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FARM NOTES.

The Tomato Borer.

I am sending you this day a potato stalk containing a worm of which I have found several in my potato field. They bore a hole into the center of the stalk, where they work down to the root, and then work back up another stalk. Kindly advise what this worm is and remedial measures, if any.

Livingston Co. HYRAM PADDOCK.

The specimen sent is commonly known as the tomato borer (*Papaipama nitela*). The first time our attention was directed to this insect a resident of Detroit advised us that it was destroying his tomato plants. In this case the worms worked in the stalk until the fruit set and then attacked the fruit in the manner shown in the accompanying cut, which was made from specimens collected at that time. Some of the worms were sent to the Agricultural College, where they were bred out to complete their life cycle. Other specimens were noted at about the same time, not only in tomatoes but in other plants as well, as this worm attacks a variety of plants, including potatoes, dahlias, rhubarb, corn and ragweed. The worm is about an inch long, flesh colored and with four brown stripes extending its entire length. There is supposed to be but one generation developed each year, the worm leaving the plant and entering the soil to go into the pupal stage. The adults emerge in the fall and it is thought that they hibernate over winter in the mature form.

Owing to the feeding habits of this insect it seems to have no weak spot where it may be attacked with poisons or sprays. The only remedy seems to be to destroy those found in infested plants, and as it breeds in ragweed and other common weeds there is likely to be less trouble from the pest on farms which are comparatively free from such weeds. Fortunately this worm is not now very common, which is, however, an additional reason for using every precaution to keep it from multiplying where it is found.

Clover Dodder.

I send you a sample of weed which I found in my June clover. The seed must have been in the clover seed that I got from the elevator last spring, and I would like to know if it would be all right to harvest a crop of seed from this field this fall. Also what is the best way to destroy the weed?

Huron Co. JOHN MALDING.

The weed above referred to was clover dodder. It was in bloom, for which reason, as well as to familiarize the reader with another species of this pest, the accompanying illustration was made from the specimen sent by this inquirer. This weed is smaller in its habit of growth, and of a reddish, instead of a yellow color, as is the alfalfa dodder described and illustrated in the last issue. But like it, it is a pest to be avoided, for which reason it would not be profitable to save and sow seed from the infested field. The best way to handle this field is to harvest the second crop for hay before the seeds have matured, so that as few of the seeds will become scattered about the farm as possible. Then plow up this field for a cultivated crop next spring, and by the time clover again occurs in the crop rotation the seeds will have been pretty well destroyed, so that little if any trouble would result.

The number of samples of dodder received at this office during recent weeks indicates that this parasitic weed is becoming too common in Michigan. There seems to be a similar situation with regard to it in other states, notably in Pennsylvania, where it is reported that many localities are infested. This fact should prove a sufficient warning to the reader so that this pest will be promptly exterminated wherever it appears, and that greater care will be taken in the future to the end that it may not be introduced

on our farms thru the medium of poor grass seed.

Patching up a Poor Seeding.

I have 18 acres of rye on which the seeding is rather spotted. Could I "patch" it up by sowing about one quart of clover and two quarts of timothy seed per acre? Should sow it with a grain drill and roll the stubble down to form a mulch. The soil is fine sandy loam and in a fair degree of fertility. When is the best time to seed it? Would you use a different proportion of clover and timothy?

Oakland Co. H. E. A.

A poor or spotted seeding can sometimes be successfully "patched" up in

with a roller, or spike tooth harrow, depending upon the condition of the soil. We have concluded, however, that it would pay to give the soil a little preparation before sowing the clover, and would advise disking the field, with the disks set rather straight, ahead of the drill, and then follow with a spike tooth harrow or weeder. This will not destroy much of the clover that is now growing, and will help to conserve the moisture for the seed that is sown. It will also make it possible to get the seed in a little deeper, which we believe is quite important

seed. The timothy, if sown as advised should make a good stand and insure a crop of grass for next season, even if the patching up of the clover seeding is not a success.

Growing Alfalfa Seed.

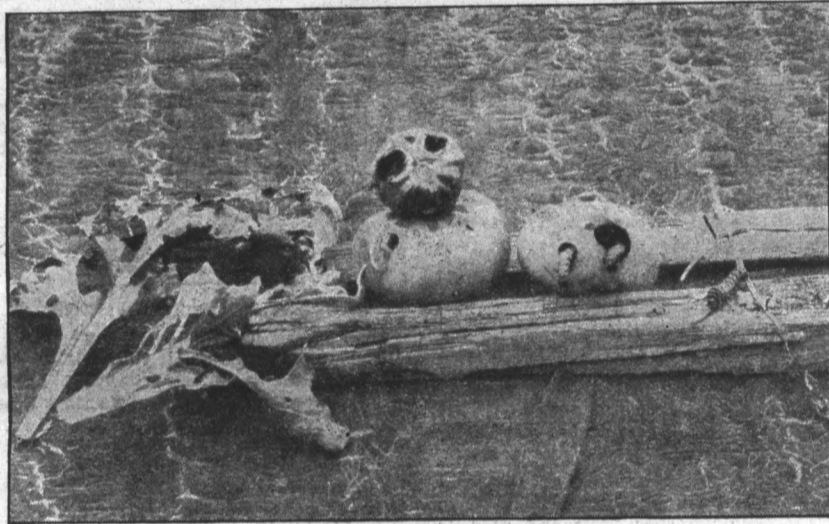
Would you please tell me which cutting of alfalfa to save, the second or third? Saginaw Co. G. H. GERARD.

A majority of western growers save the third cutting for seed, for the reason that they are able to get two fairly good crops of hay by this plan, while if the second crop is saved for seed they cannot be sure of getting a third crop that will be worth cutting for hay. Some growers, however, adhere to the practice of saving the second crop for seed for the reason that the second crop of hay contains relatively less protein than the first or third, and is thus less valuable for hay. But that is in the semi-arid section of the country, where the climate is more favorable for seed development than in our more humid climate. In his book on alfalfa, Coburn, of Kansas, after extensive investigations of the subject, expresses a doubt as to whether seed production should be undertaken in the humid regions east of the Missouri River. However, there was quite a quantity of seed harvested in Michigan last year, in at least two counties of the state, which is proof that under favorable weather conditions for maturing a seed crop, at least, alfalfa seed can be successfully grown in Michigan. Here, again, as in seeding, the judgment of the grower must be exercised as to which crop it is best to save for seed. Our seasons are unreliable, and whether the success which was attained in growing the seed in Michigan last year was due to the dry weather conditions which prevailed throughout Michigan, or whether it can be successfully grown in a normal season is yet to be demonstrated. However, we are much more apt to have dry weather in which to mature and secure the seed in midsummer than in autumn, for which reason it would appear to be a safer proposition to save the second crop for seed purposes, where it is desired to try seed production. And there is no question that it is a desirable undertaking to grow the seed in Michigan, as there is probably no doubt that success with the crop would be more uniform if thoroughly acclimated seed were available for sowing.

Late Sowing of Alfalfa.

Will you please inform me thru your columns which would be the best time to sow alfalfa? I want to sow it on oat ground and the soil is quite sandy. Oakland Co. A. S. B.

The best time to sow alfalfa seems to depend very largely on the weather conditions which prevail at the time when it is sown. Experiments conducted at the Michigan experiment station in which alfalfa was sown each month during the season failed to indicate the best time to seed the crop, the results not being uniform in different seasons. In the successful experiences in the growing of alfalfa which have been recounted in these columns, the same fact is brought out. Some secure best results by early seeding on well prepared ground, while others get better results with midsummer seeding without a nurse crop, and still others have succeeded in getting a good stand when the seed is sown in grain, and some have had good luck with fall seeding. Mr. C. R. Cook, of Oakland Co., reported a good stand when the seed was sown on well-prepared ground after a crop of oats and peas were harvested. But there are seasons when a good seed bed could not be prepared after oat harvest before it would be too late to sow the seed with any prospect that the plants would get large enough to survive the winter. However, the present season would seem to be a favorable one for late summer seed-

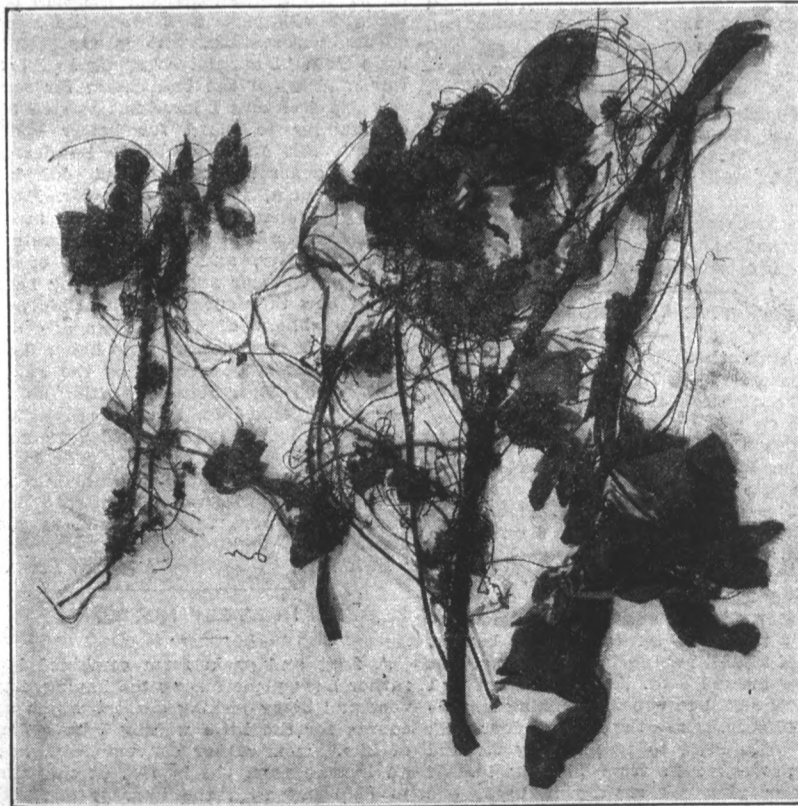


The Tomato-Borer (*Papaipama nitela*) Which Attacks Potatoes and Other Plants.

the manner suggested by the inquirer. The writer has tried it a number of times and has had one marked success and several partial ones, as well as a few complete failures. Much depends upon the weather, of course. But where the soil has been well soaked up with copious rains, as it has over a wide section of the state at this time, it is certainly well worth a trial. In his efforts to this end the writer has always proceeded as is suggested in this inquiry, drilling the grass seed into the stubble, and following

where it is sown at this season of the year, as the August sun will dry the surface of the soil out quite rapidly, and the plants are likely to suffer or be killed before they get a start.

The mixture suggested is a fairly good one, but would be improved by the addition of another quart of clover, or a quart of alsike seed. This will make a fairly good stand in the bare places if it lives, and the benefit derived from a stand of clover all over the field will more than pay for the extra cost of the



Clover Dodder (*Cuscuta Glomerata*) is Becoming a Too Common Weed in Michigan.

ing. If the oat ground is disked over as soon as the crop is off, in order to conserve the moisture which has fallen in recent showers, and the ground is then plowed, rolled down and thoroly tilled to prepare a fine, mellow seed bed at the surface, and to firm down the sub-surface soil, and the seed is sown from the middle to the last of August, the chance of getting a stand would seem to be good. In many sections of the country, where alfalfa is grown extensively, fall seeding is preferred to spring seeding for the reason that the weeds do not bother the crop as much and a better stand is secured, and consequently a better crop of hay is assured the next season than where the seed is sown in the spring. A good rule is to follow in seeding alfalfa in Michigan is to sow when the soil and weather conditions favor the quick germination of the seed and the rapid growth of the young plants. It is largely a matter of individual judgment on the part of the farmer who is ambitious to add this king of forage plants to the resources of his farm. However, if late sowing can be successfully followed it has a decided advantage over spring sowing in that it does not make it necessary to lose the use of the land for a whole season to get the plant established. This fact, together with the fact that August sowing has proved a success in some localities in the state, makes the plan worthy of a trial, where one has the land that can be devoted to it.

It is quite probable that the all-important question of whether the nitrogen gathering bacteria peculiar to the plant are present in the soil will have a good deal to do with the success of late seeding. In case it is present the plants make a much more rapid and vigorous growth, and if they get a sufficient start to winter over will be likely to make a profitable crop of hay the following year. However, the lack of the bacteria is just as serious a handicap for the alfalfa sown in the spring or early summer as a profitable crop cannot be secured without good inoculation, but the comparative success of artificial inoculation at different seasons of the year is as yet an undetermined problem.

Potatoes in the Crop Rotation.

Is it a good plan to put potatoes after rye? I have 5 acres of rye on good old ground; was sod last year, and will cut the rye stubble 12 inches high and plow under right away. Will such treatment be a good preparation for potatoes next year?

Antrim Co.

