to the acre with the peas, and have these oats of a variety which have a stiff straw, ordinarily you will have no trouble in having the oats hold up the peas sufficiently so that you can harvest them with a binder. Sometimes our crop is so heavy that it lodges a little, and we have had to cut whole fields by carrying the swath; that is, cut down the side of the field and turn around and go back and cut down again.

THE MANURE PROBLEM.

Of course, some heaps of cow manure or other of the colder manures may be too much frozen, but the horse and sheep manures may be hauled almost any time as they freeze but little.

The winter has been very favorable for the use of the spreader, on account of the little snow on the fields. We have this tool and like it, yet we do not wait until the ground is in condition to use it if we have manure to haul. We go at it with the low down wagon with platform. We have been putting most of the manure on a timothy sod on low ground that is rather rough to use the spreader, and when we are using the wagon for other things we often haul a few loads of manure with it rather than put in an extra horse and get out the spreader. Much of this manure is hauled

from town and is light horse manure with considerable straw or shredded fodder in it, and we can get a much larger load of this on the platform box, which is quite an advantage where the haul is a half mile or more.

Calhoun Co.

S. B. H.

COWPEAS USEFUL IN BUILDING UP SOIL.

I find cowpeas a profitable crop to build up land to insure a catch of clover. I plow early and cultivate to kill the weeds. Sow the middle of June or a little earlier, pasture it thru August and September, sow rye on it in August, ½ bu per acre, and let the cows tramp it in. If the fall is late there will be some rye pasture in the fall. If there is not too much stock the cowpeas will keep growing until frost. In the spring I let the rye grow until the first of May, then turn it under, drag at intervals and sow clover June 1 or a little before. Had to pasture it in August and September; took stock off in October and cut 1½ tons to the acre on land that would hardly grow weeds. Will say I used about 250 lbs to the acre of a potash and phosphorus mixture with the cowpeas.

READER.

Are You Willing to be Deceived?

Probably when the average man or woman pays a merchant for a pair of rubbers or rubber boots, he or she does it because rubbers or rubber boots are wanted. But much footwear sold under the guise of rubber is woefully lacking in that commodity. There's a world of shoddy put into lots of the present day so-called rubber footwear. Shoddy is a concocted manufactured mixture. It consists largely of old rubber that has been worn out and thrown away, to be collected by scavengers who sell it to junk dealers, who in turn wholesale it and pass it along until it is finally revulcanized—that is, "warmed over"—and again used in the manufacture of what popularly passes as rubber footwear. The best rubbers and rubber boots are made from live Para rubber—rubber that has never been used—rubber that is actually alive with all the vim, resiliency and elasticity that genuine rubber should have. These are manufacturers of rubber footwear who have won distinction by producing a class of goods made from the genuine Para rubber, and people who are opposed to shoddy imitation, substituting and counterfeiting on general principles should make it a point to insist upon the standard rubber footwear. Conspicuously among the reputable manufacturers in this line are The Beacon Falls Rubber Shoe Co., of Chicago, and while it may often happen that a local merchant himself cannot promptly decide between genuine Para rubber and the most unreliable shoddy, the customer can make himself safe by referring to the label—or the maker's name—on the goods. Beacon Falls rubber footwear is standard everywhere and can always be depended upon for the longest and most satisfactory service.

Do It Today.

If you have not written for the 1909 Johnston Harvester Company's catalogue be sure to do it today. It is one of the nicest, most interesting farm machinery catalogues of the year; in fact, we might add—one of the most valuable to the man who is in need of farm machinery. A postal card will bring it to your address by return mail, and we assure you you will find your time and money well spent. The front cover is a work of art. Inside, Johnston Farm Implements are clearly and fully described. The detail of the important features—the things that have made Johnston Implements so popular with the farmers everywhere—are brought out in such a clear manner that it is easy to see wherein it is economical and advisable to buy Johnston machines. Again, the farmer owes considerable to this concern as they are the backbone of the independent manufacturers. They have stood out against the Trust for the benefit of the farmer, and have built up an immense business on the basis of high quality and fair prices. Send today for their catalogue before you forget it. Be sure to mention this paper and look up their advertisement in another column. Johnston Harvester Co., Batavia, N. Y.

The Stump Puller.

This device is responsible for an enormous saving of work. A little machine weighing 200 or 300 lbs. is anchored to a stump. Then a horse is hitched on and he walks away with stumps that otherwise would defy his efforts. One man with this machine will do the work of ten to twenty men by hand. The machine we refer to is the perfected stump puller made by the W. Smith Grubber Co., of La Crescent, Minn. They are selling thousands of them to farmers all over the world. This firm has edited a very interesting book on stump pullers and how to use them. They use it in connection with this business, mailing a copy of it free to anyone who feels an interest in that particular work. They send a copy, also, to farmers who wish to take advantage of their offer to give 30 days' free trial of this wonderful machine.

A big book full of information and value for poultry raisers is the new 1909 catalog just issued by the Des Moines Incubator Company, Des Moines, Iowa. There are so many features of interest regarding the Successful and Eclipse Incubators and Brooders, the Sanitary Metal Brood Coop and other products of this company that space does not permit us to speak of them in detail at this time, but we want to urge our readers to write, now while the season is early, for this most interesting poultry book and catalog.

What Science is Doing for the Farmer.

From the very dawn of history, records have been handed down of the existence and frequent ravages of contagious bacterial diseases among domesticated animals. In the remote past, disease progressed almost without interference, because both prevention and treatment were altogether empirical, and scientific laboratories were unknown; but with the advent of the latter, and the establishment of both human and veterinary medicine on a sound, rational and scientific basis, the twentieth century presents an entirely different story. The Federal Government and nearly all the states of the Union maintain laboratories and experiment stations, but the requirements of these institutions, in too many instances, have been insufficiently recognized by the "powers that be," and as a consequence many important investigations languish for want of financial aid. Fortunately, the great scientific laboratories of Parke, Davis & Co., of Detroit, Michigan, are not dependent upon political preferment. They are maintained by public-spirited men who are willing to make liberal expenditures in the interest of scientific research, rendering immeasurable service to physicians and veterinarians in their study of the cause and treatment of disease. Pharmacists, chemists, pathologists, veterinarians and bacteriologists, with every means and apparatus at hand that money can command or ingenuity devise, here co-operate to clarify and advance the science of medicine. We may well say that Parke, Davis & Co. have done much to prevent the invasion and ravages of diseases that caused consternation among our ancestors.

A Successful Rifle.

The influence of the Sportsman's Show and the universal interest in President Roosevelt's coming hunting expedition to Africa have brot the hunters of big game out in force with their trophies of the forest and hunting field. So far the advantage seems to lie with Bill Hillis, who has filed claims for the bear hunters' championship of the great Northwest. To support his contention he sends in two splendid mounted bear skins of remarkable proportions. One is the skin of a giant grizzly, shot when its heavy fur was in its prime. Its claws offer extraordinary proof of the grizzly's vicious fighting equipment. The second skin is that of a polar bear bagged by Hillis in Northern Alaska, and is of such size that it fills the large Broadway window of the M. Hartley Company, where these trophies are displayed. Both these huge brutes were brot down by a .35 Remington auto-loading rifle, one of the powerful arms which have an important place in President Roosevelt's African hunting kit.

A New Way to Cure and Prevent Sore Shoulders.

The time will soon be here when spring work will open up with all its vigor. Our advice is to watch carefully the necks and shoulders of your work horses. A few minutes spent at noon-time, and again at night, bathing the necks and shoulders with water and sponge, will prove time well spent. However, to be absolutely free from this trouble there has been recently invented a collar pad, that it is said, positively prevents galls and sore shoulders, and even cures them when already caused. It is known as the Ventiplex Collar, made by the Burlington Blanket Co., Burlington, Wisconsin, the makers of the famous Burlington "Stay-on" horse blanket. It is certainly a case where a few cents proves a most profitable investment, as well as a humane act. Elsewhere you will find an advertisement of this excellent pad in this issue. Read it and write to the Burlington Blanket Co., Dept 000, for their interesting folder.

New Style Turnouts.

The new buggy style book of the Ohio Carriage Mfg. Co., is fresh from the hands of the printers. It illustrates the many new and unusually stylish rigs, which President H. C. Phelps is offering this year to his "factory-to-home" patrons. This year the Celebrated Sheldon Genuine French Point Automobile Springs are used on all Sheldon vehicles which contributes greatly to their easy riding. The Ohio Carriage Mfg. Company sells direct to the purchaser, cutting out jobber, wholesaler and retail dealer. It makes a special and liberal offer of 30 Days' Free Road Test with the privilege of returning the buggy in case of dissatisfaction on any point. Their split hickory vehicles are guaranteed for two years' time. Our readers who are interested in any way in buggies should certainly send for this handsome and complete new catalog. It surpasses anything that this live concern has ever issued before, and is sent free on the simple request. H. C. Phelps, Pres., Ohio Carriage Mfg. Co., Columbus, O.

Why Horses Should Be Clipped.

Just as you throw aside your heavy overcoat and warm winter clothing in the early spring in order that you can work better, your horse should have his long coat of thick winter hair taken off. If left on, it holds the dirt and sweat, and thus clogs up the pores of the skin, and no horse in that condition can be at his best. The clipped horse dries out quickly, gets better rest, and more good from his food. He comes out refreshed in the morning and better fit for a good day's work. Hand power machines for clipping horses are now made extremely well, and sell at a low price. What is generally considered to be the best one on the market is the Stewart No. 1, made by the Chicago Flexible Shaft Company, and advertised in another part of this paper at \$7.50. Ask your dealer to get one for you, or send to the manufacturers direct.

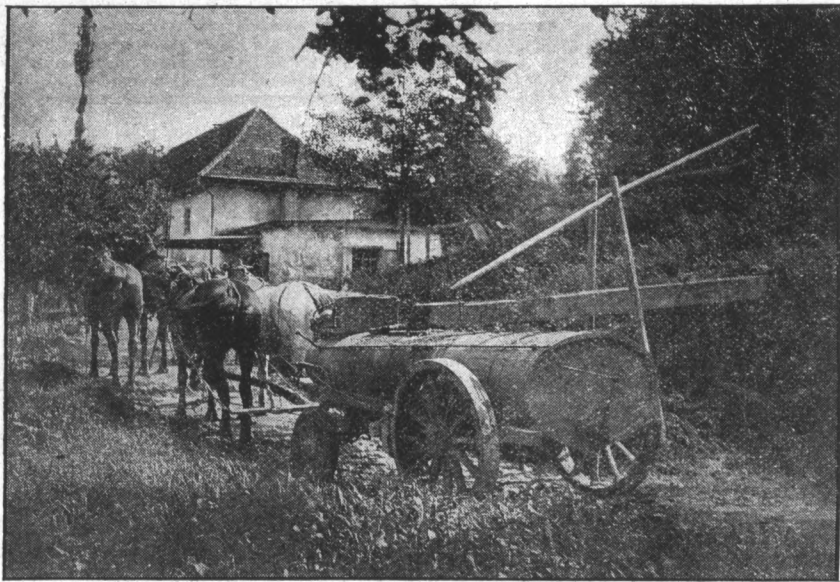
Some Lessons From Our Swiss Cousins on Utilization of Barnyard Manure.

By P. A. Yoder.

Altho our farming classes in the north central states are mainly descended from British, German and Swiss stock, and those of our western states from the same nationalities, with the Scandinavians in addition, and altho we can recognize many of our customs and practices among the customs and practices of our cousins on the other side of the Atlantic, there are other practices in which we have diverged greatly. One line along which our practices have diverged very greatly is that of the measures used to maintain the fertility of the land, and especially that of the full utilization of the barnyard manure. In practically every country in Europe in which the American traveler may tour, one thing which always impresses itself upon him, if he is interested in agricultural matters, is the careful utilization of their barnyard manure. In no European country, however, are such extreme measures in general use to avoid losses of manure as in Switzerland, and a visit to that country by an American farmer is well repaid, if it accomplishes nothing else than to impress upon him the importance of fully utilizing the natural manures and of stopping the leaks in his barnyard thru which his capital is gradually draining away. We have not far to seek to find an explanation of this great divergence in the practices in this respect of the American farmers

farmer will, in the interest of economy, rule out the commercial fertilizers and keep up his farm in a high state of productivity, by proper cultivation, rotation of crops and production and utilization of natural manures on the farm. This brings me back to the subject of my paper—lessons to learn from our Swiss cousins.

In travelling thru the country districts of Switzerland one's attention is attracted to many peculiar and quaint sights, such as the deep gabled, many-windowed brown, unpainted wooden houses, the stables often in the same building with the dwelling house, the robust, friendly looking dairy cattle in the pastures, the large old apple trees, the extensive vineyards, etc. The carefully heaped-up manure pile in each farmer's front yard also comes in for its share of attention from the American traveller. Our genial writer, Mark Twain, thus noticed the great importance attached to the manure pile by these farmers of Switzerland and the adjacent Black Forests in Germany and was led to make his humorous comments in his "Walks Abroad" about how a farmer's wealth there is measured by the size of his manure pile. There is probably as much truth as fiction in Mark Twain's comments about the importance of these manure piles. The first thing about the manure pile that



Loading the Liquid Manure.

and the European. Tho it was decades or centuries ago when our ancestors came from those countries the practices there were very much as they are now. Those pioneers quickly lost the habits of frugality with reference to utilization of manures when they found virgin soil here which was so rich that it could not help producing good crops if given but half a chance. The pioneer for years had his energies absorbed in the task of subduing the wilderness. Prosperity smiled upon him without his giving any attention to the maintenance of the fertility, and a consequence was that the next generation never learned these important lessons which every farmer's son in Europe would have had drilled into him from childhood. The store of plant-food in the virgin soil generally lasted two or more generations, and when thru wasteful farming the stock of plant-food was ultimately so lowered that necessity drove the farmer to some measures for restoring the fertility he had forgotten, or had never learned, the lessons which centuries of farming had taught his European ancestors. He had to relearn them, and so conservative as the farmers usually are, it requires years for a community to change its practices. The farms in some sections became so run down that something had to be done at once in order to enable them to raise paying crops. Fortunately, about that time the scientists made important discoveries as to the true nature of the fertility of the soil, and commercial fertilizers were introduced as an immediate relief. These were so successful where used, principally in our eastern states, that their use was continued and the time still farther retarded when the farmers should relearn to utilize what is at their very yard, costing nothing but the labor of collecting and utilizing. Without discouraging the use of commercial fertilizers we venture, however, to predict that the time will come when the

attracts the American traveller, aside from its location in the front yard, is the care with which it is stacked up. It is not allowed to be trampled out in thin layers all over the yard, for it is known that in these thin layers the loss of plant food constituents thru fermentation and leaching is enormous. The heap, on the contrary, has its edges stacked up vertical, at least on three sides, leaving possibly one side sloping off towards the stable to run up the wheelbarrow. It is also trampled compact while it is being built up.

Another feature which affords us the subject for yet more interesting study is the collection and utilization of the liquid manure, i. e., the drainage from the stables and from the manure heap. Tho our American farmers hear and read, over and over, about the large amount of plant food in the liquid manure from our stables and the leachings from our manure heaps, they pass the matter by as an unavoidable loss. That it is not an unavoidable loss is demonstrated by these Swiss farmers, in that they have provisions for collecting and utilizing this on practically every farm on which any pretension is made of good management. There is a pit or tank under part of the yard, usually in part under the manure pile. This is generally cement-lined and is located to receive the drainage from the stable and from the manure pile. A liquid manure tank on a wagon, for hauling it out to the fields is an implement as regularly found as a plow, with such a farmer's equipment. Usually this is a two-horse outfit with an outlet pipe in the rear with a flat plate against the opening of this pipe so arranged that the liquid is sprinkled uniformly over a strip about six feet wide as the wagon is drawn along. Where the farmer operates on so small a scale that he cannot afford the outlay for such an extra wagon and tank, he probably contents himself with a barrel and a long handled dipper

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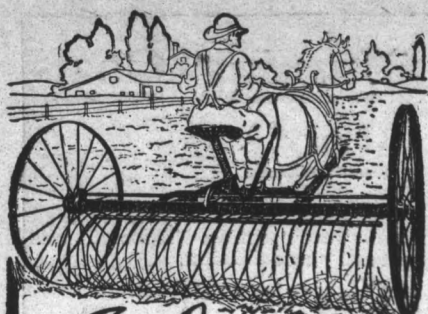
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on a sledge pulled by a horse, ox or cow. From the reservoir in the yard, if the ground is level, he pumps the liquid manure to the tank by means of a large, big-cylindrical pump. More frequently, however, in Switzerland, the stables are not built on the level ground but on a gradual slope. This slope from the barnyard enables the farmer to locate a loading place for the liquid manure fifty to a hundred feet away from the collecting reservoir, down the slope of the hill, to which he leads an outlet pipe from the bottom of the reservoir, opening high enough above the driveway so that he can drive underneath and fill his tank on the wagon simply by opening the valve at the mouth of the pipe and allowing the manure to flow out. Thus the labor of loading and unloading is reduced to a minimum.

In its value when placed upon the land, it is, according to some of the Swiss farmers, equal load for load, to that of the solid manure. Others placed the estimate somewhat lower, but all agreed that it is so valuable that it would be outrageously wasteful not to use it. What the actual value is, depends upon its concentration and composition, which in turn, depends upon the manner of collecting, the amount of rains draining into the reservoir and the amount of leachings from the manure heap. It is desirable to have some rainwater reach the liquid manure because the undiluted product undergoes more of a wasteful fermentation and there is more loss of ammonia than with the diluted product and because, in applying it upon vegetation on the field, the undiluted liquid might "burn" the crop. Most of the readers of this are probably aware that the constituents in fertilizers which give them value as plant food are principally nitrogen, phosphates, and potash, because these are the elements of plant foods which the soil is most likely to lack in available form if not supplied by the farmer. The percentage of these constituents in an average sample of liquid manure, gathered in a humid region in Holland, including drainage and leachings from rains, as well as the drainage from stables, was found upon analysis to be 16 per cent of nitrogen, 1 per cent phosphoric acid and 5 per cent potash. Computed at the prices ordinarily paid for these in commercial fertilizers, viz., 14½c a lb. for nitrogen, 6c a lb. for phosphates, and 4½c a lb. for potash, a ton of this liquid manure should be worth about 87c. Average stable manure with 50 per cent nitrogen, 35 per cent phosphoric acid and 50 per cent of potash has a value, similarly calculated, of \$2.32. The plant food, however, in the liquid manure is more readily available than that in solid manure, tending therefore, to give the liquid manure a relatively higher value than these figures would indicate. In its use, it is found that the crops respond very quickly, but its beneficial effects are not as long continued as those of solid manure. It does not supply so much humus as solid manure, and is very low in phosphates. It is in itself not a complete fertilizer, but there are many soils that need the nitrogen and potash but not the phosphates.

One farmer whom I interviewed in Switzerland makes a practice of adding acid phosphates to his liquid manure in the reservoirs, thus making a complete fertilizer out of it, and also lessening the losses of nitrogen thru fermentation. Another farmer manages his stables so that he collects but little solid manure, by using but little bedding and washing out the manure by means of a stream from the hydrant. By frequently stirring up the sediment in the reservoirs he facilitated a liquifying fermentation and converted it into a liquid thin enough to haul out and sprinkle over the fields by means of the wagon-tank.

It does not necessarily follow, from the fact that it pays the Swiss farmer so well, that it is also the most profitable procedure for the American farmer. Labor in Switzerland is cheaper than with us. Probably a more important difference bearing upon this question, is the difference in the price of straw. In many of our wheat growing sections the straw has practically no market value. In Switzerland they sell straw for an average of about \$9 a ton, hay at the same time being about \$15 a ton. Consequently the Swiss dairyman will use a minimum of straw for bedding. Some use sawdust or peat for a substitute. With us it involves relatively little expense to provide enough bedding to absorb a liquid manure, provided the stable floors are so constructed that it will not at once drain away. It is actually advantageous to

use much straw thus in order to convert the straw into manure, where the straw has little commercial value. This is certainly a better disposition of it than to burn it as is still done in some of the western wheat regions. If the straw is not available in sufficient quantity, then I am inclined to think it would pay the American farmer to follow the example of the Swiss farmers and provide a pit to save the liquid manure and a tank to haul it out upon the fields. This, I think, would also pay, in case the rainfall and the location of his manure heap are such that there is a notable drainage of leachings from the manure heap. Under conditions prevailing in the average barnyard in the humid sections of our country according to careful experiments that have been conducted, the loss in manurial value of a manure heap thru leaching during six months is frequently as high as 40 to 50 per cent. If to this be added a loss from fermentation of about 15 per cent which may take place if the manure is poorly compacted or scattered in a thin layer over the yard, we see that the farmer is losing over half the value of his manure. With compact stacking in deep heaps, and with avoiding of loss by leaching either by shelter from excessive rains or by use of reservoirs to collect the leachings, two-thirds or three-fourths of this loss can readily be avoided. It is especially gross carelessness in a farmer to allow copious streams of water from the eaves or the eaves-trofs to leach thru the manure pile in addition to the rains naturally falling upon the pile. A very practical arrangement was shown me by a farmer near Chur, in eastern Switzerland. His barn was built upon a hillside. On the lower side a shed roof was built onto the barn to cover the manure heap. The stable floor was on the level with this roof and the drainage from the stable was conducted onto the top of the manure heap. Hydrants were provided to sprinkle the heap with more water if necessary to support the desirable fermentation and to prevent the destructive drying out that sometimes takes place in the interior of the heaps. In our dry western states it is also often necessary to sprinkle water over the manure piles even if in the open to keep up the proper fermentation and to produce rich, well rotted manure. Because of these losses in storing manure, and the difficulty in avoiding them, most specialists who have studied the subject now advocate hauling the manure from the stable daily direct to the field if practicable and spreading it out. Then the leachings get into the soil where they are wanted.

With all of our machinery and with our cheap land, we have many advantages over the European farmer, but in making the land produce big yields, the Europeans are ahead of us in practice, and we can profit by studying their methods and adopting or adapting such features in them as are good for our conditions. Among such features are notably their utilization of barnyard manure, and it is with these thoughts in mind that I am offering to the reader these suggestions that came to me in a recent brief residence in Switzerland, hoping that among the suggestions the practical farmer may find something to help him to a more profitable management of his own farm.

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SEEDING TO GRASS ALONE.

I have an eight-acre field of quite heavy clay that has been badly run, altho it has always grown a good crop. Had it to beans last year, and have it well fall plowed and furrowed out. I intended to put this field to oats and seed it down this spring. Would it be advisable to sow this field to grass alone without a nurse crop? Could I expect any hay at all this year? What kind of grasses should I sow and how much per acre?

Saginaw Co. L. C. GARDNER.

You can seed this eight-acre field to a grass mixture this spring as early as the land will do to work and get a crop of grass the last of August or first of September. There is no doubt about this. The amount of grass which the field will cut per acre will depend largely upon the fertility of the field and the thoroughness with which you prepare the ground and get your seed in. Now, as to whether it would pay you better to seed this alone to grass, or to sow it to oats and seed with the oats and wait another year before you get your grass, is a question that you will have to decide for yourself.

I presume you have read Dr. Beal's article on getting a stand of alfalfa, in a recent issue of The Farmer. In this he advised sowing five pounds of alfalfa, one peck of orchard grass, one peck of tall meadow oat grass and one peck of meadow fescue, and two and one-half pounds of timothy seed per acre. If the weeds come up to bother, clip high with a mowing machine and if later on they bother again, clip again with a mowing machine, setting the cutter bar high. Then, the last of August or first of September, you can get a crop of grass. Now, if you do not care for alfalfa, you can substitute the five pounds of alfalfa seed for five pounds of common red clover seed, and you would be practically sure of getting a good seeding and getting a crop of hay late this summer and this would make a nice combination for a permanent pasture later on. If this land is not in splendid condition and has not been manured recently, I would advise putting on a good dose of commercial fertilizer when you sow the grass seed, say 500 pounds per acre of a good grain and grass fertilizer. This will give your grass seed a good start and I believe will give you enough extra growth of grass to well pay for the fertilizer. If you seed to oats and then seed to grass, it will take you another year to get your pasture, and the orchard grass and meadow fescue and tall meadow oat grass would not be as apt to make a good stand as they would if sown alone. It would cost you a little something for seed to do this, but you would probably get a permanent meadow of great value. If you did not care to try the experiment on the whole eight acres, you could take a portion of it and sow the rest to oats, in the ordinary way. I believe the experiment would be well worth trying on a portion of the field at least.

COLON C. LILLIE.

THE GASOLINE ENGINE ON THE FARM.

Since the introduction of the gasoline engine for farm power, it has come to be used for many purposes aside from the common ones such as pumping water, sawing wood, cutting fodder, grinding feed, running the cream separator and other small machinery, spraying the orchard, etc. Some of these uses are so novel and interesting as to be worthy of special mention.

Quite a number of farmers have arranged to use their gasoline engines for the purpose of operating the hay slings in the barn, simply belting them to a drum, provided with a loose pulley and a brake, upon which the rope is wound to elevate the load, the brake being applied to hold the load where desired, and the loose pulley or idler to engage the belt when the drum is released to permit the return of the car. This saves considerable time in unloading hay or grain and works very satisfactorily at small cost for installation.

In a similar way the portable gasoline engine is used to elevate ice into the ice house when filling same, and for the mixing of concrete, sifting gravel, etc., in construction work. They are also used for elevating grain in modern barns where grain bins are located over the stables for convenience in feeding.

Perhaps one of the most novel uses to which the gasoline engine has been put on the farm, is reported from Kansas, where light gasoline engines have been adjusted to self-binders for the purpose of operating the mechanism in wet soils where the driving wheel does not have sufficient traction to operate the ma-

chinery as in the ordinary way. Gasoline engines have also been used for elevating potatoes from the cellar by large growers, operating small machinery about the farm work shop, etc. In fact, there are such a multitude of uses for the gasoline engine about the farm that it is impossible to mention them all in one short article, but there seems no question that this form of power will continue to be more popular and be used for more purposes upon more farms every year until the farm which is not equipped with one will be the exception rather than the rule.

CATALOGS RECEIVED.

"Harris' Seeds" for 1909 are listed in a new catalog published by Joseph Harris Co., Moreton Farm, Coldwater, N. Y. This firm carries a full line of farm, garden and flower seeds, etc.

Arkansas Rice, Its Growth and Possibilities. Along the "Cotton Belt Route," is the title of an interesting booklet mailed upon request by E. W. La Beaume, G. P. & T. A., Cotton Belt Railway, 1554 Pierce Bldg., St. Louis, Mo. It tells all about rice culture.

L. N. Crill Seed Co., of Elk Point, S. D., have published a new "Corn Book" for the spring of 1909. This book describes and illustrates the many varieties of improved seed corn and other specialties which this company offers.

Mixing and Placing Concrete by Hand, is the title of bulletin No. 20, published by the Association of American Portland Cement Manufacturers, Land Title Bldg., Philadelphia. It contains explicit instructions for the correct mixing of concrete for different purposes and illustrations showing just how it is done. Every farmer should have it.

Woodbine Nurseries, operated by W. H. Allen & Son, Geneva, Ohio, R. F. D. 3, send a new catalog describing their shrubs, roses, grape vines, small fruits, etc., on request.

Shumway's Seed Catalog for 1909, sent upon request, by R. H. Shumway, Rockford, Ill., is a large, profusely illustrated book listing a complete line of farm, garden and flower seeds.

Ross Bros.' seeds and agricultural goods, including a big variety of farm and garden supplies, implements, etc., are described in a new 112 page catalog. Write them at Worcester, Mass., for a copy.

Wysong's seed annual for 1909, sent out by Adolphus Wysong, Lebanon, Ind., describes a fine line of field, farm and garden seeds and other specialties.

Henderson's implement catalog for 1909, published by Peter Henderson & Co., 35-37 Cortlandt St., New York, is a 65-page book, illustrating and describing the big line of farm and garden implements, tools and appliances manufactured by this well known firm.

The Henry Phillips Seed and Implement Co., 115-117 Saint Clair St., Toledo, Ohio, has just issued a new 90-page catalog illustrating and describing its "pioneer brand" of seeds, bulbs and plants, farm and garden tools and sundries.

"Spray Machinery" is the title of a new catalog published by The C. E. Brown Co., Rochester, N. Y., fully describing and handsomely illustrating spraying equipment of all kinds and for all purposes.

A. R. Weston & Co., Bridgman, Mich., will send, upon request, their 17th annual catalog and price list of strawberry, raspberry and other small fruit plants, grape vines, etc.

The "Combined Catalogs" sent out by the United Factories Company, Cleveland, Ohio, lists a large line of goods needed upon the farm, such as implements, fencing, roofing, paints, etc., which are offered to the consumer "at factory prices."

Elkhart Carriage and Harness Mfg. Co., of Elkhart, Ind., send upon request a convenient pocket-size catalog of the full line of goods which is the result of 36 years of development.

Catalpa Growing for Profit is the title of a little booklet by D. Hill, of Dundee, Ill., which contains interesting information touching the cultivation of this deservedly popular forest tree.

Michigan Clover Farms, is the title of a large, 35-page catalog of Michigan farms which deserve this title, offered by S. V. R. Hayes, 711 Ashton Bldg., Grand Rapids, Mich. A large number of the farm descriptions in this catalog are accompanied by half-tone illustrations showing the farm buildings.

Henderson's Farmers' Manual for 1909, published by Peter Henderson & Co., 35-37 Cortlandt St., New York, describes Henderson's seeds of grasses, clovers, cereals, forage plants, root crops, etc.

Burpee's Prize Supplement for 1909, published by W. Atlee Burpee & Co., Philadelphia, Pa., contains an interesting record of prizes won with exhibits produced from the "best seeds that grow," with illustrations of many exhibits.

Stewart horse clipping and sheep shearing machines, mfd. by Chicago Flexible Shaft Co., Chicago, Ill., are fully described and illustrated in a new 50-page catalog published by this company.

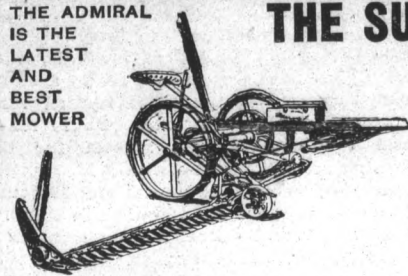
The Flansburgh & Potter Co., send a 1909 catalog and price list of strawberry plants and other small fruits grown and for sale by this company.

The Jubilee Catalog of the Page Woven Wire Fence Co., of Adrian, Mich., which marks the 25th year of this firm's history tells all about their well-known fence.

Hill's 1909 catalog and planting guide published by D. Hill, evergreen specialist, of Dundee, Ill., describes and illustrates by photographic reproductions, a full line of trees, shrubs and plants.

Scarff's Fruits are described in the 1909 catalog issued by W. N. Scarff, New Carlisle, Ohio, who has a large line of specialties to offer the public.

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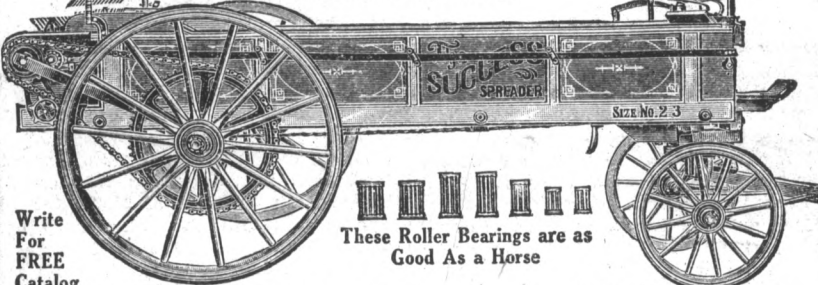
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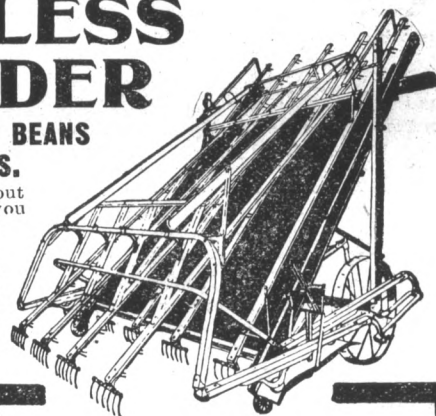
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THE ROUND-UP INSTITUTE.

(Continued from last week).

Thursday Evening Session.

In the absence of Hon. Peter F. Dodds, of Mt. Pleasant, who had been named as chairman for the evening, Mr. C. A. Tyler, of Coldwater, presided. The session opened with music by the local M. E. Sunday School orchestra, after which Mr. Douglas Kennedy, of Mt. Pleasant, spoke briefly on the topic, "The Ideal Farm Home." He recounted the numerous conveniences and improvements which have come to the farm homes of the state in recent years but declared that these alone are not sufficient to convert the farm residence into an ideal home. The Country Life Commission, in endeavoring to get at the true condition of American farm homes, very properly took into account, in addition to the physical condition of buildings and surroundings, those conditions and advantages which have to do with the creation and development of the true home spirit. The ideal farm home, in his opinion, is one in which every member of the household feels a responsible interest, one in which the real advantages of rural life, both from a business and a health and pleasure standpoint, are fully understood and appreciated, a home which the young people leave behind with regret and to which their minds ever revert with a keen sense of pleasure and reverence.

"Household Sanitation"

was handled in an interesting way by Dr. C. E. Marshall. He dealt mainly with the conditions which favor the development and spread of two much dreaded diseases—typhoid fever and tuberculosis. Carelessness or ignorance regarding the house water supply, together with lack of proper drainage, are largely responsible for the former. Wells so located that they act as receptacles for surface water or for seepage from nearby cesspools or manure heaps are positively dangerous. To maintain a safe water supply it is necessary that the well be deep, that it be properly walled and covered, and the ground about it so graded up that surface water will quickly drain away. Then the refuse water and slops from the house must not be allowed to form a cesspool either near the well or in the vicinity of the house, since such places are simply breeding grounds for many kinds of dangerous germs. The best way to keep the premises clear of such places is to provide ample drainage for refuse water thru a sewer or tile drain fitted with a good catch-basin, which latter must be emptied frequently.

Pure air and sunlight are the most effective weapons known for fighting tuberculosis, and they have the merit of being inexpensive. A little headwork in devising means of getting an abundance of sunlight into the living rooms and in supplying proper ventilation will work wonders in warding off doctors' bills. Thorough renovation of sick-rooms after occupancy was advised. Papered walls, especially where the papering has been repeated a number of times without removing the old paper, are splendid harbors of dirt and germs. Cleaning such walls thoroughly and then tinting them will render the rooms more healthful. The employment of every means at hand for preventing the accumulation of dirt, and the devising of means for removing it without causing dust to permeate every nook and corner were mentioned as little things which tend to better the conditions in the home and consequently affect the health of the family.

A bass solo by Prof. Milton Cook, and several clever readings by Mr. Francis Russell, which were introduced at this point, were received as especially enjoyable features of a splendid evening program.

"Progress of Road Building," by Hon. H. S. Earle, State Highway Commissioner, came next, the topic being advanced in the program to allow Mr. Earle to catch a train. In a short talk, and by the aid of the stereopticon, he succeeded in giving a very clear idea of the present situation so far as state reward road building is concerned in this state. Considerable progress has been made, 176 miles having been built in 1908, compared with 88 miles in 1907, and yet Michigan is behind other states in this respect, New Jersey having already built 1,380 miles of state aid roads; Massachusetts has 760 miles, Connecticut 600 miles, and New York 1,700 miles. New York has recently bonded for \$50,000,000, the proceeds to be used in road building, and has changed its road law so that the state will pay the entire cost of building

3,220 miles of trunk line roads and 50 per cent of the cost of county roads. In all, Michigan has 326 miles of state reward road, built at a total cost of \$360,000. He maintained, however, that Michigan has the ideal road system, which comprises the state reward road law, the cash tax law for ordinary roads and the county road system for the leading roads. There are now 26 counties operating under this system and 30 counties will vote on its adoption in April.

After a vocal selection by a local male quartet, Dr. J. L. Snyder, president of Michigan Agricultural College, was introduced, his topic being

"Agriculture and Democracy."

Altho the hour was late Dr. Snyder held the attention of the big audience thruout his most interesting talk. Addressing himself to the magnitude of the agricultural industry in this country, he quoted a lot of figures from the annual reports. The big crop in this country, of course, is corn, we producing 79 per cent of the world's supply, and 71 per cent of the cotton crop of the world. This great industry makes the country self-sustaining and renders the cities dependent upon the farmer. That it has a great effect upon the financial condition of the country was shown a little more than a year ago when we had all the conditions favorable to a general panic, with one exception—the farmers of the country had big crops which enabled us to bring gold from Europe in great quantities, for which we paid in grain. It is also the one great industry that can be carried on without depleting our resources. Iron and other minerals, and such products as coal and gas, when removed from the earth cannot be replaced.

This industry has also had much to do with developing true democracy in this country where merit wins and the poor boy has a chance such as is not afforded him in any other country. The development of agriculture has furnished homes to millions and postponed congestion in the cities. It has been the means of furnishing ample food supplies, and the fact that the working man has had plenty to eat has kept him moderate in his demands.

Looking to the future, Dr. Snyder estimated that in fifty years this country will have a population of 200,000,000. In order to maintain the satisfactory conditions above described, it will be necessary for agriculture to increase its production, for clearly, if production falls behind population, some will have to live on cheaper food and when that time comes he believes that the population of the country will segregate into classes and our boasted democracy will be tried out as never before. During the past fifty years the increase in our area of cultivated land has been very large, but this cannot continue. The tremendous areas in the west and south, which were so inviting a decade or two ago, are rapidly being converted into farms. The average yield of crops is also decreasing, largely because the hand of greed is robbing the soil, and as an instance of this he stated that while 1906 was a great corn year, the average yield per acre for that year was less than for the year 1872.

He held that the great problem, then, is to conserve the resources of our soil and to adopt such methods of intelligent, intensive culture as will enable the farmers of the country to meet the demands of our rapidly increasing population. It is a problem which does not concern the farmer alone, because the farmer is nearest the source of supply, consequently will suffer least should the crash come.

In speculating on the ability of the American farmer to meet this demand, he believes the outlook to be good, and cited as reasons therefor that land is annually becoming more valuable, thus tending to decrease the size of farms, and encouraging more intensive methods of culture; also that the time is nearly past when the farmers of this country will be obliged to meet the competition of newer and cheaper lands.

Friday Morning Session.

Friday had been designated live stock day and the morning session opened with Prof. R. S. Shaw, of the Agricultural College, in the chair. After prayer by Rev. D. J. Feather, of Mt. Pleasant, Mr. C. S. Bartlett, of Pontiac, took up "The Care of the Swine Herd," a topic which had been assigned to Mr. Davis, of Indiana. Hogs on Michigan farms, he declared, should receive better care than they do, as they respond to intelligent handling as well as any other stock. He believes in devoting a considerable area

to the swine quarters and does not favor the use of a permanent hog house, unless it be for fattening animals. Then he went on to describe the kind of individual movable hog house which he uses. He makes this house 8 ft. square, placing it upon two skids. The sides are also 8 ft. square, set at such an angle as to nearly come together at the top. Over this opening at the top is placed a V-shaped roof in an inverted position and set several inches above the opening to allow for ventilation. The floor is made of matched lumber and the sides of the same. The sides and ends are double walled, with building paper between. There is a window at each end, so hinged as to swing upward. In the front end is a large and also a small door. He uses these houses for brood sows, and in very cold weather he hangs a lantern in each house. At farrowing time, especially if the litter is a very valuable one, he places the pigs in a barrel of straw containing a jug of hot water.

Regarding the feed of the sow before farrowing time, he stated that he uses milk, middlings and clover or alfalfa hay, chopped up. The sow also likes wheat straw, and he declared that he has seen them eat timothy hay with relish. After farrowing he gives nothing but water for from 24 to 48 hours. This is preferable to slop, as the latter will almost surely make the animal feverish. After a few days she is put back on full feed. The pigs need nitrogenous food for the first five or six months. A slop of milk and middlings answers very well. If fed corn at an early age they will become too fat. It is especially important that this fattening tendency be guarded against in growing stock for breeding purposes. Have a good-sized lot for the sow and pigs and place the movable house at the farther end of the lot, thus necessitating exercise in coming to their feed. This should be a clover lot, altho one growing rye or June grass is acceptable. Later on there should be a patch of Canada field peas which the pigs can be turned into after weaning. The peas may be turned into when about right for the table.

At this stage he advises the use of barley in making the slop, stating that he intends growing 50 acres of barley for his hogs the coming season. He feeds barley until about a month before finishing them off, when he gives them all the corn they will eat.

In answer to a question Mr. Bartlett said that he warms the drinking water in cold weather. When asked about cooking food for hogs, he stated that it is possible to make them look very fine by feeding cooked food, but it has been his experience that they "go back" more easily.

In answer to other queries, he advised the growing of two litters a year or three litters in two years; also said that it is possible to raise pigs by hand altho rather difficult. In regard to breed he said he likes the breed that will consume the most clover, and that a short, chuffy animal is not a good pasturer.

Mr. I. N. Cowdrey said that in a movable hog house he likes the floor detachable. He also prefers to hang the door on a gudgeon a little above the middle, so that it almost balances. There is then less danger of the pigs being hurt by it than where it is hinged at the top. Mr. W. F. Raven said a few words for the individual hog house, but likes a central house for fattening. Mr. Coleman, of Gratiot Co., declared that permanent hog yards are excellent things to rob a farm of fertility. He prefers a permanent house with cement floor which enables him to save all the manure. The interest in this topic was strong but the discussion was cut short because of lack of time.

A vocal solo by Miss Christine Thiers was enjoyed at this point and the lady responded to the encore.

"Our Present Knowledge of Hog Cholera and Methods for its Prevention"

was the next subject and one in which there is remarkable interest at present. Dr. C. E. Marshall, who has been giving the matter unusual attention, told the audience, in a brief, concise way, practically all that is known at present regarding this disease. Veterinarians have been much at sea regarding it but Dr. Marshall believes that the vaccination treatment which has recently come to the front will ultimately prove a sure and effective remedy. He described this treatment somewhat minutely, and also the symptoms of cholera, but we will not take space to give the details here as they have been fully covered in articles from Dr. Marshall which have ap-

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peared in The Farmer during recent months.

In answer to a question as to the best preventive, he declared that the only thing he could suggest was vaccination. When asked about the disinfection of swine quarters, he advised the use of chloride of lime upon floors. Where a spray is desired he recommended corrosive sublimate.

"Requisites for Success with Poultry" was the next topic, responded to by Prof. J. G. Halpin, in charge of the Poultry Department at M. A. C. He chose to enumerate the mistakes of poultry raisers and among the things which farmers practice, but which they should not, he mentioned the introduction of varieties which are entirely new and untried in the neighborhood. In most cases a good price is paid for the stock and the owner feels, therefore, that it is necessary to save every fowl, good, bad and indifferent, in order to build up the flock quickly, and this is very bad practice. This also means inbreeding, which is dangerous, and in this connection he mentioned the fact that the inbreeding of turkeys is believed to be the cause of the disastrous losses from blackhead which have occurred in recent seasons, especially in the east. The second year the owner becomes careless about keeping his new variety separated from his common stock and the entire lot become mongrelized. The much prized variety is put down as of no value and has thus suffered a setback in that community.

It is also a mistake to neglect the selection of laying stock, as it is an indisputable fact that strains of layers have been built up which produced four times as many eggs as other strains in the breed. He advised selecting laying flocks in the fall, under no circumstances selling the best pullets. In selecting a breeding cockerel he said stamina, or even fighting quality, might be profitably considered, as it is the vigorous, active male that proves most satisfactory. In regard to vermin, he reminded his hearers that lice breed at the rate of 25,000 a week, and with this fact in mind it is a safe plan to dust sitting hens every three or four days.

Another bad practice is to neglect the chickens at roosting time during the summer, allowing the broods to become mixed and a large proportion of them to pile up in one or two coops. This produces conditions which will breed disease before the summer is over. Another thing which should not be done is to feed from the house, as it keeps the chickens hanging around and becoming a nuisance. In the fall the permanent house should be thoroly cleaned and the floor covered with gravel and deep litter. Leave the windows open at first as the young fowls have been accustomed to sleeping in the open air and therefore it is easily possible to have the house too close. As the nights grow colder draughts must be guarded against. If the house is a long one do not open a window at each end. The north, east and west sides of the house should be wind-proof and water-proof.

In feeding for egg production he finds clover and alfalfa chaff the best green food; beets, cabbage and good ensilage are also very desirable. Variety may be given by introducing sunflower seed, millet and the rakings from stubble fields. At the college during the past winter he fed corn and wheat as a grain ration, giving a dry mash at noon. At night whole grain was given in straw, enough to have them get all they could eat and still have some left to get them up early in the morning. Prof. Halpin believes that it is very essential that the hens be gotten to work early and finds this an effective way. Opening the house early is also essential as the invigorating air induces exercise. If in the habit of receiving a warm mash in the morning the hens will invariably wait for it and then remain idle until hungry again.

In answer to an inquiry he stated that he feeds young ducks a ration of two parts corn meal to one part bran, with a little sand mixed in, also giving plenty of green food.