A SUBSCRIBER.

While it would be possible to grow a good crop of potatoes after rye, yet rye is not a good crop to precede potatoes and the crop rotation should be so planned that the small grain crop will come last before the land is reseeded to clover and other grasses. Potatoes are a crop that for best results need plenty of available fertility in the soil. In fact they need a surplus of available plant food to make a big crop, for which reason they are generally given the first place in the crop rotation. Sod ground that has been well manured during the winter or early spring and that is plowed early in the season and well fitted, is the best possible place to plant potatoes, and even then it has been determined by repeated experiments that it pays to give liberal supplementary fertilization with commercial fertilizers containing a good proportion of the mineral elements of fertility. Under these conditions the potato crop is likely to be a good one, and it leaves the soil in excellent condition for the crop which follows for the reason that there is plenty of plant food left in the soil and the thoro and late cultivation has a beneficial effect in making it available for the succeeding crop. Thus the deep-rooting crops, like corn and potatoes, should precede the surface feeding crops, like the small grains, in the crop rotation, and the land should be again seeded to clover with the latter, in the ideal crop rotation.

On the other hand, the rye plant is a good gleaner. It greedily appropriates the available plant food in the surface soil and draws hard on the top few inches of the soil on which it grows. It is so persistent in its efforts to this end that it will make a fair crop on a much thinner and more impoverished soil than will almost any other of our common crops, but in this process it leaves the soil in relatively poor condition for a crop like potatoes, which must be well fed to be the most profitable. Then there is another objection to a crop rotation, such as subscriber suggests, and that is its length. This ground, which was broken from the sod last year, doubtless grew some cultivated crop last season, which was followed with rye. Now, by planting it to potatoes next year and following the potatoes with another small grain

crop, the humus or vegetable matter in the soil will be greatly depleted before it is possible to again get the land seeded to clover. To obviate this it would be a far better plan to plow this field shallow after the rye is off and sow to rye again, plowing this crop under for the potatoes next spring. This would provide a covering for the field over winter and would add some vegetable matter to the soil in the rye crop plowed down for the potatoes, as well as in the stubble mentioned in the inquiry.

On most of our soils, and particularly those of a type best adapted to the potato crop, the rotation should be a short one, in which clover recurs once in three years if possible, and surely at not longer intervals than once in four years. This will enable the farmer to keep up the humus content of the soil better than would otherwise be possible and thus keep the soil in a better mechanical condition to retain moisture under cultivation and to hold available plant food in such condition that fewer failures to get a stand of clover would be met with when it is desired to reseed the land.

Cement Floor for Granary.

We are building a granary and are putting a cement floor in it. Do you think the grain will keep on it? Washtenaw Co.

P. S.

Where the cement floor is properly laid on a well-drained foundation, there is no trouble about the grain keeping well after the floor is properly dried out. It should, however, be given sufficient time to season before the grain is stored, and the concrete should be made rich enough to prevent it from absorbing the moisture from below by capillary attraction.

Seeding a Marsh to Red Top.

I have ten acres of swamp land, dry enough for cattle to run in. It has grown up to wide blade grass. I would like to sow some grass seed on it. Would red top do? If so how much to the acre. I want to sow it right among the grass and bushes for pasture.

Eaton Co.

F. WRIGHT.

Red top would be a good grass to get established in this marsh, but a good stand could not be expected by sowing it among the wild grass and brush. However, some of the seeds would grow, and these would bear seed later and the grass might gradually become established in places. However, if the marsh is very wet and soft thruout the season it will not pay to try the experiment. Red top will grow successfully on land that is overflowed for a time in the spring. The amount of seed sown varies greatly, and should depend on whether it is sown in the chaff or whether re-cleaned seed is used. Of the re-cleaned seed, from 3 to 15 lbs. per acre are used, depending on whether it is made the principal ingredient in the grass mixture. Fowl meadow grass might be mixed with it with good results where seeded in this way. The seed would probably be best sown in the late summer or fall at about the time the seeds naturally mature.

Ice Storage in the Cellar.

Could one partition off space in a big cellar as storage for ice, or would it make vegetables freeze, and in what way would be the best to partition it off?

Ionia Co.

E. J. BROOKS.

While it would be possible to arrange storage space for ice in a cellar, it would not seem to be a desirable proposition, as it would make the cellar damp, and this would be bad for the house. Besides it would be quite expensive to provide partitions, and a false wall with dead air spaces, which would be necessary to keep the ice well, would cost considerable, and with the extra expense of getting good drainage, which is absolutely necessary, the cost would nearly equal that of outside storage, and would be far less satisfactory.

THE SILO ROOF.

No doubt there will be quite a number of silos erected in Michigan this summer, and the question of what kind of a roof to put on will come up. For the benefit of those thus situated, I will describe the one I have on my silo. Place 2x8 across silo in center 2 feet from same on either side put 2x6, and 2 feet from 2x6 place 2x4. This will give 6 in. fall on a 12 ft. silo. That is, 6 in. on each side of center. On one side of center, between 2x8 and 2x6, leave a door 2x9 or 10 ft, case door, frame on inside, and allow casing to project 3 in. above roof boards. This is to nail roofing to so as to prevent leaking around door. Make door out of 1 in. stuff nailed to two 2x4 running lengthwise of door. Case the edge of door with 2 in. wide stuff to nail roofing to, and also prevent rain from blowing in. If ordinary prepared roofing is used, one strip will cover door. Fasten farther side of door by putting a bolt through 2x4

on under side of door, and put cleat on so as to fit snugly under bottom of door frame. The cleat can be loosened by using a pole or fasten a wire to it and extend to ladder at door frame. The door can be fastened the same at the ladder end, or hooks may be used. At any rate, fasten it securely, as the wind can get a good purchase on anything so high up.

This kind of roof has these advantages over others: When getting ready to set up cutter a man can climb up on ladder inside of the silo and open the door by laying it on the roof. He can then let a rope down and pull up carrier or blower pipe; he has a good footing and is where he can handle himself. If at any time during the filling anything goes wrong with the carrier or blower pipe, a man can quickly get up to the pipe and help put things in order without the use of a long ladder on outside of silo. When the silo is nearly full the man on inside can stand indoor and level silage so the silo can be filled right up to the roof. Anyone who has ever worked in a silo knows what kind of a job it is to stoop over under a roof and try to level silage as it comes from a blower. Any one can put on such a roof and you can use any kind of lumber. If a nice job is wanted, cut 2x8 and 2x6s back to 4 in. on outside of silo, so as to have cornice even. Fit short boards between rafters on top of staves and chamfer short pieces of 2x4 to fill space from outside rafter to outside center of silo, to nail roof boards to; this will make the roof more level, thus avoiding springing down of boards. The roof can be put on easier after the silo is filled, but if you wait until after you fill, cover silage with canvas or old carpet, so as to avoid getting any nails mixed with silage. If it is desired, a dormer window can be put in the door, thus giving a good light inside when door is closed. This style of roof may not look quite so nice as a cone-shaped roof, but it is easier to put on and much cheaper.

Allegan Co.

J. H. VIELKIND.

BEING A HELP TO OTHERS.

"It would be a good thing if every farmer would ask himself what he is helping to demonstrate at the same time that he makes a living on his farm." I ran across the above in one of the farm papers not long ago, and it set me to thinking and wondering how many of us had a thot beyond making a success of our occupation, as to how we are helping mankind in general, and our own class in particular—what are we helping to demonstrate? We certainly have, or ought to have, some definite end in view, that will not only be a benefit to us but to others as well. Every farmer has a chance to be a help to every other farmer, but too few live up to their opportunities. Too many of us are, I fear, like the senator, at Washington, of whom one of our prominent political writers recently had this to say: "If he owed a message to his times he has failed to deliver it. He will step aside and be forgotten. After thirty years in the senate it will be as tho he had written his name in water." Compare that with the words of another senator, who is reported to have said: "I am not so young as I once was, and when the end comes for me I want to feel that I have not wasted any opportunity to plead for better conditions." Mr. Lillie seems to be demonstrating general farming and dairying; Mr. Hartman, fruit growing; Mr. Reynolds, good sheep; Mr. Clapp, good swine. These are all helping to demonstrate their specialty, and the readers of the Michigan Farmer are benefited by reading of how they succeed each in his way. The neighbors of these men are also helped, for they see what is being done, and "seeing is believing," as the saying goes. All cannot help by writing as the above gentlemen do, but all can be examples, which often speak louder than words, to those who can see. The information may not be important, but my own ambition is to demonstrate how much every acre can be made to produce.

Eaton Co.

APOLLOS LONG.

HARVEST NOTES.

A fruit and grain farm combined is a rather busy place during the haying, harvest and berry picking season, which accounts for the little writing I have done of late. It is rather convenient to have an income from the berries at this time to help out with the harvest expenses, but it means more than the proverbial eight hour system of the farmer (eight

before dinner and eight after), for the one who is trying to look after all of the operations and do each justice and at the same time do a day's work in the harvest field. He won't feel much like writing after the day's work is done.

We have had a good season to secure what seem to be good crops of hay, wheat and oats. As a rule, new seeding was rather spotted but our eight-acre piece of June clover cut 2½ tons per acre of fine hay, all secured without a drop of rain. The other piece, which was old seeding kept over because the oat seeding failed, was mostly timothy and cut about 1½ tons.

Wheat, as a whole, had more straw than we often see, and the heads seem to be well filled, tho those who have threshed find the yield rather low for the straw. We hauled 23 large loads from a nine acre piece. This was corn-ground wheat the year before. The corn-ground wheat was considerably lighter this year, but a piece from which we cut a crop of June clover for hay and a second crop for seed and then plowed for wheat, had a heavy growth of straw, but quite a number of shrunken heads. This did not get much of a start last fall it being so dry, but came on rapidly this spring.

We have just finished cutting the oats, which was also a tangled mass of long straw, much of it down. This field was drilled April 6, rather early for this season. It was corn ground and was fitted by disking with a single action cutaway harrow. We went over it once lapping half, then crossed without lapping, harrowed once, and drilled 1½ bushels per acre. Several predicted that we would get no oats, but it appears to be as good as any plowed field I have seen.

I might add that the wheat was cut with a binder which has done duty for 22 years. The binder is still in good condition with a few exceptions, but the canvasses gave out this season and we discarded it rather than get a new set. I do not think this binder has ever had a rain on it unless covered with a canvass, and has been in the shed except when in actual use. The canvasses were the original ones. The machine has cut from 25 to 60 acres of grain each year.

Calhoun Co.

S. B. HARTMAN.

SOIL FERTILITY.

The Pennsylvania Agricultural Experiment Station has conducted a series of fertilizer experiments for 25 years on a clay loam soil of limestone origin. The series consists of four tiers of 36 plats each in a rotation consisting of corn, oats, wheat and hay (mixed timothy and clover). Each year there have been 36 plats of ear corn, corn stover, oats grain, oats straw, wheat grain, wheat straw and hay. Fertilizers were applied on alternate years, viz.: to the corn and wheat. Of the three essential fertilizing ingredients, nitrogen, potash and phosphoric acid, only phosphoric acid produced any increase in yield when used alone. A much larger increase was obtained by using both phosphoric acid and potash. It has been possible in a rotation in which clover occurred once in four years to keep up the crop-producing power of the soil during a period of twenty-five years by applying on alternate years, namely, to the corn and wheat, 48 pounds of phosphoric acid and 100 pounds of potash per acre. The addition of 24 pounds of nitrogen per acre, however, to the mineral fertilizers resulted in a material increase in yield. Greater quantities of nitrogen produced very little effect. Nitrate of soda proved a better form in which to apply nitrogen than either dried blood or sulphate of ammonia, the latter causing the soil to become acid, and proved especially injurious in later years to corn and clover. It has been possible during twenty-five years to maintain the crop-producing power of the soil without the use of any yard manure. During twenty-five years the plats receiving no fertilizers have yielded during each rotation products having an average of \$63.03, while plats receiving six tons of yard manure have yielded grain and forage valued at \$88.99. The application of 12 tons of yard manure has caused an annual increase valued at \$25.96, or a return of \$2.16 for each ton of manure applied. The application of 16 tons caused an increase of \$26.61 or \$1.66 per ton, while 20 tons caused an increase of \$28.88 or \$1.44 per ton of manure.

The tests made at the Pennsylvania station indicate that the best results can be obtained only by a continuous and systematic use of fertilizers in connection with a well-ordered method of cropping.

Washington, D. C.

G. E. M.

POULTRY AND BEES

THE CHICKEN MITE—ITS NATURE AND HOW TO DESTROY.

The chicken mite is generally distributed throughout the world wherever chickens are raised. The adult mite is a light gray color with dark spots showing thru the integument and is about 1 millimeter (less than 0.04 inch) long. When filled with blood the color of the mite is decidedly red.

The usual habit of the mite is to attack fowls at night and to hide in cracks and corners or under rubbish by day. In bad cases of infection mites remain upon the fowls during the day. Often, however, an examination of fowls during daytime will fail to reveal the presence of any mites. The presence of filth, such as droppings, rotten eggs or rubbish is favorable to their multiplication. Also carelessly constructed buildings will furnish hiding places.

The mite is not partial to any particular kind of poultry but attacks all, including pigeons, barn swallows, certain wild birds and occasionally horses and other animals. Young chickens and sitting hens are most seriously infested by them.

The chicken mite is one of the hardest things to contend with in raising chickens. Remedies more or less commonly employed include spraying the houses and roosts with kerosene, benzine or gasoline, dusting with carbolated lime, fumigation of the houses with sulfur, etc., but my own experience leads me to think that cleanliness is the main thing after all. I always made my nests of clean hay and sprinkled them liberally with powdered sulfur. I kept my houses scrupulously clean in hot weather, removing the droppings every morning and going over the roosts every week with a cloth well soaked with kerosene, not neglecting the shelving casings around the windows or any other place where I thought they might gather. I also had plenty of fine ashes for the fowls to dust in. In this way I succeeded in keeping my chickens free from pests, while my neighbors' hens were often badly infested.

If one will spend a little time each day, and in a systematic way, hens can be kept perfectly clean, and if you can't do that my advice is to not raise hens or keep chickens. I might mention that it is well to go over the roosts two or three times every time you wipe them off, and don't spare the kerosene as it costs but 3 or 4 cents a week. A spray pump would be just the thing to reach the cracks and kill those mites which you cannot reach with a cloth. Change the hay in the nests often, and don't forget the sulfur.

Massachusetts. C. G. BROCKWAY.

CLEARING OUT OLD STOCK.

The time to draft old hens varies according to the district. Part can find a place on the house table, and a two-year-old hen is by no means bad eating if properly cooked. I am no authority on cooking, but I know that if a hen is boiled slowly for an hour and a half the day before she is wanted for table, allowed to cool in the water, and so remain until boiled up the next day for about two hours, she is as tender as any chicken, even if not possessing the same flavor.

Much may be done to improve winter laying, even where colony houses are not used. Unless the stock has been sorted thru recently, this should be done before fall. All unlikely hens should be picked out and sold at any price. The first loss is the least. It is no use to keep hens to look at, and those I should reject are certainly not ornamental. Whatever the age, those showing signs of ill health should be drafted. The soft, enlarged, pale liver so often found in farmyard hens is the cause of much loss. It is no use keeping hens to linger on for a few months and then die. Perhaps all are not familiar with the symptoms. First the neck feather, and even those short ones on the head, will be seen to stand out harshly; then the comb will turn pale or dark. As yet the hen may be in good condition, but after this the falling off is very rapid. There is constant diarrhoea, and usually lameness in one leg in the later stages. Those showing these symptoms should be gotten rid of. The cause has probably been feeding on barley and corn to excess, assisted by overcrowding and unsanitary housing. The alleviation (I will not say remedy, altho, if in the early stages, it may be) is dos-

ing once a week with sulfate of soda (Glauber's salts), even with as much as 1 lb. to 100 fowls, melted and well mixed in the soft food. The lame, blind and halt, the frames and shadows, the misfits from any cause should go.

By the way, while the fowls are in hand this will be a convenient time to dress the legs with petroleum to destroy Sarcptes mutans, the itch-mite, which causes scaly legs; also the fowls may be examined for lice, and dressed with powdered yellow sulfur. It will also be a suitable time for marking the pullets on the opposite leg to that of last year, copper wire pig rings being the cheapest.

Canada. W. R. GILBERT.

THE APPROACHING MOULTING PERIOD.

The moulting period is the danger period in the life of all fowls. Nature deprives the hen of her raiment and leaves her exposed to the inclemency of the weather at a time of year when her system is well nigh exhausted and her reserve strength is at a low ebb. But the shedding of the feathers is a necessity and this provision of nature is a wise one; for, without a new coat, how could the hen withstand the rigors of a severe climate.

The drain upon the system of a fowl during the moulting period is a severe one and many a choice specimen, as well as a large number of common stock, thruout the country die from exposure or neglect while passing thru this ordeal. A fowl that has laid excessively during the spring and summer months is not usually in very good physical trim to meet this critical test of its vigor. Consequently it behooves the poultryman to look well to the proper care and feed at this stage in a fowl's life.

Food containing ingredients that are necessary for the building up of the system, as well as for the growing of new feathers, should be fed at this time. Grains containing a large per cent of oils are to be recommended. Sunflower seeds are especially good for moulting fowls and tend to bring out the glossy appearance on the feathers so much desired, in some specimens, by fanciers. Wheat, oats, and corn are beneficial, and grit, charcoal and green and animal food should be supplied. Plenty of fresh water and an abundance of shade must be provided. Dust boxes or wallowing places in the yards are as much a necessity at this time as food and water.

August is the month when a majority of the hens shed their old and put on their new coats. And it is perhaps the best month for the moult to take place; for, during this month, the weather is warm and more equable than at any other season of the year. Warm weather hastens the moult, while cold weather retards it. If the moult takes place later on—during September, October or November—care must be exercised that the moulting fowls are sheltered from rains and protected from the cold. Catarrh, colds, roup and kindred diseases very often attack fowls that are late in moulting and thus the whole flock becomes diseased. Therefore, too much care cannot be taken during the late moults.

Fowls moulting easily and properly, and during the month of August, are the ones to breed from in order that an early and safe moult may be thus fixed in the succeeding generations.

New Hampshire. A. G. SYMONDS.

RENDERING BEESWAX.

As each pound of wax represents several pounds of honey, all cappings removed when preparing combs for the extractor as well as all scrapings and trimmings and bits of drone comb should be saved and rendered into wax. This is best done in a solar wax extractor, the essential parts of which are a metal tank with wire-cloth strainer and a glass cover. The bottom of the metal tank is strewn with pieces of comb, the glass cover adjusted, and the whole exposed to the direct rays of the sun. A superior quality of wax filters thru the strainer. The main advantages of the sun extractor are its availability at all times during the summer and the slight bleaching of the beeswax which remains a few days in it. During the busy months, when you are likely at any time to have a few small pieces of comb, old or new, or a few scraps that would either be lost or eaten by the moth, with the sun extractor within easy reach of the apiary, it takes but a minute to put those scraps where they will at once, mechanically, be rendered into very good beeswax by the rays of the sun. If the sun extractor is kept, as is the custom with the careful beekeeper, in neat condition, the beeswax that will come from it will need no fur-

ther rendering unless residues or dark combs have been melted.

In this connection it is well to mention that it is not advisable to leave the beeswax too long in the sun extractor, unless the extractor is so made that the liquid wax runs into a pan sheltered from the light. Beeswax that has been thoroly bleached loses its nice bee smell, and takes on an odor resembling that of the old-time wax candles. This is certainly not desirable. But the best service of the wax extractor is to prevent the water damaging of beeswax by inexperienced bee-keepers, or to return such damaged beeswax to its proper condition. The cappings, which are gathered together usually about October, are most generally rendered during the winter, and when the matter is attended to intelligently, the beeswax is as good as that from the sun extractor. Old combs are not worth putting into a sun-extractor. They are so thick, and so loaded with foreign matter, that it absorbs all the wax that would otherwise run out. These combs must be crushed as nearly to a pulp as possible, then put into water to soak for a week or so, loaded down so as to be under water, and then melted with plenty of clean water. When old combs are melted without having been previously crushed, it usually happens that some of the melting wax runs into the empty cells which still remain in shape, being held to this shape by the cocoons, and it is next to impossible to remove any of it. The soaking for a few days ahead thoroly saturates the cocoons as well as other residue of whatever nature, except the propolis, and the beeswax becomes much more easily liberated if properly melted. In any beeswax that is rendered by water, a small amount, more or less, of this water-damaged beeswax can be found. But if this is allowed to separate by a slow cooling process, it will be found that most of the impurities are dragged to the bottom. What must be avoided is the damaging of the entire mass by careless heating and sudden cooling.

To render combs into wax, put them into a cheese-cloth bag. Then put the bag into a boiler half filled with cold water. After boiling a half hour, remove from the stove and sink the bag to the bottom with a weight. Cover up and let it cool off slowly, when you will have all the wax on top of the water and the refuse in the bag. The wax can be removed, melted again and poured into suitable molds. To prevent wax from cracking, when molding into cakes lay a board on the pans and cover over lightly with a cloth, so as to keep out all cool air. The air causes the surface of the cake to contract, sooner than the middle, the cake being smaller when cold than when hot.

Beeswax is a product peculiar to the special life action of the bee; the wax is not collected from flowers as wax, but is secreted by special glands situated beneath the rings of the abdomen of the neuter or working bee. The quantity of wax secreted is proportional to the honey consumed. In purchasing beeswax, it is quite essential to specify beeswax and not simply wax, for wax is a general term. Beeswax, due mostly to its high price, I am sorry to say, is adulterated to a great extent; it therefore becomes necessary that every bee-keeper should understand some simple method of detecting adulterated wax. The most simple test, and one which will answer for all practical purposes, is to chew a piece eight or ten minutes. If it crumbles it is pure wax, if not, it is adulterated.

New Jersey. F. G. HERMAN.

THE HONEY OUTLOOK.

The indications are that the season of 1909 will be known as a year of meager honey production—in marked contrast to the heavy production of 1908. Conditions have been extremely variable over all of the region east of the Mississippi, nearly all states complaining of either too much rain or too little. White clover and al-sike have been fairly good yielders of nectar, but sections suffering from an excess of moisture—notably Ohio, Indiana and parts of Illinois—report an unusual proportion of honey-dew honey. From southern Indiana comes a report that bee owners in that section will get little or no surplus. Reports from this state are conflicting, presumably because conditions from now on in this and other northern states may make the season a fairly profitable one. In the West, Missouri and Nebraska appear to be having a good clover year. In Colorado and other western states the alfalfa crop is good, while California now claims it will produce about half a normal crop. It would appear that the eastern markets will have to look to the West for a good part of their supplies.

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LIVE STOCK

FEEDERS' PROBLEMS.

Rye in the Horse's Grain Ration.
Please advise thru the columns of your paper the proportion in which ground rye with oats should be fed to work horses. The horses are fed rye hay for roughage.
Berrien Co. CHAS. C. VETTER.

A mixture of rye and oats will not make an ideal grain ration for work horses, especially with rye hay as roughage. If clover or mixed hay were available for roughage fair results might be expected from such a mixture, but even then it would be economical to use some other grains in the mixture. Rye has practically the same feeding value as corn for most animals, when fed in proper combinations. It contains a little more protein, as indicated by chemical analysis, but is not as palatable and its mechanical condition is such as to make it less digestible as usually fed. It is a very sticky, pasty feed, and unless combined with some bulky feed it will stick in the horse's mouth around the teeth and prove very disagreeable. Unless properly fed it will also form a pasty mass in the digestive tract, which will prove difficult of digestion. The feeding of equal parts by measure of oats with the rye meal will relieve that condition somewhat, but it will be still further improved by the addition of equal part of wheat bran. The bran will also supply needed protein to balance up the ration, besides making the grain ration more palatable and digestible. The writer has fed rye to horses successfully by mixing the meal with wheat bran, equal parts by weight, when using the same kind of roughage in a season when the hay crop was short. We found the best results were secured when the grain was fed on the moistened cut straw, or rye hay. Other concentrates than bran might be used to supply the needed protein, but none other will take the place of bran in giving bulk to the feed and overcoming its objectionable mechanical features above noted.

THE SHORTHORN THE FARMER'S COW.

Not since the days in the latter part of the eighteenth century, when Robert Bakewell, by his secret methods, had set the agricultural world astir by the great improvements made on his Leicester sheep and Longhorn cattle, and had attracted the attention and patronage of royalty itself, when men of means and capabilities of mind were aroused to an almost concerted effort toward improving all kinds of farm stock, crystallizing the better specimens into types and breeds, until progress was the watchword and improvement of stock became almost universal thruout the civilized world, has there been more interest manifested in the methods of developing the capabilities of the different types and breeds of cattle than at the present time. As soon as the breeders of one breed adopted the plan of keeping a record of the amount of milk yielded by their cows, and the Babcock test was utilized to show the amount of butter-fat contained in the milk, breeders of other breeds, and admirers of other cattle, imitated the same plan to prove the merits of their favorites.

Surely we must admit that this is an era of great progress, and cattlemen are getting more definite information in regard to the intrinsic value of their cattle than at any other time in the world's history. Contentions are less numerous than ever before, as all claims to superiority in production of milk and butter is settled by the scales. Almost any reader of the agricultural press is ready to say which breed is in the lead for milk production, and which yields the highest percentage of butter-fat. All of the dairy breeds have had their innings by bringing out the capabilities of the best of their respective breeds, and it seems to be pretty generally settled in the minds of the breeders of each and every breed of dairy cattle, that their particular breed is the best for the particular purpose for which they have been developed.