Mr. Gilbert, of Arenac Co., declared that he had stopped the spread of blackhead in his flock of turkeys by the use of turpentine. Mr. Halpin admitted that this is believed to be a remedy but held that it is better to prevent the disease by keeping the turkeys strong and vigorous. He said that he would not confine them but allow them to sleep in the trees the year around.

When asked about the space required for a flock of 100 hens, he stated that 4 sq. ft. should be allowed each hen, thus

requiring a house 20x20 feet. He was asked the cause of egg eating and said it is started by hens breaking their eggs because of not having a fit place to lay; that feather eating comes from lack of meat in the ration, or from lack of exercise; also that it is sometimes induced by the fowl getting hold of fresh feathers from a slaughtered fowl. Feather pulling is also sometimes induced by the irritation caused by lice.

Friday Afternoon Session.

The attendance kept up remarkably well, the opera house being comfortably filled when Chairman E. R. Waldron called this session to order. After an instrumental solo by Miss Lowden, a good talk was given by Mr. Peter Voorheis, of Pontiac, on "The handling and marketing of wool," this topic having been substituted for the sheep topic which had been assigned to Mr. Schlichter. Space will not be given to the many good points brot out since they were fully covered in an article by Mr. Voorheis in a recent issue of The Farmer.

Prof. R. S. Shaw followed, his topic being

"Beef Cattle and their Profitable Feeding."

At the present time, he said, there is a difference of opinion as to whether beef can be produced in this state at a margin of profit and it is unfortunate for the welfare of the general agriculture of the state that so many radical statements are being given out adverse to beef production. Many of these statements cannot be supported by facts or figures.

It is unfortunate for our agriculture that the pendulum is constantly swinging too far, first to one extreme and then to another. A strong stimulus has recently been applied in the development of the dairy industry and a careful study of the situation would seem to indicate that dairying will largely predominate in Michigan, but not to the total exclusion of beef production. There is no better business than dairying for the poor man with a poor farm, for it returns the maximum of fertility to the soil from crops grown and fed on the farm, but it is not true that every cattle owner in Michigan can succeed in dairying for there will always be some with a personal preference for beef production in addition to those surrounded by conditions practically demanding this line of work.

Michigan possesses the best natural and artificial conditions for successful beef production. A large portion of the state can produce corn in abundance, and, alongside the corn field, clover can be produced successfully to aid in balancing the corn ration. Our climatic conditions are extremely favorable and the best markets of the country are within easy access.

Michigan beef producers have been pinched keenly by the competition of the west, but western competition appears to have reached the crest of the wave and is about to recede. Packing houses are being established on the western coast and some of the product of the west is already being diverted into these channels. The great ranges devoted solely heretofore to meat production are being rapidly converted into farms which will have diversified interests.

Producers of pure-bred beef breeding stock are not meeting with the support and encouragement that is desired, but these conditions are likely to improve, as the time is not far distant when Michigan will have to breed her own feeders. The state at present is not possessed of a profitable class of feeder cattle. They are too mixed in their breeding, thereby lacking the uniformity and quality so necessary in good market animals.

There are three methods of beef production which present themselves for consideration: First, there is the plan followed by many who procure western feeders in the fall and finish them during the winter for shipment in spring or early summer. This seems to have been a successful and remunerative system and its continuance will depend upon the possibility of procuring western feeders. Second, in some instances beef type cattle are permitted to rear their own calves which, after weaning, are grown and fattened for beef. This plan cannot prove profitable except where cattle are run on large areas of cheap grazing land, because in the case of the small Michigan farm more revenue must be derived from a cow at the end of twelve months than a \$25 feeder.

The third method, the one adapted to beef production on the small farm, consists in the use of breeding females

(Continued on page 335).

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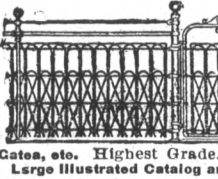


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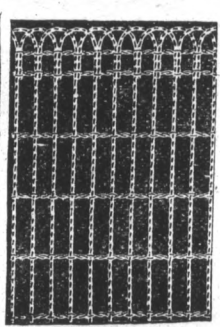
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LIVE STOCK

ANOTHER VIEW ON THE ABUSE OF SHEEP.

In the Michigan Farmer of March 6, I see an article from M. A. Dunning, on "Abusing the Sheep," which I would like to reply to. I have handled sheep for fifty years. Until within perhaps twenty years the custom was to wash and shear sheep the last of May or first of June, and if sheep were ever abused I think it was then. From forty to sixty days they suffered with heat from carrying their heavy fleeces, in the warm spring weather, while after shearing they suffered still more from the sun beating upon their defenseless bodies, and this besides what they and the lambs suffered from ticks before the wool was taken off. When shorn early, there is a nice coat of wool from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch long to protect them from the sun's rays, before they are turned out permanently to pasture. The advantages of early shearing are many. The work is out of the way before the spring work comes on; it saves tagging, gives about one-third more room in the barn, and the lambs have a much better chance to nurse.

For about seventeen years I have sheared my sheep as near the 20th of March as I could, which is about seven or eight days before the lambs begin to come. In that time there have been only three or four years when the sheep would huddle up in close bunches. They nearly always lie singly, as much as before shearing.

My lambs are ready to sell, or at least to wean, early; and my sheep come to the barn fat enough for mutton. It is impossible to adjust the cover on the sheep as on the human being. We can lay off one cover after another, or put them on, to suit our feelings, but the sheep must lose it all at once, and will surely suffer very much more with heat and ticks for a period of two months or more, than with cold for a few days.

I could not be induced to return to the old way of late shearing, for I am sure it would be very much more abuse than early shearing.

Van Buren Co.

E. OSBORN.

HOW TO HANDLE THE VEAL CALF AND ITS DAM.

I read the question of F. H. Harter in your issue of March 6, about letting the calf suck the cow while fattening it for veal; also Mr. Lillie's reply to same. Altho Mr. Lillie is a large dairyman and has had vast experience along these lines, still I beg to differ with him and claim it is not allowing the calf to suck that causes the trouble he mentioned, but the way the cow and calf are handled, and as proof will give my way, which I have followed for three years and have never had a failure. I allow the cow and calf to be together until the milk is good, but at the regular milking time I am on hand and strip the cow dry. About the fourth or fifth day I return the cow to her regular stall, leaving the calf by itself. At milking time I take the calf to the cow allowing it to suck all it will, then I strip the cow dry, leaving the calf by her until I have finished. I continue this until the calf is sold, usually at five weeks old. In this way the cow becomes accustomed to both the calf and the milker at the same time, and when the time comes to sell the calf I never have the least trouble with my cows. In fact, it seems a relief to them when the calves are gone, as they get pretty rough at that age.

Gratiot Co.

B. F. CLINE.

FATTENING VEAL CALVES.

F. H. Harter, of Berrien Co., in the issue of March 6, wishes the best method of fattening calves, and as I presume he would like more than one opinion will give mine. In preference to milking the cow and feeding the calf, if the cow is a good milker, I let the calf, for first week, suck one teat, or that amount; the next week two teats, the third week three, and thereafter all it wants. I see that the calf is taken away as soon as it gets the proper amount of milk, and immediately finish milking. Keeping the calf away from the cow except when sucking, nearly weans the cow from it, and when the calf is sold the cow only thinks of it a short time.

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PREPARE FOR THE FOALS.

Farmers who expect foals from some of their mares this spring, if they have not already made suitable preparations to receive them into the world properly, should do so at once. Mares which are to foal any time previous to the warm weather of the latter part of May should be kept in comfortable box stalls at night and in dry, sheltered yards where someone about the farm can look to them frequently, during such early spring days as are warm enough for them to run out.

The old-fashioned idea that a mare about to foal will do better without the interference of man is all right, under certain conditions, but the necessary conditions are frequently absent and, as a result, the foal is sometimes lost and there is danger that the mare, too, may be lost.

After one pays a service fee and gives a mare the careful wintering that a mare expected to produce a foal should have, it is no light loss to have the foal meet death because of the neglect of the owner to prepare a suitable place for the mare to foal in, or to see that mare and foal gets proper care.

A mare, even in a roomy box stall, may have trouble in foaling, trouble of so simple a nature that it could have been averted had someone been at hand to look after her. It not infrequently happens that a mare will lie so closely to the side of the stall that the delivery of the foal is either impeded, or that it will be delivered in such a doubled-up position that it will smother before the dam gets up to release it from the folds of the blanket or placenta.

A wrong presentation is a more serious affair and must be attended to by a skilled attendant at once or both mare and foal will be lost, hence the necessity of having the mare where she may be observed.

A mare turned out in the pasture to foal will invariably seek a place near the pasture brook or spring to foal and there is great danger that the newborn foal in its struggles to get to its feet will get into the water and drown. Then again, even in the warm weather of early spring, a sudden change is likely to occur between night and morning and a foal of a few hours old that gets soaked with the cold rain likely to fall, even as late as the latter part of May, will, in most cases, die from its effects.

Horse breeding is profitable only when the farmer gives to his mares the care that will insure the maximum number of safely delivered foals. Provide a roomy box stall for the mare. See that it is kept clean and either look after the mare frequently, as foaling time approaches, or have some reliable assistant to do so. Cleanliness about the stable is of the utmost importance for more foals die, after safe deliverance, from navel-ill, than from any other cause, and that ailment is the direct result of a germ which exists only where uncleanness exists.

This germ finds its entrance into the foal's system thru the severed navel cord and to prevent this clean bedding daily, frequent disinfection of the stable and an application of any kind of the recognized disinfectants to the foal's navel cord where it was severed, daily for three or four days, is absolutely necessary.

The other most necessary attention which the new born foal is likely to require is a rectal injection of a half pint of warm water, to which a little glycerine has been added. This will be necessary only in case the fecal matter which nature has stored in the rectum does not pass away within three or four hours of the foal's birth. In case there is no passage within the time mentioned it will always be safest to give an injection as stated for failure to do so is very likely to result in the loss of the colt.

After the mare foals give her a warm bran mash and, if as is sometimes the case, she shivers and appears to be suffering from a chill cover her with a blanket. The placenta, as soon as it comes away should either be buried where it is not likely to be disturbed or, better still, be burned. The exterior of the mare's vagina and adjacent parts, as well as the tail, should be washed with a disinfectant solution and she will then be more likely to be in proper condition to breed again when the foal is nine days old. The soiled bedding should also be removed and buried and the stall disinfected before new bedding is supplied.

While the ninth day after foaling is generally accepted as the proper time to return the mare to the stallion it is not

so for all mares. Some will be in heat on the eighth day and some will be in far better condition to breed on the tenth day. If a mare is cross and persists in fighting against being bred on the ninth day hold her over until the tenth and she will usually be of a different mind and also be far more likely to get in foal.

To some farmers all the suggestions here made are known, and by a few number acted upon. Others have never paid any attention to the importance of disinfecting against the germ diseases which annually destroy a large number of foals and still others breed their mares and trust to luck for the outcome. Inasmuch as a mare used for breeding purposes represents a certain investment which either represents a profit or a loss, ought it not to be the aim of the owner to give to her the same care, and attention he would give to his acres of wheat in order to assure a paying crop? New York. H. L. ALLEN.

CORN SILAGE FOR HOGS.

Is good corn ensilage a good food for a brood sow during the time the pigs are with her? She would have separator milk to drink.

Kent Co.

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Hogs will not eat corn silage up clean unless they are actually starved to it. It is too bulky. They don't like so much bulky food. If your corn silage was well eared and the ears were pretty well matured, and you would feed it liberally to the sow so that she wouldn't have to consume all of the corn stalks to get a little grain, and feed skim-milk in connection with it, you could form a good ration for the sow; but there would be a great waste of ensilage. I would rather feed the corn silage to dairy cows and feed a little ear corn in connection with the skim-milk to the brood sow; not very much, about one pound of corn in proportion to three pounds of the skim-milk would be about right. It is always advisable to give the brood sow a little alfalfa hay, or nice green cut, well cured clover hay every day. In doing this you can feed a much less ration of the corn and skim-milk and it adds bulk to the ration and gives the sow a variety. This would be advisable under all circumstances if you can do it; but the clover hay, or the alfalfa hay would be better food for a bulky food and roughage than corn silage.

COLON C. LILLIE.

THE LAW OF BREEDING.

The subject indicated is broad, because, as the writer realizes, the laws are nature's laws and applicable to all kinds of animals and plants alike. The live stock breeder has two things to contend with; i. e., heredity and adaptation. The writer would define adaptation as habit acquired by use—the indulgence of use becomes a habit, and the longer a habit is continued the harder it is to break. Heredity is so strong that it requires continued judicious selection to combat it. The breeder must be guided by his compass—an ideal of what he wants—and keep on following it without any variation, and keep on re-enforcing it by careful selection. The ideal toward which he is striving and the law of heredity must be forever on his mind. To show the strength of heredity the writer will state, how in experimental plant breeding a rare instance was found in which the resulting plant from a kernel of corn had leaped backward from 2 to 3 thousand years at one leap and then by crossing produced specimens entirely different from any that had existed before. The experimenter truly said, "You can create any kind of a plant you want if you have time enough."

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W. E. Prichard & Sons, of Ottawa, Illinois, write us that they have enjoyed a very nice trade in Percheron and Shire stallions this season and have sent a number of good horses into Michigan and Wisconsin. They still have on hand a very good bunch of clean, sound horses which they will sell at very reasonable prices. The members of this firm are the proprietors of the famous "Highland Stock Farm," where many International winners have been bred. These gentlemen request those who desire to obtain a good young stallion to write them for prices and descriptions. They feel sure they can suit anyone in horse and price.

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VETERINARY

CONDUCTED BY DR. W. C. FAIR,
CLEVELAND, OHIO.

Advice thru 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. In acute cases, where we believe that immediate treatment will be necessary, reply will be made by return mail, free.

Inflammation of Heel.—I have a horse 16 years old which a week ago seemed to have a mild attack of scratches brot on, we believed, by a slight interference. The shoes were corrected by blacksmith, but the horse has grown worse steadily until now he can hardly use his left hind leg. The legs are badly swollen, the cords running from ankle to hip on the inside. When he attempts to walk he throws his leg up and walks with hind legs far apart and stands that way in stable. He is apparently in good condition and eats well. I would like to know cause and remedy for the disease? **W. B., Hamburg, Mich.**—Your horse suffers from an inflammation of glands of skin; also an inflammation of the lymphatic glands. This is rather a painful ailment. Discontinue feeding grain, feed some well salted bran mash or vegetables to keep the bowels open, and if they do not loosen give a pint of raw linseed oil daily until they do. The heels should be poulticed with antiphlogistine. Also dissolve ¼ lb. sulfate zinc in a gallon of water and apply to wounds twice a day.

Hock Lameness.—I have a horse six years old that sprained hock joint about a month ago and has been lame ever since. The joint is swollen and tender; always very lame when starting, but appears to get over it after exercise. **W. J. F., Caro, Mich.**—Your horse suffers from an inflammation of hock joint and should be rested, also apply equal parts tincture cantharides, aqua ammonia, turpentine and sweet oil to hock twice a week. I am somewhat inclined to believe that this may be the commencement of bone spavin lameness.

Curb.—I have a 5-year-old gelding with swelling on back part of hock and noticeable on outside. Have applied blisters with rather poor results. No soreness or lameness can be seen. **V. G. W., Montague, Mich.**—It is not always good practice to treat an ailment of this kind unless it is producing either a soreness or weakness, for nearly all proper remedies set up considerable inflammation and it is not unusual for them to do harm. You had better apply iodine ointment two or three times a week instead of blisters.

Enlarged Ligament.—I have a mare that is lame in right hind leg; there is quite a large bunch on outside and a small bunch on inside of ankle. Our local Vets. tell me that it is a ruptured ligament. If there is any cure for it I would like to know. **H. B. S., Lakeview, Mich.**—I am inclined to believe that your local Vets. are right. Both lower branches of the suspensory ligaments have been severely sprained; therefore, I suggest that you blister the parts, using any one of the blisters that are regularly advertised in this paper. By doing so you will meet with fairly good results; however, the horse should have rest.

Chronic Cough—Lymphangitis.—I have a horse eight years old that has a good appetite and appears to be in quite good health. He has a chronic cough and I am afraid it may result in heaves. This same horse became troubled with a swollen leg about three weeks ago. When he gets down I am obliged to help him up. His kidneys, I think, are a little sluggish. **S. L., Elmira, Mich.**—Give your horse ¼ dr. powdered opium, 2 drs. muric acid ammonia and 1 dr. powdered lobelia at a dose in damp feed two or three times a day. Also give 1 oz. powdered rosin at a dose in feed twice a day until his kidneys act freely. Also apply equal parts aqua ammonia, turpentine and sweet oil to back once a day. Feed him well salted bran mash or vegetables to open his bowels, or give him a pint of raw linseed oil daily until his bowels loosen.

Indigestion.—My 9-year-old gelding is thin, altho fed good hay twice a day and straw at night. Have also given him stock food, worm powders and glauher salts as recommended by neighbors. His coat is rough, legs stock and sheath is badly swollen. He also has colicky pains every spring. Just now he feels good when taken out of barn, but when driven four or five miles acts sleepy. He seems to be crazy for water but does not drink large quantities. **F. L. W., Holton, Mich.**—Your horse had better be fed some oats, corn and dry bran, also a teaspoonful of salt and a teaspoonful powdered rosin and a tablespoonful ground ginger at a dose in feed twice a day, and it would be a good plan to feed him a few carrots once a day.

Weak Shoulder Muscles.—Would like to know how to treat my lame 9-year-old mare. She went gradually lame without any apparent cause last June. The more worked or driven the worse she gets, sometimes when traveling she will suddenly become very lame and go in that condition for one-half mile or so and then resume her normal condition. When standing she sets her feet back a little and knuckles over on toe. **G. J., Free-land, Mich.**—Apply equal parts spirits camphor, extract witch hazel and alcohol to shoulder twice a day.

Rectal Abscess.—I have a colt coming two years old which our local Vet. says has an abscess just inside of rectum. His bowels move with considerable difficulty; have been giving him 1½ pints raw linseed oil daily. **J. H., Hillsdale, Mich.**—This appears to be a case that demands careful attention. The bowels

should be washed out with 1 part carbolic acid and 100 parts water twice a day, using not less than three or four quarts of tepid water at a time. Also continue giving a pint of raw linseed oil daily, if you are unable to move the bowels with well salted bran mash or vegetables. I prefer to flush the bowels with water, using considerable quantity, than to give much medicine.

Warbles.—I bot several cattle to feed which have warbles, or grubs, in their backs. Will you tell me what to do for them? **J. J. B., Emmett, Mich.**—Take a sharp penknife, make the opening in skin a little larger, squeeze out grubs and kill them. Dissolve ¼ lb. sulfate zinc in a gallon water, pour a little of this solution in grub holes once a day until they heal.

Indigestion.—I have a horse that is not thriving; he is inclined to eat his bedding and almost everything in reach of him. **W. M., Shabbona, Mich.**—Give him a tablespoonful of the following compound powder at a dose in feed twice a day for 30 days. Powdered sulfate iron, ginger, gentian, bicarbonate soda and powdered rosin, equal parts by weight and mixed thoroly.

Barren Cow.—I have a cow that appears to be in heat almost continually; some bloody discharge from vagina. She fails to get with calf. **H. S., Shelby, Mich.**—Your cow may have a uterine or vaginal polypus that requires removing, then she will get well and perhaps breed.

Obstructed Teats.—I have a young cow that came in about four weeks ago; her udder was quite badly swollen and one teat appears blocked. I used a milking tube for some time. This teat appears to have some bunches in it, causing milk to come very slow. **A. W.,**—you had better continue using a milking tube; this will make milking much easier for you, but the tube should be boiled for five or ten minutes each time before it is used. Also apply iodine ointment to teat once a day.

Sheep Die from Toxic Poison.—I have lost several sheep lately; they show sickness one day and die the following. Have doctored them for grub in the head and after death have examined the head and found no grubs. Have also treated them for pneumonia, but they die just the same. I have been feeding them on marsh hay, also on ensilage and corn-stalks. They run out in the fields but have been kept fairly dry and are looking pretty well. **W. G., Gregory, Mich.**—You had better discontinue feeding them the marsh hay and ensilage. I am satisfied they die from a toxic poison instead of a disease. Try and feed them some clover and a few vegetables.

Barren Cows.—What is the cause and remedy for heifers that fail to breed. Have noticed some blood pass from them after service. **R. J. P., Holton, Mich.**—You had better try the yeast treatment which is prepared by putting two heaping teaspoonfuls of yeast in a pint of boiled water. Set the solution near the stove and maintain at a warm room temperature for about five hours; then add three pints boiled water and keep it warm for another five hours. By this time the solution will have a milky appearance and is ready for use. Flush the parts with warm water and inject the yeast. The animal should be mated from two to eight hours later. Let me suggest that every dairyman clip this formula out and retain it; this will save my answering this question every week.

Partial Dislocation of Stifle Joint.—Barren Mare.—Have a 4-year-old mare that has poor control of one hind leg, worse at one time than another. She has not been right in this leg for two years; her leg bothers her less if working than if standing in barn. I also have another mare 11 years old that dropped a colt four years ago; did not breed her that year and since then she has failed to get with foal. We have also used the impregnator. **R. P., Holton, Mich.**—Blister stifle with cerate of cantharides every ten days or two weeks and try the yeast treatment on your barren mare. You will find the formula in this department. Be sure and follow the directions.

Weak Tendons.—My 9-year-old mare is weak in tendon; have applied four liquid blisters. What had I better do? **N. B., Inkster, Mich.**—Blister her lightly every week or ten days and give her as much rest as possible.

Distemper—Diarrhoea.—I have a colt ten months old that had distemper last January; got over that all right, but now seems to be gradually losing flesh; teeth seem to be all right. He stands a little cocked ankle and sometimes stands stretched out. I also have a horse 18 years old that is not thriving. His bowels act altogether too free most of the time. **W. J. H., Midland, Mich.**—Give your colt 1 dr. Fowler's solution, 2 drs. fluid extract cinchona and ¼ dr. powdered nux vomica at a dose in feed two or three times a day. Give your 18-year-old horse ¼ oz. sulfate iron, 1 oz. ground ginger and 1 oz. charcoal in feed twice a day for 30 days.

Irritation of Bowels.—I have a young mare four years old that switches almost continually. I have that that she might be troubled with pin worms. Please tell me what is wrong with her, also give treatment. **L. F., Farwell, Mich.**—Feed your mare some well salted bran mash or vegetables to keep her bowels open. Give a tablespoonful of the following compound powder at a dose in feed three times a day. Powdered sulfate iron, gentian, fenugreek, rosin and charcoal. Also dissolve 1 oz. powdered sulfate iron in 3 pints tepid water, wash out rectum three times a week. Before making this application you had better wash out bowels thoroly with tepid water. These applications are most easily made thru a rubber hose and funnel.

Stomach Vertigo.—Today I was driving my horse double, hitched to a wagon, on a walk; suddenly he appeared nervous, began pulling on the reins as if trying to run away; we succeeded in stopping him; his body jerked and twitched vio-



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lently and he perspired freely; soon got over it. C. D. W., Evart, Mich.—Feed less grain and more vegetables and if he is fleshy reduce him. Give 20 grs. calomel twice a week for two weeks, also keep his bowels open.

Enlarged Gland.—I have a sow that has a painless bunch in throat; she shows no sickness, and I bred her a week ago. Do you believe it will be against her raising good pigs? C. W. E. F., Gladwin, Mich.—Your sow has either a cold abscess or an enlarged gland, if soft it should be opened, if hard apply iodine ointment daily.

Barren Mare—Broken Wind.—I have a 7-year-old mare that was bred nine times last season and failed to get with foal; she comes in heat regularly. She also has a chronic cough and heaves and I have been told not to waste money buying drugs for her as she will never get well. F. R. S., Sebawaing, Mich.—Have your mare opened before she is bred again; feed her no clover or musty badly cured fodder and give her good care; she will perhaps never be perfectly well.

Bursal Swelling.—I have a 4-year-old mare that is troubled with bunches on fetlock joints. I find these bunches harden some when she is used much. They cause no lameness. W. P., Columbiaville, Mich.—Fairly good results follow light applications of equal parts spirits camphor and tr. iodine. Every evening is often enough to apply it.

Loss of Vision.—I have a horse nine years old that began to go blind about a year ago; now one eye is entirely blind and the other almost blind. What prospects are there of saving his eye? D. E. K., Elsie, Mich.—None whatever. He suffered from periodic ophthalmia and it terminated in cataract.

Nasal Gleet.—My horse had what our local Vet. called a case of pinkeye-discharge last fall and it left him with a discharge from the nose which he has not gotten rid of. F. H., Saginaw, Mich.—If the discharge comes from one nostril only, it is perhaps caused by a tooth being diseased; however, if from both it is chronic catarrh or nasal gleet. Give 1 dr. powdered sulfate copper and 2 drs. Fowler's solution at a dose in feed two or three times a day until he recovers.

Moon Eyes.—I have a 5-year-old mare that is troubled with sore eyes every three or four months. I am told it is a case of moon eye; this same mare is troubled with worms and I am giving her a remedy for them. C. R. D., Decatur, Mich.—Your mare suffers from periodic ophthalmia, a disease which is supposed by many to be influenced by the moon; however, I have known it to occur at all stages of the moon, therefore I do not take much stock in such beliefs unless they can be seemingly proven to my satisfaction. I might also say the veterinary profession acknowledge that no known remedy has ever been found that will effect a cure in this ailment. The attacks can be palliated by hot fomentations, reducing the grain allowance, giving a cathartic and keeping the animal in shaded place. Irritating eye washes and powders always make them worse. You had better continue giving the worm medicine for it will save the feed.

LIVE STOCK NOTES.

The occurrences of fires at stockyard centers, involving losses of live stock, have led to discussion of the subject by the Chicago Live Stock Exchange recently, and that commercial body of representative live stock commission merchants is trying to place the legal responsibility for such losses. To this end, Secretary Charles W. Baker is soliciting all live stock feeders, shippers, farmers and others interested to contribute their views on the advisability of providing a form of insurance protection sufficient to cover the losses of live stock by fire, at an expense to the patrons of the Chicago market not exceeding five cents per single-deck and ten cents per double-deck car load. For some years some of the live stock commission firms have paid for insuring live stock confined to their care, but other firms have refused to do so, regarding it as unfair that they should pay for insuring other people's property.

Farmers east of the Missouri River are going to do a great deal of summer grazing this year, having found that it is much cheaper to make gains in feeding cattle on grass in warm weather than in feeding on grain during the long winter period. The gradual abandonment of the range cattle industry removes one active competition and thereby greatly helps the farmers who care to utilize their blue grass pastures in making summer beef. A great many cattle of a good feeder class have been shipped from Omaha, Kansas City, Chicago and other supply points to feeding sections. This is a good time to market winter-fed cattle that are fat, and it will pay in all likelihood for farmers who are well fixed and who understand the business to refill their feed lots and fatten cattle during the summer months, altho paying around top prices for stockers and feeders looks risky, to say the least.

There are two classes of steers that should be marketed as soon as practicable, says a leading live stock commission firm at the Chicago stockyards. "There are the matured offerings and those of common quality. Get rid of these and then stock up with the warmed-up grades late in March, as there is good promise of a better market in the spring and summer. However, where the steers are thrifty, are of good quality and lack good flesh, we believe such can be held for longer feeding to good advantage."

All kinds of meats are selling everywhere at unusually high prices, causing a falling off in the demand, for the purchasing power of the people has failed to increase anywhere near correspondingly with prices for food and nearly everything else. Beef is abnormally dear, as is mutton, and so for that matter are hog meats, but they are at least cheaper

than other meats, and for that reason their consumption is on a larger scale than in former years. Fresh pork products are immensely popular with the masses of the people, and the hogs now reaching western and eastern markets are being used largely for this purpose. There is also a very large consumption of cured meats and lard, and this is making serious inroads in the stocks of provisions held in western warehouses. On the opening of the present month the stocks of provisions in Chicago warehouses were down to 148,990,356 pounds, compared with 161,268,433 pounds on the corresponding day last year.

Within a short time some extremely good advances in prices for beef cattle have taken place in the Chicago market, these upward movements having continued for two weeks in succession. It cannot be said that the consumption of beef has undergone perceptible gains, for demand has been checked by its great dearthness in the retail butcher shops, as well as by the Lenten fast observed by millions of people, and the advances must be credited wholly to the remarkably small receipts. Average prices of cattle have been very much higher than in most former years. On several occasions recently exporters have entered the market and made sufficiently large purchases of cattle around \$5.65@6.30 per 100 lbs. to give noticeable assistance in advancing prices. On a recent Monday Hatheway was in the market and purchased some 500 head of fat cattle for shipment to England, taking some good beeves averaging over 1,300 lbs. at \$6.05, and two days later he had a similar order to fill.

Muddy country roads have helped to retard the marketing of hogs part of the time recently, and small receipts have served to bring about several sharp advances in the markets of the country, an advance of fully 25c per 100 lbs. taking place in the better class of swine in the Chicago market the other day. It has happened at times that the receipts of hogs have been barely sufficient to meet the fresh meat requirements, and active competition between the local killers and eastern shippers has been a powerful bullish factor. The east appears to have run out of hogs, and the west is called upon to an unusual extent to make good the deficiency. It looks very much like a shortage of hogs thruout most parts of the west, as well as all over the east. Many farmers made the mistake of marketing their pigs instead of maturing them, and now they see plainly their irreparable error.

A large northward movement of Texas stock cattle to Kansas and Oklahoma pastures is about ready to open. It is learned that contracting around San Angelo, Texas, has been carried on liberally of late, and several days ago it was announced that cars for shipping 75,000 head of cattle had been ordered from the railroads. This will assure a plentiful supply of grass beef cattle for the late summer and active competition for corn belt feeders. It is further stated on good authority that all of the Kansas pastures have been leased at the highest prices ever reached. Free grass in the west is now practically ended, and all of the cattle forwarded this year to the northwest will be required for restocking fenced pastures. While the southwestern grazing country will market its usual supply of grass beef cattle next summer, the northwest will be even a smaller shipper than last year, about all the outfits except those with fenced pastures having already disposed of their holdings.

The only drawback to further advances in prices for cattle, hogs and sheep appears to be the unusual dearthness of all descriptions of meats, including beef, mutton and provisions. The packers and other butchers disclaim asking unduly high prices and throw the blame upon the retailers, and undoubtedly the latter are asking bigger profits than is fair, but they have matters in their own hands, and the result is that consumers are compelled to exercise more economy in buying meats than in former years, especially as everything else, almost without exception, has risen in price. Meat on the hoof is also higher than in most past years, and this is true of both cattle and hogs. Pork wholesales about \$5.50 a barrel higher than a year ago, with corresponding advances in other cured product, but fresh pork is cheaper than other meats, and, therefore, it is meeting with an enormous consumption nearly everywhere. In fact, the hogs now being marketed are largely converted into fresh meat to supply current wants.

C. W. Olmsted, of South Dakota, marketed six carloads of steers in Chicago several days ago, being the first consignment of corn-fed cattle that were ever shipped from there. Mr. Olmsted is one of the new farmers in that part of South Dakota, having started in there last spring, when he planted 240 acres of corn, 60 acres of flax and 60 acres of oats on his big farm. He was successful in raising good crops, and his experiment in feeding cattle was also so successful that hereafter he will feed a greater number of cattle. In addition to handling 120 head of cattle on his farm he also fed 150 hogs and 800 sheep. Mr. Olmsted said that his neighbors raised no corn, and after feeding all the corn raised on his farm, he was forced to market his cattle before maturing them well, receiving but \$5.25 per 100 pounds. Farmers in that section have regarded corn growing as unprofitable, as they were far from good markets, but Mr. Olmsted's experiment in cattle feeding has demonstrated, as he says, that farmers can find a market right at their own doors, and he is now advising his friends to go ahead and raise all the corn they are able to. He tells them by way of encouragement that he will buy all of their surplus corn and feed it to stock. His cattle have been on full feed for three months, but were fed some corn as early as last October.

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POULTRY AND BEES

CARE OF YOUNG CHICKENS.

As the time for young chickens is at hand, a word in regard to their care will be seasonable. The first few weeks' care is responsible to a great extent for their success or failure, after maturity. Hundreds of chicks are lost each year by careless feeding during the first month of their lives.

Chicks do not require food for the first 24 hours after hatching. I believe in making their first feed of stale bread soaked in milk. This is placed in a trough or other suitable receptacle which will prevent their trampling upon and soiling the food. When they are about 36 hours old they may be given a little fine grit or sand. A hard boiled egg chopped fine and mixed with stale bread crumbs is an excellent food to start them on. Care should be taken not to overfeed, as no good results come from too much food. On the contrary, bowel trouble is apt to result.

When the chicks are a few days older a little grain may be fed. Finely cracked corn and wheat are excellent but care must be taken to remove all the larger pieces of grain. A sieve can be used to advantage for this purpose. There are several kinds of prepared chick feeds on the market that are to be recommended. Always scatter the grain to give the chicks exercise. The litter, however, must not be very deep.

Feed Sparingly, But Often.

Young chicks should not be fed enough at one time to satisfy their hunger but, rather, a little at a time, and often. During the day they should be kept sufficiently hungry to be eager to eat when fresh food is given. They should be fed five or six times a day. More soft than hard should be given the first two weeks, and then more hard and less soft feed as they grow older. Never give them more soft feed than they will eat up clean, as the chicks will trample and dirty it. Should any be left, remove at once, as dirty feed is often the cause of bowel trouble.

Chicks that run at large will help themselves to green feed, but when confined in small yards such food must be supplied. Tender green stuff, such as lettuce, grass clippings from the lawn or boiled vegetables chopped fine are excellent and quite essential.

As the chicks become older more uncooked food may be fed. Wheat bran, corn meal and fine middlings mixed in equal proportions is an excellent food. Cracked corn and ground oats may also be added if desired. Wheat screenings may be fed to advantage, as this is an economical and yet valuable food. On too many farms such excellent food materials as screenings and the rakings from stubble fields are wasted.

The chicks should have access to fresh, cool water at all times. Small chickens drink a little at a time, and often. Therefore, keep a supply of fresh water constantly within their reach. Keep the drinking vessels clean. Thoroughly rinse them each time before filling with fresh water. Frequent scalding with hot water must also be resorted to. This will keep them free from taint and disagreeable odors. In summer always keep drinking vessels in the shade.

Skim-milk affords an excellent food for young chickens and they are fond of it. For producing growth, skim-milk cannot be excelled. It is also easily digested. Too much must not be fed at one time, however, as bowel trouble may result.

Controlling Vermin—Other Suggestions.

Insects cause nearly half the failures in raising young chickens. Whitewash liberally applied to the coops will go a long way in ridding the place of lice. Kerosene is also excellent. If body lice are found on the chicks, dust insect powder under the feathers, preferably in the evening as the powder will then not be shaken out before it does the work.

Separate the sexes early. They will develop better. The pullets will reach maturity sooner if free from the annoyance of the cockerels. Maturity should be reached before cold weather sets in. This is essential in order that the pullets may lay thruout the winter.

The raising of broilers for market is an excellent paying occupation but this branch of the poultry business appeals more particularly to experienced poultry raisers who have plenty of time to devote exclusively to this work. Broilers

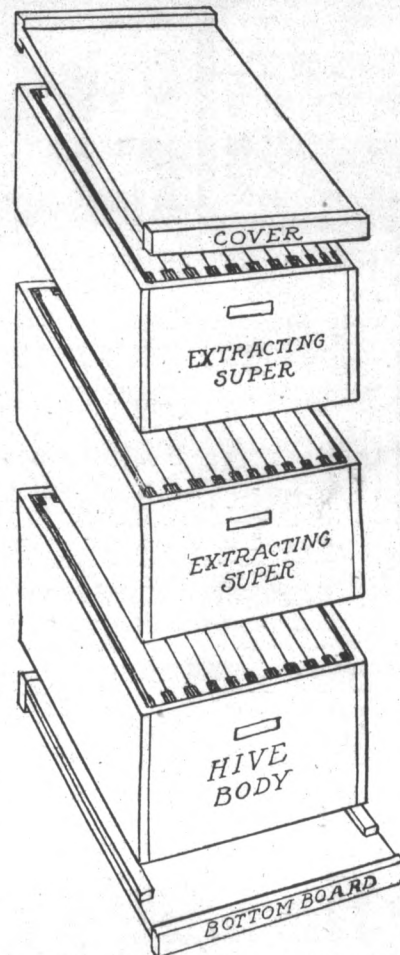
must be kept growing rapidly and only an experienced and skillful poultry raiser can do this successfully. Chicks that are intended for broilers should be given such food as will tend to make them grow and develop rapidly. When nearly large enough for the market they should be given plenty of corn, a wet mash, cooked potatoes, etc. This will fatten them quickly and they can then be marketed at a good price.

Indiana.

OTTO HACHMAN.

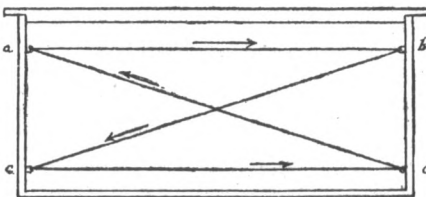
HELPS FOR THE BEGINNER IN BEEKEEPING.—I.

Beekeepers may properly be divided into two classes, viz., those operating extensive apiaries and depending solely upon the profits for a livelihood and those who keep a few colonies in connection with other paying business. Those of the former class are usually termed specialists, and to this class the writer belongs. Bearing this fact in mind, I trust, however, that the reader may find many real practical truths written herein. While the specialist is supposed to have advanced ideas in the culture, it is only thru this expert knowledge that he is able to simplify his work in order to handle large apiaries with small additional help. He obviously must spend



very little time on each individual colony, must control swarming, and must winter his bees with a minimum of labor. Now the busy-at-other-lines "side-issue" beekeeper is in much the same position as the specialist relative to time and labor available for each hive, hence the management should correspond exactly with that of the specialist. In a few brief articles it is my purpose to give the very best methods I know for one whose time is limited during the honey flow and whose work with bees must be done at odd times.

As the early summer is the only proper time for the beginner to invest in bees, I will begin my instructions to cover the



Method of Wiring Frame.

operations of a season opening at this period and extending thru the year. The object shall be to give such instructions as will enable the beginner to succeed right from the start, omitting no important detail of the season's work.

General Advice to Beginners.

Don't go it blind and expect results. First, buy a good text book on bees and read it. Talk with people who already keep bees and study the habits of the bees themselves. Do not attempt to follow the advice of everyone but pay at-

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tention only to those who have made a financial success of the business.

Equipment.

If new at the business, start with one hive of bees only. Buy this late in the spring from some reliable beekeeper, preferably one who is making beekeeping his sole business. Don't be penny wise and pound foolish. I am not advocating extravagance but economy, considering results acquired. Buy good hives on the start, of standard size and accurately made. Poor hives and equipment are dear at any cost. If you are a good mechanic you may make your hives after you have learned what a good hive must be, patterning after the hives you buy.

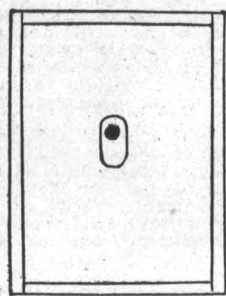
In the majority of cases the hives used are of the standard Langstroth size, now kept in stock by practically all dealers in bee supplies. Bees will thrive in al-

are tough and less liable to break while extracting.

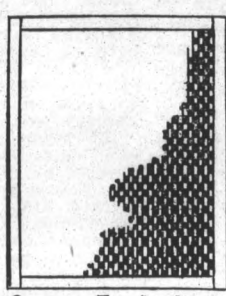
To Secure Good Combs.

Two supers of extracting combs should be built for each hive besides the set of combs used in the brood chamber. The object of these combs is to give the bees room to store their honey until their owner has time to extract it and also to prevent swarming.

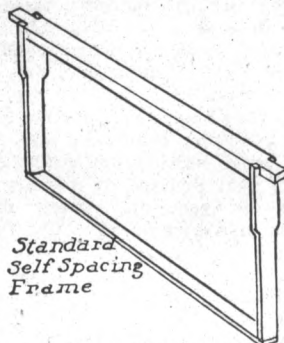
Prepare, in advance of the season, frames filled with full sheets of comb foundation and wired. The methods of wiring are described fully in books and catalogs issued on the subject. A good way of wiring is shown in an accompanying diagram. Small nails are driven thru the end bar of the frame about 1½ inches from top bar and 1 inch from bottom bar. The wire is strung on the small bent nails, passing alternately



Bee Escape



Queen Excluder



Standard Self Spacing Frame

most any style of hive, but, for reasons which will be apparent later, it is necessary to hold to one shape and size.

The necessary tools for producing extracted honey are smoker, veil and screw driver, honey extractor, capping knife and capping box.

In order that my readers may understand clearly what is mentioned, without additional literature, I add the accompanying sketches with parts of the hive designated.

Work for Extracted Honey.

The production of extracted honey is preferable to that of comb honey because swarming is easier to control. It also requires less skill than comb honey production and the work is such that it may be done in spare moments before and after the busy part of the season.

There may be some who, for other reasons, desire comb honey, and these I

from a, b, c, d; draw fairly tight and tie at a. The wire is imbedded in the comb foundation so that the bees cover it completely as they build the foundation out into comb, thus supporting the comb within the frame at all times. Comb foundation is made of pure bees-wax dipped in sheets and run thru rolls which give it the form of the dividing base of the cells in the honey comb. By its use more accurately built combs are secured in about one-half the time required without foundation and the combs, being supported by wire, are safer to handle.

How to Have the Combs Built Out.

Suppose we have our extracting supers filled with wired comb foundation, and that the bees just purchased have the brood chamber of their hive fairly well filled with honey and brood. This condition should exist about the first week in June in Michigan, beginning with the



Boyhood Home of Mr. Cavanagh, with First Apiary Owned and Operated by Him, in Missaukee Co., Mich.

would advise to produce chunk honey. This is simply comb honey in the large frames, to be cut out as required for use. Bees work much better in these large frames and swarm less than when the small one-pound sections are used. Remember, however, that I am describing a system for producing extracted honey and that running for chunk comb honey involves considerable swarming.

Combs for Extracted Honey.

The most valuable and necessary part of the equipment for extracted honey is a good supply of wired combs. The initial cost is quite an item and combs are quickly destroyed by the bee moth if not watched, but rightly cared for may be used for years. Right here let me say that it is worse than useless for a careless, shiftless person to attempt to keep bees. There is a great deal more to the business than I can tell here and it requires intelligent care and hard work to make it a success.

Extracting combs are identical with the brood combs, being built in frames of the same dimensions. In fact, combs in which several generations of brood have been hatched are preferable because they

clover flow. Space apart and lift out a couple of combs from the broodnest, alternating them with frames of foundation in the super. Place the two frames of foundation removed from the super in the brood chamber below, also leaving one comb of brood between them. Always alternate full sheets of foundation with combs of brood or honey already built and the new combs will be built much more quickly. If the honey flow is good the queen will soon have brood, above, and the combs in the super may be spread apart, putting the frames of foundation in between the combs partly built. When one super is two-thirds full place a second super on top and raise combs of honey and brood from the second story to the third exactly as before. With a good honey flow you will soon be in possession of two fine sets of extracting combs. A fourth story can be added in the same manner but will not be needed in the average locality and season. When the frames are filled with combs of honey they are ready to be extracted and used again for the next honey flow, but that is another story.

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The Lawrence Pub. Co.,
Detroit, Mich.

DETROIT, MARCH 20, 1909.

WHAT YOU ARE GETTING.

Continual improvement has ever been the motto of the Lawrence Publishing Company in publishing the Michigan Farmer. Each year has marked a steady increase in the size of the paper and the amount and quality of the matter which it contains. The first three months of the present year have been no exception to the general rule in this respect. This first quarter of 1909 has brought as a new step in that advancement, the 40-page paper, of which this issue is the second published this year. It is but five years since our first 32-page paper was published. Now papers of this size are of frequent occurrence. During the past three months, in addition to the two 40-page papers above mentioned, the subscriber has received four 32-page papers, five 24-page papers, and but one 20-page paper. This is an average of exactly 29 pages for each issue. Our guarantee is to furnish a 20-page paper, weekly for 75 cents a year.

"But," the reader may say, "a large amount of the space in these issues has been occupied with advertising matter." That is true, but it adds to the value of the paper to the reader. It is thru this medium that the wide-awake farmer keeps posted with regard to the improvements made in the tools, implements and supplies of all kinds which he has to buy. In a great majority of cases, too, the advertising columns in our paper will save the reader many dollars in the purchase of needed goods, and in every case those columns keep the reader posted as to where he can get needed goods of all kinds, many of which he would not know where to buy advantageously if it were not for the advertisements appearing in our columns. The advertising columns should be read as carefully as the balance of the paper, else the undoubted benefit which may be derived from their regular perusal will be lost. But apart from this benefit let us see whether the reader gains or loses because of their presence. In a 20-page paper there would be 80 columns of reading matter, providing there was no advertising at all, while in this 40-page paper there is nearly or quite 25 per cent more than 80 columns of reading matter, besides the advertising matter which it contains. And this is not the only point to be considered in this connection.