While the breeders of the distinctive dairy breeds have been busy making records and publishing them to the world, there have been some who have contended that there is a class of cattle that can meet the wants of farmers who carry on general farming and do not care to make great efforts along dairy lines. The dairy specialists have been profuse in their claims that the distinctively dairy cattle are the best for the all around farmer. They have declared that dual purpose cattle are "a delusion and a snare;" that ought not to be considered by the

intelligent class of farmers who ought to be able to see on which side of the proposition his profits were to come from, and decide that they were correct in their claims. They have gone so far as to say that the dual purpose cattle have no record, and are not capable of making one that will attract the attention of thoughtful business farmers.

As to the testing of some of the representatives of some of the breeds that have shown in the past their capabilities for meeting the demands of the general farmer, there has seemed to be a lack of business foresight. When brot in competition with the other breeds at the Columbian Exposition in Chicago in 1893, and the St. Louis Exposition in 1904, the Shorthorns proved that the breeders were justified in making high claims for the production of milk and butter. During the tests made by a few breeders of the "reds, whites and roans," a creditable showing has been made.

Pansy Stanton, bred and owned by H. H. Hinds, of Michigan, gave 10,958 lbs. of milk in one year, from which was made 456 lbs. of butter. This is a good showing for a cow that was not handled by an expert dairyman. A strange feature brot out by the test is the fact that the cow gained 324 lbs. in weight. Had she been fed with ultimate object of milk in view, the result might have been a larger yield, but she proved her possession of the inherent characteristic that belongs to the breed, of producing both meat and milk.

The Missouri Agricultural College took the Shorthorn cow Lulu, from Chautauqua County, N. Y., and gave her a trial. She made an excellent record. During the year gave 12,341 lbs. of milk, from which was made 605 lbs. of butter.

The cow Mamie Clay, owned by J. K. Innes, of New York, has a record of 13,232 lbs. of milk in one year. Two other cows of same herd have a record exceeding 10,000 lbs. during the year.

It begins to look as tho the good old Shorthorns are to be given a chance to prove their capabilities, and their merits are to be made known. With the revival of interest in good beef cattle that is sure to follow the advancements in prices, the farmers who desire to follow mixed farming, can see where they should look for cows that can perform well at the pail, and at the same time produce calves that are worth raising, because they will pay well for the grass and roughage they consume during their sojourn on the farm from the time they are dropped to the day they are driven to the market.

During the development of the West, when the Shorthorns have been brot in competition with the distinctively beef breeds, those of distinctively beef type have been in demand, but there are yet a few left of the "good old sort," that can do honor to the breed, and re-establish the reputation the breed formerly had of performing well at the milk pail, the butter tub and the butcher's block. As a hint in regard to the original capabilities I will make one or two quotations: Mr. Wm. Ellis, of England, wrote in regard to the characteristics of the cattle in the valley of the River Tees, the original home of the Shorthorns:

"Of all the cows in England, I think none comes up to this breed for their wide bags, short horns and large bodies, which render them the most profitable cattle for the farmer, the dairyman, the grazer and the butcher."

Of this breed of cattle, Mr. Alvin H. Sanders, editor of The Breeders' Gazette, wrote in 1900: "The average farmer, as distinguished from the dairyman and professional feeder, maintaining cattle as an incidental, albeit necessary, feature of a well-ordered system of mixed husbandry, requires not only milk, cream and butter in good supply for domestic consumption, but the cows that provide him with those products are also expected to raise a calf each year that can be profitably utilized in consuming the grass and 'roughness' of the farm; so that the males will command a fair price as yearlings and two-year-olds for feeding purposes, and the heifers possess the requisite size and quality fitting them for retention in the breeding herd. Hence the necessity for a combined beef-and-milk-producing breed, for general farm purposes."

With the high prices that prevail, and are likely to in the future, for a good quality of farm-made butter, which can now be made on the farm when a cream separator is used, and the high prices that good beef cattle are sure to command in the future, if the farmers could be awakened to see the possibilities before them, there would be a revival of interest in the good old Shorthorn cow, and there would be a demand for Shorthorn bulls of good milking families, with which to grade up the stock raised on the farms; a better

general quality of cows would be kept on the farms in Michigan, greater profits would be realized from them, and a much more uniformly good quality of beef cattle raised to be sold in our markets than there is at the present time.

Wayne Co. N. A. CLAPP.

STOMACH WORMS IN SHEEP.

Stomach-worm disease in sheep, also known as wasting disease of lambs, pernicious anemia of sheep, etc., is a contagious disease of ruminant animals affecting especially sheep and particularly yearlings and lambs. It is caused by a small round worm known as Strongylus Contortus, Hemonchus Contortus, or more commonly as the twisted wireworm or stomach worm, which colonizes in the abomasum or true stomach. It varies in size when mature from 3/4 to 1 inch in length for the male and 1 to 1 1/4 inches for the female, and is of the thickness of heavy linen thread. On account of their minute size these worms are fairly hard to distinguish in the contents of a stomach, but when once they are observed wriggling in the partially digested food and upon the lining of the stomach, between the folds, they are subsequently easily discovered. When present only in small numbers so that they are not easily demonstrated, it is often easier to find them by putting the contents of a stomach into a pan of water when, upon floating off the food, the worms will be found in the bottom of the vessel. Even when a few are found at first, wriggling around in the food mass, one will be surprised by the great number (hundreds or thousands) which may be isolated by this method.

They vary in color when first found from dirty gray, thru red, to brown, according to the amount of blood contained, the degree of digestion of same, or the development of eggs in ovaries of the female. These latter organs are arranged in a spiral manner about the digestive tube, which gives the females a peculiar appearance, as of being twisted upon themselves, consequently the name twisted wireworm has been applied.

These worms feed upon the blood of their host, drawing it by means of their mouth parts directly from the lining membrane of the stomach. The amount of blood taken by each worm is of course insignificant, but upon collecting a bundle which will comfortably fill a tablespoon, or even a palm of the hand, one is not surprised that the sheep dies from a form of pernicious anemia; a condition in which not only the total amount of blood is reduced, but the cells are greatly reduced, causing the mouth and eyes, as well as skin and internal organs, to display a peculiar pale, bloodless appearance.

So far as is known it is possible for direct infection to take place, i. e., the dropping of one animal containing eggs of stomach worms are capable of infesting water supply or herbage for the other members of the flock. This accounts for the rather rapid spreading that takes place upon small pastures, especially where low, or where water supply is slowly changed or stagnant.

No change may be noted in general demeanor of the affected sheep except that they are not doing well, and in spite of good pasture and perhaps additional food, they fail to gain, but lose flesh—some slowly, some rapidly (especially after infestation becomes severe). Those in which the disease is well advanced may lose appetite, and some show a peculiar swelling just back of the jaws and under the throat, which collects at night and may pass off during the day. This is not specific in this disease but appears in many other diseases wherein anemia is a part. I mention it simply because it is so often noticed in this connection.

On account of its location in the fourth stomach, it is difficult to rid a flock of this pest, and while the worms are easily killed when treated with various substances outside the body, they are with difficulty dislodged by the same agents even in added strengths in the body, on account of the dilution which takes place in the first three compartments of the sheep's digestive apparatus, to say nothing of the chemical and other physical changes occurring between the medicine used and the contents of the sheep's stomach. Almost all worm remedies have been tried in this disease with varying results reported by different investigators, and among the most efficient we find two of the cheapest, viz., coal tar creosote and gasoline.

Coal tar creosote is given with water in 1 per cent solution in doses varying from 2 to 4 ounces per head according to size. Gasoline is used on milk or oil in doses of 1/2 to 1 tablespoonful diluted with 8 parts of those agents. The gasoline has

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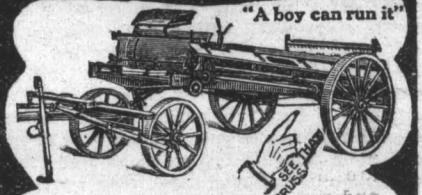


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been replaced with turpentine in some cases with good results, and some recommend other substances, such as empyreumatic oil, picrate of potash, kamala, etc.

The animals to be treated (and one might as well regard the whole flock as infested) should be starved 12 to 20 hours previous to administering the medicine. Then in a few hours they may be watered, and given good food for a couple of days, and on the third day the dose repeated. The medicine should be given to the animals in standing position, as it has been found that a larger proportion of it passes to the fourth stomach than when in any other position. After the second dose, allow them a day or so to recuperate and put upon a clean pasture. This point is very important to observe as the end of the treatment would be defeated by exposing the sheep to the same conditions under which they previously became infested. The practice among some sheep men at present of dividing their pastures into several portions and pasturing each one but 4 to 6 weeks has many points in its favor. One of the most important is that they suffer but little, if any, loss from worm diseases.

Among the several medicinal agents used as preventives, tobacco and iron sulfate are very good, and where taken freely by the sheep seem to be successful in at least holding down the worms to such numbers as to render them practically harmless. The methods of administering tobacco have been frequently mentioned in these columns, but I will review them briefly. Tobacco stems and finely ground tobacco may be purchased from tobacconist's shops. The stems are eaten readily by some sheep, less so by others, and some will not touch the stems unless salted. The tobacco dust may be mixed with salt equal parts and left for the sheep to take at liberty. Iron sulfate should be mixed with salt, 1 lb. to every 100 lbs. for all classes of stock, as a preventive not only of worm diseases but of some germ infections affecting the digestive apparatus. It is furthermore a splendid tonic, which tends to build up the system and fortify it against the invasion of parasites.

In conclusion, I wish to say that if you have stomach worms upon your farm, go after them early and thoroughly, as they are likely to produce very serious results, and are by no means so easily gotten rid of as is sometimes stated.

Agri'l College. L. M. HURT, D. V. M.
Ed. Note.—Some experienced sheep men contend that it is much better to administer the drench used for stomach worms by setting the sheep up on its rump, as there is much less danger of strangling the animal in this position.

CARE OF SHEEP AND LAMBS THRU AUGUST AND WEANING TIME.

I can not help but say a word to Michigan sheep raisers in regard to the care of sheep thru the hot dry months and weaning time. First look your flock over and see if they are covered with ticks; even if there are but a few now they are great multipliers and by winter they will be alive with ticks. Any of the prepared dips advertised in this paper are good and much cleaner and pleasanter to use than tobacco.

If you haven't a proper dipping outfit it will pay you to get two or three of your neighbors to go in with you and have a trough or tank made about 7 feet long at top and 3 feet at the bottom, and about 18 inches wide at top and 10 at the bottom, with one end nearly vertical and the other at an angle with the bottom. Then make a dipping pen large enough to hold at least six sheep. Be sure to have the dipping pen lower in the center and covered with galvanized iron or zinc.

An outfit of this kind will not cost over \$8 and will last a life-time, properly cared for. Three men will dip a hundred sheep in three hours, and it is time and money well spent.

While you are dipping look the lambs and ewes over, trim their feet and tag any that may need it.

We often hear farmers say that sheep will live on weeds and brush, and do not need water in the summer. This may be so, but just about the time they get used to this kind of treatment the most of them will weaken and die.

It is absolutely necessary for sheep to have shade and water thru the hot, dry months. With wool above 30 cents and 9-cent lambs in sight, it will certainly pay to take good care of our sheep and lambs.

If you are short of feed or overstocked, sow a few acres of rye and rape, about 1 bushel of rye and 4 pounds of rape per acre, sown the first of August, will make fine feed this fall; and if rye is not wanted for a crop, will make a

fine preparation for corn ground next spring.

I have a light, sandy field in corn, and about Aug. 10 shall sow to rye and rape, and let the sheep harvest the corn. This will save labor and improve the land at the same time. Besides it is much better to have the land covered with rye than to let it lay bare all winter.

Lambs born in March or April should be weaned in August, in order to give the ewes a chance to recuperate in time for winter, and this is indeed the critical time in a lamb's life. Taken from its mother's tender care and turned out to rustle for itself, it must have a little extra care if we expect it to thrive; and thrive it must or there is no money in sheep, even if lambs are 9 cents per lb. Besides, a thrifty lamb is less liable to diseases and will be free from worms.

Try and have a clover field where sheep have not run this year, in which to turn the lambs. Get your water and feed troughs handy, also your salt box. Then sort out the lambs and take the old ewes away where the lambs can not hear them bleat. Then commence to feed the lambs bran and oats, all they will eat up clean at first—say 15 quarts to 100 lambs—and gradually increase until they are eating 64 quarts of bran and oats; then drop out some of the bran and add corn until you are feeding equal parts of corn, oats and bran by measure. Then increase the feed until they are eating 1 quart per head. Feed this until you place them in winter quarters; then feed all they will eat up clean with clover hay and corn-stalks for roughage.

Now do not neglect the old ewes. They should be looked after closely to prevent their udders from caking and should be caught and milked dry frequently until the milk flow ceases. There is little danger in this line. I have observed that men that take good care of their sheep and lambs never talk of going out of the sheep business with 30-cent wool and 9-cent lambs.

Calhoun Co. G. A. HOUCK.

FEDERAL MEAT INSPECTION.

The Bureau of Animal Industry is to be congratulated on its recent prompt disposal of the charges raised by Harms, the former St. Louis meat inspector, that the federal meat inspection service thruout the United States was "rotten and a farce." The report of the committee appointed by Secretary Wilson to investigate the charges shows that there was no basis of fact therefor, and while it has been claimed by a few "I-told-you-sos" that this report is simply a whitewash of rottenness that actually exists, it takes but a glance at the report to see that the charges are the product of the brain of a disgruntled employe who, when he found that his chief would not allow him such privileges as to "inspect" carcasses of beef from an easy arm chair which the packing house people had supplied on his demand, vented his spite by handing his "open letter" to a solitary newspaper for publication. While the investigating committee is apparently at a loss to account for his motive in making his tale "exclusive," it is not difficult to understand that a sensational story is worth something to a newspaper, and therefore to a writer.

The charges made by Harms were thoroughly investigated and found to be without foundation, and altho he was invited and urged to appear before the committee he refused. His charges, however, have again raised the question, "Is the present law adequate and effective?" To this query the answer is made that between July 1, 1906, when the meat inspection law went into operation, and Dec. 31, 1908, inspectors of the Bureau of Animal Industry absolutely destroyed for food purposes 383,187 carcasses of food animals in their entirety—carcasses which in the absence of this law would have been eaten by Americans or exported. Also during the same period the inspectors condemned and utterly destroyed for food purposes, 73,369,047 pounds of meat and meat food products. This enormous destruction of food shows that there was small chance for collusion between those in charge of the enforcement of the law and the packers, and indicates that the meat inspection law is being enforced to the limit.

Danger from Diseased Meat.

To the public the importance of meat inspection lies in the fact that all the meat animals are subject to very many diseases which impair or totally destroy the wholesomeness of their meat as food, often making it actual poison, so that the piece of meat eaten apparently wholesome, may carry the germs of a fatal malady. Therefore both ante-mortem and post-mortem inspection to detect these

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THE DAIRY

CONDUCTED BY COLON C. LILLIE.

CARING FOR THE DAIRY BULL IN SUMMER.

The best way I know of to care for a dairy bull in summer is to turn him into a good, well-fenced pasture and let him run, either with other bulls or with cows or some other cattle that will not have to be cared for in any other way. It is certainly a nuisance to have a bull run with the milch cows and have to drive him to and from pasture every day, and bother with him around the barn; but if he can be put into a good pasture by himself, or with other animals, he is entirely out of the way, besides getting all the benefit of being out of doors and on grass. Then he is not nearly so apt to become vicious if kept in a pasture where he is not molested very much. It is driving him, and bossing him around, bringing him up and putting him in his stall that irritates the bull and is liable to make him cross.

I am aware that some of the best breeders will smile at this proposition and say that they couldn't be induced to turn their valuable bulls out into pasture for anything in the world, and they know, too, that they would destroy fences and that sort of thing, that they couldn't keep them in a pasture, etc. Now, my belief is that this all depends upon the way the bull is brot up. If from a calf you keep him by himself, tie him up by the nose and the horns, too, if you don't give him any exercise but feed him well, he is liable to become vicious. That is entirely artificial and ought not to be tolerated, even in the best breeding establishments. If the bull from calfhood up is accustomed to being turned out with other animals this danger is entirely obviated. Two bulls will run in a big box stall, or in a small paddock, and be perfectly quiet, while one will rave and tear everything to pieces. And if you keep the bull confined until he is two or three years old, then turn him out alone, he isn't accustomed to being out in that way and he may do damage. If he gets started he may become vicious, and may destroy fences or perhaps injure animals or persons.

The thing is to bring him up right. When he is a calf, turn him out with other animals and get him accustomed to them. If he shows any indications of being vicious, cut his horns off. If he shows any inclination to fight, put another good animal into the field with him and let him fight. It won't do him any particular harm. It will give him some exercise and he will be taught some lessons that will do him good. The better he is kept under subjection the safer he will be. If you bring up a bull in this way, when summer comes you can turn him into pasture with other animals and he will run there contented all summer long and thrive. I used to think that a calf which I had paid \$100 or \$150 to \$200 for was too valuable to turn out into pasture, but I have changed my mind. He is better off in the pasture, will give me better service from feeding him in this way, will make a better animal in every respect and with a great deal less bother. If you pay no more attention to a dairy bull than you do to a steer or other animal, he is not half as apt to be vicious as he is if you confine him and lead him around by the nose.

GOING BELOW THE SURFACE IN BUILDING A SILO.

I expect to put up a 30-ft. full stave silo and think of increasing its capacity a little by extending it about 2 ft. below the surface of the ground. Will it be safe to do this, or will there be danger of water getting into the silo? Also please tell me how thick I should make the cement wall for the underground portion of the silo.

H. G.
It is perfectly practical to go down two or three feet below the surface of the ground with a silo, but I would go no further, for the reason that it is too much of a job to get the ensilage out. If you make it so deep that the silage cannot be thrown out with a fork, you will have to rig up some sort of a windlass and bucket to draw it up with. Otherwise, it would be practical to go deeper into the soil. There is another thing to be taken into consideration, and that is the seepage of water, especially when the silo is empty. There is not very much danger of the water seeping or oozing thru the cement wall when the silo is full of ensilage, because there is pressure on the inside, but in summer time, when the silo is empty, if the ground

is a moist soil, water will seep thru so that you will have to bail it out when you fill the silo. If you dig down three feet below the surface, and the land is clay, the ordinary grout wall used for a foundation will not prevent seepage to amount to very much. After you build the grout wall for the foundation, plaster it on the inside with a rich coat of cement mortar. This mortar ought to be made in proportions of at least two to one. You want to get in enough cement so that it will fill in between the particles of sand, which will give a very close surface, one that will not allow water to seep thru. When you go to all this extra work of excavating and plastering on the inside, you are not building it very much cheaper than you would by making the silo that much higher. So far as expense is concerned, you are gaining very little.

For the ordinary foundation of the silo, the wall itself, it is not necessary to mix the cement and the sand richer than in the proportion of one part of cement to seven parts of good sharp sand or gravel. If you have the stone handy you can use a great many small stones in the foundation to good advantage. It will save hauling the sand and will save cement.

Make your form out of boards, put in a good layer of the grout mixed up rather thin, and fill in with cobble stones all around; then put in another layer of grout and fill in with cobble stones. This will save cement and make a very strong and durable wall. If I went down into the ground two or three feet for a silo I would make the foundation wall about a foot thick on the bottom and gradually taper it, or you can make it a foot thick up to the surface of the ground and then gradually taper it to eight inches, which is thick enough for the top of the wall. You can bring it up as high as you want above ground, but when you finish it, be sure to have the outer edge of the wall lower than the edge on which the staves rest, because you want all the water that runs down the side of the silo to run off and not settle at the base of the staves. I have in mind now a stave silo where the top of the wall was made perfectly flat, or, seemingly, it was lower on the inside of the wall where the staves set than on the outside. Consequently the water stands around the butts of the staves and rots them. I noticed several staves that are worthless, just because the wall was not so constructed that this water would run off.

WHY THE QUALITY OF BUTTER IS DETERIORATING.

That it is more difficult to secure good butter, even at the advanced prices now prevailing, than was the case a few years ago is a rather common complaint among consumers, and this more or less general dissatisfaction has led to the belief that the buttermakers of the country are going backward in their work. Many good dairymen and buttermakers deny this, altho market experts in close touch with the situation do not agree with them. The opinions of such experts are of interest to all dairymen and we are presenting, at some length, the views, as expressed in a recent address, of Inspector H. J. Credicott, of the Dairy Division, U. S. Department of Agriculture, stationed at Chicago. Mr. Credicott is known to Michigan dairymen, thru his work in judging exhibits at the monthly scoring tests and at Michigan fairs and dairy meetings, as a man whose opportunities for familiarizing himself with conditions in the big markets entitle his opinions to respect. In the address referred to he said:

The result of observations in the markets and in the butter scoring contests supports the claims for deterioration in the quality of butter in the United States. The wholesale butter dealers in the large markets have been in a position to arrive at the best conclusion in regard to the condition of butter and the estimates of thirty-one of these dealers have accordingly been condensed into the following table of averages showing amount of butter of different grades during 1908 as compared with the butter of five years ago:

	1908	1903
Extras	14.8%	34.2%
Extra firsts	28.7	26.3
Firsts	33.9	24.5
Seconds	22.6	15.0

These figures show a decrease of 19.4 per cent in the amount of "extra" butter, with an increase of 2.4 per cent in extra firsts, 9.4 per cent in firsts and 7.6 per cent in seconds.

While percentages substantiate the claims for deterioration in quality, the point which is most interesting and demands immediate attention is the poor

showing made by butter during the past year. Only 14.8 per cent of the butter will class as fancy table butter and the addition of the extra firsts to the extras gives a total of but 43.5 per cent, which can be classed as good table butter. The grade of extra firsts includes butter scoring down to 90 points, which is the dividing line between good table butter and bad table butter. To score below 90, butter must have some decidedly old or unclean flavor or some bad defects in workmanship. A better realization of the true conditions may be obtained by dividing the butter into two classes; the first including extras and extra firsts which will pass as good table butter, and the second covering firsts and seconds which will be used on the table only under protest. Of our total amount of butter, 56.5 per cent comes in the second class.

A fair index to the cause of this poor quality can be derived from the inspection work of the Dairy Division, in Chicago and New York, as this work has to do entirely with the lower grades. Of 260 inspections made in the two cities during October, 1908, 98 per cent showed old, over-ripe or unclean flavors directly traceable to poor cream, and 75 per cent of the lots inspected showed poor workmanship. The defective workmanship, which was chiefly in the form of poor texture or mottles, was largely the fault of the buttermakers and was instrumental in lowering the quality of the butter. In most cases, however, the defect was not serious enough to have brot the butter into the lower grades, had it not been for the bad flavors caused by the old cream.

The question of stale and unclean cream is a serious one. The quality of cream, received at most of the creameries to which the result of the inspection of their butter was sent was so bad that it was beyond the power of any buttermaker to make fancy butter from it. The reasons for the production and acceptance of this poor cream may be summed up in the word "competition." Before the adoption of the hand separator the market for the farmers' milk was limited to the creameries within hauling distance and the creameries were able to dictate as to the quality of milk they would accept. The hand separator concentrates the product. It is possible to haul the cream longer distances and the centralizer has accordingly developed. The centralizer has lowered the standard of the quality of the cream by taking a low grade and by his competition forces the local creamery to do likewise.

Shortage in Production Helps Sell the Low Grades.

The conditions in the markets have also helped to lower the standard. The United States has had a shortage of good butter for several years, and as a result lower grades have generally sold at so good a price that there has been very little incentive toward improvement of quality. The butter which is exported is always from the surplus of low grade butter, and is chiefly renovated butter or the lower creamery grades.

The system of contracting butter at a premium over extra quotations precludes the possibility of any great discrimination in quality. No matter how poor a quality of butter a creamery is making, it will be contracted for on the basis of the "extra quotation;" in other words, nearly all butter is bot as an extra, and unless the dealer is to lose money it must be sold as an extra.

The creameries have almost invariably demanded that their butter be bot as an extra regardless of its quality. These demands have had much to do with the lack of recognition of quality and the misquoting of the market. If the butter dealer is forced to pay extra quotations or possibly a premium over these quotations for his seconds, it naturally follows that the quotations must be kept down to the point where he can handle this butter with a profit to himself. This situation tends to throw practically all of the butter into one grade. Paying for butter according to quality can not be successful as long as the present premium and contract systems continue.

The centralizer is using retail outlets for his butter as much as possible and probably puts very little of his butter into the wholesale markets. In this way he is able to get a fair price for a low grade of butter. If the small creamery, which thru the competition of the centralizer is forced to take poor cream, is discriminated against in the wholesale markets by only one or two cents, it is enough to put him out of business because he can not get enough more for good butter to induce the farmer to bring good cream and his loss on the poor butter puts him where he can not meet the centralizers' competition.

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DETROIT, AUGUST 14, 1909.

CURRENT COMMENT.