Some little time ago we figured out what it cost to get out the paper and send it to each subscriber every week for a year, and found that cost to be just a little more than twice the price of a yearly subscription.

It will not take much figuring to convince the reader that we could not long continue to send the paper for 75 cents a year when it costs more than double that amount to get it out if this deficiency were not made up from some other source. But the income from the advertising which is published enables us to do just that, and to keep right on improving the paper from the reader's standpoint, as that advertising patronage increases, not alone in the amount and quality of the reading matter published, but as well in the number and value of the illustrations which accompany it. Therefore the subscriber should feel under the greater obligation to carefully read the advertisements contained in each issue and to purchase from the advertisers when in need of the goods advertised.

We are determined, as above noted, that this improvement shall be constant, and apparent to the reader each year. We are constantly getting new contributors of a high class, and our present cost for matter published is more than double what it was a few years ago. Of course, in the summer season when our readers are busy we "boil down" the matter published to the greatest possible degree, so as to economize the reader's time, and get the largest amount of useful information into a smaller paper which he will have time to read, but in the winter season when the farmer has more time for reading we regularly publish issues which average nearly 50 per cent above our guarantee in size. Even in the summer season, thru the addition of our magazine section which is a regular feature of the paper twice each month, we have increased the size of the paper and the amount of good reading matter which it contains very materially. This enables us to furnish the best of entertaining reading for every member of the family. In addition to the contributed reading matter which is most carefully selected, the opportunity of asking questions of all kinds relating to the conduct of the farm, or the care and treatment of live stock, and of having them answered free of charge, is an additional inducement to the reader. We now get so many of these inquiries that it is necessary to answer numbers of them by mail. All this costs only 75 cents a year, or if the reader chooses to take advantage of our liberal offer for a longer time he gets the paper two years for \$1.20 or three years for \$1.50. If you are not now taking the Michigan Farmer, and chance to see this issue, kindly spend a few moments in considering whether you can longer afford to do without it when it costs so little, and offers you so much.

CURRENT COMMENT.

On another page of this issue appears an article from the pen of Mr. Hartman touching upon the profits to be received from old apple orchards. This article is being used as a basis for a bulletin edited by our experiment station. At the recent meeting of the state horticultural society a strong appeal was made to redeem these old trees from their unproductive state and thus save to the state the necessity of buying apples from other states. Mr. Hartman's experience is but one of many instances where profitable results were received from trees that had been once abandoned. Some of these orchards are beyond hope. They should be removed. But the experience of men in many sections of Michigan go to show that a far greater per cent of the trees will respond to care than was formerly thought. According to our last farm census the number of acres of apple orchards in the state was 206,675. A large portion of this acreage are trees more than twenty years old. They occupy our best land. If they cannot be rejuvenated either young trees should be put in their place or the land used for other purposes. But the prices paid for apples the past few seasons and the large home demand should cause the farmers who own old apple trees to give the matter serious consideration. Most of these orchards will pay big money for the trouble and expense needed to supply them with plant food, to relieve the tops of superfluous wood and to aid them in the battle with insects and diseases. Any per-

son of ordinary intelligence and skill can do the work demanded. The fact that the work is different than the regular farm work accounts largely for its not being done. What is most needed just now is a leader in every community to demonstrate what effort along this line will do.

The time is near at hand when the season's Campaign. active work in the fields must begin. The plans for the season's campaign on the farm should be already well formed and the details of preparation in hand to the end that no time may be lost at the end of the season when every day counts in putting those plans into effect to the best advantage. Too many farmers apparently fail to appreciate the benefit to be derived from having a constant policy in the conduct of their farms, and go first into one specialty and then into another, generally when conditions are not particularly favorable, only to change again when they find the profits smaller than they thought. But, fortunately, this is less generally true than was the case a few years ago. More good farmers are every year finding out that such a course does not pay, and wisely make their plans in a general way, not for a single year, but for a series of years, and then work to make them a success under the conditions which may arise. Special lines of production need special equipment to make them most successful and profitable, and special knowledge is required on the part of the farmer to make any particular department of production yield the highest possible net returns. This knowledge is annually increased by experience, as well as by reading, investigation and study, so that while the regular season's campaign may be already mapped out in a general way, it may need to be revised in essential details of execution. This need will make the wise farmer alert at all times in order that he may "drive his business" rather than let his business drive him.

No other state in the union offers a wider range of production to the tiller of the soil than does Michigan, which fact is doubtless partly responsible for the tendency exhibited by some farmers to be constantly changing their special line of endeavor. But in like manner no other location in the country offers better rewards to the man who will become proficient in the special line of production which he chooses to follow in his farming operations. "There is plenty of room at the top" in any department of Michigan agriculture, and if our crop rotation and general farm policy has been wisely planned, radical changes in the policy of conducting the farm should be avoided and that department of production which has proven most profitable under our conditions for a series of years be gradually extended and improved. "Plunging" generally pays no better in farming than in other lines of business.

HAPPENINGS OF THE WEEK.

Foreign.

The first month of home government by the Cubans has shown a tendency on the part of all political parties to work together in order that it may not become necessary for the United States to again intervene. But on the other hand, the work of the legislature is somewhat disappointing in that the time has been consumed in considering unimportant measures while matters of grave import have been untouched. The executive is putting the police power of the administration in such condition that any uprising may be dealt with severely should the occasion demand.

The United States transport Logan went aground at Honolulu, last Saturday night and has resisted efforts to float her again.

In the elections held in Denmark last Saturday seven per cent of the persons elected to office were women. Out of the 42 councilmen of the city of Copenhagen, seven are women.

News comes of the defeat of the government's troops of Morocco by the forces of the pretender, Reghi.

Another engagement occurred last week between vessels belonging to the Nicaraguan and Salvador governments. Details of the fight have not been reported.

A trial trip was made by the Zeppelin airship from Lake Constance, Germany, where the operators lifted the machine to an altitude of 3,000 feet, said to be a record height for steerable balloons.

The American minister to Chili has presented gifts of this government to officials who rescued an American vessel and her crew from the Straits of Magellan in 1907.

The Chinese emergency committee of England is planning to establish a medical school at Peking, China. The direction of the work is under the control of Mr. Hart, former inspector general of customs, of China, who is an Englishman.

The Canadian government will make a thorough study of the provisions of the

recent treaty proffered for the control of the waters of the St. Mary's river, before the instrument is sanctioned.

The estimated expense of the English navy is \$15,000,000 above what it was a year ago. In addition to the four new battleships of the Dreadnaught type now building, the government is planning to add four more similar vessels in the year 1910.

The business men of Paris and France are watching with much concern the outcome of the action brought against the secretary of the electrical union of that city who, because certain demands were not granted ordered the lights turned off certain business houses.

The government of France is confronted with a large deficit. Besides the pending claims the pensions allowed by the chamber of deputies for aged persons and the demands of the employees' liability act, are to be satisfied. The condition will require that a large bond issue be made.

Pedro Ezequiel Rojas, who was once driven out of Venezuela by Ex-President Castro, has just been made minister to this country by the present government.

Advice from Berlin shows the situation between Austria and Serbia to be most acute as the former government has given the latter but a few days in which to make answer to an ultimatum sent her the past week.

All telegraph operators of the post-office department of France have been ordered by the union leaders to walk out. The action was taken because of the arbitrary and tyrannical methods of the government dealing with the employees, a recent communication from the head of the department being taken by the men as an insult.

Reports from the frontier between Russia and Persia states that a large force of Persian troops are devastating the country on the border and that ten villages have already been destroyed and many of the inhabitants killed.

National.

The sixty-first congress convened in Washington last Monday and organized. Speaker Cannon was re-elected. The house rules of the last congress were not adopted in full but were moderately reformed. It now requires a vote of two-thirds majority to limit debate; one day of each week has been set aside for the consideration of bills upon the calendar, and provision is made for a special calendar from which bills may be brought forward for passage by unanimous consent.

The Texas legislature has repealed the law passed two years ago laying a heavy tax upon the sale of pistols. The act practically suspended the sale of these goods.

The Buffalo board of education is about to abolish high school fraternities. Recently members were cruelly branded with the initials of one of the organizations and the action aroused the authorities against the clans.

Arrangements are made by the naval department for installing wireless telegraph apparatus on the Atlantic Coast that will send a message 3,000 miles, and also to fit out two ships with apparatus that will send words out for a distance of 1,000 miles.

Agreement has been reached between the United States and Great Britain upon the personnel of the committee to arbitrate the matters pertaining to the New Foundland fisheries disputes. The tribunal will meet April 4 of next year.

After nine weeks the trial court has succeeded in getting only six jurymen for trying the traction case in San Francisco.

Ex-President Roosevelt was given a farewell by his townsmen of Oyster Bay last Friday evening.

A corporation is being formed for the control of the lumber carrying business on the great lakes. Already fifty vessels are said to be in the merger.

CROP AND MARKET NOTES.

Eaton Co., March 13.—The weather so far this month, has been quite lamb-like, with a few cold days, no snow, and as there is considerable freezing and thawing it is bad for wheat, rye and new seeding. Ideal sugar weather, and those who are so fortunate as to have maple trees are reaping a harvest of sweets. Farmers are busy hauling logs to the mill, and the lumber home, drawing manure, and getting ready for the season's work. More sugar beets were grown here last year than usual, and the crop proved to be so profitable that a still larger acreage has been contracted for by the Lansing factory. Formerly wheat was the chief money crop grown, and when the price fell to 75c or less it was dropped and beans substituted. Many of our farmers grow no wheat now. Wheat has been to \$1.20, but is \$1.15 now; beans \$2.25; oats, 50c; rye, 75c; potatoes, 60c to 65c; butter, 18c to 20c; eggs, 16c to 18c; hogs, \$5.50 to \$6; clover seed \$4.80 to \$5. The usual number of auctions and movings by renters.

Branch Co.—February was remarkable for the variety of weather exhibited, the weather clerk having evidently shown us samples of every variety of fall, winter and spring weather he had in stock and responded promptly to every encore with something new. Wheat, especially that sown late, which has but little top to protect it, suffered seriously from the continued freezing and thawing, which also seems determined to kill all newly seeded clover that escaped the drouth of last fall. Outlook for hay this year decidedly poor. Price of wheat booming now that it is practically all out of the farmer's hands. Owing to the drouth last fall cattle went into winter quarters in rather thin condition and a trip thru the country at present would indicate that they had not gained any during the winter, to say the least. Wheat, \$1.20 to \$1.22; oats, 50c per bu; corn, 68c; clover seed, \$4.50; hogs, \$5.50 to \$6 per cwt.; hay \$7 to \$8.

Magazine Section

LITERATURE
POETRY
HISTORY and
INFORMATION

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

The FARM BOY
and GIRL
SCIENTIFIC and
MECHANICAL

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

The Making and Distribution of Paper Money

BY H. N. PRICE.

SOME persons handle money very differently. If it were vegetables which the provision merchant measures in bushels and pecks and dumps into wagons or barrels or sacks, it could not be treated with more indifference as to its possibilities than it is by the employees of the United States Treasury. Of the 80,000,000 people in the United States, the percentage of careless money-handlers is very small. They do not exceed probably five thousand. It is not because these employees have no regard for money, by any means, for they handle money in order to make money, and the money they handle means absolutely nothing to them except a means of livelihood. Every one of these employees handles and gazes upon millions of dollars every working day, but it means no more to them than so many pieces of blank paper.

To the casual visitor at Uncle Sam's big shops, however, the process of making and distributing money is a constant source of wonder and, probably, greed. It is likely that very many of the persons who go thru the Bureau of Engraving and Printing and the Treasury Department find themselves wondering how someone might abstract a few thousand dollars without the government being made aware of the loss.

The progress of paper money, from the time it leaves the Treasury Department in the big safes of the express companies to the time it is returned, ragged and old and germ-laden, to be destroyed in the Treasury Department—millions and millions of dollars at a time—is not known to Treasury officials. The tragedies it has caused, the happiness it has brot are hidden in the bills themselves. If they could be made to give up their secrets, what tales they would unfold. Every thing in life, good and bad, is associated more or less with the history of money. The average life of paper currency is less than four years. The large bills—\$1,000 and \$10,000—live much longer, of course. The ones and twos have the shortest life. When they leave the cash room of the Treasury Department they are "things of beauty," and some might say, "a joy forever." They are at any rate, perfect specimens of the engravers' and printers' arts.

But the government officials do know every step in the progress of each note, from the time the blank paper is received at the Treasury until it receives its final seal in the Division of Issue. The history of every note can be traced while it is in possession of the officials at

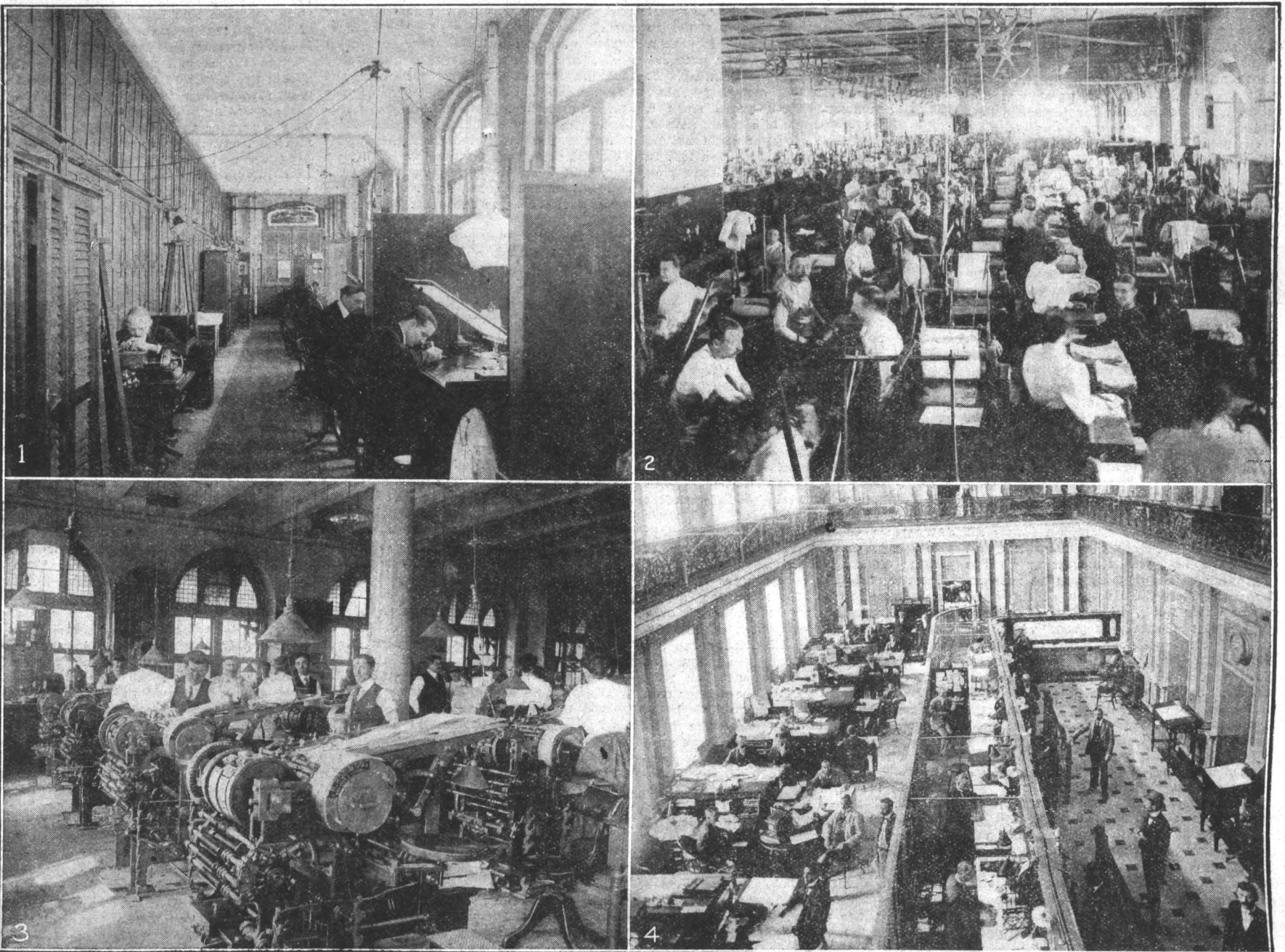
Washington. And this history is absorbingly interesting.

The paper employed for the printing of bills is a fine, firm quality of linen, known as "distinctive" paper, manufactured under government inspection at Dalton, Mass. Its delicate, yet tough fibers, have had a varied history before receiving the government stamp. The flax grew, perhaps, in the moist, fertile fields of Ireland. It was gathered, bleached, spun and woven largely by woman's skill. It may have formed at one time the dainty lingerie; it may have been the garment of babes; it may have been the confirmation suits of children or the graduating gowns of girls. Loving hands have caressed it, patched it, darned it, and finally consigned it to the rag bag. Its mission, however, was not thereby concluded. By a process of modern alchemy it is transformed and issued anew, not from looms, but from rolls, to take up another cycle of usefulness.

The sheets of paper on which bills and bonds are printed are delivered daily by the Loans and Currency division of the Secretary's office to the Bureau of Engraving and Printing, upon requisition. From the time the blank sheets are delivered by careful count, until thirty days

later, when the printed bills are sent to the Treasury to have the seal printed thereon, the Bureau must account for every sheet in its hands. It is counted when received, it is counted when wet, when printed on one side; when dried, when wet again, when printed again, when dried a second time, when examined for imperfections, when numbered—in short it is counted some fifty times before it finally escapes from the Bureau. It has become accustomed to being counted before it starts out into the world as money, and then it continues to be counted until returned, ragged, dirty, and worn out—counted to death—only to be again counted and destroyed.

In the engraving division of the Bureau every form of security issued by the government—notes, bonds, checks, drafts, internal revenue stamps, and commissions—have their origin, and the most artistic and skilled engravers in the world are employed. In no other form of printing can the beautiful soft and yet strong effects in black and white be obtained as in steel engraving. The employees of the engraving division are classified as portrait, script, square letter, and ornamental engravers. Each has his own special work to do, and the individual excellencies and characteristics of a number of men are impressed upon



Where Our Paper Money is Made and Started in Circulation.

1. Where the plates are engraved; Bureau of Engraving. 2. Press room in the Bureau of Printing. Here millions of dollars in currency are printed each working day. 3. Where the bills are numbered; Bureau of Engraving. 4. Cash room in the United States Treasury, at Washington.

every bill issued. Therefore it would be as difficult for one man to make a perfect reproduction of a government plate as it is for a person to reproduce an exact facsimile of his own signature, which, strange as it may seem, has never been accomplished.

The various parts of the engravings which appear on the face and back of notes are separately engraved on soft, decarbonized steel of the finest quality—the portrait by the portrait engraver, the lettering by the letter engraver, the script by the script engraver, the lathe or cycloid work having been previously produced by the geometric lathe. This intricate piece of mechanism so complex as to make a description of it impossible, produces the interwoven lines which surround the denomination counters and borders on notes and bonds. This lathe work was introduced to circumvent counterfeiting, and for many years, up to the time of the counterfeiting of the \$100 silver certificate by Arthur Taylor, of Philadelphia, in 1897, it was generally considered that the lathe work was the best check on counterfeiting. But Taylor so successfully reproduced the most intricate lathe work by a mechanical process of his own invention that it defied many of the best experts of the Treasury Department.

The best possible check on counterfeiting is the portrait, which also is indispensable as a distinctive mark of identification. After the several engravers have completed their work, proofs of the various parts of the engravings are made by expert printers, and if these are satisfactory, the plates go to transferers who, on specially prepared decarbonized steel rolls, make, by a special process, an impression from the die, the engraving appearing as a relief. From these positive rolls which also are hardened, the plate for printing is made. Great skill is required to assemble the various parts of the engraving so as to connect and form a perfect note, as no erasures can be made by the transferer. After assembling, a certain amount of handwork is done by the letter and ornamental engravers to unite the different parts into one artistic whole. The original steel die when completed represents a year's labor.

The plates used in printing contain four separate engravings so that four notes can be printed at one impression. These notes are numbered A, B, C, D, etc.; near each letter is a number which is used by the Bureau for identification, and by means of which can be ascertained a complete history of the plate used in printing the note, by whom engraved, printed, etc. Each die, roll and plate has a number in sequence stamped upon it. In the custodian's office complete records and the history of more than 21,000 dies, 16,000 rolls and 23,000 plates are on file. Once a year this office is audited and checked by a committee appointed by the Secretary of the Treasury. This work usually consumes three months' time. After finding the records correct, the committee receipts to the custodian for all obsolete dies, rolls and plates which have become worn by use or no longer serviceable on account of legislation. These are carefully checked and packed in sealed boxes and then taken to the Navy Yard in Washington where they are totally destroyed by melting in a blast furnace. Last year the committee destroyed 4,043 pieces of engraved work, packed in 267 boxes, and weighing 33,500 pounds.

Each morning the custodian issues all plates to the printing division and all dies, rolls and plates necessary to the engravers on requisition, and he receipts for them upon their return at the close of the day's work, when they are stored in two large steel, fireproof vaults of modern construction protected by time locks. The 23,000 plates represent all classes of work, including commissions, checks, drafts, portraits of deceased members of Congress, certificates, diplomas, inaugural souvenirs, national bank currency, United States and treasury notes, gold and silver certificates, bonds, cigar, cigarette, tobacco, postage and other stamps. When plates are issued in the morning receipts are taken for them and those charged with them are not permitted to leave the building until they are returned to the custodian's office and checked off. The system of checks and rules is so perfect that in the history of the Bureau not a single plate has gone astray.

The manufacture of "distinctive" paper, with its double row of red and blue silk fibers pressed into the surface is a skilled process, calling for fine machinery and

the best of raw material. The process of preparing the paper for the printer also requires skill and experience. The wetting room of the Bureau of Engraving and Printing looks not unlike a laundry. Here the bundles of paper as received from the treasury are opened, counted and separated into packages of twenty sheets each. A damp cloth is placed between each package and the

The backs of notes are printed first, and after this the sheets must be dried, then wet again before the faces are printed. After printing and drying, the sheets are carefully examined by trained experts who remove all imperfect ones. A spot, a stain, a light or uneven impression that would escape the ordinary observer, is sufficient to disqualify it for use as money. All condemned sheets are



The Money Morgue—Old, Worn-out Bills Ready to be Destroyed.

paper is allowed to stand for several hours that it may absorb the moisture from the cloths. The sheets are then shifted and placed under heavy pressure and gradually prepared for printing. It is in this room that the counting begins, and it has been fifteen years since a single sheet of paper has gone astray. One sheet on that occasion could not be accounted for. It may have been lost in the vat; it may have been a miscount on delivery to the Bureau; but no theory, explanation or apology would serve. There is no overlooking mistakes in the Bureau. The fault, if fault there was, could not be found and the employees of the wetting room had to pay for the sheet as tho it had been printed.

Nearly a thousand persons are engaged in the printing. Plate-engraving has changed but little since its invention in Italy about 400 years ago. The ink, specially prepared for the purpose, is rolled over all the plate, filling all the depressions as well as covering the smooth surface. The pigment is then rubbed off the smooth surface with the bare hand, leaving the lines filled. From this the impression is made by the printer. The operation looks easy, but great skill is required to produce perfect work. It requires years of hard work and study to become expert in plate printing. A large part of the currency is printed on hand presses.

At intervals for many years attempts have been made to introduce steam presses, but the printers showed conclusively that the best work can not be done on "steamers." Machinery has not yet reached that state of perfection that it can operate as intelligently or with the skill that an expert plate printer can. Improvements are continually being made, however, and some of the most expert printers have done almost as good work on the steamers as on the hand presses. The labor required in plate-printing is extremely exhausting and in summer it seems impossible that human beings can stand the heat to which the printers are subjected. Plate-printers are paid good wages, but they earn all they make. Each printer has a young woman assistant, whom he pays out of his own earnings, and whose duty it is to lay on the paper. With every order to print 1,000 sheets of bills or stamps, 1,050 sheets of paper are issued, as there is, of course, likelihood of spoiling sheets in the wetting, printing or numbering.

sent to the destruction committee for maceration.

The new crisp bills, four on each sheet, are then fed thru a numbering machine by girls. These machines are the invention of the employees of the Bureau and there is no limit to the numbers. The sheets, being a little wider than the printed note when they come from the press, are trimmed to a uniform size, and even these narrow strips, the selvages of sheets, have to be accounted for and delivered to the destruction committee.

The money is now resized. It has been wet so often that much of the original finish is lost and it is not in condition to resist the wear and tear thru which it is to pass. The sheets are passed thru a bath of specially prepared glue, alum and other ingredients, and then are subjected to heavy pressure, after which they are tied into packages and sent to the Treasury.

However, it is not money. It is nothing more than a fine specimen of the engravers' and printers' arts. Before it is fit to pass as money it must have the seal of the United States Treasury affixed. Some years ago this seal was placed on all currency—printed on the notes—at the Bureau of Engraving and Printing. But the Bureau was not the place of issue. The money first had to be sent to the Treasury Department, from which place it was shipped to the sub-treasuries, national banks, etc. Conrad Jordan, who was Treasurer of the United States, became uneasy that so much money as the Bureau turned out every day should be carried thru the streets of the city, and after much deliberation he ordered that presses should be set up in the Treasury Building and that the seal and numeral should be placed on the notes there. The result is that now the finishing touches are placed on paper money almost under the eye of the Secretary of the Treasury and the Treasurer of the United States, the latter being responsible for all the cash in the Treasury.

The Division of Issue was established; and the growth of this division is a good barometer of the money situation, and of the growth of the industries and increase in circulation. From a comparatively small division it has grown to be one of the most important of the Treasury Department. When the present chief of this Division, James A. Sample, took charge,

the employees were handling forty packages of notes, each package containing 100 sheets of four notes each, which was the daily delivery from the Bureau of Engraving and Printing. Today this Division is turning out 180 packages. It has been necessary to put on day and night forces, and since the money stringency came on the plate printers have been required to work overtime. The day force goes to work at 8 o'clock in the morning and quits at 7 in the evening—eleven hours' continuous work, barring a half hour at noon. This, it is agreed even by the Treasury and Bureau officials, is too much work to require of any men, and far too much of the printers whose work at its easiest is the most arduous and exhausting of any employees in the government service.

Every morning the big steel wagon that takes the new money to the Treasury and brings back the old, wornout notes, draws up in front of the Bureau and 180 packages of the paper money are dumped into it—just a few million dollars, that's all—and this wagon, guarded by four strong men, not secret service officers, as the guide books tell you, goes slowly to a basement door of the Treasury Department, and while thousands of government clerks are passing on their way to work and hundreds of other pedestrians are hurrying along, this uncompleted money is delivered at the office of Mr. Sample. The packages are taken to the counting room, where fifteen young women, specially trained, and paid from \$600 to \$720 a year, unwrap it and count it. From the counting room the sheets—four notes on a sheet—are taken into the press room, where fifteen rotary presses are in operation. Forty-five employees, including pressmen, feeders and laborers, are in this room, and here the money becomes legal tender. Notes of all denominations—ones, twos, fives, tens, twenties, fifties, hundreds, and so on—are fed rapidly by the deft fingers of pretty young women into the mouths of these avaricious presses, reminding one that later thousands of human beings will even more greedily stretch out their hands for the coveted bills. As fast as the numerals and seals are printed on, the notes are carried to another set of young women and again counted. Each of the fifteen presses turns out about 13,000 impressions a day.

From the second set of counters, the sheets are taken to the separating room, where there are twenty-three machines for separating and trimming the notes. The separator feeds the sheets into the machine, and then they are quickly gathered up and counted into packages of one hundred notes each and strapped with narrow bands of paper. The forty packages of one hundred notes each are wrapped into a bundle, pressed tightly together and sealed. A bundle thus may contain forty packages of one hundred \$1 notes each, or it may contain the same number of \$100 notes, ranging in value from \$4,000 to \$400,000. These packages measure about six by eight inches and weigh approximately 12 pounds. The currency is now ready to be delivered to the cash room of the Treasury.

Upon delivery at the cash room, or Division of Cash, of which Mr. E. R. True is chief, or cashier, the bundles of notes are receipted for and then removed to the reserve receiving vaults. It is the aim of the Treasurer to have on hand sufficient notes to last six months. It is desirable also that the notes remain in the reserve vaults several months in order to dry thoroughly before being placed in circulation. The amount of money in the reserve vaults, of all denominations—from ones to ten thousands—approximates \$220,000,000.

Opposite the reserve vaults are the cash vaults, to which the reserve money is transferred when placed in the cash account of the Treasury. From the cash vaults is taken all the money paid out over the counters of the Treasury cash room, and from these vaults also, upon requisition from the superintendent of the shipping room, Mr. W. J. Manning, go all the notes that are shipped out thru the country to the sub-treasuries and banks.

When a bank or sub-treasury sends an order for new notes in exchange for old notes, the order is transmitted to the shipping room, after it has been properly charged on the books. Mr. Manning thereupon makes a requisition upon the cash room and the notes are delivered to him. They are wrapped carefully and placed in safes, when they are delivered to the express companies. Some notes are sent also by registered mail, but

(Continued on page 328).

JIMMY TUTTLE'S SIGN.

BY HOWARD BANNON.

Jimmy Tuttle was making some purchases for his mother, at the village store. The usual quota of loafers were there and this morning they were more talkative than usual. The report that there was a case of smallpox only a few miles away had thrown them into a fever of excitement. Jimmy's young ears caught a lot of words concerning a quarantine and such things as that. The thing that impressed itself upon his mind most, however, was the fact that a sign bearing the name of the dreaded disease was plainly displayed upon the front of the homes of those people who were quarantined.

Jimmy was one of those boys who are always busily engaged at some task, and as soon as he reached home he procured a piece of cardboard. By using liberal quantities of shoe polish he soon had the word "smallpox" painted thereon. Probably he desired to take time by the forelock and have a sign in readiness for any possible emergency.

When the sign was completed, it was but proper it should be given a trial in order that any possible defects might be remedied. Taking the sign around to the front of the house, Jimmy tacked it to one of the veranda posts and, walking down to the front gate, surveyed the result of his labor with evident pleasure. To Jimmy's youthful eye the sign was a complete success. He thought that it would be a good plan to have a few more in readiness so that, if necessary, the barn and other outbuildings might be properly adorned also. At this point in his musings, the announcement that the noonday meal was in readiness was heard. That was something that required his immediate attention and he did not take the time to remove his sign. Little did he think that the bit of cardboard was destined to be the cause of a great deal of excitement.

During the meal Jimmy asked and received his mother's permission to spend the afternoon with some boy friends who lived nearby. The youthful mind does not usually grasp but one plan at a time, and Jimmy departed without giving any further thought to his sign. Mrs. Tuttle cleared away the dishes and then went into the front part of the house. She seated herself by a window where she could see the front gate and gave her attention to the fancy work in which she was interested.

"If there don't come Miss Sanders," Mrs. Tuttle said to herself as that lady opened the gate and started up the walk toward the house. "Now I'm in for a whole afternoon of her tiresome tales. I'll hear all of the neighborhood gossip and scandal. Wish I had gone over to Mrs. Mason's this afternoon."

But, after all, Mrs. Tuttle was not to have Miss Sanders' unwelcome company forced upon her, for when that gossip lady reached a point midway between the gate and the house she suddenly turned and ran back, out at the gate and down the road as if pursued by some ferocious beast.

"What on earth can be the matter with Miss Sanders," mused the astonished Mrs. Tuttle as she watched the mad flight. "Surely, she must have gone daffy. Well, I am glad that I shall not have the afternoon spoiled by her presence."

While Mrs. Tuttle sat there musing about Miss Sanders' strange antics she saw another neighbor come in at the gate but, when she neared the house, she, too, turned and hurried out and down the road. The people of the neighborhood must be going crazy, thought Mrs. Tuttle. Laying aside her fancy work she rocked back and forth in her chair while trying to think of some cause for the strange actions of her neighbors.

After half an hour or so Mrs. Tuttle saw the minister coming down the road, driving his antiquated horse along at the usual slow gait. "Now," thought Mrs. Tuttle, "Mr. Barton will probably stop, and maybe I can learn what has got into the people."

Sure enough, the good minister stopped and, climbing out of his buggy, secured the horse to the hitching post. With his usual dignity he opened the gate and came stalking up the walk. When he had nearly reached the steps he suddenly threw up his hands and, turning, started running toward the gate with all the speed that he could command. Catching his foot against something, he stumbled and fell; his high hat and glasses flew off and went tumbling down the walk before him. Hastily

scrambling to his feet, the minister gathered up his scattered belongings, rushed out at the gate, unhitched the horse, leaped into the buggy and went tearing down the road at a gait that was probably as much of a surprise to the horse as to the astonished Mrs. Tuttle.

At this third showing of what seemed to Mrs. Tuttle as lunacy, that lady thought there might possibly be some reason for the strange antics, so she stepped to the door and made an inspection. Not a thing that was in the least out of the ordinary could she see. Jimmy's sign was placed in such a position that it did not show except to those who approached from the road.

Mrs. Tuttle again returned to her chair by the window, but she was so mystified and excited by the way the callers had acted that she could not bring her thoughts to the fancy work. Several people passed

by but they seemed to be in an awful hurry. They would cast a furtive look at the house and then quicken their pace as if they feared that something would start after them. These strange actions so alarmed Mrs. Tuttle that she determined she would go to the door and call to the next person she saw passing by. In a few minutes she saw Mr. Jenkins, an acquaintance of theirs, coming. Stepping to the door she called out: "Good evening, Mr. Jenkins."

"Good evening," answered that gentleman as he kept walking ahead.

"If you are not in too much of a hurry, I would like to speak to you a moment," said Mrs. Tuttle as she came out upon the veranda.

"Don't come near me," exclaimed Mr. Jenkins as he broke into a run and soon vanished from her sight.

"Surely," thought Mrs. Tuttle, "there

must be something wrong with something or somebody. I never saw such strange doings before. I wish that Mr. Tuttle or Jimmy would come home. Maybe they could tell me whether I am crazy, or if the neighbors have lost their senses."

By this time Mrs. Tuttle was in such a state of excitement that she paced back and forth from one window to another, watching the passers-by and wondering what could be the trouble with them. Looking far down the road she saw a man coming, and he seemed to be carrying a banner such as those that are sometimes carried in a political parade. As the man drew near she saw that it was Hiram Jobe, the politician and general all-around office holder, who lived in the nearby village. Years of ease had given Mr. Jobe such a rotundity that he made a ridiculous appearance as he came strutting down the road bearing his strange burden. Reaching the gate leading into the Tuttle yard, he opened it and walked in. Taking a few steps toward the house he stopped and proceeded to plant the end of the pole that supported the banner into the soft earth by the side of the walk.

Mrs. Tuttle now made another effort to learn the cause for the strange manner in which people had been acting during the afternoon.

"Good evening, Mr. Jobe," she said as she stepped out on the veranda. Mr. Jobe, however, made no reply, but ran toward the gate when he heard her voice. So hurried was his flight that he did not take time to open the gate but leaped over the top and landed in an undignified heap by the roadside. In a second he was again on his feet and flying down the road, hat in hand, as though a band of blood-thirsty savages were in close pursuit.

This performance so excited Mrs. Tuttle that she sank down on the steps and gazed after the fleeing man until he had passed from her vision. Gathering her scattered thoughts together, she went down to inspect the strange looking object that now adorned their front yard. Upon the side of the sign that faced the road, she saw, painted in huge, wobbly red letters, the following inscription:

SMALLPOX—KEEP OUT.

A piece of paper was pinned to one corner of the sign. Taking that off, Mrs. Tuttle read the following notice, written in Hiram Jobe's best legal style:

To whom it may concern:—Whereas, it has come to the notice of the undersigned, who is the duly constituted health officer of this district, that there now exists in the household of one Christopher Tuttle, a case of smallpox, the undersigned deems it best to take some steps to prevent the spread of the above mentioned disease. Therefore, all members of the family of the said Christopher Tuttle are forbidden to leave the premises of the said Christopher Tuttle until such time as this order shall be revoked.

HIRAM JOBE,

Health Officer.

What could all of this mean? Smallpox in her family and she did not know it. In terror, Mrs. Tuttle turned and fled toward the house, only to see Jimmy's sign staring down from its place on the veranda post. It took only a few moments to recognize the production as being that of her son. She was quick of perception and it soon dawned upon her whirling brain that this sign had been the cause of the strange actions of her neighbors.

Miss Sanders had, of course, taken pleasure in making use of the opportunity offered her for spreading the news. In a short while she had aroused the entire community by the dreadful story. When the report reached the ears of Hiram Jobe, that gentleman had seen a possible chance for covering himself with glory, also of earning a fee. The result was the sign erected upon the Tuttle lawn.

"Just wait until Jimmy comes home," angrily exclaimed Mrs. Tuttle as she tore her son's sign down.

A LITTLE FINANCIER.

BY MAUDE E. S. HYMERS.

"Pudding first? Oh, no!" said Mama, "Wait until the dinner's past. You must do as grown-ups do, dear. Save the good things till the last. Day by day had Willie listened To advice like this, until Once or twice he lost his pudding. Having early ate his fill.

This made Willie somewhat wary, And in musing on his wrong, He resolved to do as grown-ups— Play a trick to help along. So when next they sat at dinner And the savory soup was passed— "Bring my pudding, please," said Willie, "Save that good soup till the last!"

MODERN ART—"MASTERPIECES" OF AN "INK-BLOT" ARTIST.

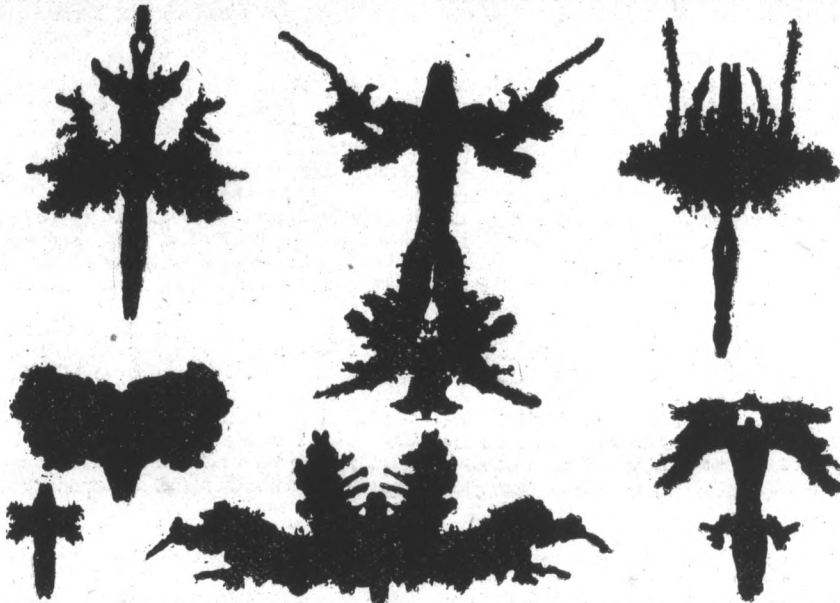
BY MARY ROLOFSON.

Would you think that any good could come of an ink blot? And yet it can be used—if it is made on purpose to be used, and made in the right way.

Children can be amused on rainy days

prised to see the result, and perhaps you will be surprised, too.

Common cheap paper is better than glazed paper. Even brown wrapping paper is better than that which is very

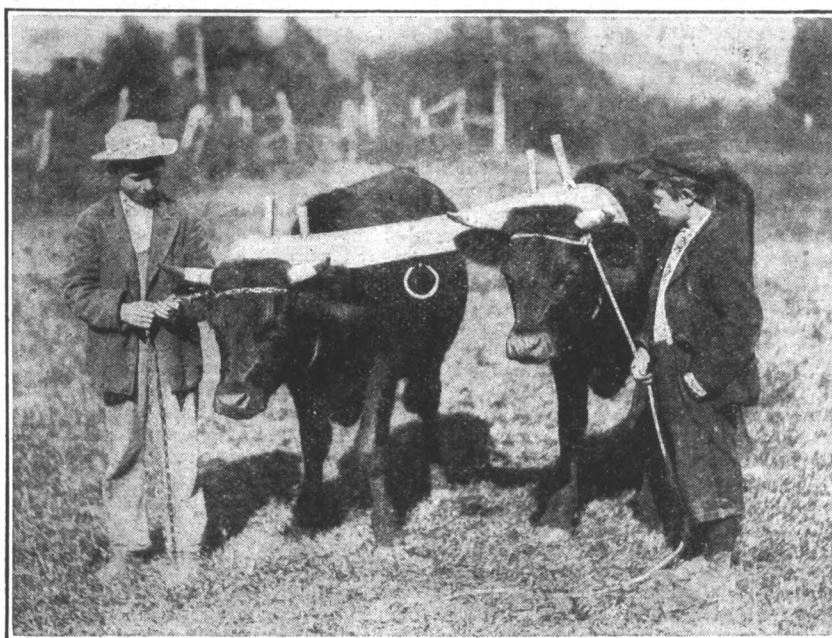


with them. I know this sounds like giving them a hammer and a lookingglass to amuse themselves with. But if they are not very small children no great damage need be done. Provide them a suitable place, and a cloth to wipe their fingers on if they should chance to need wiping, then let them have a bottle of ink, a pen, and a piece of paper.

If they drop a drop of ink on a sheet of paper and then fold the paper thru the middle of the blot they will be sur-

smooth, as the ink should have a chance to spread.

After a little the children will try to make designs. By pressing the finger on the folded paper lengthwise the figure can be made long and narrow, and by pressing the ink out from the fold the figure can be made broad. If the sheets of paper are long enough to prevent any possibility of the ink running beyond the edge, and if the children do not get hasty and careless, no ink need be spilled.



Two Tennessee Boys, Charles and Cecil Phillips, and their Oxen.

My brother and I have a nice yoke of steers nearly two years old; we call them Joe and Wheeler. We work them on the sled and harrowing. Papa put them to an old hack one day, and started to drive them around. My little baby brother was in the hack. Papa made a short turn, it fell over but never hurt Paul. He has not drove them any since.

I am twelve years old and Cecil is nine. We had a runaway last summer. We had started to the house with the wagon, ladders on the wagon. Coming down hill they slipped forward. I was

locking and Cecil driving. The steers got so fast the ladders began to jump. They turned a corner, the pieces began to fly. Cecil fell off and cracked his skull," the doctor said, but he is about well now. I swung to the hind bolster and staid on until the steers jammed up in the big gate, tho there were only three wheels to the wagon and two pieces of the ladders when they stopped. I tell you I was scared. I was just sure Cecil was killed, for he was right under the wheel when I passed over him on the wagon.—Charles Elmer Phillips, Washington Co., Tenn.

WHERE THE ARBUTUS GROWS.

BY HATTIE WASHBURN.

The first of nature's train to bloom,
E'en while the chill wind blows,
To fill the air with its rare perfume,
The sweet arbutus grows.

Deep in the woods, 'neath grand old
trees,
Nature a mantle throws
O'er the ground, a mantle of leaves
Where the arbutus grows.

There the voice of nature I can hear,
Her sweetest mood she shows,
And speaks to me in accents clear
Where the arbutus grows.

I wander there and leave behind
Life's weary cares and woes,
Refreshed in body and in mind
Where the arbutus grows.

TOLD ON THE TRAIN.

BY MARY M. CURRIER.

I have always been very fond of traveling. I like to see different places and I like to meet all sorts of people. I always take a book along but I seldom read much. A book does well enough when the scenery gets to be too much of the same thing for a long stretch, or when people won't do or say anything interesting. And sometimes they won't. It's provoking, it's very provoking, when you are on the lookout for something to happen, to find a car full of well-dressed, good-looking, ordinary people, any one of whom, for aught you know, might live on your own street, in your own city. And it's handy to have a book for such emergencies, tho they don't often arise.

I had come to the conclusion that my fellow-travelers were all of the unenterprising sort on one trip over the Union Pacific, and I was just trying to fix my attention on the fortunes of the Edwin and Angelina of my story, when we steamed into Cheyenne. I glanced out and was turning to my book again when I caught a word from a conversation between two men who sat in the seat behind me.

"Every time I strike Cheyenne," the man who sat next to the window was saying, "I am reminded of Dave Hill."

The other man leaned forward to catch a glimpse of the city.

"You might as well look in your hat," laughed the one who had spoken first. "You won't see him out there."

My hopes revived. Was the old chap going to spin a yarn? Even a dull one at such a time would be something. And then to overhear it, to snatch it as it was passing, so to speak, would add a little to the flavor of it, whatever it should prove to be. I closed my book and looked out of the window again, for that brot my ear where it could hear the possible story a little easier.

"What was he?" asked the man by the aisle, "a crippled boot-black or a silver king?"

"What was he? The most real, genuine, unadulterated scoundrel that ever I saw. He was raised in the east, but he came out here so as to have more room. He didn't get what he came after, tho. It turned out just the other way. We narrowed him down to his six feet of earth in short metre."

I settled down into the corner of the seat, put my elbow on the window-sill and pretended to watch the landscape with the deepest interest.

"It's queer how these black-hearted rascals always have to have some poor, good, simple woman to think the world of 'em; now, ain't it?"