Diversified versus Specialized Farming. We frequently hear the old proverb about the danger of carrying all your eggs in one basket advanced as a reason for following diversified rather than specialized farming, but recently a noted agricultural authority has sounded a warning against the danger of carrying too many baskets. To those who are true economists the last mentioned warning appears to have the truer ring. There is undoubtedly an element of safety in a diversity of interests, but the man who divides his energies between several different lines of business is likely to find all of them suffering as a consequence. Each is limited by all the others, and the benefits to be derived from a volume of business are enjoyed by none of these lines. The same thing is true to no small degree in farming. The man who specializes in nothing hardly finds it profitable to provide special equipment for any of the lines of production followed, and in the end is more than likely to sacrifice actual profit from his business to secure the additional element of safety which he fancies to be derived from a diversified production. So while we are ready to concede that a degree of diversity is wise, yet in this age specialization along some line is an essential to the highest success, and the man who in this sense carries the larger proportion of his eggs in one basket is more likely to succeed than the man who carries the weight of a multitude of baskets which are nearly empty.

In practically every farm neighborhood it will be observed that the most successful farmers are specialists along some line. They are dairymen, fruit growers, stock breeders or feeders, or make a specialty of some one cash crop, and employ the other or diversified branches of production in a secondary way as they best fit in with their special line. In this there is an object lesson which might be made a profitable subject of observation and study by their neighbors. But such observations should not be hastily made, nor conclusions therefrom hastily drawn. Many farmers make this mistake, and not finding the specialty upon which they decide as immediately profitable to them as it is to their neighbors who have had years of experience in that line and who have es-

tablished in it a reputation for themselves and their product, they turn to something else with the same result. Thus our business is one for constant study and observation, and out plan cannot be successfully made offhand each year just before the fall seeding is done or the spring crops planted. Farming is a complicated business, which demands constant application if the many problems which it presents to each of us are to be successfully and profitably solved. Nearly every farmer will find it profitable to specialize along some line, which should be selected with care and with a view to his personal tastes and inclinations, as well as to the conditions under which he must work.

As anticipated in the The New Tariff last issue, the new tariff law has received the approval of both houses of Congress and the President of the United States. This outcome was effected by compromises which were mentioned as the probable basis of a settlement of the differences which stood in the way of the adoption of the conference committee's report in the Senate. In the comment referred to we gave a list of the commodities upon which the duty had been increased or decreased by classes, together with the consumption value of the same so far as statistics were available. The average reader's interest in the law, however, centers on the rates at which duties are levied, rather than the aggregate effect of those rates, for which reason we give below a list of the chief reductions and increases in the tariff under the new law as finally adopted, together with a list of staple articles on which the rates of duty were not changed:

Table with columns: Article, Reductions, New Rate, Old Rate, Increases, Rates Unchanged. Lists various goods like Agricultural implements, Band and sole leather, Boots and shoes, Hides, Timber, Sawed lumber, Iron ore, Pig iron, Tin plates, Steel rails, Licorice, Cash registers, Sewing machines, Typewriters, Bacon and hams, Lard, Bituminous coal, Furniture, Printing paper, Wood pulp, Pertoleum, Women's gloves, Cutlery, Fresh meats, Flax seed oil, White lead, Harness, Malt, Wire nails, Zinc, Brandy, Champagne, Cotton hosiery, Shingles, Broom corn, Briar wood, Fireworks, Fur clothing, Higher class jewelry, Cigars, Furs, Fancy soaps, Fire brick, Hemp, Diamonds, Flour, Lemons, Pineapples, Figs, Indian rubber, Malt (solid), Wheat, Watch movements, Wine, Beef, Brushes and brooms, Barley, Cigars, Cigarettes, Flour, Apples, Berries, Grapes, Hay, Ink, Lead bullion, Laces, Mufflers, Velvets, Rucflings, Ribbons, Veiling, Castile soap, Varnishes, Vinegar, Starch, Tobacco wrappers, Wool grease, Wool carpet, Woolens, Wool (clothing).

HAPPENINGS OF THE WEEK.

Foreign.

For the first time in fifteen years the people of Paris had an opportunity to witness a public execution August 5. Serious political conditions are facing the Cuban government and, while the officials there are blaming the press of the United States for putting the new government in a bad light, the more public spirited of the citizens and officials are very pessimistic for the future of the island's separate national existence. Recently the whole cabinet of President Gomez resigned and now it is asserted that many changes in the new organization will be made. It appears that the ruling political party is taking advantage of its position and working fraud wherever possible, and to pay lieutenants for political service the positions of the government that demand skill and specially fitted persons to conduct the work, are left to those who have no fitness or knowledge of the duties they are supposed to do. It is apprehended that the strike recently conducted in Barcelona, Spain, with considerable bloodshed owing to the bitter political struggle which connected itself with the industrial war, will be repeated since the employees refused to allow wages to the workmen for the week they were on the strike. A terrorist band of twelve members was surprised by detectives in plain clothes at Riga, Russia, and five of them were arrested. The men had recently sailed from United States and England and the authorities of Riga were warned of their coming. The powers of Europe are concerned about conditions growing out of the recent move on the part of Crete to join political union with Greece. It was reported that the Grecian flag was raised on the public buildings of the island, but this is not true. Private citizens took this liberty but the powers who stood sponsor for order during the years since the territory was taken from the jurisdiction of Turkey in the nineties, have ordered that the public buildings should not be decorated with the colors of Greece. Representatives of the different countries are having daily conferences and it is expected that an amicable set-

tlement will be found. There is a spirit among many of the border towns of Turkey to boycott Grecian goods, and the war department of the former country is being informed that volunteers in that part of Turkey are ready to take up arms should the settlement of the question in favor of Turkey demand their service.

News comes to hand that Americans in Mexico are not receiving good treatment from the hands of Mexicans. The recent disturbance at San Carlos, Chihuahua, is said to have ended very disastrously for several immigrants from this country. The recent objections made by China to the construction of the Antung and Mukden railway by Japan have been withdrawn and the Japanese can now proceed with the work without interruption. The road will be of considerable military importance to Japan.

The breaking of cables that open and close the locks of the Canadian ship canal at the Soo, snapped last Sunday night and the canal is temporarily out of commission.

A general strike is on in Sweden. So serious has the situation become that King Gustave called a conference of the leaders of the employers and the employees of the different trades for the purpose of arriving at a settlement but the conference was without avail, and it is now settled that many of the other unions, that hesitated on going out before, are ready to join in demanding better conditions and wages for work. The unions have considerable capital to support the weaker members while the strike is in progress and they anticipate that they will win out.

The British ship, Maori, struck a rock off the coasts of South Africa and it is believed that the loss of life is very heavy.

Walter Wellman, who is now in Norway, has about completed preparations for his trip to the North Pole. He will make the attempt in a balloon.

It is estimated that 7,000 children are homeless in Barcelona as the result of the recent attack of the revolutionists upon the religious institutions.

National. A head-on collision of electric trains carrying passengers to the Couer d'Alene land reservation in Idaho, which is to be opened in August, resulted in twelve persons being killed and over a hundred injured.

The state encampment of the volunteer soldiers of Michigan will be held near Ludington this year. The soldiers went in camp on August 10.

President Taft left Washington as soon as the work on the tariff bill was completed and is now at Beverly, Mass., where he will spend the summer.

The American Car and Foundry Company, of Detroit, has received an order for 6,000 cars. This order will keep a force of 6,000 men employed steadily for seven months.

The world's record for aeroplane long time flight was broken by a Frenchman named Sommer, who remained in the air for two hours, 27 minutes and 15 seconds.

Fully 10,000 Woodmen from Michigan and Indiana are holding a convention at Michigan City, Ind., this week.

The national waterways commission authorized by Congress is now enroute to Europe where the waterways of the continent and England will be studied. It is expected that the findings of the commission will be of inestimable value in the working out of a waterway system for this country. The commission will be in Europe till the latter part of October.

The war department has adopted a new uniform to take the place of the old khaki uniform. The new suits are of olive drab color.

Capitalists have incorporated a company for the promotion of a railroad from Winnipeg to the gulf running thru the richest grain growing section of the continent. The new road will be known as the Midland Continental.

The American manufacturers of boilers are holding their annual convention in Detroit this week. Representatives from both the United States and Canada are present.

A strike at Pueblo, Col., caused the closing down of the zinc smelter located at that place.

Excessive heat caused the spreading of the rails on the Wheeling & Lake Erie road near Creston, O., Monday, and a wreck in which eight passengers were injured resulted.

Baron Takahira, Japanese ambassador to this country, leaves Washington this week for Seattle from whence on August 17, he will sail for Japan. His home government has special work for the diplomat and it is probable that he will not be back to Washington again.

The last gap of the Pacific extension of the Chicago, Milwaukee & St. Paul railroad will be closed August 15, giving the road thru service to the Pacific coast.

Hundreds of delegates are present in Pittsburg this week attending the convention of the Army of the Philippines and American veterans of foreign service.

Owing to the presence of a communicable disease among sheep in the northern counties of Wyoming, the department of agriculture has declared a quarantine of all the counties of that state except the southern tier, preventing the shipping, driving or trailing of sheep therefrom, except under rigid inspection by the bureau of animal industry.

A case is to be heard in Seattle next month to determine if the interstate commerce commission has jurisdiction in Alaska. Discrimination between different companies doing business in that territory raised the question before the commission.

The forty-third national encampment of the grand army of the republic is in session at Salt Lake City. There were present on the first day fully 30,000 veterans and it is expected that 50,000 old soldiers will convene during the week.

NATIONAL CROP REPORT.

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

The average condition of corn on August 1 was 84.4, as compared with 89.3 last month, 82.5 on August 1, 1908, and 82.6, the average on August 1 for the past ten years.

Preliminary returns indicate a winter wheat yield of about 15.5 bushels per acre, or a total of about 432,920,000 bushels, as compared with 14.4 and 437,908,000 bushels, respectively, as finally estimated last year. The average quality of the crop is 90.3, against 90.1 last year.

The average condition of spring wheat on August 1 was 91.6, as compared with 92.7 last month, 80.7 on August 1, 1908, and 91.1, the ten-year average on Aug. 1.

The average condition of the oat crop on August 1 was 85.5, as compared with 88.3 last month, 76.8 on August 1, 1908, and 83.1, the ten-year average on August 1.

The proportion of last year's oat crop in farmers' hands on August 1 was about 3.3 per cent, or 26,323,000 bushels, as compared with 5.0 per cent (38,000,000 bushels) of the 1907 crop on hand August 1, 1908, and 6.3 per cent (53,000,000 bushels), the average proportion on hand for the past ten years on August 1.

The average condition of barley on August 1 was 85.4, as compared with 90.2 last month 83.1 on August 1, 1908, 84.5 on August 1, 1907, and 86.1, the ten-year average on August 1.

The average condition of rye on August 1, or at harvest, was 89.1, as compared with 91.4 last month, 88.3 on August 1, 1908, 88.9 on August 1, 1907, and 87.9, the ten-year average at time of harvest.

The acreage of buckwheat is about 801,000 acres or 0.1 per cent (2,000 acres) less than last year. The condition of the crop on August 1 was 86.3, as compared with 89.4 last year, 91.9 two years ago, and 91.7, the ten-year average on Aug. 1.

The average condition of white potatoes on August 1 was 85.3, as compared with 93.0 last month, 82.9 on August 1, 1908, 88.5 on August 1, 1907, and 86.7, the ten-year average on August 1.

The average condition of tobacco on August 1 was 83.4, as compared with 89.8 last month, 85.8 on August 1, 1908, 82.8 on August 1, 1907, and 82.3, the ten-year average on August 1. The condition on August 1 in important tobacco states was: Kentucky 84; North Carolina 75; Virginia 86; Ohio 91; Pennsylvania 83; Tennessee 85; Wisconsin 77; South Carolina 85; Connecticut 90; Florida 87.

The average condition of flax on August 1 was 92.7, as compared with 95.1 last month, 86.1 on August 1, 1908, 91.9 on August 1, 1907, and 87.7, the average on August 1 for six years.

The preliminary estimate of the acreage of hay is 45,581,000 acres, or 1.9 per cent (905,000 acres) less than last year. The average condition of the hay crop on August 1 was 86.8, as compared with 87.8 last month, 92.1 on August 1, 1908, and a ten-year average on August 1 of approximately 87.

MICHIGAN CROP REPORT.

Wheat.—Correspondents very generally report wheat of excellent quality and the yield somewhat above the average; the prevailing opinion of the greater number of correspondents is that the final estimate which will be made October the first will considerably exceed the present figures. The average estimated yield per acre in the southern counties is 19 bushels, in the central counties 16, in the northern counties 15 and in the state 17 bushels. The per cent of plowing done for wheat in the state, southern and central counties is 11, and in the northern counties 10.

The total number of bushels of wheat marketed by farmers in July at 91 mills is 115,792, and at 55 elevators and to grain dealers 117,894, or a total of 233,686 bushels. Of this amount 220,806 bushels was marketed in the southern four tiers of counties, 11,565 in the central counties and 1,315 in the northern counties. The estimated total number of bushels of wheat marketed in the twelve months, August-July is 8,500,000; add to this amount 2,000,000 bushels used by the farmers for seed and home consumption and the indications are that the crop of 1908 has been entirely disposed of by the producers. Eighty-eight mills, elevators and grain dealers report no wheat marketed in July.

Rye.—The average estimated yield per acre in the state and southern counties is 15 bushels and in the central and northern counties 14 bushels.

Corn.—The condition of corn as compared with an average in the state and southern counties is 84, in the central counties 83 and in the northern counties 87. The condition one year ago was 75 in the southern counties, 82 in the central counties, 92 in the northern counties and 79 in the state.

Oats.—The estimated average yield per acre in the state, southern and central counties is 29 bushels, and in the northern counties 26 bushels.

Potatoes.—The condition of potatoes as compared with an average in the state and central counties is 86, in the southern counties 85 and in the northern counties 90.

The condition one year ago in the southern counties was 71, in the central counties 82, in the northern counties 89 and in the state 77.

Beans.—The condition of beans, compared with an average per cent in the southern and northern counties is 89, in the central counties 91, and in the state 90.

The condition one year ago in the southern counties was 78, in the central counties 89, in the northern counties 93 and in the state 84.

Sugar Beets.—The condition as com-

pared with an average in the state and southern counties is 88, in the central counties 89 and in the northern counties 85. The condition one year ago in the southern counties was 80, in the central and northern counties 87 and in the state 83.

Clover.—The yield per acre of clover hay in tons, in the southern counties is 1.29, in the central counties 1.50, in the northern counties 1.21 and in the state 1.33.

Timothy.—The yield per acre of timothy hay in tons, in the southern counties is 1.32, in the central counties 1.33, in the northern counties 1.04 and in the state 1.28.

Pastures.—The condition of pastures as compared with an average in the southern counties is 76, in the central counties 79, in the northern counties 67 and in the state 75. One year ago the condition in the southern counties was 69, in the central counties 78, in the northern counties 80 and in the state 69.

Apples.—The almost universal lack of spraying has resulted in a heavy dropping of fruit during the month of July, which is the principal cause of the reduction in the prospect for a crop in the state from 66 per cent on July 1st, to 53 per cent on August 1st. The prospect for an average crop in the southern counties is 43, in the central counties 61, in the northern counties 82 and in the state 53.

One year ago the prospect in the southern counties was 45, in the central counties 46, in the northern counties 59 and in the state 47.

The winter varieties that promise best are in their order: Northern Spy, Baldwin, Greening, Ben Davis, Wagner, King, Russet and Wealthy. Of the early sorts the most promising are Dutchess, Maiden Blush, Red Astrachan, Early Harvest, Pippin, Fameuse and Yellow Transparent.

Peaches.—The prospect for an average crop of peaches in the Michigan Fruit Belt is 77 per cent and in the state 67. The varieties that promise best are, in their order: Elberta, Gold Drop, Crawford, Kalamazoo, Hill's Chili, New Prolific and Barnard.

CROP AND MARKET NOTES.

Gratiot Co., July 28.—This date finds practically all wheat cut and by the close of the week it will be nearly all secured. Threshing has begun. Two fields averaged about fifteen bushels and two 25 and 27 bushels, an average of 18 to 22 bushels is a fair estimate. It is that the dry weather has affected the oat crop, also potatoes. Corn has made extraordinary growth the past month and many fields are well in tassel. Spring seeding is considered damaged from lack of rain. Apples are set for a good harvest. Good lambs are selling at 6c; hogs 7 1/2 to 7 3/4 per lb.

Genesee Co., Aug. 5.—Timely showers have relieved the drought and crops are growing rapidly. Haying about over and the same with harvest of wheat. Both crops better than the average. Oats coming finely considering the late start. The rains and hot weather are doing all possible for corn and it is responding nicely. Pastures green again and milkmen relieved. Prices on produce down somewhat, wheat, oats and corn having taken a tumble. Threshing now in progress and new wheat being rushed to market. Some of it not in the best of condition, say the buyers. Feedstuffs high.

Kent Co., Aug. 4.—Corn is growing faster than a national debt. Hope to be able to share Friend Lillie's optimistic view on late corn. Like his, our late corn is fine and fast and set for a heavy crop. August, September and October will needs be corn months to bring it out ripe corn like we had last year on the flat, damp soil. The corn here on the flat never does much until the high land corn begins to burn at the base, and then it wades in to win, and it usually does. The 99 and 100 degree weather of two weeks is so good for late potatoes. Early ones are now past help by rain or cool weather. Pastures good on the flats and n. g. on uplands. Many are compelled to feed hay to cows and other stock and here is where the shoe pinches, as hay is not too plentiful. Fat stock scarce and demand light. Raining gently.

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HORTICULTURE

PROTECTION AGAINST FOREIGN ENEMIES.

While Congress is laboring overtime perfecting a tariff bill, why should that honorable body not continue its work after the tariff measure becomes law, to protect the American people against another foreign danger, from which source the American farmer, in particular, has suffered millions of dollars in loss and expense because no law existed to provide the proper protection. We speak of the danger of the introduction of insects and fungous diseases from foreign lands. The San Jose scale, the brown tail moth and the gipsy moth are examples of what damage these importations can do. If the money spent in combatting these pests for a single season could be calculated, it certainly would be sufficient to demand the attention of Congress upon the subject. It is the belief of entomologists and others who have looked into the matter that a real efficient police control can be had over such a danger. At least, much of the trouble can be eliminated. Large numbers of brown-tail moth nests have recently been discovered in nursery stock sent from France to this country. Practically all of these would have been discovered by a rigid inspection law.

It is a national problem. A state can protect against importations of infected stock from other states, but not from foreign countries. The national constitution prohibits such interference on the part of state legislatures. It is possible that the Department of Agriculture will bring the matter before the members of Congress soon, as that department has been investigating the nature of the question, and has already expressed an opinion favorable to the placing of a law upon the statute books looking toward the minimizing of this danger. In the meantime it is well that the constituents of congressmen become active in demanding protection along this line.

ODDS AND ENDS FOR ANY CONVENIENT TIME.

At the present writing, July 27, the drouth has already reached the danger point, and indications for immediate relief are meager at best. Under existing circumstances, then, the problem of carrying the crops thru to full and satisfactory maturity, both as to quality and quantity, becomes sadly mixed. The dry weather carries with it not alone the direct drainage to the crops thru lack of sufficient moisture, but it seems also to throw the door wide open for every imaginable insect pest under the sun. On my grounds which, by nature and previous condition of servitude, are but poorly equipped for withstanding the drouth, it requires much extra labor of surface culture and all the mulching material that I can muster to keep things running at all. Thus far, however, by dint of much serving with the hoe and cultivator and what mulching material I can get hold of, I have managed to keep most of the crops in fairly good condition.

The weather conditions seem especially favorable for the rapid increase of insect pests; but thus far the potato beetles have been less troublesome than in previous years. The cucumber beetles and a sort of black flea are especially attentive to the vine crops as cucumbers, melons, etc. Spraying with the Bordeaux mixture and Paris green, one-half pound (well boiled), and arsenate of lead one pound to fifty gallons of the mixture keep them well under control. Soot and wood ashes well saturated with kerosene oil is proving a very helpful remedy for both the beetles and fleas. The black crickets are liable to be much in evidence also for the next two months; and if so, Paris green, brown sugar and middlings in the proportions in order as mentioned of 1-3-5, well mixed, and left in small piles near the hills, will be useful. They like the sugar and in order to get that will take what goes with it, and if after mixing it stands long enough for the Paris green to thoroughly leaven the entire mass, one meal will prove sufficient. They can also be effectually trapped with boards or shingles, same as the black squash bugs. Well; the extra tillage and increased scrapping with the bugs which we believe is directly due to the unfavorable weather conditions, add much to the ordinary duties; but it seems that eternal vigilance is the price of success.

Celery and Other Crops.

If the dry weather continues it certainly follows that celery, except on land of natural adaptation, will suffer. Where

only a home supply is grown a very simple means of irrigation will work wonders, and it will take comparatively little water. With the hoe make a V-shaped trench along the rows as close to the plants as possible without disturbing the roots. Pour the water, as much as is necessary, along the trench, allowing it to soak down, and when sufficiently wet, fill in with the dry soil. It is doubly more effective than sprinkling with the hose, even if one is supplied with that useful article, and the water pressure. It will be still better if, instead of clear water, liquid manure of good fair strength is used. Of course, large areas could not be thus handled, but with reasonably accessible water, comparatively large beds can be irrigated as the work can be done rapidly and can be repeated at intervals until the hilling up interferes.

If the onions get balky and fail to mature in reasonable time, as they sometimes do, they can be hastened along by rolling the tops down with a barrel. A lawn roller is good, provided it is not heavy enough to bruise the bulbs, which will cause them to rot. For some cause which is not very clear, the tops will sometimes refuse to ripen, and die down. This, if not too long continued, is well enough; but they should not be thus left too long, as they require good weather in which to dry out before they can be safely stored.

The ground for the spring bunching onions and spinach should be all ready

burning, and what is left will work into the soil and make it loose. The only argument of much weight in favor of burning that I can see is the sanitary one, and we can overcome this with spraying if necessary.

The spring set plants have made a fine growth, and there are fewer vacancies than ever before. They are now about right to layer the runners, and get the plants started where we want them, and we have begun this operation. It is a rather tedious one, but it certainly gives nice plants, and if followed up by keeping the runners cut and working about the plants, it gives fine rows by fall. I hope soon to experiment with this system in comparison with the narrow and wide matted row to see which gives the best financial returns for the labor involved, for this is really the final test.

The raspberry crop is better than for several years, especially the red ones. This crop is a good yielder if conditions are favorable, and usually brings a good price, but the crop is rather hard to pick and market in good shape, and it comes right in harvest, and hence is not a good crop for the general farmer to go into extensively unless he is sure of good help and markets. Blacks are easier to pick, and hold up better in the market. The cities, but with us the demand is greater than for the reds, and we usually make the price the same. The worst trouble with these is the anthracnose, which is quite troublesome even on spray-



A Promising Celery Crop After the First Banking With Earth.

for putting in the crops by the last days of August, and if dry weather holds on it will require all the more thoro tillage. We are promised the seed time, and the rain will doubtless come, so the safe plan is to be all ready for it, even if we get ahead of time and have to wait a little.

Wayne Co.

J. E. MORSE.

BERRY NOTES.

The strawberry crop did not fulfill all its promises, yet it did fairly well considering the late start it was allowed to get. While we have not summarized our figures I believe the yield was a little below the average for the last five years. There was less difference between the dates of ripening of early and late varieties than I have ever known before, in some cases the ripening periods being almost identical. This shortened the season, and coupled with the fact that a sudden change to warm weather with rain ripened the crop up faster than most growers could take care of it, caused a drop in prices for a time unwarranted by the crop had it been spread over a longer season.

We have mowed the vines and run the plow along the side of the rows so as to throw a back-furrow between them. This was harrowed down with the spike tooth harrow lengthwise and crosswise, and the spaces between the rows cultivated, and the plants which were covered uncovered with hand rakes. We are now hoeing out the rows with mint hoes. The plants having been layered they are spaced far enough to enable us to hoe around them nicely.

Before plowing the mulch was raked off with a horse rake and put around the sod mulched trees. The rake will not get it clean, but there will not be enough to bother if the rows are marked out with the plow. If only the cultivator is used it may be necessary to clean up with hand rakes. I think we have burned over our last strawberry patch, unless it be in a small way for experiment. We always lose a good many plants in the operation, and they are put backward about a week. The mulch is also more valuable without

ed bushes and without spraying the crop is uncertain.

Blackberries are now ripening, and would have been a poor crop but for the rain, and more will be needed to They are usually cheaper than reds in make anything like a full crop. Where there is a good market. I believe this crop can be grown more easily than raspberries, and the yield is greater. They are uncertain, however, as a drouth in the ripening season will nearly destroy the crop on light soils. If any crop will stand irrigation and pay out, I believe it would be the blackberry.

Calhoun Co.

S. B. HARTMAN.

THE CELERY CROP.

The celery crop is now growing. It responds to good cultivation. Being a good feeder it revels in an abundance of plant food, which, in part, is made available by the frequent stirring of the soil. Soon the plants will have reached such size that blanching will need to be started. The cut on this page shows a well-grown crop after the first banking of earth against the plants. Earth is the best blanching material. It lends a quality to the stalks that boards fail to produce. For the farmer who usually has but a few hills earth should be used instead of boards.