The man by the aisle assented and the other went on.

"Dave's one friend was his silly old mother, as honest a mortal as Dave was dishonest, and that's saying enough. She just about worshipped him. When he came out here she had to come, too. And along with her came a boy that had been living with them. His mother had been a friend of Dave's mother, and the woman had died when Adam—they always called him Ad.—was a baby. The fellow wasn't over-bright, and Dave's mother had always taken care of him. By the time they came to Cheyenne he was almost a man in size and was able to do a great deal for her and for Dave. I reckon he did a good deal more for her than Dave did, if the facts could be known, but he never got any credit for it, not even from the old lady herself. She didn't mean to be hard on him, but she was so bound up in Dave that she couldn't see anybody else."

I was thinking of opening my book about this time, but the man by the aisle asked, "What happened to him at last? How did he come to his end?"

I tho't I would wait a minute to see what was coming.

"Well, replied the other, 'I suppose the Indians were partly responsible, tho they didn't finish him. We white folks had that honor. But he probably would have lived longer if he had let the Indians alone. He cheated them some way in a horse trade. I can't tell you all the particulars of the business, for I was in Denver then. But the details don't matter. He cheated them terribly; that's the main thing. And they struck out to get even with him."

"Dave had the horses. Perhaps he had stolen them, or perhaps he had paid for them in counterfeit money—he had been known to try both of those games—but, anyway, he had the horses and he didn't dare to keep them any longer. He might have had a suspicion that the men would be looking for him. But, anyhow, he told Ad. one morning that he'd sold a pair of horses to a man that lived about sixty miles north of him, and that he wanted him to take the horses off. The boy tho't nothing of it, and off he started as chipper as a bee."

"Well, sir, to make the story short, for you can imagine what became of Ad. as well as I can. The boy never came back, and he never was seen again by any of them. The man that had bot the horses turned out to be another of Dave's numerous inventions. An Indian in his natural state is no great stickler for ceremony, and if they got their horses back they probably didn't care much whether it was Dave or somebody else that suffered."

"Probably not," said the other.

"I suppose you never saw a man lynched," continued the man by the window.

His friend never had.

"I tell you, a lynching is a terrible thing. You can't get hold of the idea at all to pick up your paper and read about one. But when you're there yourself—well, once is enough."

"Was Dave lynched?"

"That's just it, exactly. And he deserved it, if ever a man did. This last trick of his was no worse than some of the others. This was the last straw, and the people made up their minds that they wouldn't stand any more. I don't believe in lynching, tho, and I didn't then. I didn't know what was up till it was too late to do anything, and I couldn't have helped matters, anyway."

"There was a good deal of talk and inquiry among the neighbors and townspeople as time went by and Ad. didn't come back. He was one of those good natured boys that always make friends wherever they are, and he was missed a good deal. Dave's mother took it terribly to heart. She kept expecting him long after folks told her it wasn't any use, and she worried and worried till she was almost sick a-bed."

"She didn't dream of such a thing as that Dave had anything to do with his disappearance, and she wasn't shrewd enough to know that anybody else would suspect him; so she told of everything just as she understood it. It happened that Ad. had told her the name of the man that he was taking the horses to, and it was easy to find out that there was no such man in the town. It was believed that Dave had sent the boy off, knowing that, in all likelihood, he would be found by the Indians while the horses were in his possession, and that he would be murdered by them. And they agreed that such a man was too mean to live."

"It was the plan to keep things perfectly secret; but one of the fellows was foolish enough to tell his wife, and she was so struck with pity for poor old Mrs. Hall that she came near upsetting the whole business. And it did seem a little tough when you took her feelings into account. It was bad enough for her to lose Ad. without having this happen. The woman even proposed that they wait till the old lady was dead, and then lynch him. But everybody knew that that would amount to not lynching him at all, and they wouldn't listen to her."

"The night set for the affair was one Sunday night. They made up their minds not to take him from his own home, out of consideration for his mother; they tho't that they could get him to one of the neighbor's houses, on some pretext or other, and take him there."

"Well, sir, it worked as finely as the most of them could have wished. They got up their little excuse, and Dave came right along as willing as you please. His mother happened to be feeling a good deal more cheerful that night than she had at any time since she gave Ad.

up for dead. But it wasn't any use to think about her. They had decided on their course, and everything was all planned out. There was nothing to be done now but to go ahead."

"Dave never suspected a thing of what was going on. He was taken completely unawares, so it was an easy matter to get hold of him. He made what defense he could when he did realize what was up. He really did himself credit. But it was no use, under the circumstances, and with those men. It was a crowd that meant business, and they soon had him led off to a tree."

"They gave him a few minutes to say his prayers in, or to make his will, or to attend to any little business that he might have a mind to, but there he stood as glum as a knot on a log and never said a word. I'll bet he was a sight—I wasn't there myself, then—standing there in the dim light, with that group of men around him. He was over six feet tall and well-proportioned, and I'll bet he looked majestic, if he was at their mercy."

"But just about half a minute before the time that they had agreed to give him was up, such a yell broke out on the air as made even Dave himself jump; and, sir, if you'll believe me, Dave's old mother rushed up with Dave's best gun, and she let off at them like mad!"

"Well, sir, you've got to imagine it, that's all. I can no more describe it than I can paint the vision Ezekiel had. Just think of that old woman, more than seventy-five years old, her thin gray hair flying in the wind, for she was bare-headed and without a cloak or shawl or any kind of a wrap, her eyes wild with grief and rage, and her old trembling fingers pulling away at that gun!"

"And such a shrieking! That voice of hers I don't ask anybody to tell me about. I heard it, myself, and I shall never forget it; no, sir, never! It was the first intimation that I had of the business. I was passing along near the spot, not so very near either, for it was an out-of-the-way place, but you could have heard her a mile. When I heard that voice it sent such a chill along my back as I never felt before, and never have since. I rushed ahead as fast as I could to see what on earth the matter was. And I came near getting a stray bullet in my head, too."

"The men hated to fire on her. The roughest of them wouldn't have harmed a hair of her head. She was the most pitiful looking object that I ever saw. Dave, who had been so cool, raged and raved like a lion now. It seemed as tho he couldn't bear it to stand there, bound and helpless, and see her in such a state. I tho't, as true as I live, that he'd make out to get free, after all, and come at them."

"But if she was a woman, and one that everybody pitied and respected, something had to be done. They set out to take the gun away from her, but it was no easy job they found out. Unpracticed as she was, she gave four of them marks that they'll carry all their days. One poor fellow got such a dose that he died before the month was out. It's wonderful what strength she did use; and she was by nature one of the meekest and gentlest of women."

"In the struggle to get the gun away from her a shot was fired and she fell. Apparently it had been fired by some fellow who had become so excited that he didn't know what he was about."

"You've killed her!" cried Dave, and such language as came from his lips! You've heard of a torrent of words—well, that's about as near what it was as I can come. But the torrent didn't flow a great while. His mouth was soon stopped."

"What became of the old lady? Was she killed by the shot?"

"Yes. She lived only three days. She never knew much about what was going on around her, and I suppose it was a good thing that she didn't. The neighbors did all that could be done for her, and when she realized anything she seemed to be grateful to them for their care. As for Dave, tho, as I said before, I don't believe in lynching, it was as good an end as he had any reason to expect."

Their conversation now turned very abruptly into a very different channel, and one in which I had not the slightest interest, so I bid good-bye to the landscape which I had been looking at but not seeing, and took up my book again.

The things that "go without saying" are the ones most often said.

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Some of Our Wild Flowers—1.

By Eva Ryman-Gaillard.

Introduction.

In these little talks about our wild flowers very few technical terms will be used aside from the botanical name in connection with the common one. To these will be added something of description; a few cultural directions for those who may want to domesticate some of the wildings, and an occasional historical fact or fanciful legend to tempt the reader to pay closer attention to the ones commonly seen, as well as to get some idea of those common in other localities.

To mention one in a thousand of the flowers common in the United States would be impossible, and to draw the



The Common Bull-thistle Becomes Beautiful Under Cultivation.

line between wild flowers and tame ones would be equally so for the reason that what grows wild in one place, even to the extent of being legislated against as a noxious weed, is cultivated as a garden or hot-house treasure in another.

As an example of the latter fact: A friend of the writer visiting in a foreign city, where a great floral exhibit was being made, heard much of a wonderful American plant. Not recognizing the description, a visit to the exhibit was made. The "wonderful" plant was found to be a common bull-thistle, but so improved by cultivation as to deserve all the praise being bestowed on it.

A less amusing, because more costly, illustration was given when people of the northern states were carefully cultivating the water-hyacinth while the War Department was being called on for help in ridding the rivers of the southern states of it because it was blocking navigation and holding refuse until it became a menace to health.

The flowers selected for mention will be those found in the northeastern quarter of the United States, mainly, because those of that territory are best known or most easily available to most readers of this magazine, and, unless otherwise stated, it is to be understood that the flower named is to be found thruout most, if not all, that territory.

With this explanation we are ready for our first woodland ramble and if we start early enough the first flower we find will, probably, be the

Skunk Cabbage.—(*Symplocarpus foetidus*).

The blooms of this plant with the unpleasant name make their appearance in swamps and wet meadows very early and are the first to announce that spring is at hand.

The buds seem to be waiting for the first sunshiny days and as soon as the surface of the soil warms a little they spring up as if by magic. Very often they appear in March only to lose their lives because of their bravery, for, unlike other early flowers, they cannot

stand frost after they have pushed away their sheltering blanket of dead leaves.

The pointed bud which seems to pop out of the ground soon shows a mottled-purple color, bursts open on one side, and develops into a pointed spathe which never opens widely but curls around the yellow spadix, almost hiding it, and in form and markings closely resembles a shell.

The form of the flower quickly tells us that it is related to the Jack-in-the-pulpit and the stately white calla tho, if we examine it closely, we see that it has no stem while they have long ones.

The leaves make little development until the flower, fades, but then grow rapidly and dot the swamps with clumps of light-green, heavily-veined, broadly-oval leaves from one to three feet in length. Admire them one must, but it is safest to leave them untouched, for the unpleasant odor which gives the plant its common name is contained in the leaves—not in the flower.

It is said that the early Swedish settlers who found it growing around Philadelphia called it "bear-weed" because the bears ate it greedily. Knowing the frightfully acrid properties contained in the juice of the leaves one wonders what sort of mouths the bears could have had.

The juice of the leaves has narcotic properties while the root, if chewed, injures the sight.

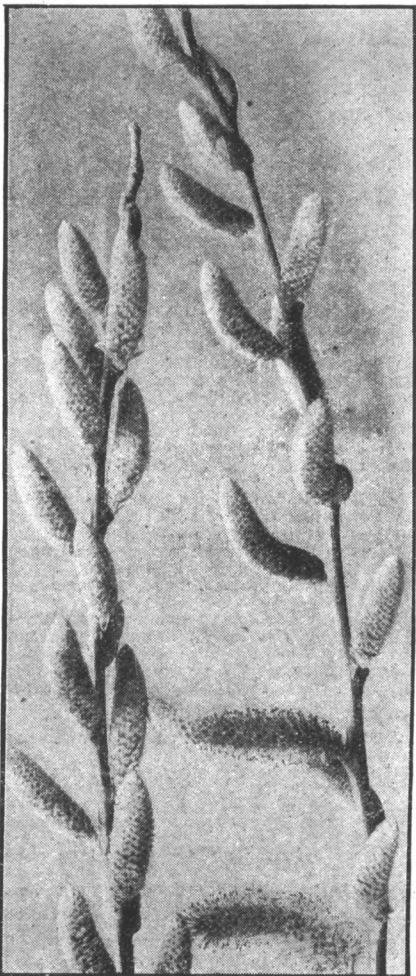
Pussy Willow.—(*Salix discolor*).

Many people fail to recognize the "pussies" as "really-and-truly" flowers, yet such they are, and the wanderer beside swamp or brook will find them frolicking with the first April breezes, before the snow and ice are gone from their surroundings, and before a leaf appears on the bushes.

No plant has a more fascinatingly interesting history than this which gives us the "downy firstlings of the year," whether we consider it as a commercial factor and look for its products in undreamed-of places, or follow up the facts and legends of ancient and modern history which concern it.

An old proverb declares: "The willow will buy a horse before the oak will pay for a saddle." The saying is true and the one who finds why and how it is true will value the willow more highly.

Surely, the pussies seem more interesting when one thinks how the captives in Israel "hung their harps on a willow tree" while they sat beside it grieving for their native land. The Bible will tell us, too, of how "the willows of the brook" were used in sacred ceremonies, and with this knowledge we will know by what authority the Church of England uses willow-branches instead of



"Downy Firstlings of the Year."

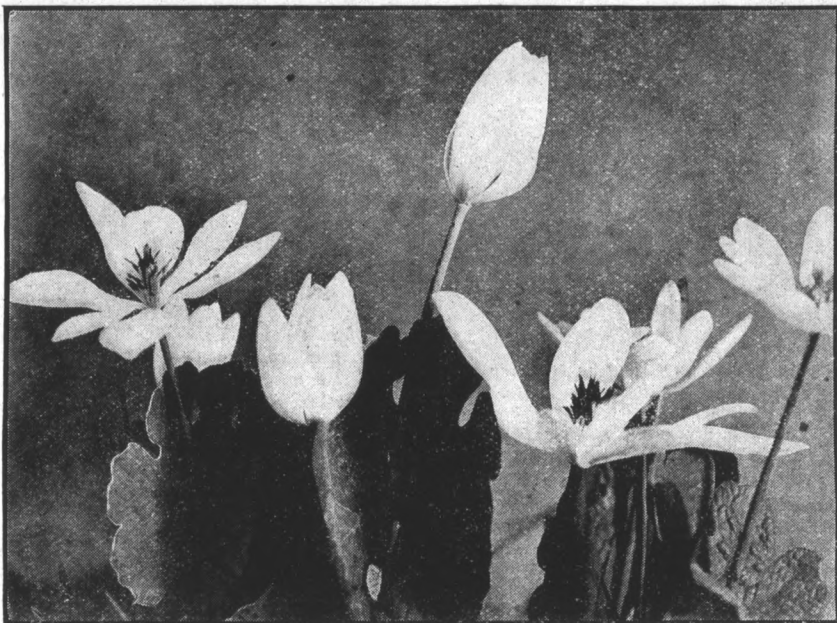
palm-branches in the Palm Sunday services.

The Chinese consider the willow an emblem of immortality and have many strange customs in which it plays a part. The Bohemians, too, have customs connected with it that are both amusing and sad. Nearly every well-known poet, both ancient and modern, has written much about the willow and the United States has some famous willow trees whose origin and history is full of interest—but these the reader must study from other sources.

Liverwort, or Liverleaf.—(*Hepatica triloba*).

In late March or early April the single, nodding, purple (sometimes pink or white) flowers of the liverwort appear, or if we reach the woods before they come the heavy three-lobed leaf, looking like liver-colored leather after its winter under the snow, will tell where to look for the buds wrapped snugly and warmly in their fuzzy coats.

Those who have studied nature's ways of working know that the force used in



Blood-Root, or Indian Flower, whose Blood-red Sap was prized by the Aborigines.

sending the flowers springing up in time to greet the spring was stored up long before, and a little observation of what is going on will show that all the power of the plant is being used in perfecting the flower, none being spent in leaf production.

After the flower is gone the new leaves come, then, after they are fully developed and ripened the plant goes to forming the buds for the next year's flowers and in the late fall these downy buds may be seen in the heart of the plant. If taken up and potted at this time the flowers will develop in mid-winter.

The Indians and early settlers, who had to find their medicines where they could, believed the shape and coloring of plants indicated what they were good for and, to them, the three-lobed (liver-shaped) leaves of this plant told that it held a medicine to cure diseases of the liver. Knowing this, they remembered, or marked, the spots where it grew so that it could be secured at all seasons.

Blood-Root, or Indian Flower.—(*Sanguinaria Canadensis*).

In April and May we find, in open meadows and beside small streams, the tips of sturdy, closely-rolled leaves forcing their way up thru the soil and a couple of days later, we may find them unrolled to disclose pearly-white flowers with hearts of gold.

If we break the stems, or bruise the roots and find our hands stained by the blood-red sap, we know (if we did not before), that we have found the "blood-root" so highly prized by the Indians as a paint for the face, or their weapons of war.

The thick, perennial rootstock lies just under the surface of the soil and runs in every direction, with leaf-shoots springing up along its entire length and every leaf enclosing a flower.

When exposed to strong winds the flower is quickly ruined, but, fortunately, the plant bears transplanting so well that they may be grown in sheltered nooks around the home where they can be enjoyed to the full and, after the flowers are gone the stiff leaves that stand up so bravely have a distinct beauty of their own.

Knowing that the plant belongs to the poppy family and has the same poisonous characteristics, it is easy to believe it the "small flower" from which the friar

distilled the liquid that caused the death-like sleep of Juliet (in Romeo and Juliet) and of which he said:

"Within the infant rind of this small flower

Poison has residence and medicine power."

Or, to the student of Virgil, it may suggest the burial of Polydorus when "blood flowed in thick, dark drops from wounded shrubs and herbs."

Wood Anemone, or Wind-Flower.—(*Anemone nemorosa*).

The arrival of the wind-flower is very little later than that of the liver-wort, but the description, "the wind blows them open and then blows them away," is so true that one must be on the lookout in order to have a chance to admire the dainty flowers that vary from white to pinkish blue in color and may have from four to seven petal-like sepals.

The Persians held this flower as an emblem of sickness, from their belief that the wind which blew over the plants became poisonous and carried disease wherever it went, but the Greeks believed



it sprang up where the tear-drops shed by Venus over her slain lover, Adonis, touched the ground.

Even tho we hunt the flower for its beauty only, the knowledge that it was loved, or dreaded, by people of other lands and ages, with the reasons therefor, gives an added interest to the search. Trailing Arbutus, or Mayflower.—(*Epi-gaea repens*).

In a list of early flowers the trailing arbutus must have a place, if for no other reason than because its story dates back to that early-spring day when some of our Pilgrim forefathers found the dainty little flower, and reading therein a promise of cheer after the dreadful experiences of their first winter in America, named it the Mayflower in memory of the ship which brot them to our shores.

In some places it is called ground-laurel and, in fact, it belongs to the same



Trailing Arbutus, known to the Pilgrims as "Mayflower."

family as the aristocratic rhododendron and the azalea, tho it has other less imposing relatives among the checker-berries and huckleberries.

The one who finds this dainty, waxy, star-like flower will need to brush away

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the drifting dead leaves that have sheltered it during the winter, for it is in such places that it cuddles down among the heavy, waxen, evergreen leaves of the parent plant.

Of all wild plants this is the most impatient of being disturbed, and where one transplanted one lives many die, leaving it as truly a wildling today as when the Pilgrims first found it.

THE MAKING AND DISTRIBUTION OF PAPER MONEY.

(Continued from page 324.)

the larger part of them are transported by express. When the express companies receipt for the notes, the responsibility of the Treasurer ceases and if the money is lost in transit by robbery or wreck, or in any way, the loss falls on the express companies. During the year 1907 the shipments of currency from the Treasury Department by express amounted to \$527,379,899, separated into 68,787 packages. The shipments by registered mail were 15,390 packages, but the value of these packages in money was only \$735,794. It will thus be seen that only small amounts are entrusted to the mails.

The distribution of currency by the Treasury Department is dependent upon and regulated by the amount of money presented for redemption, including, of course, shipments from the sub-treasuries, banks, and that exchanged at the counters of the cashier's office in the Treasury building. All other money placed in circulation is thru the payment of government debts. There is daily paid out by the cashier of the Treasury to individuals about \$150,000. This represents principally the cashing of checks given to government employees and the redemption of comparatively small sums of money by the Washington banks and a few persons.

The redemption of paper currency involves a great deal of hard work and skill. After old notes have been redeemed they are cut in two lengthwise, the upper halves being delivered to the Register of the Treasury and the lower half to the Secretary, in whose offices they are independently examined and counted. Afterwards they are delivered to a committee, whose duty it is to see that they are destroyed by maceration. The maceration takes place at the Bureau of Engraving and Printing, and the resultant pulp is dried and sold to paper manufacturers at \$30 to \$40 per ton. On an average more than a half million notes are handled by the redemption division of the Treasury each working day, the redemption in the last fiscal year amounting to more than \$550,000,000.

Not the least important part of the work comes in the shape of notes which have been only partly destroyed. Fifty or sixty remittances are received daily, many of them containing the remnants of single notes. The government is generous in this matter, redeeming all fragments that can be identified on satisfactory proofs of the destruction of the missing portions. Burning is the chief cause of loss, and strange to say the greater number of cases are those in which housewives have secreted their money in the stove and forgotten to take it out before lighting a fire.

Many attempts, of course, are made to cheat the government, but there are few if any that are not frustrated. In November, 1894, the cashier of a Kansas bank sent a sum of money for redemption for a farmer of that vicinity with an affidavit that "while burning brush and cleaning up a field his pass book dropped out of his pocket into the fire; that the bills were lengthwise in the book and half the bills and book were consumed when picked up." This statement was backed up by a neighbor who deposed that he saw the occurrence. The cashier testified that both men were "old and respectable citizens who stood high as to morality, honor and integrity." But, alas for human frailty and credulity! The records showed that the other halves of these same notes had already been redeemed at half their face value!

When burned or torn bills are received, they are handled very carefully. The packages are opened where no draft can reach them. The pieces are examined with a magnifying glass and, as identified, are skillfully put together. One note, of \$20, was received, which had been torn into several hundred very small pieces by a crazy woman, but so skillful are the women engaged in piecing together torn bills and so perfect their knowledge of different bills, that

the note was restored entirely and a new one issued for it.

The persons who handle money at the Treasury become so skillful and their eyes so acute that they are quick to detect counterfeit notes. To an outsider, however, belongs the credit for having discovered perhaps the best counterfeit ever made. The man was George Cramer of the sub-treasury of Philadelphia. Mr. Cramer found among a large deposit of bills what he thought were four counterfeit notes of the \$100 Monroe head denomination. His associates thought he was wrong. He got on a train and went to Washington, and the experts of the Redemption Division also thought he was in error, as did the officials of the Bureau of Engraving and Printing. But when a genuine note was placed beside the alleged counterfeits and an examination made under a magnifying glass, Mr. Cramer was found to be right.

It would be strange, indeed, if in the handling of so much money there should not be some temptation to the employees of the government. Close watch is kept, however, and the system of checks is so perfect that few have the courage to do wrong. The percentage of loss due to the peculations of government clerks is very small.

(Note.—The writer is indebted to Assistant Director Joseph E. Ralph, of the Bureau of Engraving and Printing and to Mr. James A. Sample, Chief of the Division of Issue of the Treasurer's Office, for much of the material embodied in this article.)

SUGAR-MAKING.

BY ALONZO RICE.

The sunshine fills each forest aisle
With gladness; hill and valley smile,
And waterfowl to northern regions,
With noise and clamor swiftly file.

The meadow-brooks from winter's thrall
Leap free, and floats the phoebe's call
In chorus with the chirp and chatter,
Of wrens that throng the garden wall.

On southern slopes the violets lift
Their azure eyes aloft, where drift
The fleecy clouds that ever alter,
As fickle breezes change and shift.

Down yonder glen, where maples sway,
And winds of Springtime softly stray,
There comes the sound of merry-making,
From youths and maidens joined in play.

There swing huge kettles in a line,
Round which the blazes leap and twine,
And bubbles bright and evanescent,
Golconda's treasured store outshine!

The maple trees their sweetness drop
In tinkling rhymes that never stop;
And, peering, edging round the buckets,
In tireless, quest, sapsuckers hop.

A grape-vine swing! And pleasure wakes
Renewed, refreshed. Each maiden takes
Her turn. And oh, what wreck and ruin!
What peals of laughter when it breaks!

No sorrow haunts the woodland air;
A smile each face is seen to wear;
It seems the golden vapors double
The joys of life and hide all care!

The hour grows late, and clearer ring
The tuneful measures that they sing:
For "stirring-off" the merry minutes
Still close and closer to them bring!

The round red moon begins to climb
The eastern sky, and comes the time
Of their departure and the finish
Of this, my sugar-making rhyme!

THE FOREST.

BY FRANK J. PHILLIPS.

Go back my spirit to the wild
Where virgin forest still holds sway
And where one wanders as a child
Who acts and thinks and learns to pray
For all the good he sees in things.
Have I not watched with sinking heart
The woodsman's axe, the falling tree,
And heard the silver band give start
To cello-sung melody
That seems a death toll as it rings?

Once Dryads held their mystic sway
Where now the land has desert grown;
And where the pigeons winged their way
In countless thousands to their throne,
Only the croak of crows is heard.
Once, zephyrs played; once, springs were
here;

While oft the deer were wont to hide
Where now the floods have taught men
fear
And where no man can long abide,
For man must reap where man has erred.

Yes, we must reap what others sow
And know how pangs of want may
sting
But on these barren wastes will grow
Another forest which will bring
A heritage of wealth and power.
Where reapers search, where plowmen
fail,
Where streams go dry and birds cease
flight,
There trees will grow and form a Grail
To add, of beauty and of might,
A waking nation's brightest flower.

I cannot do without The Farmer. It ought to be found in every family for it is a good clean paper.—Warren Wright, Kalamazoo, Mich.

Try This For a Severe Cough.

Take a pint of Granulated Sugar, add ½ cup of water, stir and let boil just a moment. Put 2½ oz. of Pinex in a pint bottle and fill it up with the Granulated Sugar Syrup. Shake well and take a teaspoonful every one, two or three hours.

The prompt results from this simple, home-made remedy will surprise you. It has been known to conquer a deep-seated cough in 24 hours. It is also an excellent thing for whooping cough, soreness of the lungs, bronchial troubles and other throat affections.

The proportion above suggested is enough to last a family a long time. It is equally effective for young or old, and has a very pleasant taste. Well corked, it never spoils. It takes less than five minutes to prepare, and is very inexpensive. The 2½ oz. of Pinex should cost you about fifty cents, and the Granulated Sugar about four cents.

Pinex, as you probably know, is the most valuable concentrated compound of Norway White Pine Extract. It is rich in gualiacol and other elements that make the ozone of the pine forests so effective in curing throat and lung diseases.

There are many pine tar and pine oil preparations, but none of these are to be compared with the real Pinex itself. All druggists have it or can get it for you without trouble if requested.



A DEEP THINKER

will appreciate what we have to say here.

You have papers that would cause you embarrassment should they happen to be lost.

You'd like to find a good safe place for them.

A place that is alike immune from the dangers of fire or burglars.

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The Simon J. Murphy Company is well known throughout the entire state and will keep all your valuables for you for a year for two dollars.

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Wear STEEL SHOES

These shoes of steel with leather uppers, are the most wonderful working shoes in existence. So economical that one pair will outlast three to six pairs of all-leather shoes—saving \$5 to \$10 at your shoe money in a year. So absolutely waterproof that you can work in mud and slush without getting wet feet and consequent colds and rheumatism. So light and restful that your feet never ache or blister or swell. So shapely they cannot cause corns. And they cost less than leather shoes!

How Steel Shoes Are Made

The soles and an inch above the soles are stamped out of a special light, thin, rust-resisting steel. One piece of steel from toe to heel! The soles are protected from wear by adjustable steel rivets, which give a firm footing. Rivets can easily be replaced when partly worn off. Fifty extra rivets cost only 30 cents, and will keep your shoes in good repair for at least two years. No other repairs are ever necessary. The uppers are made of the very best quality of soft, pliable, waterproof leather, riveted to the steel and reinforced where wear is greatest. Steel shoes never go to the shop for repairs! The rigid steel soles prevent the shoes from warping and twisting out of shape. Steel shoes have thick, springy, hair insoles, which add to ease of walking—absorb vibration and shocks. Insoles only removed, cleaned and dried each night.

Wear "Steels"—Save Doctors' Bills

All classes of workmen can avoid colds, rheumatism, stiffness, blistered, sore and aching feet by wearing Steel Shoes. They keep the feet dry, warm and comfortable under all circumstances. The saving in medicine and doctors' bills will pay for Steel Shoes many times over. Water cannot saturate "Steels."

Steel Shoes Give Most for the Money

Sizes 5 to 12—6 in., 9 in., 12 in. and 16 in. high. Steel Shoes, 6 inches high, \$2.50 a pair, are better than the best all-leather \$3.50 shoes. Steel Shoes, 9 inches high, \$3.50 a pair, are better than the best all-leather \$5.00 shoes. Steel Shoes, 12 inches high, \$5.00 a pair, are better than the best all-leather \$6.00 shoes. Steel Shoes, 16 inches high, \$6.00 a pair, are better than the best all-leather shoes regardless of cost.

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The comfort of Steel Shoes is remarkable. Their economy is easily demonstrated. Practically all the wear comes on the rivets in the bottoms and the rivets can be replaced very easily. Don't sweat your feet in rubber boots or torture them in rough, hard, twisted, shapeless leather shoes. Order Steel Shoes today. Sizes, 5 to 12.

Steel Shoe Satisfaction or Money Back.

We strongly recommend the 6-inch high at \$2 per pair, or 9-inch at \$3.50, as they give the best satisfaction for general service. In ordering, state size shoe you wear. Enclose \$2 for 6-inch size, and the best and most comfortable working shoes you ever wore will promptly be shipped to you. Your money refunded without delay if you are not delighted when you see the Steel Shoes. Send today! STEEL SHOE CO., Box 95 Racine, Wis. Canadian Branch, TORONTO, CANADA



No Shoddy in This Boot

Shoddy is a substitute for rubber. It costs about one-fourth as much as Para rubber. Some makers of rubber boots use shoddy for the same reason that some milkmen water their milk—to make more profit. Our Century Boots are made of fine Para rubber, the best to be had. Don't buy boots loaded with shoddy, which is simply old, worn-out rubber "warmed over."

Century Boots

Our reinforced duck ramps make a pair of these boots last much longer than any other. Where many others use cloth for the ankle piece we use pure gum. Century boots are made from the toughest compound known. Century Boots are cheapest because best—best in material, best in workmanship and best for wear. No cheap trash, such as is sold by the mail-order houses. Look for the name "Century" on the boot leg. If your dealer doesn't sell Century Boots, write us. BEACON FALLS RUBBER SHOE CO. 236-38 Monroe Street Chicago, Ill.

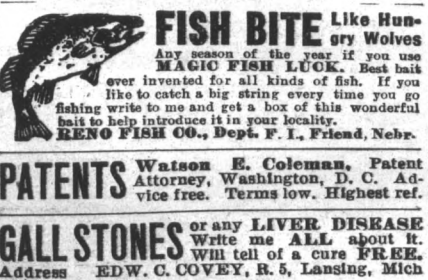


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PATENTS Watson E. Coleman, Patent Attorney, Washington, D. C. Advice free. Terms low. Highest ref.

GALL STONES or any LIVER DISEASE Write me ALL about it. Will tell of a cure FREE. Address EDW. C. COVEY, R. 5, Lansing, Mich.

ROSE OR MINT.

BY CORA A. MATSON DOLSON.
A crimson rose I wore today;
My Love he did not heed the spray;—
It might have been a cluster gray
Of dooryard mint.
Or any worthless, weedy bit,
For all that he gave heed to it.
A year ago he would have said,
"Your cheeks are than the rose more red!"
Would I had plucked the mint instead;
For with its tint
Of grayish leaf and flower it brings
A healing to all bruised things!

KINKS.

Kink I.—Hidden Picture.



Find the goblin and the three men and one woman that protested when Tommy Brown took the bird's nest that he holds in his hand. You may indicate where they are by laying a piece of tissue paper over the picture and tracing the objects above referred to, or you may outline them with pencil or pen, then cut out and forward to us.

Kink II.—Agricultural Chemical Problem.
To H2 O2 Ru add 2 S P and get an important constituent of bones. Then filter out six-tenths of the atoms and leave S2 H O, which is the vernacular for a common farm animal.

Kink III.—Who Wrote It?
Give the name of the poem in which this verse occurs, and tell the author's name:

"We called it our Eden, that small patent baker,
When life was half moonshine and half Mary Jane;
But the butcher, the baker, the candlestick-maker!—
Did Adam have duns and slip down a back lane?
Nay, after the Fall, did the modiste keep coming
With last styles of fig leaf to Madam Eve's bow?
Did Jubal, or whoever taught the girls thrumming,
Make the patriarchs deaf at a dollar the hour?"

Prizes for Straightening Kinks.
To the first 25 who send us correct answers to ALL of the above Kinks, we will give choice of a package of 50 post-cards representing a trip around the world, a copy of the rapid calculator or a pair of shears. Where contestant or some member of his family is not a regular subscriber a year's subscription (75c) must accompany answers. Answers must reach us not later than April 10, as correct solutions will be published in issue of April 17. Address answers to Puzzle Dept. Michigan Farmer.

Answers to Feb. 20 Kinks.

Kink I.—Hidden Picture.—The Scotch poet is Robert Burns. His head (A) forms the space under the arch of the bridge, his face being toward the left, and his shoulder forms the brook.

Kink II.—Charade.—Robinson Crusoe.

Kink III.—Illustrated Pi.—Heigh ho! Daisies and buttercups, Fair yellow daffodils, stately and tall! When the wind wakes, how they rock in the grasses, And dance with the cuckoo-buds, slender and small!

Here's two bonny boys and here's mother's own lasses, Eager to gather them all. —From "Seven Times Four—Maternity" in Jean Ingelow's "Songs of Seven."

Essentials in Civil Government. By S. E. Forman, Ph. D. The aim of this little book, intended for the last years of grammar school and the first years of the high school, is to establish high political ideals, to promote good citizenship. Cloth, 12mo, 224 pages, illustrated. Price, 60 cents. American Book Company, New York, Cincinnati, and Chicago.

Schiller. Die Jungfrau von Orleans. Edited by Warren Washburn Florer, Ph. D. Instructor in German, University of Michigan. This edition has been prepared in the light of the recent Schiller investigation, for the purpose of introducing students to the elements of literary interpretation and of stimulating in them a desire to read the drama as a masterpiece. Cloth, 16mo, 375 pages. Price, 70 cents. American Book Company.

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One day a lady who had been reared in the careful luxury of the old-fashioned Virginia home was invited to visit the kitchen of a great Chicago hotel. She wanted to go, but was afraid. When asked why, she replied, "I'm afraid I'll see something that will forever destroy my appetite for hotel food." She went, and found everything delightfully clean.

Good housewives consider cleanliness and purity first of all; that's why Quaker Oats is their choice among all oatmeals. In making Quaker Oats the grain is sifted and resifted, passing through more than fifty processes of cleaning before it is cooked and rolled.

If you took a handful of oats and scrubbed and polished and wiped each separate grain, it wouldn't then be nearly as clean as Quaker Oats. No human hand ever touches a single grain of Quaker Oats from the field to your kitchen. The best advice on foods you could have is: Eat Quaker Oats every morning for breakfast.

This wonderful food is sold in three kinds of packages. The regular package at 10c. The large size family package at 25c, and the large size family package containing a fine piece of table china at 30c.



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STUMPS—Farmers having stumps or stone to blast this spring or next fall, should write the MEREDITH POWDER COMPANY, Richmond, Ind., for prices on dynamite, caps and fuse.

FOR RENT—To an experienced dairyman choice 80-acre farm one mile from condensed milk factory. GEO. HINES, Lake Odessa, Mich.

THREE-STORY and basement brick house Detroit, hard wood finish, value \$8,000, for sale cheap or exchange. F. W. Stock & Sons, Hillsdale, Mich.

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IF YOU WANT TO BUY OR SELL PROPERTY, any kind, anywhere, write the Northwestern Business Agency, Minneapolis, Minn.

FOR SALE—80 A. adjoining town 60 A. cleared. 20 A. good timber, good soil, fair buildings, flowing well. Price \$3,000. Box 55, Marion, Mich.

80 ACRES near Morley. Good land partly improved, frame house. Near school. \$1,000 if sold immediately, 1/2 cash. I. L. Hubbell, Belding, Mich.

MICHIGAN FARM BARGAINS, Central Michigan. Send for list. H. T. SPEARS, Potterville, Mich.

140-ACRE farm for sale cheap, located adjoining city limits East Tawas, well fenced and drained, with fine buildings, or will exchange for city or farm property in southern Michigan. Address F. W. STOCK & SONS, Hillsdale, Mich.

FOR SALE OR RENT. Farm at Hagensville, Presque Isle Co. Mich., containing 148 acres, over half under cultivation, balance woodland. Good soil. Near school, churches and railroad depot. Apply to W. H. WILSON, Albion, Mich.

FOR SALE—110 acres; fair house, two good barns and outbuildings, steel wind mill, 400 rods of new wire fence, good timber, telephone and R. F. D. Price \$2,000. J. L. STEVENS, Orleans, Mich.

MICHIGAN LANDS CHEAP. Buy from the owner direct. I am not an agent, I have fruit, grain and stock farms, timber lands and village property. I will sell cheap and on time. Write me. RUFUS SKEELS, Hart, Mich.

MICHIGAN FARMS all kinds and sizes selling cheap. Write for list A. C. PANCAKE & CO., 223 Widdcomb Bldg., Grand Rapids, Mich.

80 ACRES, all fenced in, about 40 under cultivation, 1 1/2 miles from Standish, Mich. Price right. R. 3, Box 7, Standish, Mich.

Fruit, Grain and Stock Farms for sale. Write C. W. Morgan, Shelby, Mich. for lists.

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WASHTENAW County and other Farms for Sale. State what you want when writing. The Ypsilanti Agency Co., Ypsilanti, Mich.

MICHIGAN FARMS ALL SIZES. Southern & Central Counties. Write for list, S. B. HAYES, Ashton Building, Grand Rapids, Mich.

2,000 ACRES of rich, wild land, level, three miles from R. B. Good terms, write JESSE L. BARRETT, Muskegon, Michigan.

THRIFTY FARMERS are invited to settle in the State of Maryland, where they will find a delightful and healthful climate, first-class markets for their products and plenty of land at reasonable prices. Maps and descriptive pamphlets will be sent free upon application to STATE BOARD OF IMMIGRATION, Baltimore, Md.

1,000-ACRE FARM BARGAIN in Mecosta Co., Mich. 150 acres cleared; buildings; fine running water; on railroad; all woven wire fenced; \$12,000, easy terms. Also 208 acres adjoining; 55 acres cleared; \$1,800, easy terms. Write owner. CHAS. M. LANNING, Portland, Oregon.

CALIFORNIA LAND, \$1 acre cash payment; month per acre; close San Francisco; no taxes; no interest; 5-acre tract; level, rich, clear, ready to plow; irrigated; perpetual water rights; immediate possession; particulars, maps, photographs free. STEVENSON COLONY, 1414 Market St., San Francisco.

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I sell farms in this Co., the best in U. S., Fruit, Grains, Poultry, Stock. All terms, easy terms. If the people of U. S. knew the advantages to be had here, in 24 hours there would not be standing room. Write for list and literature. J. D. S. HANSON, Hart, Mich.

WHY PAY RENT when you can buy the Best Land in Michigan at from \$6 to \$10 an acre near Saginaw and Bay City. Write for map and particulars. Clear title and easy terms. STANFELD BROS., (owners) 15 Merrill bldg., Saginaw, W. S., Mich.

FARM BARGAINS.

240-Acre Stock Farm—\$33.33 per acre. 28 miles from Detroit. Rich soil. Large barns and house. Everything good. Must be sold before April. **96-Acre**—2 miles from Salline. Clay loam soil. Good in every way. \$45 per acre. **Choice 160-Acre**—15 miles from Detroit. In best neighborhood. Fertile and highly improved. Nothing better. \$14,000.

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Fortunes are being made on fertile Tennessee farms. They raise big crops of Cantaloupes, Cabbage, Tomatoes, String Beans, Green Corn, etc., also Horses, Cattle, Sheep, Swine, Poultry and Eggs. Write me at once for Free Literature. I'll tell you how to get one of these splendid farms for \$5 to \$20 per acre. Act quickly! H. F. Smith, Traf. Mgr. N. C. & St. L. Ry. Dept. F, Nashville, Tenn.

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36 acres—3 miles from Marshall; 300 rods of wire fence, good house, newly painted, good basement barn 20x30, corn crib, hen house, hog pen, good orchard; 1 1/2 acres raspberries, 4 acres strawberries—\$2500

BIG SNAP. **84 acres**—20 miles from Detroit; 1 mile from electric line; fair house, new basement barn 34x60, another barn 46x24, cement floors, steel track new last year, no waste land, 400 rods new filling, new wind mill, water to house and barns, 14 acres timber. \$5000

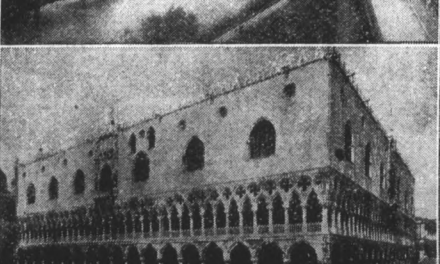
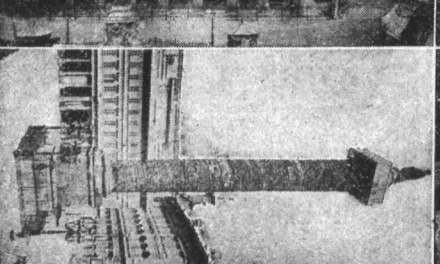
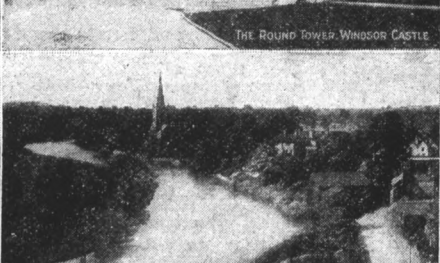
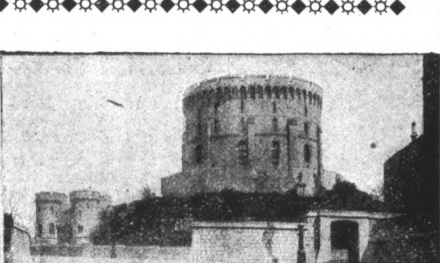
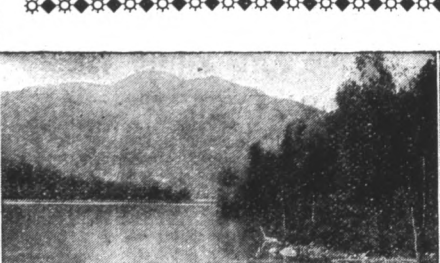
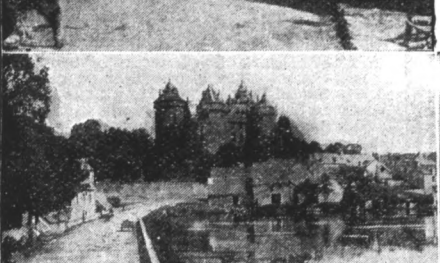
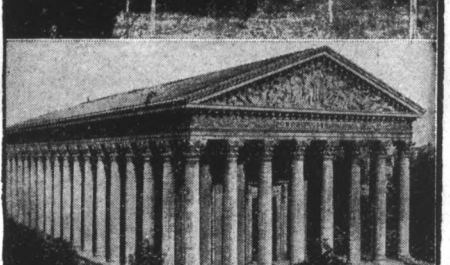
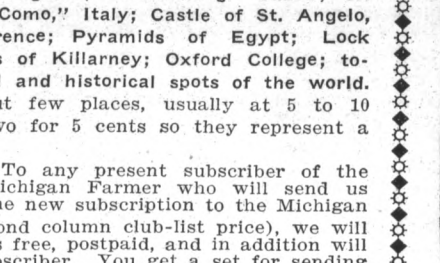
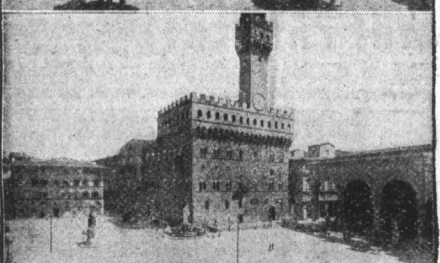
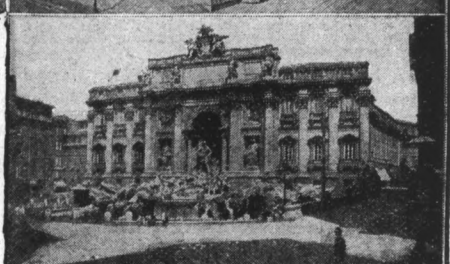
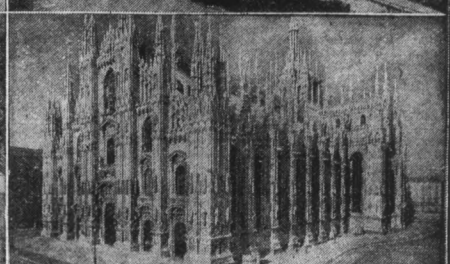
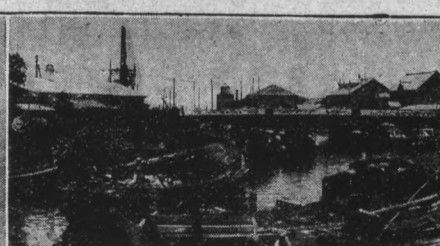
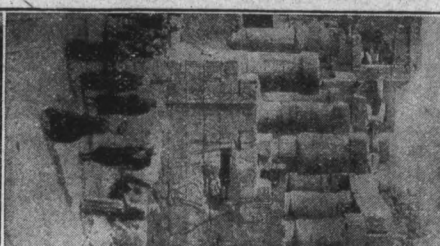
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OF INTEREST TO WOMEN

HOME CHATS WITH FARMERS' WIVES.

BY ELLA E. ROCKWOOD.

The Best Way of Washing Lace Curtains and Wool Blankets.

The best way of washing lace curtains is that which cleanses and whitens while bringing to the fabric the minimum amount of strain. Rough handling causes the delicate threads which compose the mesh to break, and a break is something to be avoided just as long as possible. To lift a wet curtain by any one part of it may do that very thing since the weight of the water which it has absorbed makes it much heavier than it is when dry.

To wash such a delicate piece of goods without injury requires some skill and care on the part of the operator. For this reason the work should not be entrusted to any but a competent woman, one who is willing to go slowly and carefully from beginning to end.

The first thing to be done is to shake the curtains free from loose dust. Remove the rods, also the stitches which have held the shirring in place. Fold each width lengthwise twice then lay it in a tub, folding it back and forth in such a way that it may be lifted by one end without strain upon any particular place.

When all are folded and in the tub cover with cold water and let stand for several hours, or over night. Remove carefully one at a time without wringing and lay them in another tub containing warm, soapy water, following the same manner of folding as before. Squeeze and press the curtains in this water, lifting them as little as possible. If badly soiled they will need another bath in clean, soapy water. The color of the fluid will determine this point and more soap may be required. The suds should be left on them for half an hour or more so that the cleansing properties of the soap may do the work without rubbing.

Put the pieces thru successive soapy waters until clean, then rinse carefully in clear, warm water, twice at least. In lifting from one tub to another lift each curtain by itself and as far as possible all at once. Observing this point may save the annoyance of a tear.

The last water should contain the bluing, also the starch. Only the best laundry starch should be employed. That made from flour leaves the curtains less clear.

A wringer should not be used no matter how strong the temptation to do so. It is sure to break the threads somewhere; and twisting in the hands is even worse. Squeezing in the hands will be sufficient as the removal of every particle of water is unimportant anyway.

When it comes to the drying there is nothing so good as the regular frames made for the purpose. These cost from one dollar to one dollar and a half. They can be made at home by getting the necessary strips of wood. Indeed, quilting frames answer the purpose very nicely for short length curtains.

In putting the curtains on the frames care should be exercised to get them true and the edges even. If they are allowed to dry crookedly they will hang awry and be an offense to the eye of the possessor, indefinitely.

After one curtain is on the frame another may be put right over it and the two, or even three, will dry together nicely. Take pains to have the pins at the exact center of each scallop. The stretching may be done so as to make the curtains longer or wider than before and it is well to bear this fact in mind.

A set of curtain stretchers made at home by the handy man, consist of four light strips of smooth wood, two longer than the others. There are small finishing nails driven at half-inch intervals next one side of each piece and these hold the scallops in place. The nails are put thru from the back. Tiny nails without heads may be used, in which case they may be driven in as usual. Clamps like those used on quilting frames hold the corners of the frame firmly in place and are readily adjusted to any size of curtain.

The old-fashioned method of stretching and drying curtains was to pin them to the floor of an unused room, over clean sheets, and this is a pretty good way, even now. Of course, they cannot, thus

dried, get the benefit of the sun and its bleaching effect during the process. As with the frames, one curtain may be pinned over another and they will dry out in a few hours. Greater care is required to get them straight in this way than when dried in frames.

By careful handling and avoiding any strain upon the mesh while wet, lace curtains may be laundered for years without breaking. However, all things wear out in time, and then comes the mending.

Perhaps the best way to mend such a piece of goods is to put a piece of similar material back of the hole, fastening it with needle and very fine thread. By matching the figure as nearly as possible and pressing the parts with a hot iron over a damp cloth, the mending will be scarcely noticeable. I have known an entire edge to be transferred from one curtain to another with good results. It simply meant making a badly torn curtain usable for another season at least.

A break in an all-net drapery is not so easily managed. There is no convenient figure to help out in hiding the joining and a piece set on the mesh is sure to show a little. If the tear is straight it can be drawn together neatly with fine thread. If there is an irregular hole it may be best to cut a piece from the top of the net and set it over the rent, running fine stitches close to the edge and trimming the torn part away, allowing but a small line of overlap. Square corners are best for this kind of mending and no attempt should be made at turning edges under, as that would make the joining more conspicuous. In a draped curtain a mended place is not so difficult to manage but when, as at present, the widths hang straight and scant it is not so easy to get it out of sight.

Since the present vogue calls for curtains hung at sill length only, there is in the three-yard patterns, considerable surplus material to be disposed of. Fashions are liable to sudden changes and housewives naturally dislike to cut their nice curtains, so they make this extra length into a frill to fall over at the top. The lower edge of the curtain should just escape the sill when hung.

Cleansing Blankets and Quilts.

Another job closely allied to the curtain washing is the cleansing of soiled blankets and quilts. This is heavy work and, owing to the nature of the material, not always satisfactory when concluded. Blankets of wool are apt to shrink, while the cotton filling of comfortables and quilts shifts around and gets lumpy unless the work is carefully performed.

The following method is the best I have ever found for washing wool blankets. Treated in this manner they come off the line as soft as new ones.

Shave fine one and one-half bars of good white laundry soap. Put it in a basin and add a quart or more of water then place on the fire until all dissolved. Into a tub put two or three pails of cold soft water, about what will be required to cover the blankets, whether one or more. Add the dissolved soap, two table-spoons of ammonia, and two of powdered borax. Stir well and put in the pieces to be washed, first ripping off colored bindings, if any there are. Push the goods under the water until all parts are saturated, then leave undisturbed for three or four hours. Then squeeze the water thru the fabric with the hands, rubbing well any spots that are particularly soiled. Sop up and down then lift out into another tub of cold water containing one-third as much soap, repeating the rubbing and squeezing in order to get out all the dirty suds. Rinse again in clear water until there is no more dirt to come out. Then lift out without wringing and hang on a stout line to drip until dry. Any wool goods can be cleaned by this formula without shrinking. No attempt should be made at wringing, which mats the fiber of the wool. Changing from cold water to hot or from hot to cold is sure to result in shrinking.

It is best to undertake this work on a pleasant day when the drying will be completed before dark. Never iron wool

blankets but fold and put them under a heavy weight.

In washing quilts and comforters there is no objection to the use of hot water on the score of shrinking, but any colors save the fast ones, such as turkey red, indigo blue and those found in the cham-breys, are more liable to "run" and fade by its use than when cold or merely tepid water is employed. In my experience I have found that the most delicate colors may be washed without fading by using only cold water and a suds made of good pure white soap, rinsing thoroly and drying the articles in the shade. Following this with an iron only moderately hot gives excellent satisfaction with cotton goods of any kind and almost any color.

If there is a very delicate shade to deal with, remember that salt in the rinsing water sets most colors, a table-spoonful to the pail of water. Bluing made very strong will restore a faded blue, and vinegar in the water will hold greens. A table-spoonful of black pepper in the first water will hold the color on buff and on black or gray.

Colored cottons may be washed with starch instead of soap. Make one quart of thin boiled starch of flour or laundry starch, strain it and add it to a gallon of tepid water, or in that proportion. Wash the articles in this without soap of any kind, rinse in a weaker starch water and hang in the shade to dry.

Lawns, calicos or gingham treated in this way will look like new.

BARGAINS.

BY MARGARET WHITNEY.

A lady who is always looking for bargains, or what she regards as bargains, saw in the paper the other day how she could obtain a dollar bottle of medicine for nothing. She had no complaint of any kind, nor had any member of her family, but she presented the coupon with which the medicine could be obtained and got a bottle of it. Now she considered this was a great bargain and that she was just that much ahead of some one else who had not seen the advertisement and procured the medicine.

This same lady will drive to every grocery in town with her produce in order to find where she can get the most for it. The storekeeper who is paying the highest price that day gets her trade. But if by chance she missed some place when making her rounds, and she hears from someone later on that this particular grocer had paid a half cent more on a pound of butter than she had received she is sure to tell the one with whom she dealt about it the next time she is in town, and demand the difference.

No grocer could be sure of her trade a week ahead for she always went where the highest price was to be had.

Sometimes these bargain hunters get caught at their own game and no one sympathizes with them very readily when they do. Hearing that sugar was to be had a little cheaper at one particular store in the town one house-keeper bot a quantity of it. On using some to make syrup with in a few days she noticed a fine white sediment in the bottom of the dish and found on examination that she had paid a good price for sand.

Now there are real bargains to be had occasionally and every one should take advantage of them when the articles on sale are necessary and can be used. In families where there are small children who do not require much goods for dresses, aprons, waists or petticoats, the mother can buy at a remnant sale all that is necessary for them at about half the original price of the goods.

At one of these sales a lady was able to find two remnants of black goods of the same kind which contained sufficient material to make a dress for herself. The quality was good and had originally sold for more than a dollar a yard, and she got both pieces for less than two dollars. At this same sale enough wool goods for a skirt and silk for a waist were bot for less than a dollar and a half.

There are often special sales on articles for household use and if one needs them it is a bargain to get them at the sale. It is no bargain to buy anything one does not need. In that case it would be expensive at any price. The lady who got the medicine she did not need for nothing, spent more in the mere effort of getting it than it was worth to her for it proved to be something that none of her family would ever have any use for. But in the face of all this it is a bargain, as she sees it, simply because it did not cost anything.

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The harmfulness of alum powders is mostly exerted among those who do not read, who are deceived by the stories of peddlers and others interested in the sale of the inferior articles, and these are the people who can least afford to use unhealthful food.

The health authorities, however, are waking up to the seriousness of the situation. Already many arrests have been made of the vendors of alum baking powders. When by convictions and heavy penalties the sale of these powders is made both disreputable and expensive, it will be a blessing to the public.

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SOME QUESTIONS OF DIET FOR CHILDREN.

BY CHARLOTTE A. AIKENS.

A large proportion of the patients who visit the office of the average physician go there to secure relief from some form of stomach or intestinal trouble. The trouble is often chronic—dating back for months or years, worse, sometimes than others. Probably there have been long intervals when they felt pretty well. It is more than likely that many of these digestive ailments could be traced back to unwise feeding in childhood. A recent criticism on the diet of country children which appeared in a popular household magazine, made some startling statements. "Country children," the writer says, "often live largely on potatoes, skim-milk and vegetables. The only advantage they have in their diet is that they often have fruit butter to spread on their bread, and other forms of preserved fruit thru the winter, with a plentiful supply of fresh fruit during the summer. But they ought to have in addition to this diet, fresh meat, (not salt pork and unskimmed milk), butter and eggs. * * * Often country children are not properly fed on the very articles which the farm produces most abundantly, skim-milk nourishes neither calf or child, and salt pork has not the nutritive value of good fresh meat and eggs."

Now, the main statements made in this arraignment are far from being true of the children in the average farm home. One cannot but wonder in what part of the country the writer got her information. The President's Commission ought to have its attention called to such conditions, if they exist. Yet it is true, I believe, as a general thing that the average farmer has given a good deal more study to the question of "balanced rations" for stock, than the wholesome feeding for children.

The tendency is to overfeed rather than the opposite, of which the writer referred to complains. The tendency is to give the child, long before his stomach has developed sufficiently to digest it, a great many kinds of food which would tax the digestive powers of the strongest man. "Feed a child reasonably for the first seventeen years, and no diet is likely to disturb it much afterward" is the advice of a popular teacher on the science of feeding. The child's stomach and brain are quite as undeveloped as his bone and muscle, and quite unfit for the heavy burdens sometimes put on them.

The change from "baby food" to general diet is far too abrupt in many farm homes. I have seen a mother actually give her eighteen months' old daughter a nice little cucumber pickle to eat, and when I remonstrated with her she laughed and said: "Oh, it won't hurt her. She won't eat much of it." Suppose she didn't eat much of it; wouldn't even a little hurt the child a little. Something else on the same order will hurt it a little more, and so the little injuries accumulate till we finally have a dyspeptic. Who is to blame? I have known an eighteen months' old baby to be fed on succotash and green corn till the bowels became ulcerated and the child's life was despaired of. I know of a child of three who was allowed to eat as much fresh pork as he choose to stuff down him and the result was—convulsions and a very near approach to death. I know of another three-year-old boy who was fed on potatoes, turnips, cabbage and meat in quantities sufficient for a trench-digger—allowed to dispose of it as fast as he could possibly shovel it into his little mouth, till the whole digestive tract was inflamed and ulcerated and he suffered from constant discharges of blood and mucus from the bowels. Chunks of potato as large as the top of the thumb would pass thru the entire digestive tract just as they were swallowed. There is no great danger of the average child in the American home suffering from lack of nourishing food. There is great danger that he will be allowed too much food and too great variety in food before his digestive organs are sufficiently developed to warrant it.

After a child has reached two years milk alone does not satisfy, but it should still form an important part of its diet. Even skimmed milk, which the writer stated, "would nourish neither calf nor child" is a pretty wholesome food for child or adult. Skim-milk has lost its fat, which goes towards producing heat and force, but it still has valuable tissue-building properties. Children should be taught to sip milk slowly, not gulp it down hastily.

Between the ages of two and five, well-

cooked cereal foods such as rice, oatmeal, crushed wheat and cream of wheat, baked or mashed potatoes occasionally, some fruits, with bread, eggs, soups and a very little meat make a sufficiently varied diet. Most children at this age crave sugar and a certain amount of it is wholesome. Unless children are trained to a great variety in diet they will not clamor for it. Tough vegetables, especially those having hard, indigestible, woody fibre, such as corn, should never be allowed in a young child's diet. Turnips and carrots and cabbage contain very little real nourishment. They do seriously tax the digestive organs even of adults, and why give them to young children. Why allow any child chowchow, or highly spiced foods or pickles of any kind? Certainly his health does not demand these articles of diet. Rich cake, doughnuts, plum pudding and mince pie and cheese have made many an adult groan with indigestion. Then why allow children to have them? Even at Christmas these articles are best not put on the child's bill-of-fare. A pretty dessert of blanc-mange or custard of some kind is more easily made, and far more wholesome.

After a child has reached the age of ten or eleven years, more variety can be permitted. The active, growing boy or girl needs a larger quantity of food in proportion to size than the man, but children need to be wisely guided in matters of diet. They need to be taught self-restraint and to chew all food thoroughly. They need to be given plenty of time for meals, and "bolting" of food should not be allowed.

An eminent New York physician gives the following rules in regard to the feeding of young children:

1. Allow time for meals.
2. See that the food is thoroly masticated.
3. Do not allow nibbling between meals.
4. Do not tempt the child with the sight of rich and indigestible food.
5. Do not force the child to eat against its will. Examine the mouth, which may be sore from coming teeth. Examine the food, which may not be properly cooked or flavored.
6. If good food is refused from peevishness, merely, remove it and do not offer it again before the next meal time.
7. In acute illness reduce and dilute the food at once.
8. In very hot weather give about one fourth or one-third less food and offer more water.

WOMEN'S DRESS IN THEIR HOMES.

BY HELEN WAUGH.

Among the many inconsistencies of our women, there is one especially that has puzzled me greatly. Why do we dress so abominably at home? When we go abroad to meet people whom we care little or nothing for and who care little or nothing for us, we bend our energies to look our best and behave our best. While at home almost anything will do to wear out and we allow ourselves the luxuries of bad tempers.

Now, if we wish to appear genteel before people who care nothing for us, how much more ought we to put forth more of an effort at home—among those persons whom we love and who love us.

To look well it is quite unnecessary that a dress be elaborate or of fine material. For a simple work dress a plain gingham or calico gown looks much better than one of wool stuffs for it can always be fresh. Let the dress be made so that it will be loose and easy with no unsightly gaps at the waist line. This can be effected either by making a one-piece dress or by making the waist and skirt so they can be hooked or buttoned upon a single belt. Keep the neck neat, Use lawn turnovers, ascot ties, or ties of bias strips like the dress.

One woman I know really does a great deal of hard work but always looks as fresh as the morning. She is somewhat of a philosopher for she always says, when asked how she can look so tidy and do so much work, "I never feel as if I am really working when I look well enough that I need not blush to meet any of my friends at the door."

We realize the need of conveniences most when we can least afford to spend the time to arrange for them. When we have the most time we are not impressed with the need. This is the reason why the thoughtful person is better supplied with handy arrangements about the home. She appreciates beforehand the demands that will be made upon her strength when the rush of work comes.

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WANTED—A GRANDMA.

BY CORA A. MATSON DOLSON.
We haven't any Grandma
At our house now, at all:
Because our ownest Grandma
Went up to Heaven, last fall.

I'd like to 'dopt a Grandma—
I wonder if we could?
Who hasn't any grand-child—
Then she'll be ours for good.

I think a Grandma's nicer
Than almost any one—
Lets us have sugar cookies
And cake, and lots of fun.

My own would tell us stories
Of what she used to do:
She knit, and pieced whole bed-quilts
When she was little, too.

If we should 'dopt a Grandma
I want one just like her:
We'll have to write off somewhere
And tell what we prefer.

Or else we'll go and find one,
They'll be all in a row—
"Old Ladies' Home" they stay in—
We'll find one there, I know.

And we'll be good, and love her,
Yes, love, and kiss her, too;
Maybe she'll ask the blessing
Like Grandma used to do.

I'm just as anxious for her,
I'll see what Mamma'll say;
And if she wants to 'dopt her
We'll find one, right away.

WORRY WRINKLES.

BY GLADYS HYATT SINCLAIR.

To keep the hateful things far in the
limbo of years to come, take equal parts
of sage, essence of wild thyme and for-
get-me-not. Turn over often in the
mind and apply to all the pricks and
stings a housekeeper is heir to.

Don't believe it? Oh, but try it. The
sage will supply forethought—will attend to
laying out in your own mind, each morn-
ing, the things to be accomplished that
day. You will lay out too much, of
course. We all do; you will also do a
third more than if you go at the first
thing having no idea of what will follow.
Often your plan must be altered. Then,
if things big and little have been once
definitely thought over, they will change
places and fall into line like trained sol-
diers. If you must wait for the errand
girl to return, for water to heat, for
belated groceries, a dozen little things
spring up in your mind and half of them
are done "while you wait." One less
wrinkle.

The forget-me-not of my prescription
works like magic. Worry wrinkles fairly
fatten on the supplies you forgot to order,
the stitch you forgot to take till ready
for town, the letter you forgot to mail,
the library book you forgot to return
or the pancakes you forgot to set over
night.

Thinking things out ahead helps much
here, and few realize how much smooth-
ness of brow may be had by letting the
pencil do some of the remembering.
Make lists. It only takes a minute to
scribble things down and it is such a
relief to drop the wrinkle plowing "Now
I must not forget to—"

Keep a calendar handy and mark ahead
dates that you wish to remember. The
very fact that you marked a date helps
you remember and the calendar does
the rest.

Wild thyme is the ingredient hardest
to find. Yet the sense of having time
enough is rest, relief and luxury. You
feel rushed many times, when dressing
for instance, and fly about, making three
moves where one would do, overhauling
drawers, rummaging closets, slamming
doors and ruffling your temper when the
thought, "Now I have plenty of time if I
think what I want next and where it is,"
would bring you out serene and smiling.

The forget-me-not and wild thyme
work together. If you have forgotten to
brush your skirt, to clean your rubbers,
to put a stitch in your glove, or a clean
saver in your collar the wild thyme
grows wilder and the worry wrinkles hold
jubilee.

If once they get fairly at home on your
sweet face you will find the "pound of
cure" heavy and costly beside this "ounce
of prevention."

A KITCHEN THAT WILL PLEASE THE HOUSEKEEPER.

To secure the maximum of convenien-
ces at a cost within reach of the ordinary
pocket and to arrange these conveniences
to make necessary the expenditure of the
minimum of energy on the part of the
housewife was the object in the planning
of the kitchen illustrated on this page.
A model was exhibited at a recent con-
ference of housekeepers at the University

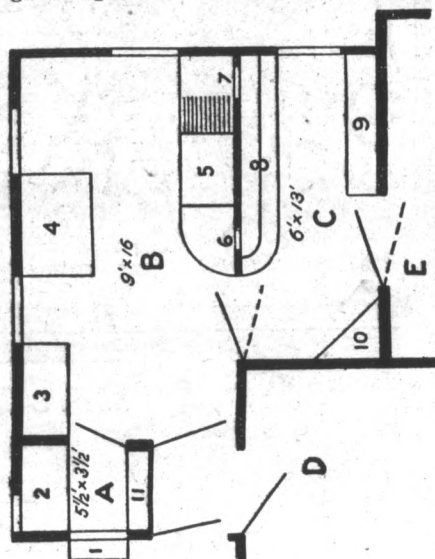
of Missouri. It was designed by Dr. Day
of that institution. The following words
are used by the department of agricul-
ture in describing the arrangement:

In this model kitchen a model kitchen
cabinet, which provides many conven-
iences and has the advantage of grouping
working materials at hand where they
are needed, is placed where there is good
light, next to the stove, on the one hand,
and to the cold pantry, on the other,
with the sink at the back. The stove
is also placed where light is abundant.

The easily cleaned refrigerator, in the
conveniently placed cold pantry, has
an ice door that can be reached from the
outside, saving the kitchen floor the drip-
ping and footprints which generally mark
the iceman's path. Outside of the pan-
try window is a box in which food can
be kept cold many months in the year
without the use of ice. If well finished
and painted the color of the house on
the outside, this need not mar the ex-
terior appearance of the house. The
shelves in the pantry afford room for
storing food materials.

The small table on rollers can be
moved into the cold pantry for pastry
work, when the kitchen is too hot. It
can conveniently find place between the
kitchen cabinet and stove when frying
or other cooking makes a table at that
point convenient. In kitchens where
sink and china closet are far apart, such
a table saves many steps at dish-wash-
ing time. In this kitchen the lowest shelf
of the china pantry is convenient for the
reception of dirty dishes from the dining-
room table. Here they can be scraped
and piled and passed thru the window
on to the shelf at the right of the sink.

A window at the end of the drain board
gives light for the dish washing and



A. Cold pantry; B. kitchen; C. butler's
pantry; D. back hall; E. dining room.
1. Window box to be used to keep food
material in cold weather. 2. Refrigerator
with outside door for icing. 3. Kitchen
cabinet. 4. Range. 5. Sink with shelves
and draining board on either side. 6.
Door for passage of soiled dishes from
pantry into kitchen. 7. Door for clean
dishes to be passed back. 8. Shelves in
pantry. 9 and 10. Shelves with glass
doors. 11. Shelves in cold pantry.

allows, if the view be good, a chance
for inspiration during the mechanical
work of dish wiping. The window into
the cupboard over the drain board may
be made small, allowing simply for the
passage inward of the piles of clean
dishes, or may be made large enough to
give access to the back of all the shelves
in that part of the pantry, allowing each
dish to go directly from the dish towel
to its place on the pantry shelf. The
opening may be closed with glass or
wooden doors.

At the farther end of the kitchen is a
place for the ironing board near to both
stove and windows, but entirely out of
the way of other workers in the room.
It may be hinged to the wall at one end
and folded up into a wall cabinet when
not in use. Inclosed shelves below may
give place for the irons, holders, and
wax. The heights of the ironing board,
sink, and table should be suitable to the
height of the worker. A high stool can
be used to advantage at the sink and
kitchen cabinet. Every kitchen should
have at least one comfortable chair.
Since at best many hours daily must be
spent in the kitchen, its arrangements
and equipments should be such as to
make the work there as easy and attrac-
tive as possible.

How many times the tired, but happy
mistress of the house has exclaimed, when
it was all over and the entire house as
sleek as a pin, "Oh, if it would only stay
clean!"



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cold? How much does fuel cost you every winter?
How much do you lose by being idle all winter?

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WOMEN'S CONGRESS AT ROUND-UP INSTITUTE.

The second day of the Women's Congress found the church filled to overflowing. After prayer, Mrs. Alfred C. Rowland gave a short address of welcome. The leading speakers being absent, the meeting was made interesting by each taking an active part in the discussions of particular problems, new ways of doing things and in asking questions. Mrs. E. C. Rowe then favored the ladies with a vocal solo, responding to an encore.

Mrs. F. D. Saunders, past lecturer of the Michigan State Grange, was then asked to talk on the subject assigned to Mrs. C. L. Baxter, of Ingham Co., "Up-to-Date housekeeping." This she did very ably. Home will be home if there is the home spirit within, whether it be in the city, village, or country. She referred to the aim of this work and feared she had no new thot to give. In flights of imagination we look down upon the farm homes of Michigan and discover the needs. We can not expect to give an outline whereby housekeepers might go home and revolutionize their housekeeping. And yet we may gather an abundance of things to take home and weave into our everyday life. Many things that will tend to develop and broaden the scope of farm lives.

The up-to-date housekeeper will recognize the importance of her work. Housekeeping is a profession, can sustain all the dignity of any profession; in fact, it is the ideal profession. Don't become enthused with it spasmodically, as it were, but continue your interest thru the year and aim to improve. The appreciation of the work is growing day by day, year by year, because of new thots, new ideas, and new ways. Crush the sentiment regarding the drudgery of housekeeping. Banish the thot of doing for our families and loved ones, as a menial labor and mere drudgery, then dignify and ennoble our calling. Plan the best way of proceeding day by day, and step by step. It is positively essential that housekeepers use new and up-to-date methods in housekeeping. Study new departures. She referred to some new innovations in arranging and furnishing a home, particularly in the way of floors and carpets, advising the use of hardwood floors, not only for the convenience of using large or small rugs instead of carpets, but from a sanitary standpoint. Have method, or system in work and not an antiquated method. In connection with this, have order, altho in the homes breaks may often occur. Yet, with system, these can be more easily bridged over, and the thread taken up again. The admirable system in railroad work was pointed out. Each housekeeper can best devise her own system. One aim should be to make the head save the neels. Association of ideas enables us to do things easier, to pause and think of what is coupled with this work.

The up-to-date housekeeper will surely find time for rest periods. There is an actual necessity for this—time to relax muscles, rest eyes, the whole body. All housekeepers require these rests from physical labor; it may be from five minutes to a half hour or longer. Control brain as well as body. In fact, rest body, brain and muscles. Have opportunity daily to feed the mind. Be sure to read that which does feed the mind. See that you are growing mentally. Mind can and will grow even after the physical ceases to grow, and the up-to-date housekeeper will see that it does grow.

Mrs. John Ketchum, of Barry county, added many good thots to this talk. The housekeeper is something more than a mere craftsman and cannot be placed in this category, as she directs as well as executes. Good health is necessary to good housekeeping. Too many girls take up other lines of work and continue this until broken down. Then they take up housekeeping. Executive ability and adaptability are essential, also retentive memory and good judgment and knowledge of business. Children may be taught to do more in the way of helping than in making work. The housekeeper must be artist, chemist, doctor, judge, seamstress, and, in addition to this, have some knowledge of other occupations and professions. As chemist she must know how to prepare food; as doctor how to care for the health of her family; as judge to settle disputes between children. Must actually know something about how to build a house and especially how to plan a kitchen. Success de-

pends much upon attitude of mind, too many making much trouble and worry over work and wishing to be in some other field of occupation.

Mrs. D. Houghton, of Isabella Co., remarked that the American woman is usually willing to do things when she knows there is some good object in the doing. She must be educated to know that rest is necessary. We must not overwork for we are the mothers of the race. Tired mothers make tired children. Young mothers should rest. Do not get overtired; it is impossible to build up bodies of poor, tired children as well as mothers, so take time for rest, mentally and physically.

Music was furnished at this time by students from the Central Normal School. Then came one of the most delightful and entertaining numbers on the program, "A Talk on Shakespeare," by Miss Helen Converse, assistant principal of the Mt. Pleasant high school. Miss Converse gave a comprehensive review of the Shakespearian dramas which was thoroly enjoyed by everyone present.

Mrs. Johnston followed with a discussion of the topic, "Making a Living or Making a Life," which had been assigned to Mrs. Barnum, of Calhoun Co. She said in part: There is a vast difference between making a living and that of making a life. The making a living provides only for temporal needs; making a life is the preparation here for the future and higher life. While there is a vast difference between making a living and making life, the two are not incompatible. Many of us are doing what is called making a living, and many are failing to make a life worth the living.

Alice Cory says:

"It is not just as we take it,
This mystical world of ours;
Life's field will yield, as we make it,
A harvest of thorns or of flowers."

It is a mistaken idea that the necessity of making a living precludes the possibility of making a life. It is just that everyday drudgery, if rightly and cheerfully done, that makes for the noblest life. Small things in the everyday routine may be just the things to make or to mar the life. Someone has said, that "Tis easy enough to look pleasant

When life flows along like a song,
But the woman worth while
Is the one who can smile.

When everything is going dead wrong." Cheerfulness, unselfishness, charity and honesty are perhaps the chief characteristics of the right life. When I say charity, I do not mean the giving of alms. That I believe, to be the least important, but charitable in our thots, our acts, and our judgments toward and of others. Most of you can call to mind today many men and women who have been wonderfully successful in making a living but what have they done toward making a life?

The finished life of the individual lowest in the scale of human labor, may best fit into the divine setting, because of the patience, the self-renunciation, the cheerful life that amounts to heroism in that lowly life. I believe Charles Kingsley has put this idea in these beautiful lines:

"Be good dear child,
And let who will be clever;
Do noble things,
Not dream them all day long,
And so make life, death and that vast
forever,

One grand, sweet song."
Mrs. Youngblood not being present, wrote up her subject and the paper was read by Mrs. John Ketchum, of Barry county, and afterwards discussed by Miss Jennie Buell, of Ann Arbor. We hope to give extracts from this letter later. Music was furnished by the Misses Mildred Smith, Lucile Wright Bertha Tice and Harriet McGraham, while Miss Ellen McNamara delighted all with her readings.

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BOOK NOTICES.

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(Continued from page 315).

which are capable of producing dairy products profitably and at the same time offspring which are capable of being developed into good beef animals. In order to demonstrate this last method a grade beef herd has been maintained at the College during the past three years, consisting of Shorthorn grade cows such as are commonly found thruout the country. The herd was divided into two lots of ten head each. One lot suckled their calves thruout the entire period of lactation; in the case of the other lot, the cows were milked, the fat removed from the same and the skim-milk returned to the calves. The sucker calves received such supplementary feed as they would consume in addition to the milk procured from their mothers. The skim-milk calves were liberally supplied with meal, ensilage and clover hay. In May, 1907, the second year's lots of calves were marketed at from 16 to 18 months of age, at weights approaching 1,000 lbs. Both lots sold at the same price, viz., 5¢ per lb. The pail-reared calves had cost about 4½¢ per lb. and the suckers about 6½¢. The suckers were much heavier than the other lot at weaning time, but fed more slowly later so that the pail calves gained upon them to within 30 lbs. of the same weight before sale. This same year the ten cows milked produced about 250 lbs. of butter each. Records were kept of each individual. No difficulty was experienced in securing 650-700 lbs. weight with pail-fed steers, at 12 months of age, costing from 3½ to 4½¢ per lb. There is no secret to success in pail calf rearing; it is dependent only on regular and abundant supplies of good nutritious feed, properly mixed and varied.

Prof Shaw was obliged to leave at once to catch a train and Mr. A. L. Hopkins, of Bear Lake, took up the discussion and answered questions.

The closing feature of this program was an excellent talk by Dr. L. M. Hurt, in charge of the Veterinary Department at M. A. C. His subject was "Better Horses for Michigan," and his treatment of it included reasons why Michigan should take higher rank as a horse-producing state, followed by some practical suggestions touching the improvement of its horse stock. As present space will not allow the extended review which this address deserves, the major portion of it will be presented thru the live stock columns of a subsequent issue of this paper.

That the interest continued undiminished to the very end was evidenced by the good attendance which greeted the speakers at the closing session held on Friday evening. President C. T. Grawn, of the Central Normal School, occupied the chair. The first address, "The Making of a Man," was delivered by President E. B. Bryan, of Franklin College, Indiana. His main thought was that a true man and a successful, honorable career are rarely or never found except where the value of uprightness of character has been instilled in early youth. With the ambition to attain to the highest success and to prove an honor to his chosen profession or calling firmly implanted in the young mind, it remains for the teacher or parent to discover the natural bent of that mind and to guide it in that direction.

In the absence of Prof. C. E. Holmes, to whom the next topic had been assigned, Mr. J. C. Ketcham, Superintendent of Schools of Barry Co., responded. The subject was "The Value of Industrial Education," and Mr. Ketcham deplored the apparent failure of our present school system so far as pertains to the fitting, for the duties of life, that tremendously large proportion of our youth who never reach high schools or colleges. The work of the public schools should be shaped and planned to best meet the needs of the great mass of pupils who can go no higher. The introduction of industrial education would go far in remedying this defect and in conserving the great ocean of mental resources now going to waste.

MICHIGAN CROP REPORT.

February Weather.—The temperature and precipitation averaged above normal. The ground was covered with snow most of the first two decades, but was nearly bare in the lower peninsula at the close of the month. A heavy sleet storm occurred in the southeastern portion of the lower peninsula on the 15th and 16th. In answer to the question, "Has wheat during February suffered injury from any cause?" 146 correspondents in the southern counties answer "yes," and 193 "no," in the central counties 86 answer "yes,"

and 65 "no," and in the northern counties 47 answer "yes" and 71 "no." Snow protected wheat in the southern counties 1.88 weeks, in the central counties 2.03, in the northern counties 2.61 and in the state 2.06 weeks.

The average depth of snow on February 15th was, in the southern counties 3.51 inches, in the central counties 3.04, in the northern counties 4.31 and in the state 3.57 inches. On the 28th the average depth of snow in the southern counties was 0.50 of an inch, in the central counties 0.72 of an inch, in the northern counties 4.28 inches and in the state 1.39 inches.

Wheat.—The total number of bushels of wheat marketed by farmers in February at 117 flouring mills is 132,339 and at 92 elevators and to grain dealers 93,517, or a total of 225,856 bushels. Of this amount 175,109 bushels were marketed in the southern four tiers of counties, 42,152 in the central counties and 8,595 in the northern counties. The estimated total number of bushels of wheat marketed in the seven months, August-February, is 7,000,000.

The amount of wheat yet remaining in possession of growers is estimated at 4,750,000 bushels. Seventy-eight mills, elevators and grain dealers report no wheat purchased in February.

The average condition of live stock in the state is reported as follows, comparison being made with stock in good, healthy and thrifty condition: Horses, 96, cattle and swine 94 and sheep 95.

NATIONAL CROP REPORT.

The Crop Reporting Board of the Bureau of Statistics, United States Department of Agriculture, estimates, from the reports of correspondents and agents of the Bureau, that the quantity of wheat in farmers' hands on March 1, 1909, was about 21.6 per cent, equivalent to 143,692,000 bushels, of last year's crop, as compared with 23.5 per cent (148,721,000 bushels) of the 1907 crop on hand March 1, 1908, and 24.6 per cent (158,008,000 bushels), the average for the past ten years of the quantity on hand on March 1. It is estimated that about 59.2 per cent of the crop will be shipped out of the counties where grown, as compared with 53.0 per cent of the 1907 crop, and 56.6 per cent, the average for the past ten years, so shipped out.

The quantity of corn in farmers' hands on March 1, 1909, is estimated as 39.3 per cent, equivalent to 1,047,763,000 bushels, of last year's crop, as compared with 37.7 per cent (962,429,000 bushels) of the 1907 crop on hand March 1, 1908, and 39.0 per cent (900,663,000 bushels), the average for the past ten years of the quantity of the crop on hand March 1. It is estimated that about 21.3 per cent of the crop will be shipped out of the counties where grown, as compared with 18.0 per cent of the 1907 crop, and 20.0 per cent, the average for the past ten years so shipped out. The proportion of the total crop which is merchantable is estimated as 38.2 per cent of the 1908 crop, as compared with 77.7 per cent of the 1907 crop, and 83.4 per cent the average of the past ten years.

The quantity of oats in farmers' hands on March 1, 1909, is estimated as 34.6 per cent, equivalent to 278,847,000 bushels of last year's crop, as compared with 35.3 per cent (267,476,000 bushels) of the 1907 crop on hand March 1, 1908, and 37.0 per cent (311,199,000 bushels), the average of the past ten years of the quantity of the crop on hand March 1. It is estimated that 30.3 per cent of the crop will be shipped out of the counties where grown, as compared with 28.0 per cent of the 1907 crop, and 27.3 per cent, the average for the past ten years so shipped out.

Steel Shoes for Farmers.

Thousands of farmers have discontinued the use of all-leather work shoes and are now wearing the new steel shoes. The time is undoubtedly coming when the use of steel shoes for outdoor work will be universal. All-leather shoes, no matter what they cost, become water-soaked in a comparatively short time when worn in the mud or slush. Coughs, colds and rheumatism or even the dread pneumonia, result from cold, wet feet. In drying out, the leather soles curl up and thus the shape of the entire shoe is ruined. Corns, callouses and bunions result from wearing such shoes. Steel shoes have an absolutely rigid sole, which forces the leather to keep its shape. This extends an inch above the bottoms all around the shoe. The bottoms are studded with adjustable steel rivets, which can be replaced as fast as they wear out. No other repairs are ever necessary. The fact has been demonstrated time and again that one pair of steel shoes will outlast three to six pairs of all-leather shoes. Yet the cost of steel shoes is less than all-leather shoes. Every wearer of steel shoes is so pleased with their comfort and service that he becomes a committee of one to tell his friends and neighbors about the benefits of wearing them. Readers of this paper who seek an easy, comfortable shoe and perfect safety from all the ills that follow cold, wet feet, should wear steels. The Steel Shoe Co., Dept. 95, Racine, Wisconsin, or Toronto, Canada, make them. Send them \$3.00 for 6-inch high shoes, or \$3.50 for a pair of 9-inch high shoes, mentioning this paper.

The 22nd annual catalog and price list of the Home Nursery, published by Irvin Ingels, La Fayette, Ills., Prop., describes and illustrates the line of trees, shrubs and plants sold direct to the farmer from this nursery.

I received the sewing machine yesterday all right. Nothing broke, and if it will work as good as it looks I think we will be well satisfied with it.—John Door, Holland, Mich.

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When a man can buy a Whipple Humane Horse Collar that will keep his horse well, it is a crime to torture him with a collar that will make him sore. And it's bad policy from a money-in-your-pocket point of view. Consider these facts and decide to try at least one set of Whipple Humane Horse Collars.

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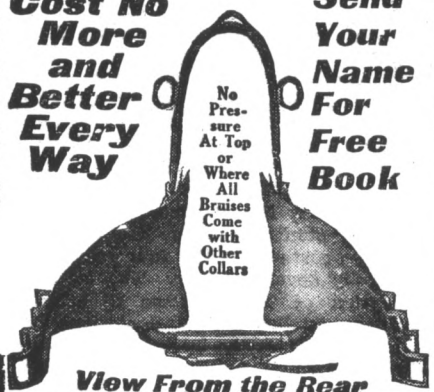
Don't use "sweat pads." It's cruel—especially in hot weather—injures your horses and costs more in every way. Use Whipple Humane Horse Collars and your horses will have no more sores—galls or bruised shoulders. No more wasted time. No more loss of valuable horses ruined by sores, bunches or diseased shoulders. No more sweated colts either; can't be. Tell you why. You'll see in a minute from the illustrations here, but better in our Free Book, "Horse Collar Sense," or by examining Whipple Humane Horse Collars at your harness dealer's. The simple facts are just these: 1—The pulling surface on these collars is properly distributed. 2—Your horses pull the heaviest load easiest with these collars because there are 45 square inches of pulling surface on each shoulder as compared with only 10 square inches on old-style hame collars. 3—The burden of pulling comes above the lower shoulder joint, giving the horse a chance to step without bruising the joint where most bruises come. 4—There is no pressure on the thin skin and flesh over the shoulder blade where so much trouble is caused with old-style collars. 5—No pressure at all on top of the neck or on the windpipe or breast to shut off the horse's breathing.

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View From the Rear

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Louden Litter Carriers are made of heavy galvanized steel—wear for years; have improved worm gear—1 pound on chain lifts 40 pounds in box; box stands at any elevation—raised or lowered any distance up to 25 feet; have many special advantages not found in other makes. Send today for valuable free book on manure uses, and catalog of hay and litter carriers, sanitary steel stalls, cow stanchions, etc., for modern barns.

Louden Machinery Co.,
603 Broadway, Fairfield, Iowa

THE DAIRY

CONDUCTED BY COLON C. LILLIE.

DEVELOPING A HIGH GRADE DAIRY COW.

As one travels thru the dairy sections of the country during the late fall and early winter and sees the scrawny, unthrifty, humped up young heifers, that are lacking in vitality, in size and capacity, and in fact everything that goes to make up a profitable cow, he can no longer wonder why so many men are feeding unprofitable dairy cows, or why the average production of dairy products is so low.

The common practice of weaning the calves when they are three days of age, of putting them on a diet of skim-milk and whey for a few weeks, and then turning them out in some sun-burnt pasture to survive or perish, is one of the chief causes of so many inferior, weak constitutioned, unprofitable cows being found in the average dairy farmers' barns at the present time. The men who talk so reverently of nature and fear so much to improve upon her, seem to forget that in the natural state the calf ran with its dam until she was dry, and that our modern dairy cows are in a highly developed artificial condition and therefore require artificial methods of feeding in order that they may develop the good qualities which have been intensified by generation after generation of good breeding and changed environment.

It will be my purpose in this article to explain the best and most practical methods of feeding and caring for the young heifers in order that they may develop into large, vigorous, high-producing cows, and to point out to the reader, in a practical and concise manner, the fundamental principles that underlie the development of the heifer. It is upon this development that the heifer's success or failure will depend when she is called upon to take her place in the dairy.

How Foods Affect Development.

To arrive at an understanding as to how the foods affect the organs of digestion, let us make a study of the four stomachs of the calf, and trace their growth and development from the time the calf is born until it has reached full maturity.

In the young calf we find that the fourth stomach is fully developed and larger than the other three, which are imperfectly developed. This arises from the fact that the nutriment on which the calf subsists (its mother's milk), is so easily digested that it requires but little exertion for the organs of digestion. The other three stomachs are practically useless until the calf begins to feed upon grass, forage or dry food, when the whole digestive apparatus gradually becomes developed.

When a calf begins to eat solid food it begins to ruminate; and as the quantity of dry food is increased, so does the size of the first stomach increase until it attains its full growth. When the first stomach has become fully developed it is larger than the other three stomachs combined. The accompanying diagrams show the relative proportions of the four stomachs of the calf and the relative proportions of the four stomachs of the fully developed cow. The curious modification of these organs to adjust themselves to the altered conditions of the animal can easily be understood by referring to these drawings. The letter (a) denotes the first stomach; (b) the second stomach, or honey-comb bag; (c) the third stomach, or many plies; (d) the fourth stomach, or reed and (e) a portion of the esophagus, as it is connected with the first stomach.

A study of the above facts teaches us that we must feed the calf at first with the milk from its own dam, which at the time of its birth is of a peculiar character. It acts as a gentle purge, indispensable to its health at this critical period, but which would prove injurious to its health at a later stage of its growth. In order that we may preserve the thriftiness and health of the young calf it is best to feed it an abundance of new milk, warm from the cow, for the first two or three weeks, after which it may be gradually trained to eat more substantial food, supplemented with the milk. As soon as the calf will eat bits of clover, or alfalfa hay, and eat a little grain food or mill-feed, skim-milk may

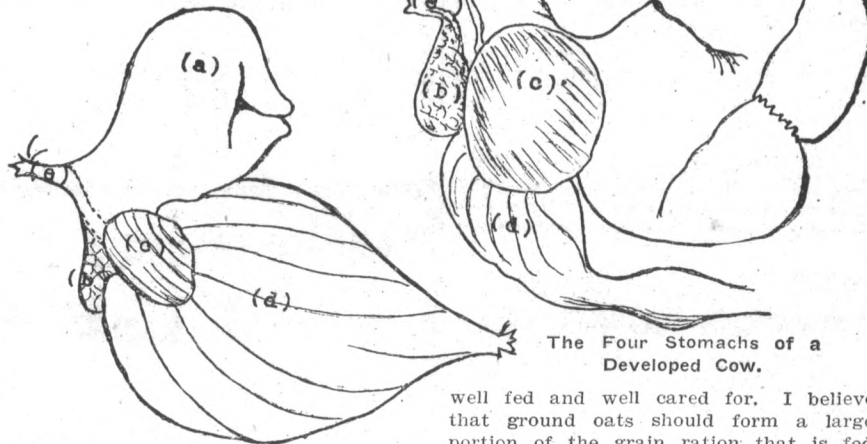
be safely substituted for the whole milk, and the carbohydrates that have been removed by skimming may be supplemented by the use of grain or mill-feed. Oat meal and linseed meal are excellent supplementary foods for the growing calf. When we change a calf from whole milk to skim-milk we must make the change gradually, for there is danger of deranging the digestive system if the change is sudden. Skim-milk is richer in protein than whole milk, and for that reason should be fed more sparingly to a young calf.

If the calf is fed entirely upon milk until it is weaned, it is plain to see that the fourth stomach will be undeveloped and unable to receive and perfectly digest the swallowed grass or hay without its having previously undergone the process of rumination in the first stomach, and that the other three stomachs will be quite unprepared to perform their proper functions until the fourth has become sufficiently developed to perform its part.

Change from Milk to Grass Gradually.

This shows us plainly that when we change a young calf from milk to grass suddenly, a suspension of healthy functions must necessarily take place, which will more or less affect the animal's development and growth. No doubt you have seen farmers turn their calves out to pasture and wonder why they did not make a satisfactory growth. A young calf might be placed in feed up to its back and yet starve, for the reason that its stomachs had not reached the proper development to enable it to digest that kind of food.

While on this subject it must be admitted that there is great diversity in the milking qualities of cows, brot about



The Four Stomachs of a Calf, Showing Their Relative Proportions.

by breeding, care and environment, yet the manner in which they are reared has a wonderful effect upon their milk-giving properties. A heifer that is raised on scanty pasture and kept in a poor and half-starved condition will never develop into as good a milker as one grown in the right manner and fed a nitrogenous ration, no matter how well bred she may be, or how well she is fed after being put to use in the dairy.

When development is arrested in whole or in part, the capacity for future development is weakened in proportion to the degree to which development was stopped. It is this arrested development that ruins more than two-thirds of our dairy heifers, and it is the development that is arrested nearest to birth that most seriously injures the individual. The poor, scrawny whey and skim-milk-fed calves furnish an illustration of arrested development that is a curse to the dairy industry.

There is little danger of overfeeding the dairy heifers if they are fed the proper kinds of foods and in the right proportions. In feeding dairy heifers, the same as in other branches of livestock feeding early maturity is an essential element of success. A young animal requires the least amount of food to produce the same amount of growth, and, all other things being equal, each succeeding pound of growth up to maturity requires more feed than the preceding pound. It is also an established fact among the best feeders that a well-fed and well-cared-for heifer will arrive at the same stage of maturity at two years of age as is usual at three and three and one-half years under a less progressive system of feeding and management.

In milk we have all that is necessary for the growth of a young animal. It is the type and representative of all food, and unless a ration contains the principles of milk it is not fitted for the promotion of health and perfect development

of the body, and, besides, the stomach of the calf is not adapted for extracting the nitrogenous elements from other foods. In the young calf the first three stomachs are not used at all. The milk passes at once into the fourth stomach, hence we see the necessity of weaning these young animals gradually, in order that their stomachs may develop and be able to prepare the raw food for a perfect digestion. Consequently when we change the calves from a diet of whole milk to skim-milk we should do it gradually and supplement the skim-milk with some other form of carbohydrates to replace the elements removed by the separator.

Other Essentials of Healthy Development.

In growing and developing young animals it has been found, thru a number of carefully conducted experiments, that all exposure to cold and dampness should be avoided, as cold diminishes the vitality of the system and serious injuries often result from exposure. Exercise is also essential to a healthy development of the young heifers and they should have large, well lighted, ventilated and sun-shined pens. Sunshine is a great germ killer and is also a great invigorator and stimulator to young animals. The sanitary condition of the pen or stable is also an important item. They should have dry, clean beds, and be provided with clean, wholesome food, and all utensils used in feeding should be kept sweet and clean.

From the time the young heifers are taken off from the milk diet until they are old enough to breed they should be

well fed and well cared for. I believe that ground oats should form a large portion of the grain ration that is fed to them. There is no grain superior to oats for developing the organs of maternity in young breeding animals, and if more of our young heifers received ground oats as a part of their ration there would be fewer cases of shy breeders or non-breeders. Heifers should not be required to take on themselves the burdens of maternity until they have acquired fair development, and I believe that the man who breeds his heifers to drop their first calves at from 24 to 30 months is on safer ground in building up his dairy herd than the man who will not wait for this maturity.

New York.

W. MILTON KELLY.

VALUE OF ENSILAGE.

What is silage worth for two feeds a day for each cow? I can buy silage here. What should I pay for it and how much for a feed for cows averaging 900 lbs?

L. L.

As there is no market price for silage, it is difficult to fix upon a value and about the only way one can do is to take into consideration the cost of growing. In our cow-testing association here at Coopersville, we figure ensilage at \$2.50 per ton and some other cow-testing associations figure it at \$3 a ton. I am certain that a man can make good money raising ensilage at \$2.50 a ton. He makes a good profit off his labor and his investment. But silage is worth more than its chemical analysis would seem to indicate on account of its succulency. In this respect it is on the same basis as roots for feed. They are worth more than their chemical analysis would seem to indicate, simply because the cow, or any other animal, will do better, give you more returns for the dry food consumed, if they have a succulent food in the ration. The succulency of the food seems to have a beneficial effect upon the digestive tract and causes that tract to secrete more of the digestive fluid. Consequently you get better digestion and assimilation of the whole ration by having it contain a succulent food. Now

We Have To Meet You Face To Face

There is no chance for long distance dissatisfaction when you buy a Great Western Cream Separator from our dealer in your vicinity. He is always there and glad to meet you face to face when he sells you a Great Western, "The World's Best." Don't let any agent sell you something just as good. Insist upon trying the Great Western before you decide. Have our dealer show you our \$1,000,000.00 Five-Year Guarantee on the Great Western and no matter how few or how many cows you have, it will pay you to try a

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1. Examine our original low down swinging tank. 2. Self-flushing, self-draining bowl. Easy to wash. 3. All gears enclosed; protected from dust, fingers, etc., and run in a spray of oil. Perfect lubrication. 4. Equipped with the finest imported Ball Bearings and absolutely the Lightest Running separator made. A seven-year-old girl can operate it. 5. Skims cold milk successfully, which most machines cannot do. 6. Most scientific skimming device, securing every particle of the cream from the milk. 7. Beautifully finished and made as accurately and perfectly as the highest grade watch. 8. Slowest speed bowl—only 7,000 revolutions per minute. Be sure and try the Great Western Ball Bearing, "The World's Best," separator before you buy. Write to our nearest office for catalog.

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FOR THIS NEW LOW DOWN AMERICAN CREAM SEPARATOR

Guaranteed to skim closer than any separator in the world. Sold direct from the factory. We are the oldest exclusive manufacturers of hand separators in America. You save all agents' dealers' and even mail order house profits. We have the most liberal 30 DAYS' TRIAL, freight prepaid offer. Write for it today. Our new low down, waist high separator is the finest, highest quality machine on the market; no other separator compares with it in close skimming, ease of cleaning, easy running, simplicity, strength or quality. Our own (the manufacturer's) guarantee protects you on every AMERICAN machine. We can ship immediately. Write for our great offer and handsome free catalogue on our new waist high model. Address, Box 1061, AMERICAN SEPARATOR CO., Bainbridge, N. Y.

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"BATH IN OIL" High Grade Separator—Direct Save \$25 to \$50 direct at my factory price—freight prepaid. Get the only Separator that runs in "Bath of Oil," like a \$5,000 automobile. This alone is worth \$50 extra, but costs you nothing extra. Take 90 Days' Farm Test—Freight Prepaid Why pay \$85 to \$110 to dealers or agents who cannot sell you a separator equal to the Galloway—closest skimmer—easiest run—easiest cleaned—10-yr. guarantee. Send for BOOK FREE WM. GALLOWAY CO. 643 Galloway St., Waterloo, Ia.

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The only Silo on the market with the following important features: Silo doors on hinges. Continuous all-wood ladder. Triple beveled door and frame. Oval door frame and extra heavy hoops and lugs. Every stave beveled and hoops bent for exact diameter. Fully guaranteed. Write for 32-page Silo catalog. THE E. W. ROSS CO., Est. 1850, Box 14, Springfield, Ohio. We are Engineers at the business.

Up-to-Date Dairymen are using the Strite Governor Pulley for driving their cream separators. Life is too short to turn by hand. If it's a Strite, you're sure it's right. For full particulars, address Strite Governor Pulley Co., 303 Third St. So., Minneapolis, Minn.

BOWSER SWEEP MILLS

Different from all others. 4 or 2 horses. Geared 16 to 1 or 7 to 1. Grind Corn with shucks or without. And all small grains including Oats and Wheat. (Also make 7 sizes belt mills.) D.N.P. Bowsher Co., South Bend, Ind.

the ordinary cow weighing from 900 to 1,000 lbs. will consume from 30 to 40 lbs. of ensilage a day in two feeds. On this basis you can figure out, perhaps, what you ought to pay for the ensilage.

THE COST OF KEEPING A COW A YEAR.

Some weeks ago I noticed that a contributor to The Farmer gave a ration for a cow that costs 13½¢ a day, which, if fed the year round, would cost \$49.27. Another contributor makes the same ration cost 17¢ a day, which, if fed the year round, would cost \$62.05. This, he says, is a very cheap ration for a cow.

Now the first man figures the clover hay at \$5 a ton, and if he will tell me how he can afford to raise good, bright clover hay, such as a cow relishes, for \$5 a ton, he may hold my hat. Good, bright clover hay will usually sell for \$7 to \$8, and sometimes more.

I haven't a silo, so will have to figure the cost of cow's keep for a year from a different standpoint. A good-sized cow will eat three tons of good clover or timothy hay. She will eat 4 qts. of ground feed a day during the six months of winter. During early spring, summer and early fall she will eat just as much. Put her into two acres of pasture that would cut 1½ tons of hay to the acre and see how much there will be left of it.

Last summer I put two cows into six acres of pretty good pasture. I thought for a time there would be an abundance of feed, so turned in a span of horses for 10 nights. The drouth came on and I went to feeding oats in the bundle to keep the cows up to their milk.

As soon as the corn was tassel I commenced cutting barren stalks and feeding 3 or 4 big bundles a day. I fed stalks steadily from then to the close of the year, besides letting them pasture on 10 acres of rye. They did well on the rye. My two cows will have eaten the whole five acres of good cornstalks, besides 3½ acres that grew nothing but nubbins, by the time there is good pasture.

A cow, if fed the first ration referred to a year, would eat seven tons and 600 lbs. of ensilage, 1,460 lbs. of oil meal and 3,650 lbs. of clover hay.

I don't think that writer's way any cheaper than mine. His figures are none too high. My figures are \$45.65 a year to feed and care for a cow.

Clinton Co. M. A. DUNNING.

THE VALUE OF MOLASSES FEEDS.

The writer while visiting the south a few years ago visited the many sugar cane plantations with the view to learning the use made of the lower grade of molasses.

For many years this product was thrown away, but during this period the enormous growth of dairying increased with the daily increasing demand for dairy products. More cows made a call for more feed until the by-products of wheat and mixed feeds used for cattle, were not equal to the consumption; the demand more than equalled the supply, which condition increased prices to a prohibitive point. To add to this condition, foreign countries demanded export wheat and in the meantime countries erected flour mills of their own, shutting off export trade to a large degree on flour. This condition caused a still greater shortage of our wheat feeds, as the wheat was leaving the country and the non-milling of American flour for foreign consumption cut down our supply of wheat feed.

Facing this serious condition it devolved upon our chemists to discover an output for this embarrassing situation and to find what is called the balanced ration in a molasses feed, using the waste molasses, which was heretofore thrown away. With the molasses they combined a ration of distillers' grains, sprouts, brewers' grains and cottonseed meal according to their relative value and analysis, reducing the cost and attaining success by mixing said ingredients in a balanced ration that is kiln dried and yet a molasses feed, containing more milk-making elements than wheat feeds.

After perfecting this ration mills were erected to supply the enormous demand for this feed at a price whereby a farmer could obtain better results at less cost for his feeds, supplying the increasing demand from all over the country.

A trial will convince you of the value in feeding it. You will see a big difference in your monthly feed bill and the increased milk check. The story is told at both ends. The writer is a farmer

from Orange Co., N. Y., a phenomenal dairy section, where the large majority of short haul milk is sent to New York City. In this county molasses feeds have long been the farmer's boon companions and hundreds of tons are consumed yearly.

New York.

FARMER.

OBJECTS OF THE OAKLAND CO. DAIRYMEN'S ASSOCIATION.

The Oakland County Milk Dealers' Association, a flourishing organization of some 700 farmers, organized for the better protection of their own interests and efficient service to their patrons and the consumers, has been languishing a little recently, owing to a lack of proper understanding among quite a number of milk producers concerning its objects, aims and benefits. It may be briefly stated that the two leading aims are to secure a steady market and the best possible price for its product, and the lowest possible transportation or freight rates to its market. Also by a thorough organization of all the farmers or milk producers of the county to prevent rate cutting and enhance the quality and value of its product and render uniform satisfaction to its consumers. The united strength of all the producers of the county can secure these desirable results and maintain them. As the case now stands the farmer is getting decidedly the worst of it, being at the mercy of the milk peddler, who gets his milk at an average of 13¢ per gallon and retails it at 32¢ per gallon. The retailer is making 100 per cent profit and the farmer is barely getting the cost of his product. A more equitable rate can be secured and maintained from the retailer by a thorough and judicious organization.

As a further illustration of the benefits of the union the fact is cited that a few months since the freight rate per can was raised from 10¢ to 15¢. The union protested and appealed to the railroad commission at Lansing, with the result that the 10¢ rate was restored, a saving of \$800 per annum to one platform alone.

In union there is strength, action and equity. Without it the farmer lacks the necessary protection and a reasonable "live and let live" price for his product and labor.

Oakland Co. TROY FARMER.

YEAR'S WORK OF A GOOD HERD.

The following is the record of my herd of 12 cows for year beginning Jan. 1, 1908, and ending Jan. 1, 1909:

No. of Cow.	Lbs. Milk.	Av'ge. Test.	Lbs. Butter-fat.
1	9,012	4.4	396.52
2	9,333	4.8	447.98
3	7,692	4.8	379.21
4	9,229	4.4	406.07
5	6,044	4.4	265.93
6	7,562	4.0	302.48
7	7,078	4.4	311.43
8	8,058	3.6	290.08
9	7,649	3.8	290.70
10	5,198	4.0	207.72
11	5,359	4.8	267.28
12	4,852	5.0	242.60

Nos. 10, 11 and 12 were 2-year-old heifers with first calf.

The average yield of butter-fat was 317.33 lbs., and the average cost of feed per cow was \$45.

Mecosta Co. D. W. KUHN.

Many a fruit grower has had his profits increased four and five fold by spraying, but there are still a large number who do not seem to realize its value. Systematic spraying is the only way to get sure results in fruit growing. A good pump and practical preparations are a necessity to successful work. The Deming Company, of Salem, Ohio, manufacture 24 styles of spray pumps and issue a book, "Spraying for Profit," which they will send anywhere for 4¢ in postage stamps. This book gives practical instructions and was written by a prominent entomologist. The Deming Company will be glad to send their catalogue, which contains a 12-page spraying chart, free of charge, if desired.

Your Boy Can Operate the Kraus.

It is the one perfect cultivator. It is most easily operated. Your boy can work with the Kraus Pivot Axle Sulky Cultivator all day long and be unwearied at night. If he is old enough to drive he can operate the Kraus. The Kraus is an innovation in cultivator manufacture. The pivot axle does it. It's fun for the boy. The Kraus is of simple construction, made of steel and malleable iron, all parts (accessible) interchangeable—most durable cultivator in the world. Light draft, easy on your horses, adapted to hillsides, crooked rows and uneven ground. Depth of cultivation adjusted while machine is in motion. Before you buy, investigate the Kraus. It is in a class by itself. Write Akron Cultivator Co., Dept. 12, Akron, Ohio, for descriptive matter.

Would say the sewing machine I received is all right and is perfectly satisfactory; does lovely work and is a better finished machine than I expected.—N. J. Custer, Monroe, Mich.

TRADE IN YOUR INFERIOR SEPARATORS

15,000 American users of poor or worn-out separators traded them in last year on account of new

DE LAVAL CREAM SEPARATORS

and there are doubtless many more owners of such machines who will be glad to know that while such old machines have no actual value the DE LAVAL Company continues to make liberal "trade" allowances for them because of the opportunity such exchanges afford for the most practical illustration possible of the difference between good and poor separators and putting a stop to the sale of others like them in the same neighborhood. Nobody is injured through the re-sale of these old machines as they are simply broken up and "scrapped" for their old metal value.

Then there are many thousands of DE LAVAL users who should know that they may exchange their out-of-date machines of from 10 to 25 years ago for the much improved, closer skimming, easier running and larger capacity machines of today.

Write in a description of your old machine—name, size and serial number—or see your DE LAVAL agent.

THE DE LAVAL SEPARATOR CO.

42 E. MADISON STREET
CHICAGO
1213 & 1215 FILBERT ST.
PHILADELPHIA
DRUM & SACRAMENTO STS.
SAN FRANCISCO

General Offices:
165-167 BROADWAY
NEW YORK.

173-177 WILLIAM STREET
MONTREAL
14 & 16 PRINCESS STREET
WINNIPEG
107 FIRST STREET
PORTLAND, OREG.

See and Know
What You Are
Getting Before
You Pay

This Quality Separator
Made in Michigan

At a Price To Suit You
Absolutely
Guaranteed

DON'T take chances on so important a deal as buying a cream separator. Remember—not only the price of the machine is at stake. Your dairy profits for years to come—and your time and labor, twice a day, 365 days in the year, are also at stake. And it's not all in the price. You know that. Then go to your good dealers and examine and test the Omega Cream Separator. There you'll find Quality. The Omega couldn't be made better if you were willing to pay double the price. And you don't pay out your money on faith and "catalog talk" when you buy an

OMEGA Cream Separator

Our Guarantee

has no strings to it. It states, frankly without quibble that the Omega must be exactly as represented or you can send it back.

The Good Dealer

will give you the same guarantee on the Omega—so you'll have a man on the spot who is responsible. If you want the separator that can't be beat for—

Close Skimming

—If you want the separator that is

Easiest to Clean Easiest to Turn

And if you want the separator that will give you

Longest Service

and perfect service for years to come, then let the good dealer prove to you that

IT IS THE OMEGA YOU WANT

The good dealer proves before your eyes, every dollar's worth of value before you pay a penny. Then he adds his guarantee to our guarantee—and he is there, on the spot, when you want him in case of any disappointment.

He is willing to take that responsibility because he knows that you couldn't get another separator at any price that skims closer, is so easy to keep perfectly clean, so easy to turn, and will keep running smoothly for so many years. In short, he knows that the Omega will satisfy you because he knows it will increase your profits more and save you more work than any other separator you can buy.

A 17-Year Test

is long enough to prove durability, isn't it? The first Omegas were sold then. They are making money and saving work for their users today. Write for name and addresses.

The Omega
Separator Co.
Lansing, Mich.

Book
On
Butter
Fat
Free



Write Today For Our
Helpful Dairy Books

WHITMAN'S

NEW MODEL STEEL BEAUTY HAY PRESS

NEVER FAILS



A complete line of power balers, hay, paper, wool, shavings, cotton hull and compress presses. Our success with this machine has been simply marvelous. Thorough tests convince us that it is absolutely correct in principle. It is built entirely of steel. Has low bridge for horses to walk over, and no pull of team in crossing. Has large feed opening and long bale chamber. Warranted in every particular. We also make a full line of Balers. For full information address the manufacturers.

THE WHITMAN AGRICULTURAL COMPANY, 6905 S. Broadway, St. Louis, Mo.

PURE MILK AS A TEMPERANCE FACTOR.

For years the people of this country have put up a strong fight on the temperance question, and during later years the women, who are by far the greatest sufferers, have joined in the fight. With what success? I am sorry to say not so great as it ought to be considering the cause they are fighting for. And why? For one reason, because they have not given to the drinking world something to take the place of the drink that is ruining so many homes. What can take its place? Good pure milk. Not the kind that is carried about thru the dust and heat of the day, and then emptied into other cans, many of them unfit for swill, let alone milk, which is the most sensitive food to its surroundings we have. It is put into open dishes in a refrigerator with all kinds of food, when it should be sealed and given a place next to the ice in warm weather, and a cold place in winter.

Eight years ago, when thinking over this very question, we asked the proprietor of a combined restaurant and saloon to let us put in some pure aerated Jersey milk at his lunch counter. At first he scouted the idea, but on our persistence he allowed us to make the trial. The first week but six bottles were sold. The next the number was doubled, and from that small beginning we have established a trade in that one place of from seven to fifteen dozen pint bottles daily. Of course, the summer trade is the largest, in milk as well as in beer.

This milk is prepared in the best way possible to ensure its purity and good quality. After it has been milked and strained, it is again strained into an aerator thru four thicknesses of cheese cloth and passes over the aerator in a fine spray to remove the barn odors, and to cool it down, for the aerator is filled with ice water, kept in constant motion to send the cold to the outside when the milk passes over. This is again strained into the bottling can, and from there drawn immediately into the bottles and sealed with paraffined caps. These are crated in dozens and put into the refrigerator until delivered at the place of sale, and there kept on ice until sold. The temperature of the milk when bottled is 40 degrees and, even without the use of ice, will keep at least twelve hours longer in the hottest weather than ordinary milk. The cream line on this milk will reach nearly one-third of the way down the bottle. This milk is sold for five cents per bottle, which gives the merchant a good profit. In other places milk is sold at five cents a glass, but the conditions of its care and keeping are not at all to be desired, and one who is at all sensitive as to what is put into the stomach will have none of it.

Now, here is where the local Temperance Union shows itself at fault. When approached upon the subject its members would not put it on sale at their eating rooms, even when shown they could make a good profit as well as aid the cause for which they were working. Instead, they pay 15 cents a gallon for their milk which is delivered in an open can, and they keep it in open vessels in their ice box with everything else in the line of eatables. This is sold at three cents a glass and is utterly unfit for human consumption. In fact, I would take beer in preference to milk with such care and keeping.

The keeper of the restaurant we supply says that many men who formerly ran in for a glass of beer on hot days, now call for a bottle of milk in its place, since this is at once a perfect food and a gentle stimulant, with no evil after effects. Many traveling men say if they could always get good pure milk they would never touch any kind of liquor, but the change of water in going from place to place is so often unpleasant in its effects, that where a cold drink is desirable either beer or milk must take its place.

Again, where a man must (?) have, once in a while, his spree, good, pure milk will bring him out of it and set him on his feet sooner than any drugs or medicine. In sobering up such men from four to six quarts a day are used. This we know from experience, having had at various times more than one patient under treatment. So long as spirituous liquors are made they will be drunk. You may prohibit, or make the license so high that but few can sell it, but just as sure as it is made it will be sold, and a drunkard under high license is no better citizen or father than the one under any other conditions. If we cannot kill the worm at the still, then we must

give, in its place, some drink that will be both nourishing and stimulating, at a price within the reach of the poorest. At present pure certified milk seems to be the only thing within our reach. Who will take hold of the question in this way and "resist not evil but overcome it with good?"

Lenawee Co.

D. C. DEAN.

ERADICATING BOVINE TUBERCULOSIS.

The responsibility of the community and the individual in helping rid the state of animal tuberculosis was strongly brot out at the recent Round-up Institute by Dr. Marshall and others, as reported in the proceedings of that meeting last week. That the steady and unmistakable progress of this disease constitutes a serious menace, not only to the dairy and beef-producing interests of the country, but to the pork-producing industry as well is evident from the fact that the statistics of the U. S. Bureau of Animal Industry show over 430,000 tuberculous hogs to have been found by the government meat inspectors during the fiscal year 1907. These figures indicate the presence of tuberculosis upon many farms, and the fact that sooner or later certain localities will be discriminated against because of the large percentage of tuberculous animals received from them makes the question of the eradication of the disease one of vital concern to every community and to every owner of live stock. As bearing upon this question of individual responsibility, and re-inforcing the suggestions made at the Round-up meeting, we present below, the views of Dr. Burton Rogers, of the Kansas station, as expressed in a station publication during the past year:

Day after day in the great packing houses, there is found positive evidence that tuberculous germs are being scattered on certain farms from which tuberculous hogs and other animals come, and that there is positive need of the tuberculin test on these farms. If these animals were tagged, then the original owners would be brot face to face with a realization that they needed to do something.

That "something" would, in most cases, be an immediate test of the cattle with tuberculin, unless the stock was of such an inferior quality that the owner could immediately send every head to market for slaughter.

The second "something," after testing, would be to separate the tuberculous from the non-tuberculous, and then dispose of the tuberculous for immediate slaughter. In case some of the reacting ones were extremely valuable as breeding animals they should be controlled according to the Bang method, so that they would not transmit the disease, and yet transmit their good qualities until this latter period of usefulness had passed.

Another always necessary "something" is a thoro disinfection of all indoor quarters.

Tuberculin is by far the most satisfactory agent for detecting tuberculosis that exists, and this fact must not be lost sight of. The few mistakes are more ancient than modern. The experience of a large number of competent men, extending over a period of a great many years, has shown where former errors can now be easily avoided.

For this reason every farmer should seek for its immediate application. Its few mistakes do not near equal the grave crime of offering for sale the products of animals not tested at all. At the present time every native cow and bull ought to be considered tuberculous until proved otherwise by the tuberculin test.

Because some packers are gradually increasing the number of localities where they will not buy hogs or cattle at any price, there is need for farmers getting together and co-operating in an endeavor the tuberculin test; and then, co-operatively, to help those few who had or to eradicate tuberculosis from their several districts by means of unanimous agreements to tag their animals or apply tuberculin to replenish their herds for an amount almost equal to the proceeds from their condemned animals.

It may likewise be advisable to consider the advantages to be gained from appropriations to be devoted to reimbursement of the difference between the beef value and the actual living value of the very few animals which react to the tuberculin test, but which, after a very careful official veterinary post-mortem examination, fail to reveal any tuberculous lesions. Under such conditions there should be no opposition to a more

No Discarded or Abandoned Inventions of its Beaten Competitors are used in

THE IMPROVED

UNITED STATES SEPARATORS

THEY ARE IN A CLASS BY THEMSELVES

They use inventions of their own exclusively.

Do not utilize any type of separator ever developed by their "Would-be Competitors."

These "Would-be Competitors" claim the earth, but "word claims" do not give them the title.

These "Would-be Competitors" claim that Dr. DeLaval was the inventor of "the first practical continuous flow centrifugal Cream Separator," his application being filed "July 31, 1879, Patent issued, No. 247,804, Oct. 4, 1881." This statement is not true as shown by the records in the Patent Office. Messrs. Houston & Thomson (who afterward became famous in the electrical line) were the first to be awarded a patent on such an apparatus. Application filed Oct. 29, 1877. Patent issued April 5, 1881, No. 239,659.

This Houston & Thomson Separator was also of the "Bevel Gear" type and was for either hand or power, therefore the claim of our "Would-be Competitors" on this point is not correct.

The above are "Rock-of-Gibraltar-like" facts against which mere "word claims" by "Would-be Competitors" fade away like the mist of night before the rays of the morning sun."

We could enumerate a lot of things these "Would-be Competitors" claim, that are not in accordance with the facts or the records, "that fade away like the mists of night before the rays of the morning sun" of truth, but this is sufficient on this point for the present; we think, to convince all thoughtful readers that "word claims" do not have any weight in face of the facts.

These same "Would-be Competitors" claim their Separator is the Standard Cream Separator of the World, but they are not entitled to that "word claim," as the records show that the United States Separator beat them in the greatest contests ever held by any National or International Exposition.

In other advertisements they claim that "99½ per cent. of all expert creamery men, butter manufacturers, and real separator authorities living today use DeLaval Separators exclusively, for they have learned by experience that the DeLaval is the only separator that will save all the cream all the time under all conditions."

Now every reader of intelligence knows that is another "word claim" and is not true, because a very large percentage of the leading breeders, separator authorities, creamerymen and dairymen, use and recommend the United States Separator because it proved in the great contest with the DeLaval and others, that it excelled everything in fifty (50) consecutive runs lasting over one month on ten different breeds of cows; also in every day use it has maintained its superiority.

Please read the following letter and see for yourselves if this looks as though the "99½ per cent. word claim" is correct.

Poughkeepsie, N. Y., May 27, 1908.

In 1899 we introduced farm separators in our cream gathering system. Although we are within six miles of the DeLaval Separator's main works where all of their Separators are made, our patrons, after thorough investigation, preferred and purchased the U. S. Separators. There are about three U. S. Separators to every one of the DeLaval Separators used. Since we have started we have steadily increased our output. We get good prices for our butter, and feel proud of the record.

LaGRANGE CREAMERY,
H. R. HOYT, President.

Just think of it, Three United States Separators to every one of the DeLaval right under the shadow of their factory. Why? Because the United States is superior to all others in every feature of separator practicability. It is made stronger, runs easier, wears longer, skims closer. Send for Catalogue No. 111.

VERMONT FARM MACHINE CO.

BELLOWS FALLS, VT.

Warehouses in every dairy section of the United States and Canada.

SAVE 20c PER SHEEP



With the NEW STEWART SHEARING MACHINE With 4 combs & 4 cutters, only \$9.75
If you have but five sheep it will pay you to own this wonderful shearing machine. It does cut or hack sheep like hand shears, and gets one pound and over more wool per head. It shears any kind of wool easily and quickly. WE GUARANTEE IT FOR 25 YEARS. All gears are cut from solid metal, not cast; all wearing parts are file hard; spindles are ground and polished, and the driving mechanism is enclosed from dust and dirt and runs in oil. 95 per cent of all the shearing machines used in the world are Stewart patents. Send \$2.00 with your order and we will ship C.O.D. for the balance. Send for a copy of our free book "How to Shear Sheep," and our big new catalogue showing the largest line of shearing machines on earth. Write today. Chicago Flexible Shaft Co., 115 La Salle Avenue, Chicago

SHAKE-SHAKE-SHAKE-No Stopping It

YOU can buy any one of many kinds of common "bucket bowl" cream separators and be positively certain the "bucket bowl" will eventually shake itself to pieces. Or you can buy a Sharples Tubular Cream Separator and be positively certain it will never shake.

Here's the Reason:

COMMON "bucket bowl" separators have a heavy "bucket bowl" set heavy end up on top of a spindle which is held up by several bearings. The weight is above the bearings. Such bowls constantly try to tip sidewise. If they did not want to tip, why have bearings to hold them up? This tipping wears the bearings, allows the bowl to shake and eventually wracks the machine, causing expensive repairs or the purchase of a new machine. There is no way to prevent the "shakes" in common "bucket bowl" machines.

YOU can surely avoid a shaking separator by getting a Sharples 1909 Tubular "A". Sharples Separators are entirely different from all others. They have light bowls, hung below a single frictionless ball bearing. Being hung naturally, with their weight below the bearing, Sharples bowls can not and do not tip sidewise, shake or vibrate.

SHARPLES bowls run as smoothly after 20 years use as when new. Tubular "A" bowls weigh just about half as much as common "bucket bowls," yet wear many times as long.

SHARPLES Separators are the only kind with suspended bowls fed through the bottom—the only kind that do not get the "shakes." Our patents prevent others from making them.

SHARPLES Separators are made in the world's biggest, best equipped cream separator works. We have additional factories in Canada and Germany. 1908 sales were far ahead of 1907—way beyond any other make, if not all other makes combined.

The Sharples Separator Co.

Toronto, Can.
Winnipeg, Can.

WEST CHESTER, PENNA.
Chicago, Ill.

Portland, Ore.
San Francisco, Cal.

Write today for Catalog 152.



Sharples Separators are most easily and perfectly oiled. Simply pour a spoonful of oil right down among the enclosed, dust proof gears once a week. The lower gear wheel, when in motion, sprays the oil over the gears and the single, frictionless ball bearing supporting the bowl. Most convenient, insures perfect oiling with least attention, and adds wonderfully to the easier running and greater durability of Sharples Separators as compared to others.



Write For Our Free Book On CLEVELAND Cream Separators

Don't think of buying any cream separator until you get our new Free Catalog and investigate Cleveland Cream Separators which skim closest—are easiest to run—easiest to clean and are absolutely the most satisfactory separators you can use if you have 2 cows or more.



Here are a few of the reasons why we guarantee the "Cleveland" to be the most satisfactory Machine is ball bearing throughout, which makes it the easiest running. Bearings are of hardest steel, which makes it the most durable. Has aluminum skimming device, which makes the bowl sanitary and most durable. Is the most convenient machine, having a low milk reservoir. Has the greatest skimming efficiency of any separator. It is simple in construction, and has very few parts to handle. All bearings are self-adjusting, and never become loose. Is fully guaranteed. Practically no repairs on account of the hardened bearings, and few parts.

CLEVELAND CREAM SEPARATOR CO.
Whitney Power Block Cleveland, Ohio

Jack and Jennetts For Sale.



If you want a first class Jack or Jennett at the very lowest prices, visit our barns, for they are full of high class stock, and can sell them to you right, and save you the middleman's profit. All stock guaranteed. Send for my 25 reasons why it pays to raise mules. Address BAKER'S JACK FARM, Lawrence, Ind.

FOR SALE—Reg. Imported and home bred Clydesdales. Stallions, mares and fillies. Terms to suit purchaser. T. A. PETZ, R. F. D., Capac, Mich.

For Sale, Quick—Registered Percheron Stallion. Solid black, four years old. Brilliant bred, sound and sure, good style, lots of action. J. C. BUTLER, Portland, Mich.

Owl Brand Pure Cotton Seed Meal—Richest cattle feed on 49 Percent Protein and Fat. Write for book No. 11 and prices. F. W. BRODE & CO., Memphis, Tenn.

UNICORN DAIRY RATION—a new feed in Ready to Feed Form that every Farmer and Stock Raiser, should know all about. Robert M. Taylor, Towson, Md., says his milk output increased 25 gallons daily after feeding Unicorn. You can increase yours. Send for book, prices, etc. Write, CHAPIN & CO., Inc., Milwaukee, Wis.

CALVES Raise Them Without Milk. Booklet Free. J. E. BARTLETT CO., Jackson, Mich.

BREEDERS' DIRECTORY.

CATTLE.

ABERDEEN-ANGUS.

Herd headed by UNULATA BLACKBIRD 170 53836, one of the best sons of PRINCE ITO 50006, and Grand Champion Bull at the Detroit and Grand Rapids Fairs of 1907 and 1908. Herd consists of Erics, Blackbirds, Prides, etc. WOODCOTE STOCK FARM, Ionia, Mich.

ABERDEEN ANGUS bulls, cows, heifers. Polled Durhams, milk strain. Bargains, freight expenses to buyers of five head. CLOVER BLOSSOM FARM, Port Austin, Mich.

Ayrshire Calves for Sale. A choice lot of fall calves and a few yearling bulls, bred with greatest care. Berkshire Pigs—stock from Lovejoy & Son and C. S. Bartlett. Write for prices. Inspection solicited. MICHIGAN SCHOOL FOR THE DEAF, Flint, Mich.

Holstein-Friesians. HICKORY GROVE STOCK FARM, Owen Taft, Proprietor, R. 1, Oak Grove, Liv. Co., Michigan. Bell phone

HOLSTEIN FRIESIANS—A few fine bull calves sire Canary Mercedes Royal King. W. B. JONES, Oak Grove, R. No. 3, Mich.

EXTRA FINE—Holstein Bull calf sired by the breed—dam gave over 60 lbs. of milk a day only a little past 2 yrs. old. Big growthy calf, beautifully marked. C. D. WOODBURY, East Lansing, Mich.

TOP NOTCH HOLSTEINS

We have "Top Notch" young Holstein Bulls that combine in themselves the blood of cows that now hold, and in the past have held, world's records for milk and butter fat.

One of them could impart the rare qualities of these great ancestors to all their offspring in your herd. Great nominal considering benefit secured. Why not "build up"? "The Best" is cheapest. McPHERSON FARMS CO., Howell, Mich.

HOLSTEINS—Yearling bulls all sold. Have a few well bred bull calves yet for sale. I. M. SHORMAN, Fowlerville, Mich., R. D. & Phone

HOLSTEIN BULLS. One 15 mo. old, A. R. O. One 10 mo., one 7 mo., four 3 weeks to 2 mo. old. Buy a good one, worth the money. Write quick. I want to sell every one of these before the 20th. L. E. CONNELL, Fayette, Ohio.

HEREFORDS—Both sexes and all ages for sale. Also Poland-China hogs. R. E. ALLEN, Paw Paw, Mich.

HOLSTEIN Bull at farmers' prices. 2 years old, a good strong, vigorous and handsomely marked descendant of old Paul De Kol. Write for price and pedigree. A. M. OSBORN, R. 29, Climax, Mich.

JERSEY BULLS READY FOR SERVICE. Three young bulls ready for spring service, out of good cows with records of 400 to 500 pounds of butter in a year with only ordinary care. Also a fine lot of young calves. Write for description and prices. COLON C. LILLIE, Coopersville, Mich.

RED POLLED BULLS, from 6 to 15 months old, bred from good milking sows. John Berner & Son, Grand Ledge, Michigan.

Northern Crown Jerseys. ROYCROFT FARM, Sidnaw, Mich.

JERSEY BULL CALF, born March 10, '08. Dam's average yearly milk record 5 years 8526 lbs.; test 5 4-10 g. Sire's Dams rec. 10062 lbs. as 2-year-old test 5 2-10 g. Murray-Waterman Co., Ann Arbor, Mich. R. 6.

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

CHOICE JERSEYS. Large St. Lamberts. Young stock of either sex for sale. CLARENCE BRISTOL, R. No. 2, Fenton, Mich.

HAVE A CUSTOMER for twenty yearling registered SHORTHORN BULLS. No fancy prices. BOYDEN and FIFIELD, Sta. A, Bay City, Mich.

WOODLAND SHORTHORNS Apricot, Aldrie Duchess, Hudson Duchess, and Kenn Duchess families. Both sexes and all ages for sale. Priced to sell and sell quick. MEYER BROS., R. 7, Howell, Michigan.

Francisco Farm Shorthorns Our foundation stock comes from several of the best herds in the country. Nothing for sale at present. P. P. POPE, Mt. Pleasant, Michigan.

J. B. CROUSE STOCK FARM, HARTLAND, MICH., breeder of SHORTHORN CATTLE. Have all ages, both sexes. Color—reds and roans. Quality and prices right.

SHEEP.

ERDENHEIM FARM SHROPSHIRE EDWIN S. GEORGE, Owner. Rams and Ewes for Sale.

WRITE FOR PRICES TO ROBERT GROVES, Shepherd, R. F. D. No. 3, Pontiac, Mich.

SHROPSHIRE HALL STOCK FARM. Will make special prices for thirty days, on ewes from 1 to 3 years old, all bred to imported Cooper, and Mansell rams to lamb in March and April, also on very choice ewe lambs, this is to make room for importation that is going to arrive this spring. L. S. DUNHAM & SONS, Concord, Michigan.

SHROP. BREEDING Ewes bred to high class rams very cheap now. Also Beef-Milk Shorthorns, and P. C. Swine. M. B. Turkeys. Write today for price list F. Maplewood Stock Farm, Allegan, Mich.

GO INTO SHEEP RAISING

Buy of Michigan's Largest Breeder of good sheep. Romeyn C. Parsons, Grand Ledge, Mich.

RAMBOUILLET—Flock founded 1892 with 40 ewes selected from one hundred registered ewes of the best breeding possible. J. Q. A. COOK, Morrice, Mich.

HOGS.

CHOICE FALL GILTS and boar pigs. Right breeding and prices right. Also a few aged sows bred for spring farrow. A. A. Pattullo, Deckerville, Mich.

BERKSHIRES—Sows bred to Longfellow's Duke, and our new herd boar Prime Bacon 98611, a great son of the noted Lord Bacon, and of intense Masterpiece breeding. Guernseys, M. B. Tukeys, B. Fly, Rocks, Pekin Ducks. Hupp Farms, Birmingham, Mich. G. C. Hupp, Mgr.

NORTHERN GROWN BERKSHIRES. ROYCROFT FARM, Sidnaw, Mich.

DAMS BROS. IMPROVED CHESTER WHITES, Litchfield, Mich., A won more premiums in '08 than any other herd in Michigan. Stock all ages for sale. Prize winning W. Orpington, W. Leghorn and Buff Rock eggs, \$1 per 15. Shorthorn bulls & heifers

CHESTER WHITES—Fall pigs, either sex, \$12. Spring pigs \$8. Will breed gilts for September farrow for \$20. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

CHESTER WHITES—A few choice young sows bred for April farrow. Also fall pigs either sex. Orders booked for June delivery. W. O. WILSON, Okemos, Mich.

Duroc Jerseys—Boars ready for service, sows for spring farrow. Pigs at weaning shipped c. o. d. if desired. L. R. Kune, Adrian, Mich. Phone 131.

Durob Jerseys—Nothing for sale at present. CAREY U. EDMONDS, Hastings, Mich.

Duroc Jersey of size and quality. 40 Boars ready for service. 50 sows at Farmers Prices. Satisfaction Guaranteed. J. C. Barney, Coldwater, Mich.

O. I. C. "PREMIUM STOCK" Choice Aug. boars and gilts. Extra quality and size. Glenwood Stock Farm—OPHOLT BROS., Zeeland, Michigan, R. 6. Phone 94.

O. I. C's—ALL AGES. Thirty sows bred for spring farrow. Shipped on approval. H. H. JUMP, Munith, Mich.

O. I. C. Spring boars all sold have a few choice gilts left to be bred for spring farrow. Satisfaction guaranteed or your money back. A. NEWMAN, R. No. 1, Marlette, Mich.

O. I. C. swine very prolific. My herd is headed with a grand son of Jackson Chief, the world's Champion and Grand Champion, the greatest O. I. C. boar in the world, also a Grand son of Tutey second, the world champion sow. Place your order now for spring pigs. A. J. GORDEN, R. No. 2, Dorris, Mich.

P. C. Sows All Sold. 10 heavy, boned boars ready for service. One choice registered RED POLL COW, with fine bull by side. BUFF ROCK COCKERELS at \$1 and \$2, as long as they last. Write today for what you want. WM. WAFFLE, Jr., Coldwater, Michigan.

FRANCISCO FARM POLAND-CHINAS. Boars and sows all cleaned up. Am booking orders for spring pigs. P. P. POPE, Mt. Pleasant, Mich.

HEAVY BONED Poland-China fall and yearling boars at bargain. B. P. Rock eggs \$1 per 15. Robert Neve, Pierson, Mich.

P. C. SOWS—Extra choice, bred for Apr. farrow. No quarantine on us. WOOD & SONS, Saline, Mich.

POLAND CHINA GILTS—Bred for April farrow, good breeding, size and bone; fall pigs. E. D. BISHOP, Route 38, Lake Odessa, Mich.

Large English Yorkshires. Some splendid fall pigs of either sex at \$12 each. Also a fine lot of spring pigs at \$8 each. Will breed gilts for fall farrow at \$20. Satisfaction guaranteed. COLON C. LILLIE, Coopersville, Mich.

general application of the tuberculin test voluntarily.

But farmers, packers, consumers and legislators should realize that there should be no procrastination on the farms from which tuberculous animals are coming.

Animal tuberculous eradication is a work in which every farmer has his little individual share to do in order to bring about the grand ideal condition for export trade, thus maintaining our reputation at home and abroad, and the time to do it is now.

ROOTS VS. SILAGE FOR COWS.

I would like to ask a few questions in regard to roots for milch cows. One of my neighbors tells me he read in some farm paper where they made a test of roots and ensilage. He said the roots were ahead of ensilage. I never supposed they were as good as ensilage. Will you kindly tell me thru your paper if you know of any such test?

Gladwin Co. W. H. SNYDER.

There is very little difference between roots and silage, pound for pound of dry matter. Careful experiments have been made at the Ohio, Pennsylvania and Vermont stations with corn silage and beets, and in one trial at the Pennsylvania station there was a slight difference in favor of the beets. On the average, however, for all the experiments made, corn silage is about 3 per cent ahead. This, you understand, is comparing the food value of the dry matter of corn silage and beets. Now when we take into consideration the increased amount of dry matter that can be produced on an acre of corn silage over that which can be produced on an acre of beets, it makes corn silage a much more profitable crop for the farmer to grow for his cows than roots. Not only that, but it costs more to grow an acre of roots than it does an acre of silage. The Pennsylvania station estimates that an acre of corn could be grown and put into the silo for \$21.12, while to grow and house an acre of beets cost \$56.70. At the Ohio station Professor Thorne reports that an acre of beets harvesting 15% tons and containing 3,000 lbs. of dry matter cost as much as an acre of corn yielding 57 bu. of grain and containing 6,000 lbs. of dry matter. Hence the great disadvantage of roots in competition with corn silage is here made very apparent.

GROWING PEAS AND OATS FOR COWS.

I receive some valuable information thru your paper and I wish to ask a few questions in regard to oats and peas sown together for a grain ration for cows. When should peas be sown? What kind of peas are best for this purpose? How many oats are sown per acre? also, how many peas? Do the pea vines become ripe enough to cut by the time the oats are ripe and will they cure out in the oat bundles? Can the peas and oats be threshed with an ordinary wheat and oat threshing machine? About how many bushels of this mixed grain are produced per acre where oats go about 30 bu. per acre alone?

Kalamazoo Co. J. B. WHITLOCK.

Peas and oats for grain should be sown as early in the spring as the land will do to work. In fact, they ought to be the first crop put in. Common Canada field peas is the right variety or kind of peas to be used with oats where grown as a grain ration for cows to balance up the other ration grown on the farm. Equal parts of seed by measure is about the right proportion to sow where you want to harvest them for grain. But if you want to cut them as you would clover and make hay out of them, then I would sow equal parts by weight. In the first instance, where you grow for the grain, you have more peas, which is the food wanted because it is rich in protein. In the second instance you get more forage because you get a greater growth of oats. Sown practically at the same time they will ripen near enough together so that they can be cut without any trouble and they can be cut fairly green with a self-binder. Then if they are set up in round shocks, and well capped they will cure out nicely and, when cured in this way, the straw after it is threshed makes pretty good feed for cows. I should say that if your land will not grow over 30 bu. of oats to the acre you cannot expect a very large yield of peas and oats unless you fertilize it well.

The Michigan Farmer Sells Shorthorns. Dawson & Son, Sandusky, Mich., who have been advertising Shorthorns, write us to take their advertisement out of the Michigan Farmer as they are all sold out.

I got a watch of you last spring and it keeps good time.—Walter Hyatt, Big Rapids, Mich.

A SQUARE-DEAL

Is assured you when you buy Dr. Pierce's family medicines—for all the ingredients entering into them are printed on the bottle-wrappers and these are attested under oath as being complete and correct. You know just what you are paying for and that the ingredients are gathered from Nature's laboratory, being selected from the most valuable native medicinal roots found growing in our American forests and while potent to cure are perfectly harmless—even to the most delicate women and children.

Not a drop of alcohol enters into their composition. A much better agent is used both for extracting and preserving the medicinal principles in them, viz.—pure triple-refined glycerine. This agent possesses intrinsic medicinal properties of its own, being a most valuable antiseptic and antiferment, nutritive and soothing demulcent.

Glycerine plays an important part in Dr. Pierce's Golden Medical Discovery in the cure of indigestion, dyspepsia and weak stomach, attended by sour risings, heart-burn, foul breath, coated tongue, poor appetite, gnawing feeling in stomach, biliousness and kindred derangements of the stomach, liver and bowels.

Besides curing all the above distressing ailments, the "Golden Medical Discovery" is a specific for all diseases of the mucous membranes, as catarrh, whether of the nasal passages or of the stomach, bowels or other organs. Even in its ulcerative stages it will yield to this sovereign remedy if its use be persevered in. In Chronic Catarrh of the Nasal passages, it is well, while taking the "Golden Medical Discovery" for the necessary constitutional treatment, to cleanse the passages freely two or three times a day with Dr. Sage's Catarrh Remedy. This thorough course of treatment generally cures even the worst cases.

In coughs and hoarseness caused by bronchial, throat and lung affections, except consumption, the "Golden Medical Discovery" is a most efficient remedy, especially in those obstinate, hang-on-coughs caused by irritation and congestion of the bronchial mucous membranes. The "Discovery" is not so good for acute coughs arising from sudden colds, nor must it be expected to cure consumption in its advanced stages—no medicine will do that—but for all the obstinate, chronic coughs, which, if neglected, or badly treated, lead up to consumption, it is the best medicine that can be taken.

To find out more about the above mentioned diseases and all about the body in health and disease, get the Common Sense Medical Adviser—the People's Schoolmaster in Medicine—revised and up-to-date book of 1000 pages—which treats of diseased conditions and the practical, successful treatment thereof. Cloth-bound sent post-paid on receipt of 31 cents in one-cent stamps to pay cost of mailing only. Address Dr. R. V. Pierce, Buffalo, N. Y.



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We have thousands of testimonials from users of the **New Iowa**. Many of them state they have used other makes before purchasing a **New Iowa** and that they would not use a cheap machine again if it was given to them. We want to show you that there is a great difference between a good and a poor separator. We cannot do this here and we want you to write for our catalog which will explain in detail how a cream separator should be built to be durable. It is free for the asking. We will also send you testimonials and reports from State Experiment Stations showing that the **New Iowa** beats all her competitors in skimming. More than this we will prove to you right on your own farm that the **New Iowa** is the best machine on the market. Do not purchase any other machine until you write us. A postal will do. Send it today.

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Address all correspondence relative to the organization of new Clubs to Mrs. W. L. Cheney, Mason, Mich.

Associational Motto.—

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

Associational Sentiment.—

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

THE HOUSEWORK PROBLEM.

Paper read by Mrs. Olive Harrington at a recent meeting of the Napoleon Farmers' Club, of Jackson Co.

The best way to do housework with the least hard labor, is a subject I have been obliged to study for some time. Possibly some of the methods I use may help someone else. The one thing that has been the most help to me is order. A place for everything and everything in its place, and this is not hard to do if we form the habit, then stick to it. It is just as easy to put a thing where it belongs, as to throw it down, and then have to pick it up again, or hunt for it. All closets and cupboards should be kept neat and tidy.

If I have any article around the house I cannot find a place for, such as newspapers, paper sacks, strings, men's gloves, washcloths, and all such things, so handy to use, yet always in the way. I study on it until I can make a place, or receptacle for them.

I would wash all dishes as soon as possible after using, as they wash easier, and are then out of the way. There is nothing more discouraging than a pile of dirty dishes, left from one meal to another.

In baking bread I would be careful about the yeast, not to make too large an amount at a time. If we have good fresh yeast, and good flour, we can feel pretty sure the bread will be all right. And that is the main thing, if we have sweet, light bread we can get along. I like to keep cookies, and fried cakes, one or both, on hand, as they keep well and are nice for any meal. Then by making a cake, and a pie or pudding, once or twice a week we have the foundation for meals without constantly baking. But if company happens to come and everything is out but the bread, don't cook, and work in the kitchen all the time they are there, and make them wish they had stayed at home. Get what you have on hand, cook some meat and potatoes and open some of your choice canned fruit and pickles, and make them welcome. They will not miss the pie and cake, but will want to come again.

All washing should be well and thoroughly done, but the ironing, with the exception of fine or starched things, may be slighted, or even folded smoothly and laid away without ironing at all. I never put a garment away that needs mending, but keep them in plain sight so I will be sure to remember them. I would keep the sweeping done if I could, but with a good sweeper one can get along two or three weeks without a thorough sweeping, and with a little care there need not be much dusting. I do not think it is necessary to work all the time, and there is nothing so restful as an hour spent with a good book or magazine.

We are never too old to learn and by thinking and planning, we can save ourselves in many ways, and still keep the home work running smoothly.

CLUB DISCUSSIONS.

The Sherman Farmers' Club held its February meeting March 6th, at the home of Mr. and Mrs. W. E. Carter, the meeting being two weeks late on account of the illness of one of our members. A good time was enjoyed, about 40 being present to partake of the good dinner that was prepared by the ladies. The discussion was mostly on the subject, "When is the best time to plow for corn, in the fall or spring?" The suggestion which was left over from our January meeting about holding a penny collection to buy flowers for the sick, was endorsed for the first time by this club, and a sick committee appointed consisting of Mr. Ray Splitstone and Mr. and Mrs. Jacob Kemperman, to serve for three months. The program consisted of songs

and recitations, and was enjoyed by all. An invitation to meet at the home of Mr. and Mrs. Judson Lyons, March 27, was accepted and the club adjourned.—Mrs. L. Kemperman, Cor. Sec.

Discuss Postal Savings Bank.—At a recent meeting of the Union Farmers' Club, of Oakland Co., with Mr. and Mrs. Frank Eaton, the first question discussed was, "Do we need the postal savings bank, and why?" J. B. Fuller opened the question. He thought it would be a great benefit, especially to the class of people who are afraid of banks, but would not be afraid to deposit with the government. It would bring most of the money of the country into circulation and thus help to avoid panic. C. E. Dunston, in the discussion virtually agreed with Mr. Fuller. Fayette Grant thought it would open the way for government guarantee for all banks, W. M. Horton thought as they only pay two per cent they could not really compete with other banks, that that they would encourage thrift and economy among the people. Said that in the eastern states where there were savings banks every other person had a deposit, while in the states which have no such banks there was only one deposit for every one hundred and fifty of the inhabitants.

The Country School as a Social Center.—"What is our country school as a social center and what can we do to improve it?" was a question assigned to Mrs. J. Snyder. She called the country school the social center and equalizer and spoke of the old days when the whole district met at the school house at spelling, writing and arithmetic schools and debating societies. That it could be improved if the patrons would visit their school and study its particular needs. Mrs. Holmes would improve it by adding a manual training room for the use of the boys and girls. The question was further discussed by Mrs. J. B. Fuller, Fayette Grant and others. After the completion of an interesting program the club adjourned to meet with Mr. and Mrs. W. Stowe on the last Friday in March.—Cor. Sec.

Active in Institute Work.—At the Round-Up Farmers' Institute of Tuscola county, held in the court house in Caro, A. J. Busch, of the Ellington-Almers Farmers' Club, was local manager, and many creditable numbers of discussions were assigned to this club, and again in this much have we fulfilled instructions of our state secretary. D. K. Hanna was chosen president for 1910. The ladies' section was also very attractive, and pronounced by many the best ever. Mrs. C. L. Wright was chosen president for 1910.—Cor. Sec.

GRANGE

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

THE GRANGE AND YOUNG PEOPLE.—II.

"Lack of local leadership among our young people seems to be the unsurmountable barrier," says one who is trying to get certain young people enlisted in a movement for their own betterment. These young people want to enlist, but they do not know how. They lack initiative.

Why should one expect to find leaders among these young people? Have they

Grange, or dropped out? If they dropped out, why did they do so? Were they given something to do, "kept busy," or were older persons, who would not miss a Grange meeting under any condition, elected to all the offices? When the program hour came, were these boys and girls called upon to give their opinions on any subject, from raising calves and colts to the merits of Taft and his cabinet? Were they in any way referred to as authorities on dates of important events, or asked to discuss the serving of the refreshments, the lining up of the debating team, or the selection of seed corn? Were they put in charge of a committee, or a portion of the lecture hour, or any enterprise proposed for the Grange? Were they asked to suggest bright or new plans for the Grange, now and then? Or, instead of these, were older men and women called upon to their exclusion, perhaps because they held back the first time they were asked and did not seek the privilege for themselves later?

Far be it from me to intimate that all Granges ignore or fail to study to draw their young people into the activities of their Granges. I know better than that. I know all do not. But the above remark, and some other things seen and heard during the past winter, have set me to thinking until now I ask the question, "Is not the desirable spirit in age the one that delights in sharing with others those exercises and duties that develop men and women of accountability and capability?"

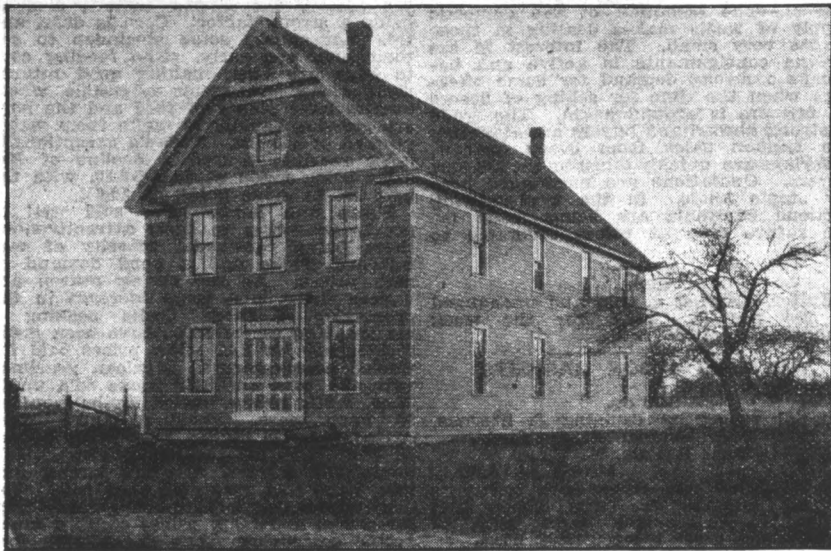
JENNIE BUELL.

AMONG THE LIVE GRANGES.

New U. P. Grange.—Since Dec. 1, of last year, State Deputy John F. Wilde, of Ottawa Co., has organized 13 Granges in the Upper Peninsula. The latest is Thompson Grange, located in Thompson township, Schoolcraft Co. The officers of this new organization are the following: Master, Henry Van Gorder; overseer, J. Severs; lecturer, Mrs. H. Van Gorder; steward, Joseph Nelson; asst. steward, Gustave Sellamen; lady asst. steward, Mrs. E. Severs; chaplain, Andrew Nelson; treasurer, Herbert Engbretsen; secretary, E. Severs; gatekeeper, Napoleon Dufour; Ceres, Mary Thompson; Pomona, Julia Dufour; Flora, Mrs. J. Young.

The County Road System was discussed at some length by the members of Marion Center Grange, of Charlevoix Co., at a meeting held March 3. The consensus of opinion was that the adoption of this plan would not only bring about a material improvement in the roads of the county, but that it would prove far more economical than the system in use at present.

Isabella Grange.—Deputy John Wilde has invaded Delta Co. and on March 13 organized a Grange at Isabella in Nahma township, with 22 charter members and the following officers: Master, Bert Paterson; overseer, J. Landis; lecturer, Helen McClellan; steward, John Wester; asst. steward, Fred Bousla; lady asst. steward, Minnie Nedow; chaplain, Emma Peterson; treasurer, F. R. McClellan; secretary, Chas. H. Snow; gatekeeper,



Hall of Stony Creek Grange, No. 51, Washtenaw County.

This hall was dedicated February 6, 1901, and cleared of indebtedness, February 6, 1909. Organized in 1873, this Grange still has six charter members living, three of whom were present with the large gathering which congregated to congratulate and celebrate paying the

last charge against their Grange Home. ever been put in places where they had to lead? Where others depended upon them? Where they received credit if they "made good?" Where there was a demand for them to "try their metal" a little bit more than it had ever been tested before in the way of bearing responsibility?

Let us suppose there is a Grange in the community where these young people live. That is generally looked upon as a developer of leadership, isn't it? Are these young people members? If they ever have been, have they stayed by the

George Reinwent; Ceres, Viola Snow; Pomona, Anna Reinwent; Flora, Mary Burgols.

COMING EVENTS.

Pomona Meetings.

Western Pomona, (Ottawa Co.), at Hudsonville, Thursday and Friday, Mar. 25 and 26. Mrs. O. J. C. Woodman, state speaker.

Lapeer Co., with Union Grange, in Attica village, Friday, April 2. Master N. P. Hull, state speaker.

Kent Co., with Oakfield Grange, Wednesday, June 23. Miss Jennie Buell, state speaker.

The Fountain Head of Life is The Stomach

A man who has a weak and impaired stomach and who does not properly digest his food will soon find that his blood has become weak and impoverished, and that his whole body is improperly and insufficiently nourished.



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This "Discovery" is a pure, glyceric extract of American medical roots, absolutely free from alcohol and all injurious, habit-forming drugs. All its ingredients are printed on its wrappers. It has no relationship with secret nostrums. Its every ingredient is endorsed by the leaders in all the schools of medicine. Don't accept a secret nostrum as a substitute for this time-proven remedy of known composition. ASK YOUR NEIGHBORS. They must know of many cures made by it during past 40 years, right in your own neighborhood. World's Dispensary Medical Association, Dr. R. V. Pierce, Pres., Buffalo, N. Y.

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A delight to the farmer. Works so easily, operator is always in a good humor. The horses furnish the power. Wheels and shovels act together. The driver merely guides. A slight foot pressure, with no lost motion, moves the wheels and shovels simultaneously to the right or left. Responds to pressure as easily as piano keys. Width between gangs and depth of shovels instantly and easily adjusted while machine is in motion.

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MARKETS

DETROIT WHOLESALE MARKETS.

Grain and Seeds.

March 17, 1909.

Wheat.—The market has held up well after the dip in prices which occurred about ten days ago. Quotations are up and down but the basis appears to be resting upon the foundation of supply and demand, altho the speculative feature is known to be important. The trade has looked to Europe this week where the war scare between Austria and Serbia was much used by the traders to support high values. Russia is increasing her exportations beyond expectation. South American offerings are scarcely normal, which is aiding the sellers in this country. Receipts from wheat sections for the week shows an increase and the visible supply for the country is slightly larger than a week ago. A year ago No. 2 red wheat was valued at 98½c per bu. Quotations for the week are:

	No. 2	No. 1	No. 3	Red.	White.	Red.	May.	July.
Thurs.	1.20½	1.20½	1.17½	1.18½	1.05½			
Fri.	1.22	1.22	1.19	1.20	1.07			
Sat.	1.22	1.22	1.19	1.20	1.07			
Mon.	1.21½	1.21½	1.18½	1.19½	1.06½			
Tues.	1.20½	1.20½	1.17½	1.18½	1.05½			
Wed.	1.20½	1.20½	1.17½	1.18½	1.05½			

Corn.—Improved weather for the movement of corn has been a bearish feature in the market the past week and accumulations are piling up in the corn sections. The effect has put prices on a slightly lower basis. On the local market there has been nothing doing in the trade for the past several days. Demand here is nominal and stocks are small. In 1908 at this date No. 3 corn was quoted at 65c per bu. Prices for the week are:

	No. 3	Yellow.	No. 3	White.
Thursday	66½	67½	67½	68½
Friday	67	68	68½	69½
Saturday	67½	68½	69½	70½
Monday	67½	68½	69½	70½
Tuesday	67½	68½	69½	70½
Wednesday	67	68	68½	69½

Oats.—The decline in corn had a slight effect upon the oat deal. Trading is light and the demand small. In some of the larger markets the stocks are increasing because of receipts from primary elevators. One year ago the price for No. 3 white oats was 55c. Quotations are:

	No. 3	White.
Thursday	56	56
Friday	56	56
Saturday	56	56
Monday	55½	55½
Tuesday	55½	55½
Wednesday	55	55

Beans.—This business shows no life and the men who have the legumes to sell are not in a disposition to part with them at the present figures, which are about 18c above the quotations of a year ago. They are nominally as follows:

	Cash.	May.
Thursday	\$2.40	\$2.45
Friday	2.40	2.45
Saturday	2.40	2.45
Monday	2.40	2.45
Tuesday	2.40	2.45
Wednesday	2.40	2.45

Cloverseed.—Dealing is active on last week's basis. The interest is confined chiefly to the cash deal, there being little attention given to futures. The supply seems sufficient for the demand for seeding purposes. Quotations are:

	Prime Spot.	April.	Alsike.
Thursday	5.20	5.20	7.75
Friday	5.25	5.25	8.00
Saturday	5.30	5.30	8.00
Monday	5.35	5.35	7.50
Tuesday	5.35	5.35	8.00
Wednesday	5.35	5.35	8.00

Rye.—There is no dealing in rye. The nominal quotation is unchanged from last week at 82½c.

Visible Supply of Grain.

	This week.	Last week.
Wheat	36,996,000	36,971,000
Corn	6,617,000	6,562,000
Oats	8,948,000	8,950,000
Rye	529,000	509,000
Barley	3,052,000	3,111,000

Flour, Feed, Provisions, Etc.

Flour.—Prices steady with last week on all grades. Quotations are as follows:

Clear	5.50
Straight	5.65
Patent Michigan	6.10
Ordinary Patent	5.75

Hay and Straw.—Prices unchanged. Carlot prices on track are: No. 1 timothy, new, \$10.50@11; No. 2 timothy, \$9.50@10; clover, mixed, \$9@10; rye straw, \$7@7.50; wheat and oat straw, \$6@6.50 per ton.

Feed.—Prices are steady for all feeds. Bran, \$28 per ton; coarse middlings, \$29; fine middlings, \$31; cracked corn and coarse corn meal, \$27@28; corn and oat chop, \$25.

Potatoes.—The steady demand is giving this trade good support and prices are ruling higher. Good stock is quoted at 80@85c per bu. New Bermudas, \$2.75 per bu.

Provisions.—Family pork, \$18.25@18.75; mess pork, \$17.50@18; light short clear, \$18; heavy short clear, \$19; pure lard in tierces, 11½; kettle rendered lard, 12½; bacon, 12½; shoulders, 8c; smoked hams, 11@11½; picnic hams, 8½c.

Dairy and Food Products.

Butter.—The trade in creamery goods is about steady with last week at unchanged values. Dairy offerings are meeting a good demand at improved values. Quotations: Extra creamery, 29c; firsts, 27c; packing stock, 16½c; dairy, 19c.

Eggs.—The increase in receipts and the larger call from consumers make this market active. There are no accumulations as yet. Fresh stock is off a half cent from last week, being quoted at 18c per doz.

Poultry.—Offerings are small. Demand

limited and trade quiet with prices slightly improved over those of last week. Quotations: Dressed chickens, 15½@16c; fowls, 14½@15c; ducks, 16@16½c; geese, 13@13½c; turkeys, 20@22c. Live—Spring chickens, 14c; fowls, 13½@14c; ducks, 14½@15c; geese, 11@12c; turkeys, 19@20c per lb.

Cheese.—Michigan, 15½@16½c; brick cream, 17@17½c; schweitzer, 18@19c; limburger, June, 15c; Oct., 17c per lb.

Fruits and Vegetables.

Apples.—Market firm. Best grades are quoted at \$4.75@6 per bbl. Western apples in bushel boxes, \$2.25@3.25.

Onions.—Spanish, \$1.90 per bu; home-grown at 75c per bu; Bermudas, \$3.50 per crate.

Cabbage.—Home-grown selling at 4c per lb.; new cabbage, \$2.75 per crate.

Vegetables.—Green onions, 15c per doz; radishes, 30c per doz; cucumbers, \$2.25@2.50 per bu; lettuce, 16c per lb; head lettuce, \$3.50 per hamper; watercress, 45c per doz; celery, 40@45c; spinach, \$1.10 per bu; parsnips, 90c per bu.

OTHER MARKETS.

Grand Rapids.

The potato market is a little slow this week, prices up state ranging from 60@65c. Winter is still on in upper Michigan, so that stock is not moving. Early seed potatoes are reported scarce in this market, farmers having nice stock refusing \$1 per bu for same. Eggs are off again, dealers paying country merchants 15½@16c, and selling to the retail trade at 17c. In live poultry dealers are now offering farmers 25c per lb. for broilers weighing 1½ to 2 lbs. Wheat is 1c higher, other grains unchanged.

Quotations follow:
Grains.—Wheat, \$1.16; corn, 67c; oats, 55c; buckwheat, 75c per bu; rye, 75c.
Beans.—Handpicked, \$2 per bu.
Butter.—Buying prices, Dairy, No. 1, 21c; No. 2, 16c; creamery in tubs, 29c; prints, 29½c.

Cheese.—Michigan full cream is selling at 15@16c per lb; brick, 17c; Swiss, 17c; limburger, 17c.

Eggs.—Case count, 15½@16c.

Apples.—New York, \$5@6 per bbl.

Potatoes.—70@75c per bu.

Cattle.—Cows, \$2.50@4 per cwt; steers and heifers, best quality, \$3@5; dressed mutton, 7@8c; dressed veal, 5@8½c; dressed beef, cows, 5@6½c; steers and heifers, 6@8½c.

Hogs.—Dressed, 8½@8½c.
Live Poultry.—Fowls, 12½@13½c; young chickens, 13@14c; roosters, 9@10c; turkeys, 18@19c; young ducks, 13@14c; geese, 19@21c; capons, 20@21c; broilers, 1½ to 2 lbs., 25c per lb.

Chicago.

Wheat.—No. 2 red, \$1.22@1.24½; May, \$1.15½; July, \$1.04.

Corn.—No. 3 65½c; May, 67½c July, 67½c.

Oats.—No. 3 white, 53@54c; May, 54½c; July, 48½c.

Butter.—Steady. Creameries, 22@23½c; dairies, 20@25c.

Eggs.—Steady. Firsts, 17½c; prime firsts, 18½c.

Potatoes.—Easy. Car lots in bulk. Fancy, 87@88c per bu; poor, 80@84c.

Pittsburg.

Potatoes.—Michigan, 85@90c per bu.

Apples.—Steady. King, \$6.25 per bbl; Spy, \$5@5.50; Spitzenburg, \$5@5.50.

Other Potato Markets.

New York.—Per 180 lbs., \$2.25@2.37.

Cleveland.—White stock, 90c per bu.

St. Louis.—Northern stock quoted at 89@92c per bu.

Philadelphia.—For good offerings, 78@85c per bu.

Boston.

Wool.—The depletion of the domestic supply of wools makes dealing in those grades very small. The interest in the foreign consignments is active and bespeaks a strong demand for home offerings when the time for selling of fleeces by farmers is around again. The trade is strong abroad and buyers are attending the London sales from every quarter. Offerings are quickly taken by the anxious buyers. Quotations are unchanged here for staple kinds. In the wool-growing sections contracts are being made for the future crop at prices favorable to sellers.

Elgin.

Butter.—Market is firm and unchanged at 29c per lb. Sales for the week amounted to 436,500 lbs.

THE LIVE STOCK MARKETS.

Buffalo.

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

March 15, 1909.

Receipts of sale stock here today as follows: Cattle, 85 cars; sheep and lambs, 74 double-deck cars; hogs, 75 double-deck cars; calves, 1,400 head.

The cattle market opened active and 10@15c higher than last Monday on all kinds that were desirable. Late in the day prices dropped off somewhat but at the close everything is sold and we consider we had a very satisfactory market as the run west proved larger than at first reported. We see nothing in the future to cause us to think prices will be any lower on the best cattle. There were no cattle on today's market that could be considered strictly choice; had there been we think we could have reached the 7c mark. The only danger at present, we think, is on the common and half fat cattle that are now selling extremely high compared with top sales.

We quote: Best export steers, \$6.50@6.90; best 1,200 to 1,300 shipping steers, \$6@6.60; best 1,000 to 1,100 do, \$5.75@6.15; best fat cows, \$4.50@5.25; fair to good do, \$4@4.25; trimmers, \$2.60@2.80; best fat heifers, \$5.25@5.75; light fat heifers, \$3.75@4; best bulls, \$4.50@5; bologna bulls, \$4@4.25. Milch cows and

springers lower and hard to sell at \$30@40.

With 64,000 hogs in Chicago market today and prices 10@20c lower, we could not hold our market steady and we also suffered a decline of from 10@15c from Saturday's best time. Market closed steady at the opening prices with a good clearance. Prospects are good for the near future.

We quote as follows: Mixed, medium and heavy, \$7@7.10; a few choice selected, \$7.15; best yorkers, \$6.90@7; light do \$6.40@6.65; pigs, \$6.25@6.35, mostly at \$6.30; roughs, \$6@6.15; stags, \$4.75@5.

Sheep market was active at the following quotations, but we look for lower prices before the week is out:

Top lambs, \$8.15@8.25; fair to good, do., \$7.80@8; cull do., \$6.75@7.50; skin cull lambs, \$5.50@6; yearlings, \$6.50@7; wethers, \$5.75@6.25; ewes, \$5.25; cull sheep, \$3.50@4.50; best veals, \$9@9.25; medium to good, \$7@8.75; heavy calves, \$4@5.50.

Chicago.

March 15, 1909.

Cattle. Hogs. Sheep.
Received today 26,000 64,000 25,000
Same day last year .. 25,946 56,356 12,735
Received last week .. 51,963 164,204 72,383
Same week last year .. 55,317 170,940 58,561

Cattle have been selling recently at much higher prices than were paid earlier in the season and much higher than in former years at this season, decreasing supplies having been well taken by local killers and eastern shippers, but the export trade has become a small affair as compared with former times. The fact is that South America and Australia are competing successfully with the United States for the British beef market, and this country is getting the worst of it. But all the time our population is growing at a rapid rate, and there are more meat-eaters by far than in the past, while fewer cattle are being prepared for the domestic market. The weak feature at present is the unusual dearthness of beef at a time when the American public is poorly prepared for paying higher figures, and hog meats are being substituted to an unusual extent for beef and mutton, owing to the relative cheapness of the first named. Beef steers have been selling chiefly at \$5.50@6.75, with common to fair light-weight killers selling at \$4.60@5.60, and choice to fancy heavy shipping cattle at \$6.75@7.40. Good steers sell at \$6.30@6.70 and a medium class at \$5.75@6.25. Butchering cows and heifers are active sellers most of the time at \$3.30@6, while canners and cutters are fairly active at \$1.90@3.25, bulls going at \$2.90@5.10. Calves have been in strong demand at \$3@8.50 per 100 lbs., and milkers and springers sold fairly at \$25@55 each. Stockers and feeders are selling fairly at \$3@5.40, choice lots being scarce.

The large supply of cattle today made a bad market for all except the best grade, and sales were largely 10@15c lower. The advance of 10@15c gained in prime beefs last week was maintained. Hogs have been having a good demand for still another week, and the market was in a strong position, subject to the usual reactions after good advances in prices. The best heavy hogs were scarce, as usual, and were apt to sell near the \$7 figure. The tendency is still to market too many pigs and light-weight hogs, and these are selling at a marked discount, altho the discount is smaller than it was earlier in the season. The recent average weight of hogs marketed here is about 203 lbs., compared with 211 lbs. a year ago and 227 lbs. two years ago. Feeders of hogs feel greatly encouraged over the way hogs have been selling of late and are hopeful regarding the future, the liberal eastern demand being a strong factor. Corn is dear, and this fact causes some stockmen to sell their hogs too early, altho feeding corn to hogs has been making good returns right along. It seems advisable where owners have plenty of feed and the hogs are growing rapidly to make them weigh upward of 300 lbs. Today's exceptionally large receipts caused a decline of 10c, sales being made at \$6.15@6.80, with the best 195-lb. hogs going at \$6.65.

Sheep and lambs have sold well or poorly according to their attractiveness, there being the usual scarcity of well fattened flocks and a good demand at high prices. As the spring season advances there is a large increase in the proportion of shorn flocks seeking a market, and recent sales have been made 50@75c per 100 lbs. below prices paid for woolled consignments. Mexican yearlings with the wool on their backs sold up to \$7.40, while prime woolled lambs went at \$8 once more. Feeding lambs were scarce and still higher, with ready buyers at \$6.65@7.35 for the better class. Colorado has shipped in more lambs, and they have sold very well as a rule. The demand for lambs is much greater than for sheep, and lamb prices stand a much better comparison than sheep with former years. Lambs sold today at \$5.50@7.65, ewes at \$2.50@4.65, wethers at \$5.25@5.90, rams at \$3@4.50 and yearlings at \$6.25@7.25.

F.

LIVE STOCK NOTES.

The market prices for beef cattle in Chicago have been running far ahead of former years, and experienced stock feeders have been making satisfactory profits, despite the unusual dearthness of corn. Cattle that are fit for marketing should be sold without delay, and muddy feed lots are causing many feeders to cut loose. Some highly optimistic stock feeders are disposed to become a good deal elated over the recent increased strength in the cattle market and to place orders with their live stock commission firms at the Chicago stockyards for high-priced feeders, weighing around 1,000 to 1,100 pounds, and costing around \$5.25@5.50 per 100 lbs. This is

risky and extremely speculative, and the great majority of successful cattle feeders have made their money in years past by buying the medium-priced feeders. It is well to note the fact that after a careful canvass among the local packers and eastern shippers of cattle, a prominent Chicago live stock commission firm has learned that there has been a decrease of 25 per cent in the consumptive demand for choice cuts of beef thruout the country as compared with the last five years. In the meanwhile the demand for cheaper cuts of beef has increased correspondingly, and people who used to pay for the choicer cuts are asking for cheaper beef. Many people are out of work, and the purchasing power of the greater part of the people has been lowered considerably. A good many stockmen are marketing their heavy beefs and preparing to refill their feed lots with 1,000 to 1,200 lb. cattle which can be matured advantageously in from two to three months. Summer grazing promises to be on an extensive scale both east and west; and it is learned that the pastures of the southwest will be utilized to the fullest extent, but the rapid settlement of the northwest stands in the way of a large cattle movement to that part of the country, where ranges are being supplanted by small farms. However, small ranchers in the Dakotas and Montana will buy in the aggregate a good many stocker cattle.

Horses are having a fairly active demand, but buyers generally show a stronger preference for good animals than heretofore, and common horses are frequently sold at reductions from recent high prices. Average drafters are taken at \$175@220 per head, with finished fed draft horses selling at \$225@250, and sometimes higher. Farm chunks are less active at \$130@175, a few extra choice farm mares well adapted for breeding purposes going at \$180@200. Drivers are active at \$150@350, with the greater part going at \$175@225. Mules are active at \$75@200.

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THIS IS THE LAST EDITION.

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

DETROIT LIVE STOCK MARKETS.

Thursday's Market.

March 18, 1909.

Receipts, 908. Market active at last week's prices.

We quote: Extra dry-fed steers and heifers, \$5.50@6; steers and heifers, 1,000 to 1,200, \$5@5.35; steers and heifers, 800 to 1,000, \$4.50@5.25; steers and heifers that are fat, 500 to 700, \$4@4.60; choice fat cows, \$4.50; good fat cows, \$4@4.25; common cows, \$3@3.50; canners, \$1.50@2; choice heavy bulls, \$4.25@4.60; fair to good bolognas, bulls, \$4; stock bulls, \$3.25@4; choice feeding steers, 800 to 1,000, \$4@4.50; fair feeding steers, 800 to 1,000, \$3.50@3.75; choice stockers, 500 to 700, \$3.50@3.75; fair stockers, 500 to 700, \$3@3.50; stock heifers, \$2.75@3; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.50.

Roe Com. Co. sold Caplis 16 steers av 680 at \$5, 3 cows av 1,040 at \$4; to Sullivan P. Co. 25 steers av 1,012 at \$5.40; to Cooke 24 do av 837 at \$5.40, 6 do av 675 at \$5; to Hammond, S. & Co. 3 bulls av 1,010 at \$4; to Goose 1 cow weighing 1,270 at \$3.75, 3 heifers av 486 at \$3.75, 3 do av 403 at \$3.75; to Hammond, S. & Co. 1 bull weighing 1,120 at \$4.50, 1 do weighing 1,110 at \$4; to Mich. B. Co. 1 cow weighing 1,060 at \$3.75, 7 steers av 900 at \$5.25, 1 cow weighing 740 at \$3.75; to Fry 4 butchers av 717 at \$4.60, 10 do av 765 at \$4.60; to Newton B. Co. 13 do av 690 at \$4.15, 2 heifers av 475 at \$4.15.

Bishop, B. & H. sold Hammond, S. & Co. 1 bull weighing 1,740 at \$4.25, 8 steers av 941 at \$5.30, 6 do av 791 at \$4.75, 6 butchers av 521 at \$3.85, 1 cow weighing 1,150 at \$4; to Mich. B. Co. 2 heifers av 785 at \$3.50; to Kamman B. Co. 21 steers av 900 at \$5.20; to Mich. B. Co. 22 do av 800 at \$5, 2 do av 1,065 at \$5.50, 6 butchers av 1,046 at \$4.30; to Kamman 11 do av 952 at \$5; to Sullivan P. Co. 11 steers av 970 at \$5.25, 1 cow weighing 1,100 at \$4.25; to Bresnahan 3 heifers av 633 at \$4.25; to Hammond, S. & Co. 2 cows av 1,100 at \$4.50, 2 steers av 1,110 at \$5.35, 4 do av 950 at \$5.35, 1 do weighing 890 at \$5.35, 2 cows av 1,150 at \$4, 2 steers av 1,020 at \$5.10; to Greene 32 feeders av \$34 at \$4.40, 5 cows av 1,118 at \$3.75, 2 do av 900 at \$4.50, 2 do av 940 at \$3; to Kamman 15 butchers av 713 at \$4.60.

Spicer, M. & R. sold Hammond, S. & Co. 1 cow weighing 1,040 at \$4.25, 11 steer and heifers av 857 at \$5.25, 2 cows av 1,115 at \$3.75, 1 do weighing 780 at \$2.75; to Mich. B. Co. 13 butchers av 854 at \$4.75; to Sullivan P. Co. 17 steers av 1,140 at \$5.30; to Goose 2 cows av 760 at \$2.75; to Kamman B. Co. 2 do av 1,085 at \$4.35, 6 butchers av 530 at \$4.25; to Goose 2 cows av 1,015 at \$3.40; to Hammond, S. & Co. 1 bull weighing 1,460 at \$4.50.

Robb sold Hammond, S. & Co. 1 bull weighing 1,650 at \$4.50, 4 butchers av 700 at \$4.50, 13 steers av 981 at \$5.50. Sharp & W. sold Sullivan P. Co. 2 cows av 1,135 at \$4.25, 3 steers av 966 at \$5.25, 1 cow weighing 1,300 at \$4.50.

Veal Calves. Receipts, 375. Market 50@75c lower than last week; few extra at \$8.25. Best, \$7.75@8.25; others, \$4@7.50; milch cows and springers steady.

Bishop, B. & H. sold Mich. B. Co. 12 av 140 at \$7.65, 3 av 140 at \$7; to Nagle 8 av 120 at \$6.50, 18 av 125 at \$8, 5 av 160 at \$8.25; to Newton B. Co. 11 av 140 at \$7.75, 1 weighing 90 at \$5; to Sullivan P. Co. 10 av 134 at \$7.25; to Kull 12 av 140 at \$7.50; to Parker, W. & Co. 3 av 140 at \$8.

Spicer, M. & R. sold Sullivan P. Co. 2 av 135 at \$7.75, 7 av 135 at \$7.75; to Hammond, S. & Co. 3 av 118 at \$6, 20 av 120 at \$7.50, 3 av 160 at \$6, 9 av 140 at \$7.50, 5 av 115 at \$7.50, 1 weighing 140 at \$5; to Goose 7 av 300 at \$4; to McGuire 2 av 190 at \$7, 8 av 140 at \$7.50; to Nagle 8 av 145 at \$7.75; to Parker, W. & Co. 19 av 125 at \$7.50.

Roe Com. Co. sold Newton B. Co. 10 av 113 at \$6, 41 av 140 at \$7.

Adams sold Sullivan P. Co. 8 av 125 at \$7.50.

Lovewell sold same 13 av 138 at \$8.

Heeney sold Burnstine 4 av 130 at \$7.75.

Bennett sold same 1 weighing 170 at \$8.25.

Morris sold same 10 av 137 at \$7.50, 5 av 105 at \$5.

Robb sold Friedman 1 weighing 100 at \$7.

Haley sold Mich. B. Co. 10 av 130 at \$7.85.

Mertz sold same 21 av 130 at \$7.50.

Sharp & W. sold Newton B. Co. 2 av 140 at \$7.50, 1 weighing 250 at \$5.

Haley sold Rattkowsky 13 av 120 at \$7.

Mayer sold McGuire 6 av 155 at \$7.75.

Johnson sold Nagle 4 av 105 at \$5, 12 av 140 at \$7.50.

Weeks sold same 10 av 123 at \$7.50, 1 weighing 130 at \$5.

Bergin & W. sold Fitzpatrick Bros. 14 av 135 at \$7.50, 1 weighing 160 at \$5.

Groff sold same 10 av 123 at \$7.50, 1 weighing 320 at \$5.50.

Sheep and Lambs. Receipts, 3,312. Market opened 10@15c higher than last week. Best lambs, \$7.60@7.75; fair to good lambs, \$7@7.50; light to common lambs, \$6@6.50; yearlings, \$6@6.50; fair to good sheep, \$5@5.50; culls and common, \$3@4.

Spicer, M. & R. sold Sullivan P. Co. 1 buck weighing 110 at \$2.50, 18 lambs av 72 at \$7.25, 34 sheep av 77 at \$5.50;

to Young 14 lambs av 65 at \$7, 1 buck weighing 100 at \$4; to Hammond, S. & Co. 2 lambs av 110 at \$7.50; to Mich. B. Co. 1 buck weighing 150 at \$4, 2 do av 95 at \$4, 33 lambs av 60 at \$6.65, 24 do av 70 at \$7.60, 1 buck weighing 120 at \$4; to Robinson B. Co. 10 sheep av 69 at \$3, 24 lambs av 67 at \$7; to Nagle 66 do av 83 at \$7.50.

Lovewell sold Sullivan P. Co. 15 lambs av 77 at \$7.50.

Bergin sold Fitzpatrick Bros. 53 lambs av 90 at \$7.50.

Mertz sold Mich. B. Co. 12 lambs av 75 at \$6.50.

Robb sold Eschrich 6 sheep av 130 at \$4.

Morris sold same 9 lambs av 65 at \$6.50.

Robb sold Nagle 51 lambs av 90 at \$7.65.

Sharp & W. sold same 5 sheep av 70 at \$2.50, 1 buck weighing 160 at \$4, 9 lambs av 60 at \$5.

Gannon sold same 12 lambs av 85 at \$5.75.

Sharp & W. sold same 49 do av 77 at \$7.50, 5 do av 60 at \$6.

Weeks sold same 57 do av 70 at \$7.25.

Sharp & W. sold Newton B. Co. 51 lambs av 67 at \$7.10.

Mayer sold Young 50 lambs av 70 at \$7.35.

Bishop, B. & H. sold Nagle 2 bucks av 150 at \$4, 9 lambs av 65 at \$5.50; to Mich. B. Co. 92 do av 67 at \$7.40; to Hammond, S. & Co. 106 lambs av 84 at \$7.75; to Newton B. Co. 105 do av 82 at \$7.75; to Hammond, S. & Co. 13 do av 50 at \$6, 2 do av 70 at \$7, 14 sheep av 100 at \$4, 4 lambs av 95 at \$7.50; to Young 46 do av 84 at \$7.75; to Parker, W. & Co. 112 do av 81 at \$7.75; to Mich. B. Co. 51 mixed av 75 at \$5.25, 4 sheep av 105 at \$4; 69 lambs av 80 at \$7.50; to Nagle 56 do av 73 at \$7.25; to Eschrich 14 do av 50 at \$6.50; to Fitzpatrick Bros. 16 sheep av 100 at \$5, 4 do av 90 at \$2, 6 lambs av 80 at \$7, 11 sheep av 105 at \$5, 10 lambs av 84 at \$7.50, 26 do av 85 at \$7.60, 27 sheep av 90 at \$3.50, 8 do av 100 at \$5, 9 do av 110 at \$5; to Sullivan P. Co. 18 lambs av 70 at \$7.30; to Fitzpatrick Bros. 25 do av 110 at \$7.75.

Hogs. Receipts, 3,375. Good grades 5@10c higher than last Thursday; others steady.

Range of prices: Light to good butchers, \$6.75@6.80; pigs, \$6@6.10; light yorkers, \$6.50@6.60; stags, 1/2 off.

Bishop, B. & H. sold Hammond, S. & Co. 60 av 150 at \$6.60, 383 av 190 at \$6.80, 89 av 140 at \$6.35, 140 av 150 at \$6.55, 159 av 170 at \$6.75, 143 av 150 at \$6.50, 395 av 160 at \$6.70, 402 av 160 at \$6.65, 23 av 210 at \$6.90.

Roe Com. Co. sold Parker W. & Co. 26 av 248 at \$6.90, 96 av 157 at \$6.50, 42 av 194 at \$6.85, 52 av 175 at \$6.80.

Spicer, M. & R. sold same 13 av 145 at \$6.25, 46 av 181 at \$6.75, 74 av 166 at \$6.60.

Sundry shippers sold same 166 av 170 at \$6.60.

Spicer, M. & R. sold Sullivan 153 av 157 at \$6.70, 62 av 194 at \$6.75, 63 av 121 at \$6.10.

Bishop, B. & H. sold same 160 av 103 at \$6.10, 100 av 100 at \$6.10.

Sundry shippers sold same 181 av 175 at \$6.85, 32 av 244 at \$6.90, 209 av 150 at \$6.65.

Quality badly mixed. Hogs weighing from 130 to 140 lbs. not wanted.

Friday's Market. March 12, 1907.

Cattle. Receipts, 45. Market steady at Thursday's prices. We quote: Extra dry-fed steers and heifers, \$5.50@5.65; steers and heifers, 1,000 to 1,200, \$5@5.35; steers and heifers that are fat, 500 to 700, \$4@4.50; choice fat cows, \$4.50; good fat cows, \$4@4.25; common cows, \$3@3.50; canners, \$1.50@2; choice heavy bulls, \$4@4.50; fair to good bolognas, bulls, \$4; light bulls, \$3.25@4; milkers, large, young, medium age, \$4@5; common milkers, \$2@3.

Bishop, B. & H. sold Kamman 2 steers av 1,035 at \$5.60, 2 do av 940 at \$5.15, 2 do av 1,090 at \$5.50.

Sheep and Lambs. Receipts, 310. Market steady at Thursday's prices. Best lambs, \$7.50@7.60; fair to good lambs, \$6.25@7.25; light to common lambs, \$5.50@6; yearlings, \$5.75@6.25; fair to good butcher sheep, \$4@5; culls and common, \$2.50@3.50.

Bishop, B. & H. sold Sullivan P. Co. 16 lambs av 70 at \$7.50, 53 do av 75 at \$7.40, 1 buck weighing 150 at \$3.50, 48 lambs av 67 at \$7.20.

Hogs. Receipts, 285. Market steady at Thursday's prices. Range of prices: Light to good butchers, \$6.70@6.80; pigs, \$6@6.30; light yorkers, \$6.50@6.60; stags, 1/2 off.

Bishop, B. & H. sold Hammond, S. & Co. 5 av 195 at \$6.80, 23 av 150 at \$6.35, 84 av 190 at \$6.75, 70 av 180 at \$6.70, 75 av 185 at \$6.60, 51 av 140 at \$6.50.

Spicer, M. & R. sold Sullivan P. Co. 61 av 179 at \$6.75, 54 av 195 at \$6.75.

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HORTICULTURE

CAN THE GENERAL FARMER AFFORD TO GROW APPLES?

Concrete examples are more effective than words, so I will preface my remarks with some figures from my ledger on the crop of apples harvested from an apple orchard of one acre, about 25 years of age, and the remnants of two old orchards containing together about 22 trees. Altogether there are about 52 trees, which would make a little more than one and one-half acres if collected and placed 36 feet apart.

Hauling 23 loads manure.....	\$ 7.00
Pruning	2.70
Spraying, four applications	59.74
Thinning	3.95
Picking, packing, and hauling.....	\$1.30
Packages	71.74

Total cost	\$226.43
Apples sold, 984 bushels	700.74

Net profit\$474.31

Some explanations are due. The manure was secured for the hauling so no charge is made for it. The pruning this season consisted only of removing water-spouts and dead limbs and is less than the average amount required. Last year the bill for pruning and burning brush was \$10.00, the year before \$2.00, and the year before this \$10.75. Previous to this time the trees had not been pruned for many years.

Four sprayings were made, the first just before the blossoms opened, using 3 lbs. copper sulfate, $\frac{1}{4}$ lb. Paris Green, and 5 to 10 lbs. lime to 50 gallons water, applied with a hand pump. The second and third sprayings were made the last of May and the tenth of June after the blossoms fell, and in these and the last spraying 3 lbs. arsenate of lead took the place of the Paris green. At the last spraying, Aug. 7-8, only half as much copper sulfate and lime was used.

Sixteen trees of Astrakhan, Snow, Winter Rambo, Jonathan, Baldwin, and Spy were thinned at an approximate cost of 25c per tree, which is much less than I had thought it could be done for.

The apples were picked and put directly into apple and cracker barrels and some in orange boxes and these set on a low down wagon with bolster springs beneath platform and hauled to our barn four miles away near the shipping station. Baskets were used in the main for picking, but on high trees both basket and sack were used to save trips up and down the ladder.

Apple barrels are charged at 40c each, which covers the cost of the barrel, hauling, and nailing; cracker barrels at 15c which covers cost and labor in preparing them. Orange boxes at 3c each.

One hundred and thirty-one bushels were sold to farmers and villagers who secured them from the orchard or storage, 41 barrels of summer and fall fruit were consigned to a Chicago commission house, 71 barrels winter fruit were shipped to grocers and consumers and the balance, or about two-thirds of the winter crop, was sold to a cold storage company, the car being loaded with the barrels and crates just as picked from the trees. Eighty-eight bushels of picked fruit, which are on hand or distributed among relatives and friends, are credited as sold, but no account is made of fruit used by three families and given away during the summer, or of the cider apples which did much toward supporting a drove of hogs, and furnished cider, vinegar, and apple butter for several families.

The varieties are Stark, Spy, Baldwin, Ben Davis, Steele's Red, Winter Rambo, R. I. Greening, Russett, Jonathan, Snow, Belleflower, King, Fall Pippin, Transparent, and Astrakhan, the majority being of the first four varieties.

The young orchard of approximately an acre, yielded about 750 bushels of fruit, or an average of about 25 bushels per tree. This yield is interesting chiefly when compared with that of surrounding orchards as it probably contained more good apples than all the other orchards in the adjacent two or three townships, while three other small orchards which we sprayed twice for neighbors all had fair crops of fruit. This season's crop has demonstrated to all unbelievers in the locality that there is virtue in spraying.

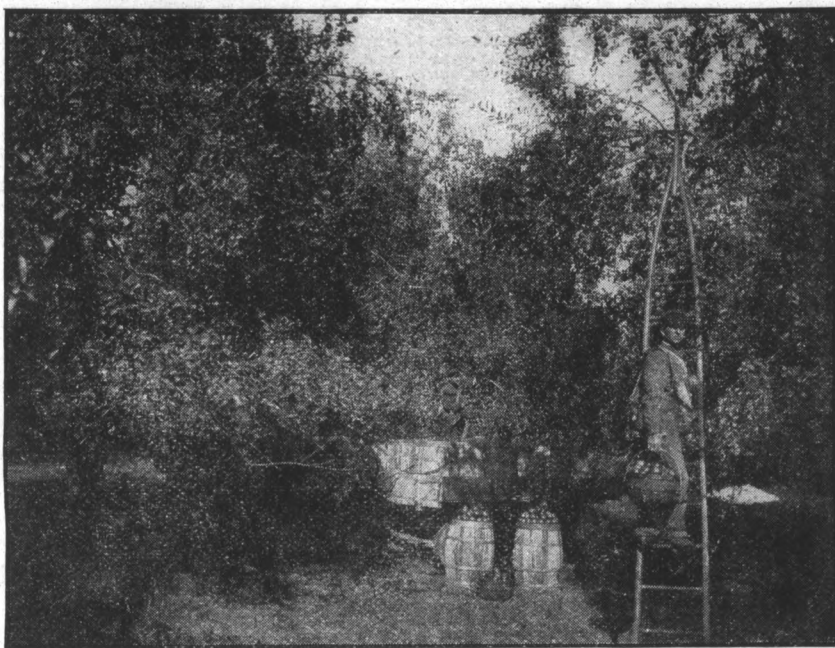
In connection with the figures above it is but fair to state that the 1907 crop of fruit from the orchards barely paid for the care of the trees and harvesting expenses, yet it bore better than any orchard in the vicinity. This included a thorax spraying with lime and sulfur for

the scale. The 1906 crop sold for \$475.25, returning a net profit of \$215. The crop was nearly as large but expenses were more and prices less. The 1905 crop was light but netted about \$25 over expenses including pruning and spraying. The 1904 crop netted \$107.03 over expenses at the ridiculously low price of 40c per hundred weight.

Perhaps I should have stated that two of these orchards are on a rented farm four miles distant. The younger one has been used as a hog pasture for fifteen years and has not been plowed, cultivated, mulched or fertilized except by stock, in that time until last year, when a half load of barnyard manure was spread under each tree. One of the older orchards has been in a regular rotation of farm crops, the other is cultivated and seeded to cover crops.

About forty of these trees bore practically a full crop, a half dozen of the remainder a half crop, and a half dozen a very light crop. These last either bore last year, were old and injured trees, or were badly affected with twig blight this season.

In one of the old orchards five trees of varieties similar to the others were left unpruned and unsprayed. One of these which promised some fruit was given the last two applications and several bar-



Old Neglected Orchards Give Good Financial Returns when Properly Cared For.

rels of fairly good fruit were picked from it. Another gave a bushel of scabby and wormy fruit, and the others none worth picking. All blossomed full.

Two orchards in particular of the same age as our younger orchard and within a half mile of it blossomed full. One which had been well pruned but not sprayed yielded about enough fruit for a family; the other which had been neither pruned nor sprayed yielded nothing worth picking. The explanation appears to me as follows: This was an abnormal season with an excess of warmth and moisture at blossoming and for some time after which furnished ideal conditions for the rapid growth of the apple scab fungus. This worked on the blossoms and stems of the blossoms and little fruit, causing them to drop profusely, and it also got a good hold on the fruit and foliage that remained and so weakened and injured them that when the drought of late summer and fall came the trees dropped a large share of the fruit they had been able to carry thru the June drop. In many cases three-fourths of the unsprayed fruit had dropped by October 1, while the dropping was not above normal on well sprayed trees.

A Deduction.

We will now consider the question as to whether the general farmer can grow apples as a farm crop, or more particularly whether he can afford to care for the trees now on the farm so as to grow his fruit for family use and for sale if there are trees enough.

The orchards referred to have been handled in connection with general farming operations and small fruits and with the additional disadvantage of being four miles from home. The size is about the same as the average orchard in general farming sections and about the same difficulties are presented, including the unavoidable use of the orchard for stock, the presence of the San Jose scale, the previous neglect, etc. By striking an average of the figures given above we will find that the orchards have netted above all expenses, about \$100 per acre per year for the last five years, in addition

to furnishing fruit, vinegar, and apple butter for several families, and considerable feed for stock, and that in this time the trees have been brought from a state of neglect to a fairly good condition. The work has been done without encouragement from, and against the advice of, relatives and friends, and without the investment of a cent of capital not secured from the trees themselves. Neither has any farm or small fruit crop been neglected on account of the apples.

It seems reasonable to suppose that any farmer who has the willingness and energy to care for his orchard and the ability to follow a few plain instructions laid down by authorities on horticulture can do as well or better. It would be difficult for him to name many crops that will give a greater net income for a series of years and at the same time involve less risk or require less land or capital.

I do not mean to say that every farmer would make a success of caring for his orchard from a financial standpoint any more than every farmer would make a success of breeding pure-bred stock. He must have a little love, or at least respect, for his trees and perform the operations upon them in a careful manner and at proper times. If the spraying is left until he can find nothing else to

do it will never be done on time and will often not be effective. The farmer may then reason that spraying does no good. Of course, some fruit of fair quality can be grown without spraying, on some seasons considerable good fruit, but a good crop is never assured without spraying, and should it chance to come it is generally when fruit is abundant in the neighborhood, and consequently cheap. During the past two seasons there have been few instances of good crops from unsprayed orchards.

I realize that there are weighty arguments against the care of small orchards by stock or general farmers, arguments sufficient, perhaps, to allow those to whom the care of orchards is distasteful to neglect them, providing they will purchase and keep on hand at all seasons such fruit as a good home orchard will furnish. This last proviso well-nigh nullifies the statement, for few farmers will or can provide such a supply of apples during the entire season as a good orchard will furnish.

The chief difficulty in caring for a small home orchard is the spraying. Fairly good fruit can be grown without cultivation if some mulching or manure is applied, and a home orchard can often be utilized as a hog pasture much of the season. The pruning is not difficult if the trees are not too badly neglected, and there is a latitude of time in which to do it—time, too, when other farm work is not pressing. But the spraying, or at least a part of it, must be done at certain times and a delay of a week may make a great difference in results. It must also be done thoroughly. That we must spray to grow good fruit is now a settled fact, and in regions where the San Jose scale is present it is another settled fact that we must spray to save our trees.

Now this spraying could be done by those who make it a business to furnish the apparatus and materials and go from farm to farm spraying small orchards for less than it would cost the farmer who owns a few trees. If some reliable party will do this and do it on time, by all means secure them and pay the price without grumb-

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Bulbs, Vines, Shrubs, Fruit and Ornamental Trees. The best by 55 years' test. 120 acres, 50 in Hardy Roses, none better grown. 44 greenhouses of Palms, Ferns, Ficus, Ever-blooming Roses, etc. Seeds, Plants, Roses, Bulbs, Small Trees, etc., by mail postpaid. Safe arrival and satisfaction guaranteed. Immense stock of CHOICE CANNAS, queen of Plants, Roses, etc. Elegant 168-page Catalog FREE. Send for it today and see what values we give for a little money.

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READ'S GREEN MOUNTAIN OAT, RELIABLE Spring Wheat, Triumph and Vt. Beardless Barley. Send for greatest FREE Catalog before buying SURE. G. A. Read, Read's Exp. Farms, Charlotte, Vt.

ling. But few are so situated and must do the work themselves if it is done at all. The outfit need consist of only a good brass pump with barrel, 25 feet of hose, a good 8 or 10 foot extension rod, and one or more standard nozzles, the whole costing from \$20 to \$25, which is only a fraction of the equipment needed to grow most other crops. If San Jose scale is present an iron kettle to cook lime-sulfur wash is needed. A barrel or two for mixing the materials and a one-horse buggy or wagon, or even an ordinary wagon to carry the spray-barrel can be found on every farm, and generally there is a spare horse to draw the outfit. A half day, or at most a day, two to four times a year will suffice to spray an orchard of from 25 to 50 trees, according to their size.

Calhoun Co.

S. B. HARTMAN.

GROWING SWEET PEPPERS.

The pepper plant, while it will grow and do fairly well during a cool season, produces the best results during a warm season similar to that demanded by the tomato. The time required to mature its fruits is also about the same length in the case of the large, sweet peppers, while the smaller and earlier varieties require much less time to come to maturity.

We start our pepper plants about the first of April along with our tomato plants, giving them about the same care. The pepper, however, need not be given as much room in the hot-bed and cold frame as is necessary for the tomato plant. We set out plants in the open ground about June 1st, or whenever the soil is warm enough to allow of setting out tomatoes.

The large, sweet varieties we like to set out 2x3 ft. apart in the field so as to admit of cultivation both ways, early in the season. Some of the earlier varieties may be grown still closer together but where land is not too expensive we find it best to allow for cultivation each way, thereby lessening the cost of production.

The soil from which we have reaped the best results in growing peppers is a heavy sandy loam containing more or less humus in its composition. The pepper plant being a gross feeder, it does not pay to be sparing of your fertilizer, especially where catering to a special trade. The soil must be made rich and for the purpose we have used the past season, in connection with a good coating of barnyard manure, a commercial fertilizer rich in potash and phosphoric acid to aid in the development of a firm, highly colored fruit of the finest quality.

We have found the pepper plant immune from attacks of insects and diseases of any sort. Neither is it subject to the ill effects from the hot winds that often cause great injury to newly set plants such as the tomato.

As to varieties for this section we have found the demand almost wholly in favor of the large sweet varieties. As an early variety the Neapolitan gives the best satisfaction. It is easily grown, yields abundantly and is ready for market fully two weeks earlier than any other variety that we have grown and having the same merits. As a late, or main crop, pepper we have found none that yields better and gives as perfect satisfaction as the large Chinese Giant. Its immense size, coupled with its excellent quality gives it the advantage over some of the smaller varieties which are perhaps its equal in quality. Another medium to late variety which we find an excellent seller is the Sweet Upright. Altho of smaller size it is a very thick meaty sort, of excellent quality, running even in size and having a very even surface, an abundant yield, and when allowed to ripen takes on a most brilliant scarlet color not found in many of the large varieties. Ruby King, an old sort, does well with us in this locality, but is inferior in shape and firmness and very deficient in quality as compared with the varieties mentioned above.

We make a practice of shipping the bulk of our pepper crop in the green state. By so doing we allow the smaller fruits a chance to develop and thus allow of a larger yield of a superior quality. Then again, the demand for ripe peppers comes later in the season when there is some danger of frosts and the demand being somewhat lighter than for the green fruits, by thus disposing of the bulk of our crop early in the season we not only find a more ready market but are out of the way of any danger from frosts. We find the Sweet Upright gives the best satisfaction of any we have

grown when placed upon the market in the ripe stage.

The sweet pepper is a heavy yielder and being fairly easy to grow is an excellent crop for the truck farmer when he can find a ready market for the product. Last season altho a poor season on account of the excessive drought our sweet peppers yielded us at the rate of 400 bushels and better per acre. We find them an excellent crop to grow, always bringing a good price per bushel with less risk of loss from a poor season than with some other vegetables.

The half-bushel basket comes the nearest to meeting the requirements of a good package in which to ship peppers. However, for peppers the size of the Chinese Giant the bushel basket gives better satisfaction besides being more easily packed. We have found it to some advantage to make two grades with the larger varieties—placing the largest fruits in a grade by themselves. This not only gives a more even package, one that looks well to the trade when opened up at its destination, but tends toward advertising your products with a view toward future sales by the neat and attractive appearance of the package.

The advantage the pepper holds over similar crops is the fact that they may be utilized in either the green or ripe state, and, not being a crop that must be harvested the same day it reaches maturity, means a great saving in expense as well as of quality, as compared with the tomato, which must be picked regardless of weather conditions. The growing of peppers even in this section of the state is a profitable business if one can get the plants started early and can find a ready market for his product.

Kalkaska Co.

W. S. PALMER.

GARDEN CROPS.

Cauliflower.

For some reason this most excellent, profitable vegetable is little grown except by professionals, no doubt largely thru the erroneous impression that it is difficult to grow. This is not the case however, as it is as easily grown as cabbage; and the culture for both is identical. For best results it requires a richer soil and at heading time the crop may be largely increased by plenty of water.

The same insect pests are common to both and hence the remedies are the same. Blanking is necessary, and is simply done by drawing the outer leaves over the head and tying with string. This should be done as soon as the heads begin to form. The culture should be on the intensive plan, same as for cabbage. As soon as full grown, the heads should be cut, else they will grow woody and worthless. One essential point to bear in mind is that they will not head well during the hot months of mid-summer, so they must be planted out to mature previous to this or else be delayed until the cooler months of autumn.

For the early crop sow in hot-bed in March or Early April: early enough, at all events, to get strong plants for selling as soon as soil and weather will admit. Well hardened plants will stand some frost so they can be safely planted quite early. For the late crop, sow at same time as late cabbage.

The above points cover all the mystery in growing the crop and there is no valid reason for depriving the family of an adequate supply, and as a commercial crop it almost invariably brings high prices.

The varieties are few and for extra early, the Snowball and Dwarf Erfurt are very desirable. The latter is very nearly as early as the former and a more sure header and for that reason perhaps might be preferable. Early favorite is a choice variety, very hardy, and for inexperienced growers is safest of all, as it will head under conditions that may cause failure in other sorts.

For late crop Large Algiers or Veitch's Autumn Giant are equal to any under cultivation, and will meet every requirement.

Egg Plant.

To the writer, the culture of egg fruit is always full of interest; and the wonderment is why more of this vegetable is not grown. For home use it is highly prized and as a market crop the prices are always high. No doubt one serious hindrance is lack of facilities for starting the plants in which is only another reason why every garden should have at least some hot-bed space.

The seed is slow to germinate and requires a pretty good degree of heat. It is a subtropical plant and sometimes is

rather uncertain of fruiting, even under good culture, in cool or wet seasons. The best remedy know for this is to pinch back the stems when they begin to blossom, not allowing more than two or at most three, fruits to set. Sow the seed early and keep a fairly high temperature as they ought to receive no check in growth after being started. When the plants have one pair of rough leaves started transplant to about four inches in the bed and keep the growth constant. Harden off well before setting in the ground and be sure that this is not done until all danger of frost is past. It is well to shade the plants for a few days as they are delicate and do not easily rally from the effects of careless handling. The potato beetle is their worst enemy and care must be taken to keep them clean of this pest.

A warm, rich soil is best and hen manure or a high grade fertilizer well worked into the soil during fruiting time will greatly aid the yield. Thoro culture will be well repaid, and generally speaking, the crop is profitable. The best efforts sometimes fail but this is the common lot of all crops.

Varieties are limited in number so but few are listed by seedsmen. Early Long Purple is one of the first to mature, and being large is a good market sort, as also for home use. Black Purple is nearly as early as the former, and quite large. Table qualities of both are good. For all purposes the Black Beauty is best of all and if but one variety can be grown the writer would choose this above all others. The fruits are large and almost uniformly of perfect shape. Color, rich, dark purple and table qualities are equal to any grown.

Lettuce.

For early lettuce, either in open ground or cold frames, the new variety, "Wayahead," is all that its name implies, both in earliness and quality. It is a firm header, yet can be used at all stages of growth, being always crisp and tender. For an all-season's supply it is as near perfection as can be found, both for home use and market. The first sowing may be in hot-bed and as soon as the second pair of leaves appear the young plants may be pricked out in cold frame, or seed may be planted directly in cold frame, or in boxes or seed pans in the house and plants set in open ground as soon as danger of frost is over. Sowing in open ground just as soon as the frost is out is perfectly safe as both seed and young plants are very hardy. Successive plantings may be made at about three weeks interval, and a supply of the very finest quality kept up until hard freezing weather in the autumn.

May King is a close second to Way-ahead, as is Nansen in the heading sorts. In color and size Wayahead is better, there are few outside leaves to trim off, outer leaves are light green while the inner ones are blanched to a creamy light yellow, very rich and buttery and with no bitter flavor. In curly or loose leaved varieties, the black-seeded Simpson and Morse are of the best. Detroit Market Gardner's Forcing and Grand Rapids are favorite forcing varieties, and are also good for out-door planting.

There is still another group of lettuces especially grown in the hot summer months, known as the crisp head; these differ somewhat from the so-called butter head varieties, their leaves being always crisp or brittle and of mild flavor. Hanson and Denver Market are well-known varieties. Finest of all is Iceberg, which produces well blanched heads of good size in the hottest weather. Brittle Ice grows as large as New York or Wonderful and is even finer in appearance, being lighter green and cooler looking. Of the butter-heads California Cream-Butter is splendid for open ground in cool weather, while Burpee's Butter-head is best in the summer months.

Wayne Co.

J. E. MORSE.

The quince is generally the recipient of much abuse. It gets the slops from the kitchen, which sours the soil, rubbish is thrown around its base and into the top. There is no pruning, no spraying, no cultivation, as the tree or bush is believed to do its best under such treatment. But that is not true, for the tree does well in spite of the neglect. Just try acting civil toward it. You will appreciate the quince more when it has a chance to do its best.

Artichokes.

Inquiries have come to hand for artichokes for seed purposes. Any one having them would do well to advertise in the Michigan Farmer.

90 Fruit Trees GRAPEVINES and SHRUBS

This is certainly a remarkable bargain. The stock in the collection is all high-grade, and a state certificate of inspection is sent with each order. Take advantage of this opportunity at once. Elsewhere this selection would cost you \$10.00.

HERE IS WHAT YOU GET:

25 Grapes—All one-year No. 1 variety, as follows: 10 Concord, 5 Pockington, 2 Agawam, 2 Niagara, 1 Brighton, 3 Elvira, 2 Moore's Early.

10 Norway Poplars—Four to 5 feet high; sure to grow; high grade stock.

25 Cherries—Two years old, including 19 Eng. Morillo, 5 Montmoranci, 5 Osthelm and 5 Wragg.

5 Roses—Assorted as follows: 1 Seven Sisters, 1 Baltimore Belle, 1 Dorothy Perkins, 1 Prairie Queen, 1 Rambler.

In addition to the above we will include, just for good measure, 1 Spirea for \$5; 1 Standard variety—18 in. high, 1 Lilac, 1 Tulip Poplar. The above for \$3.87, shipping charges prepaid by us, is big value for the money. To get your order at once we will be even more generous, and will send you 10 Gladiolus mixed, 5 German Iris, 5 Tuberoses. This makes altogether 90 fruit trees, grapevines and shrubs. \$10 would be cheap for the collection. At our price you get guaranteed stock, true to name and exactly as represented. Send order today to IOWA NURSERY CO., Dept. 87 DES MOINES, IOWA.

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4 to 5 foot Trees—not switchers. Buds from bearing trees grafted on Whole Root. 50 for \$5; 25 for \$3; cash. Standard varieties—18 in. high, prepaid. Peach same price. Pear and Cherry 20 cents. Cumberlin Raspberry 3 cents. These half prices to new buyers. Satisfaction or Money Back—last offer—order now.

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300,000 CHERRY TREES, 2 years old. 4 cents each. Boxing Free. Catalog free to Everybody. Sheerin's Wholesale Nurseries, Dansville, N. Y.

True Catalpa Spec. & Bl. Locust, healthy 1 yr. trees \$4.50 per 1,000. All kinds forest & ever green trees cheap. T. G. BROSTUS, Tiffin, Ohio.

Seed Oats—Wh. Tartar, big yielders. Corn, Famous Leaming & Reid's Yellow Dent (Ear or shelled). Satisf'n guaranteed or money ref'd. E. C. DETMER, Napoleon, O.

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MID-WINTER MEETING OF STATE
HORTICULTURAL SOCIETY.

(Continued from last week).

Secretary Bassett reported the annual meeting of the New York Society. The dependance of the New York rural people upon the fruit business makes the societies there of more interest than is observed in the more general farming states. In spite of the fact that it was necessary for each person who attended the session to pay two dollars at the door before entering there was an average of 500 at the different periods. The meeting was held in the center of the great apple district of that state and every speaker on the floor was questioned very thoroughly before he was allowed to retire—the inquisitive element in an audience being an indicator of the experience of the members making it up. The conditions of New York state are like those of Michigan and it is noticed that they look to the experience gained here with quite as much interest as in their own state and as we do to their work. The exhibit was made largely by the Geneva experiment station. It attempted a comparison of the fruits of the north and south and of the east and west. The comparison made a splendid study and impressed lessons upon all who saw the display. Michigan fruit exhibited by Secretary Bassett was greatly admired by the growers and judges there. The exhibit also presented fruit from orchards that had been cared for after the sod-mulch method and those given thoro cultivation. It was demonstrated that the former gave higher color and ripened the fruit earlier but that cultivation appeared to favor larger size and keeping quality. The exhibit of spraying machinery was large and many Michigan companies were there with their sprayers and other orchard apparatus. There was more complaint from the use of arsenate of lead than had been made the previous year, yet there was better satisfaction from its use than from that of Paris green. It was said after much speculation and investigation that all New York wants to make her place secure against competition from the west is better packing. The work of Prof. Hedrick, a former Michigan boy and graduate from our own agricultural college, where he afterwards taught for a number of years, is being highly commended by the fraternity of fruit growers of the Empire state. His work, with that of Prof. Bailey, of Cornell, who is also an honored Michigan product, indelibly New York fruitmen to the Wolverine state and their appreciation of this fact is shown whenever they have the opportunity.

Concentrated Lye as a Remedy for Apple Scab.

Under certain conditions trouble is experienced in controlling the apple scab with Bordeaux. Mr. Wilder, of Lapeer county, has such conditions in his orchards and he began using concentrated lye with very good results. He has applied it for three seasons and finds that it is more than fulfilling every expectation. The mixture is made by adding a pound of lye to eight gallons of water. At first the spray was compounded by using one to ten but the stronger mixture is now used. The applications are made when the trees are dormant just before the buds swell. Caustic potash in the crystal form was the kind of chemical used. Besides controlling the apple scab the spray was very effective in cleaning up the trees. After a spraying trunks and branches that appeared to have little life and vigor would become fresh, slough off the old bark and take on an appearance of thriftiness. The treatment is also used to control the canker worm and statements were made to the effect that the eggs of the tent caterpillar were destroyed by its use. Since the use of the spray there has been no trouble with the leaf curl.

General Discussion.

In reply to the question as to how grapes should be pruned, Mr. Munson stated that the system followed by them was to train upon two horizontal wires, one about three feet from the ground and the other two feet directly above the first. The vine was allowed to develop but one cane from the root which was permitted to grow an arm each way on each of the wires. Every year the arms are pruned back to as near the main cane as possible. He is operating upon strong clay loam soil. Does no summer pruning. Mr. Munson proceeded to say with regards to keeping grapes that they had not been successful in their attempts to keep the fruit till the holidays. It was suggested that by growing the

bunches in bags which afterwards are gathered with the bunches and stored away in a place of the proper temperature that the fruit can be enjoyed at holiday time.

In response to the question as to what rent one ought to receive for old run-down orchards, Mr. Farrand said that the amount would depend upon the condition of the trees. If they were well located as to market and for the best interests of the trees and the developing fruit, and, if the varieties were the kind that the market demanded, one should receive around fifty cents per tree, while if the conditions were otherwise it could not be expected that a renter would be safe in offering more than twenty-five cents for each healthy tree. As to the time for plowing up an old orchard sod, Mr. Farrand would plow in the fall, not only for the convenience but because he thinks the benefit coming to the soil from the freezing and thawing would be valuable in getting it into good condition for surface manipulation. Good results however, follow spring plowing.

The question of transportation was briefly discussed by Mr. Hutchins. The discrimination made against the fruit grower was impressed when rates for fruit and other products were compared. The only way in which the railroad men can be impressed with the claims of the fruit men is to go to them as organizations. They will then give the growers a hearing. If the matter is left to individual effort nothing will ever result. By co-operation proper pressure can be brought about justice in the making of rates for all classes of goods carried.

Essentials in a Hand or Power Spray Outfit.

This topic was handled by T. A. Farrand. One thing has been noticeable since it became apparent that spraying was becoming necessary in order to raise fruit successfully, and that is enthusiasm. The prospects for good results have been so good that there has been a sort of stimulus to great effort and from the beginning with crude spraying outfits, up to the modern and more perfect machines, fruit growers have taken hold with a zest rarely found in other kinds of business.

Whether the machine be for hand or for power it should have the desirable characteristic of being simple in construction. It will save much trouble as there will not be so many parts to get out of order. Another essential is strength and durability, as one does not desire to be constantly repairing the machine in order to keep along with the work. When repairs are needed they should be easily obtained. The important thing should be kept in mind, that of doing good work. Do not undertake to do a job until the machine is in perfect condition, and you comprehend the plan of the machine, can detect the sound that indicates that something is wrong, if it is wrong, and can properly adjust all the parts if difficulties arise. A coarse spray is too expensive; learn to make a fine one as it is cheaper and more effective.

At present most of the outfits are heavy and hard on the team to haul around, especially early in the spring when the ground is soft. It is believed that they will be improved and be made lighter and still be effective and durable. All the different powers are good, but the gasoline engine seems to give the best satisfaction. With any of them a good agitator is necessary.

In using an engine be sure to have a sufficient amount of hose to enable the operator to do good work. Be sure to be able to spray into the tree from all directions, sideways, downward and upward. To do a good job means work, and if one is not willing to work they better not take up spraying.

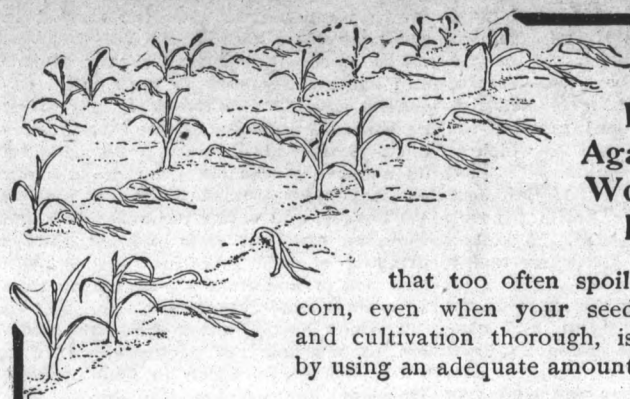
Nozzles.—There are a great many different kinds of nozzles, and in selecting be sure that you can readily change from a round stream to a fan shape and then to a fine, dewy spray. Keep a variety on hand to enable you to have at hand just such as are required to do well the job in hand.

The whole outfit should have the best of care in order to be able to keep it in perfect condition.

In order to get all of the water out of the gasoline, strain it thru a chamois skin.

Essentials in Successful Spraying.

Prof. L. R. Taft, in dealing with this topic, said at the present time there is but little that is new to offer, but some suggestions may benefit some men that are beginners in the business. When we spray we should have in mind the

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Against Cut
Worms and
Root Lice

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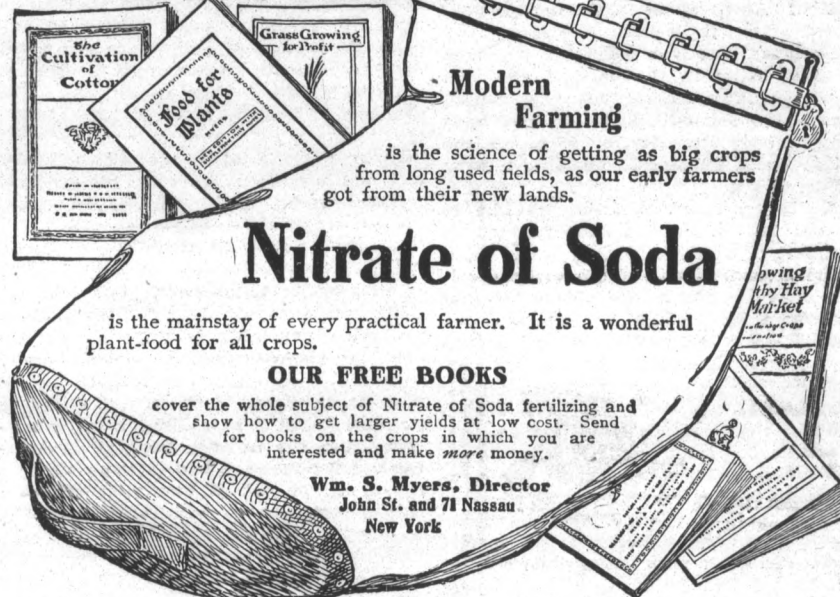
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objects which we are striving for, and unless we understand the nature of the enemies we are trying to destroy, we will not succeed. There are enemies to the trees and enemies to the fruit. It is necessary to understand them all. Generally the fungous diseases are not well understood.

There are two classes of insects, the ones that chew and those that are suckers. For those that chew use poison, and those that suck, one must use something that kills by contact. For the fungi, which are minute plants, use something that will destroy the spores. The fungicides spread over the surface where the spores light, and when they come in contact with it, they will not grow. Then the necessary thing to do is to use the right material at the right time and in the right manner.

Begin in the spring before the blossom buds open, and combine an insecticide with a fungicide, the Bordeaux, or copper sulfate and lime, and the arsenate of lead. In a week after the fruit is set go over the trees again with the same mixture. If not sprayed then, the fungi will attack the stem of the fruit and it will fall prematurely. The insecticide should be well spread to cover the limbs and young apples, so as to get some of the poison in to the cavity in the blossom end of the apple before the calyx closes so that the worm that hatches from the egg laid by the codling moth, will get it and be destroyed, as he undertakes to enter the apple at that point. After the calyx has closed one cannot get poison in the cavity.

Three weeks after the second spraying spray again, reducing the strength of the Bordeaux by using three pounds of the copper sulfate, and use two pounds of the arsenate of lead. As the codling moth lays the eggs on the apples, and on the leaves, it is necessary to be there with the poison to destroy them as they eat their way on the leaves and apples toward the point where they attack and enter the apples. Spray again in about three weeks with the sulfate somewhat reduced.

As the codling moth lays her eggs again about the 20th of July, it is better to spray again soon after that time. Another brood may be looked for from about the 10th to the 15th of August; it is best to spray again at or near the middle of that month. As the moth keeps up the egg laying, it is necessary to keep the leaves and apples protected all of the time. In a wet season it is more difficult to save the fruit than in a dry one.

It is not advisable to use the Bordeaux too near the time of picking the fruit, and six weeks before the fruit will be ready to gather the spraying can be stopped.

In preparing the Bordeaux give the preference to the unslacked lime. If the hydrated lime is used, use a greater quantity, say seven or eight pounds to the 50 gallons of water.

For the San Jose scale no better remedy has yet been found than the lime and sulphur mixture. By diluting this mixture to one-fifth or sixth of its usual strength, it can be used as a fungicide for plum and cherry rot.

BLOOMING PLANTS FOR SHADED LAWNS.

BY PANSY VIOLA VINER.

After some experimenting we found that there were a number of blooming plants that did finely on a shaded lawn, so we specialized on these with the most satisfactory results. First we would mention the fuchsias with which we have had wonderful success, and which, time after time, have taken the first prize at the flower shows, and which were the wonder and admiration of all those who viewed them on our lawn. Since profuseness of bloom is what we aim at chiefly we choose the single varieties since they bloom more freely. We also choose the plants that are inclined to grow stocky and branch out, and those that can be trained into miniature trees.

Fuchsias Are Easily Grown.

Fuchsias are very easily propagated by cuttings, and by starting with a good healthy plant or two one can soon have quite a variety of plants suitable for bedding. Tin pans about four inches deep are the best thing in which to start the cuttings; a very good soil for this purpose consists of half sand, and the other half composed of equal parts of well-decomposed sod or leaf mold and good garden soil. Remember that "cuttings" are what the name implies and are intended to be cut off with a knife and not broken off. The soil should be thoroly

saturated with water when the slips are first inserted in the soil, water should then be applied as needed, usually daily. The cuttings will take from a week to a month to get well rooted according to the amount of light and heat they receive and the cutting itself. After the cuttings are well rooted pot in small pots and put aside in a shady situation until ready for bedding purposes. Slips started in August will make nice bedding plants the next season, and those started in March will be ready for bedders about May, but we prefer the older plants as they will make a greater show in bloom. Our finest bed was at the northwest corner of the house and the sun only reached it for about an hour each day toward evening. Fuchsias require plenty of moisture and the soil should not be allowed to get dry around the bed; they like a good rich soil, we usually put cow manure under the soil which should have been dug out to the depth of at least one foot. Do not use horse manure since it is too heating. We use a good garden soil mixed with well-rotted sod, leaf mold and cow or hog manure to spread on top—half garden soil and one part sod and leaf mold, and the other part manure is about the right proportions. Work this well up together before putting in the plants. Do not plant close together, but give the plants plenty of room. A single plant will make a fine effect on the lawn, especially after it has gained some size. It is nothing unusual with us to have single plants bearing as high as three or four hundred of the beautiful pendulous blossoms at a time. They are also nice grown in lawn vases or urns. We find that fuchsias are best wintered in a cool cellar unless the plants are very young.

Begonias Require a Good Soil.

Geraniums are considered by most people as the best bedding plants, but on a shaded lawn the tuberous rooted begonias take their place nicely, indeed they are magnificent bedders for shady lawns, since they thrive much better in a shady or half-shady location than in one of sunshine. They are wonderfully profuse bloomers, and their range of colors is very wide, from ivory-white to flaming scarlet, thru shades of pink and rose, light and dark crimson, bronzy yellow and orange. If they receive the proper treatment they will bear blossoms as much as from four and six inches across. They like plenty of moisture, but should not be kept too wet—or the stems might rot off at the ground. A soil composed of one part well-decomposed sod, one part leaf mold, and one part well-rotted manure just suits them. If the weather is dry they should be mulched frequently with lawn-clippings, leaves or fine manure. Begonias can be started from seed, but we find the best plan is to obtain the roots or plants from a reliable florist—they can be got by the dozen at a moderate rate. If the roots are obtained they should be started in pots, and kept in them until ready to put in the ground, which should not be before June. The single varieties will prove the most satisfactory for bedding purposes.

Pansies are General Favorites.

Pansies have been improved so wonderfully within the past few years that they are now excelled by few other low growing plants that produce blossoms; they originally came from Tartary where they have a cool, moist climate and a rich, loamy soil; so we find that they thrive best in a moist shady location, and do not do any good in a hot, dry sunny one. They are at their best in the spring and autumn since at these seasons the soil is cooler and moister. In raising pansies successfully a great deal depends on the soil; they will do very well in a light soil but it dries out more quickly so we use a rather heavy soil and keep it well tilled, enriching it with well-rotted cow manure. We spread the manure heavily on the surface of the bed, then work it well into the soil to the depth of at least eight inches, and a foot is none too deep. In dry, hot weather the plants are mulched in the same manner as the begonias. Pansies are very easily started from seed, and plants desired for spring blooming should be started in August or September of the year previous, or if wanted for fall blooming they should be planted very early in the spring in boxes. When the plants are large enough to handle easily they should be transplanted to the beds where they are to bloom the next spring. Pansies are not perfectly hardy, so it is best to protect them thru the winter with several inches of leaves, or straw if the leaves are not obtainable.

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Are you sometimes discouraged, and think you'll never be any better?

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They are the cheapest engines you can buy—simple in construction, most economical to run, do not get out of order, easy to start winter or summer—a ten-year-old boy can run the Olds Engine just as well as a man.

Thousands of farmers have found out the superiority of the Olds over all other engines. The United States Government must have found it out also because they buy Olds Engines for their military institutions, forestry and irrigation departments. Uncle Sam thoroughly investigates everything he

buys. The Olds Engines stood the government test just as they will stand any other test.

For thirty years we have made nothing but Olds Engines. We know the engine business just as you know your sitting room. Our business has steadily increased during that time. What made it? Why, because the Olds Engine did just what we claimed for it—every user was satisfied and knew he had got more than his money's worth, and he told someone else about it.

Some of the Features of the Olds Engine.

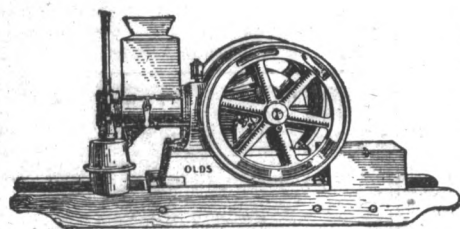
Olds Patent Seager Mixer

The only one that makes a perfect mixture of gas and air, giving the greatest power. No pump to leak or get out of order—no moving parts.

Simplicity, three separate inspections, durability, economy and certainty of operation. Our catalogue explains these points in detail.

Removable Valve Mechanism. Removable Water Jacket.

Jump Spark Ignition. Piston and cylinder ground to a perfect fit, giving better compression and more power.



Olds Hopper Jacket Engine on Skids.

Olds Engines are of the highest efficiency at the very lowest price because we can produce them without wasting a penny's worth of labor. There is a machine for every operation, and each piece, down to the smallest bolt or nut, is made of the very best tested material at a cost that could not be lower without cutting quality. Don't be misled by statements about "cheapness" in engines. Nobody can afford to buy a poor engine at any price, but there is a point where the highest quality can be had at the lowest cost, and the Olds Engine, because of the factory in which it is made, and the workmen who make it, stand without a superior in this respect. They are not slighted in places you cannot see, or where only an expert can discover it, but thoroughly well built through and through, in a factory that is known the world over as one of the most modernly equipped engine factories that has been built.

That is why we give you a durable, simple, strong, high grade, perfect-working, long lived engine at a low price.

Do Not Think of Buying an Engine Without Investigating an Olds.

Write Today for Our Handsome Catalogue.

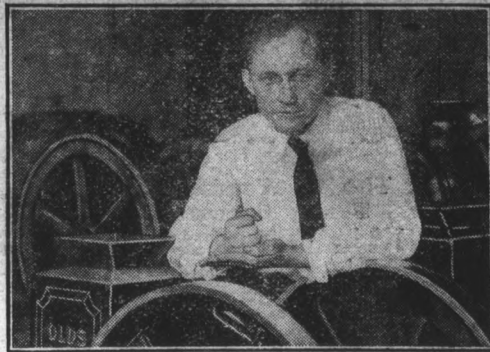
It contains many fine pictures of the very latest models of Olds Engines with a detailed description that makes the engine question as plain to you as an open book. It contains letters from farmers who have used the Olds Engines, and they give their practical every day experience with it.

Olds Engines are made in all sizes to suit every kind of work on the farm. We have exactly the kind of engine you want. Tell me what you want to do with it, and I will tell you just exactly the kind of engine you want to buy to do the work. It will be an expert opinion that costs you nothing.

Our hopper jacket engine on skids or wheels, 3 to 12 H. P., is ready to run when you get it. Fill it with gasoline, throw on the switch, turn the wheel, that's all. No piping to connect, nothing to set up, always ready, can be moved anywhere.

We also make regular engines 8 to 50 H. P. for heavier work.

Every Olds Engine is fitted with the Seager mixer which is recognized as being the most effective mixer that has ever been invented. No pump to leak, no moving parts to get out of order. They also have a removable water jacket so if through carelessness the water should freeze, but very little damage is done.



YOU cannot afford to do without an Olds Engine. The first cost is saved so quickly in time, labor and money, that no shrewd farmer should try to get along without one. The daily cost of an Olds Engine is so small it is hardly worth while counting, compared with the work it does.

There are not two farmers out of a thousand who could not use an Olds Engine with profit to themselves on their farms. You know what can be done with an engine on a farm better than I. You know an engine is needed on every good farm, but probably the reason you have not one now is because you have felt you could not afford it, or had some idea an engine was a difficult thing to run, and an expensive thing to keep in order, or perhaps you have had an engine that did not give you satisfaction. Not so with an Olds. You can afford it. Thousands and thousands of successful farmers have felt just as you do, but each man owns an Olds Engine today, and now he wonders how he ever got along without it.

Do you think the big successful men of this country would be where they are today if they had not kept up with the times? They bought the things they needed to increase their earning power. A successful man can always find a way to pay for a necessity in his business.

I guarantee every Olds Engine that leaves the factory to be in perfect running order. I do not spend much time in the office. I am out in the shop with my coat off watching every detail.

By keeping right out among the workmen, seeing that all the little things are actually done, I know the engine you get is all right, and that the high Olds standard is maintained. I also know the engine is "Best by every test," because I look after the testing and inspecting myself. They are the best you can buy, whether you pay less or more than the Olds price.

Write me about your own particular case. Let me advise with you. What I can tell you will fit your case exactly. Then you can decide what engine to buy.

J. B. SEAGER, Gen. Mgr.

The Olds Pneumatic Water System.

Simple, Reliable and Economical—water for the farmhouse. Let us know your requirements and we will quote you prices. Satisfaction guaranteed.



It is to your decided advantage to send for our catalog.

Do it now before you forget it. A postal card will do, but better still, write me a letter, telling me what you want the engine to do, and you will get a personal letter from me that will give you the facts you want.

Write me or my nearest representative. See addresses below. **J. B. SEAGER, Gen. Mgr. OLDS GAS POWER CO.,** Main Office and Factory—915 Seager St., Lansing, Mich.

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