The medicinal value of celery when used as a regular diet is of no little account; and tho the actual nourishing value is small when compared with many other foods, it affords a variety and spice to the family meals that should not be overlooked; and as it can be had at a time of the year when vegetables are scarce and meat is consumed in larger quantities than it should be, it becomes a matter of no small import for the farmers of Michigan to see to it that the crop is properly looked after. It will pay, and tho the production of the finest grade of celery is possible where the highest skill is applied to the best soil and climatic conditions, yet the average farmer can grow the plant and secure an inexpensive supply of appetizing food for the fall and winter months.

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A STROLL IN THE GARDEN.

(Paper read at the June meeting of the Indianfields Club, by Mrs. Clara Miller).

(Concluded from last week).

"Is this alfalfa clover?" asked Mary. John laughed and said:

"Now, Mary, you can see how peanuts grow. They are not any harder to grow than potatoes or anything else. We plant the little Spanish variety, for they are more hardy and are earlier than the larger kinds."

"Look at those pretty poppies scattered thru your garden," said Mary, "they look so bright nodding their heads, and so many colors."

"Yes, I think one does not miss the room they need, and they do make it look so pretty. We will soon be over to a bed of them that you will think pretty."

"Here is a couple of rows of different kinds of vegetables we only planted a little of each kind, such as radishes, both summer and winter varieties. We think the Early Icicle is the very best, also the Brittle Ice Lettuce; it is very nice, even in dry weather. Well, Mary, I won't name all the kinds as it will take me too long."

"I see you have celery, too," said Mary. "Yes, we always raise a little of the early as well as the late kinds. Well, Mary, I see Clara is getting you around to her flower garden as fast as she can; you will see by the way she plans her flower garden that I am interested, too."

"Yes," I answered, "you see I have planted all the flowers in rows the same as the vegetables, so the horses can do the most of the work. We think a corner of the garden planted to pretty bright flowers is neither time nor labor lost. They put me in mind of a verse I read once, the name of it was 'Home Flowers.' Let me repeat it to you:

With a rose on the lawn, and a bird in the tree,

And a vine clambering out on a trellis—
With a fruit-laden bough and a small busy bee

And all nature is willing to tell us—
It seems we should learn from the lessons thus taught

That the home side of life holds a power;

That the things we call common with blessings are fraught

And that God is revealed in a flower.

"I am sure it is a great rest to come over here after working among their neighbors, such as squashes, pumpkins, onions, tomatoes and cabbages, and look at their bright pretty faces. Now, Mary, don't you think I have some pretty flowers? Look at those old-fashioned phlox, so many colors, and the zenias, some of them are nearly but not quite as pretty as Miss Martha Purdy's dahlias. The dahlias are a flower I do not have good success with; I think they want heavier soil than this is, but look at those petunias. Aren't they large and pretty? And those carnation pinks; here is that sweet ten-week-stocks."

"What are those beautiful velvety flowers?" interrupted Mary.

"They are called Salpiglossis. The chrysanthemum, sunflowers and great large leaf castor bean make a pretty background with their colors blending with those of their bright neighbors; the four o'clocks are so full of bloom in the evening. Look at those marigolds, how double they are; those large yellow balls are of the African sort. I think the dwarf growing nasturtiums are pretty and that nicotiana sandarea makes quite a showing. The everlasting haven't any perfume, but they are nice to decorate with in the winter and are better than paper flowers. Aren't those coleus fine? Their foliage is of so many colors; also the plumed selocia makes a very pretty part of the garden with their different shades of red and yellow. I think I have a nice variety of asters. I usually get mixed packages of seed, I get so many more colors."

"Yes, that is a good way," said Mary; "but those poppies are certainly beautiful and so many colors and kinds; they are the Shurley, aren't they?"

"Yes, they are a new strain of Shur-

ley, but I think the large double ones are the prettiest, they are as large as the peony. The Lavetres with their large pink blossoms are quite a pretty plant by the side of the sweet alyssum. My verbenias are not very nice; I never have good luck with them."

"You see, Mary," interrupted John, "everything Clara does not have good success with she lays it to the sandy soil, but I think we can grow nearly everything as well here as on heavy soil, but we have come to the conclusion that roses want heavier soil; at least we have not been very successful in getting them started, and they are my favorite flower, too."

"Roses are very nice," joined in Mary, "but you have so many kinds here that do well, you should be satisfied."

"Well, Mary, we do have a pretty good garden when the cutworms leave it alone, but they were so bad this year. I saved my tomatoes by wrapping paper around the stalks and sprinkling ashes around the plants."

"What is that?" cried Mary, "it looks like a humming bird."

"No, Mary," answered John, "it is called a tobacco bat. You keep them killed and you won't have any worms on your tomato vines. They fly around in the evening and sip the honey out of the flowers; just take a paddle and knock them down to the ground and then you can very easily kill them."

"Well," said Mary, "it must take a lot of work to raise all this garden."

"Of course it does, but you see we are interested in our farmers' club exhibit at the fair and so we put in many different kinds that we do not make the least use of for ourselves."

"Well, as it is getting dark," said Mary, "and I have my hands full of flowers, I guess I will have to go. But I will come again when the watermelons are ripe."

"You surely have a standing invitation, as well as all the rest of the members of the farmers' club."

PICNIC MEETING.

The Indianfields Farmers Club will hold their eighth annual basket picnic Thursday, August 19, in Bush's Grove. A good time is anticipated and a cordial invitation is extended to everybody to come.—M. R. Purdy, Sec'y.

CLUB DISCUSSIONS.

A "Home-Coming" Meeting.—The second annual home-coming day of the Marion Farmers' Club was observed on Thursday, July 29th. All roads lead to the wide open gate of W. A. Clark, and after well towards one hundred had assembled on the shady side of the house the musicians all joined in singing Home Sweet Home. Rev. McCallum invoked the Divine blessing upon all assembled, and a fine literary and musical program was rendered. A motion was passed that we favor a union picnic with Howell and Genoa clubs. Miss Alma Dickerson read a well written paper on home going. At every railroad station one can tell the home going from the home leaving crowd. Those who have long been gone have a keen impatience to see the old surroundings, forgetting the harder side of the old life, the hasty words too often spoken, remembering only the pleasant things.

Agriculture in Japan.—Chas. O'Kada, an M. A. C. student from Japan spoke briefly of agriculture in his home land. The government has been active in introducing improved farm stock till now the great need is for butter factories and meat packing concerns. He enjoyed the meeting very much and said he would favor such an organization among the farmers at home when he should return.

Visitor From Cuba.—Dr. Ned Mayo, chief of the department of agriculture of Cuba for the past five years, was then called upon. His bronzed face and fluent rendering of Spanish names made it seem hardly possible that he had been in the tropics such a short time, yet he knew so much of interest of the Pearl of the Antilles that all listened with great interest till the call for ice cream and cake was heard. That being disposed of, Dr. Mayo was again called upon and went on as before, apparently able to instruct and entertain us for hours telling of these proteges of ours. He gave a brief history of the island. He told of the ransacking of coast cities by pirates till most of the cities are located back ten miles from the harbor. The ten years war previous to American intervention was bloody and cruel beyond all description. Even now the people have no public spirit. All attempts at self-government results in absolute domination by the local "General." This "General" is a combination of "Bully" and "Party Boss," as we know them in this country, but incomparably worse. Previous to an election he sends word by his friends to people he knows to be unfavorable to his regime and tells them to stay at home that day. They obediently keep away from the polls for fear of personal violence. A burning match in their thatch roof would be a greater calamity to them than submission to the "Generals" personal program. We can not understand their servility to these local "Generals" who keep them in constant terror.

After some more music and recitations every one went home feeling the time had been well spent.

GRANGE

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

THE AUGUST PROGRAMS.

State Lecturer's Suggestions for First Meeting.

Which is the most profitable investment, seventy-five dollars in cows, in hens or in swine?

(Vary the sub-topics to fit the industries of your community and ask for figures to prove the arguments.)

Review of a book or magazine read recently.

Industrial Alcohol, its sources, uses and manufacture.

Sports and Games in the Country.—Why do we need more? How shall they be encouraged?

Some practical home-made refreshments—by a "Surprise Committee" consisting of young people who give instructions for making and serve samples of the refreshments.

OUR NEW GRANGES.

VI.—The Lecturer's Part.

This rather rambling series of little talks on the parts which various officers may have in the success of a Grange closes with a final word concerning the lecturer's share in this result. "The most important of all?" So it is often said to be; but we must remember that no one office, nor any one member, can really be "the most important" in an organization based on the very principle of doing-things-together.

It is expected that the lecturer will prepare a program for each Grange meeting. This program is like the circulatory system of the human body—it carries new life to the various organs and bears away impurities in its revivifying flow. The lecturer stands related to this system as the heart to the life-blood of the body—is the pumping station, as it were. It is truly an important office, for upon the push and alertness of the lecturer depends very much that widening mental horizon and actual development of members and their homes which should follow in the wake of every well-regulated Grange. Level-minded farm people, having attained a clear understanding of the true mission of the Grange, usually go into it for these purposes and do not stay unless they find stress is laid on them. Some other members do not get this idea at first but should be tactfully led into it. This is the part that devolves upon the lecturer.

The fortnightly program should be interesting and yet not "interesting" from the standpoint of being entertaining alone, but should have something helpful and instructive in it. Members ought to be able to carry from the hall in memory something to ponder and enjoy afterward. In order to accomplish this, the lecturer must know the members as well as study the program. There should be some music on every program if possible. Music helps people as nothing else does if it is of the right sort; and no lecturer of a Grange has a moral claim on the office who will allow the repetition of a song, or recitation, or a remark that raises a laugh or a thot that does not tend to promote "a higher manhood and nobler womanhood." Besides music and entertaining features, there should be one or two or three subjects for the members to seriously discuss and read papers upon.

The use of the roll-call, with various responses and a question box, are two most effective resources of the new Grange. Another golden opportunity for the lecturer is the enlisting of the young people and of new members as fast as they come into the Grange. It is probably safe to say that no Grange would become dormant if every member was at once made to feel responsibility.

Finally, the lecturer must not lose heart. If so, no one must know it. It will not do to stop asking people to take part on the program once or twice, but we must persevere, with tact from one vantage point and then another, for the proverbial "seventy and seven times." Let "never be discouraged," and "try, try again," be guiding stars out of every perplexity. If that of the needs of the Lecture Hour are bound on the heart and carried into all the contracts of the lecturer's life, he will find materials there to bring forth during this hour in the Grange. This means that he will have the need on his mind while he reads, or listens to conversation, lecture, song or sermon; it is with him in whatever he does on his farm and in his home; in whatever he sees from the roadside or in further journeys; and in all those deeper experiences of life which come with

mingling with fellow men, women and little children. There is no such word as "fail" to such a lecturer. He will overcome all obstacles and whatever he does he will strive to do well.

JENNIE BUELL.

GRANGE INVADES MARQUETTE COUNTY.

Two Organized in Marquette and Three in Delta.

Lathrop Grange.—A Grange was organized at Lathrop, Delta Co., Monday evening, August 2, by Deputy John F. Wilde. The following are the officers: Master, Henry A. Harlow; overseer, John Britz; lecturer, Oro A. Molloy; steward, Wesley Miller; ass't steward, Carl Harlow; lady ass't steward, Anna Curran; chaplain, Mary Harlow; treasurer, Nicholas Britz; secretary, Frank Curran; gate keeper, Con Lane; Ceres, Mary Miller; Pomona, Mrs. A. Miller; Flora, Mrs. L. C. Connor.

Marquette Becomes Grange County.—The first Grange in Marquette Co. was organized at Turin, Tuesday evening, August 3, by State Deputy Wilde. It will be known as Turin Grange and has elected the following officers: Master, H. H. Currie; overseer, Chas. Grimes; lecturer, Ruth Grimes; steward, David Grimes; ass't steward, F. C. Keupper; lady ass't steward, Margaret Lamirand; chaplain, Rose Currie; treasurer, Henry Grimes; secretary, Henry McFarland; gate keeper, Herman Dreschutte; Ceres, Daphne McFarland; Pomona, Maximiliana Gour; Flora, Anna Stark.

Perkins Grange.—State Deputy John Wilde organized a Grange at Perkins, Delta Co., Friday evening, July 30, with the following officers: Master, John Logan; overseer, Swen Hall; lecturer, Ellen Hall; steward, Fred La Bresh; ass't steward, Edward Hall; lady ass't steward, Ella Norden; chaplain, Anna Logan; treasurer, Chas. Norden; secretary, John Hall; gate keeper, Moses Lachance; Ceres, Annie Boprie; Pomona, Anna Norden; Flora, Elizabeth Lachance.

Whitefish Grange.—Thursday evening, August 5, State Deputy Wilde organized a Grange at the schoolhouse in the Whitefish settlement, Masonville township, Delta Co., with the following officers: Master, Nels Westling; overseer, Arvid Bergman; lecturer, John Johnson; steward, Emanuel Johnson; ass't steward, Walter Okerdahl; lady ass't steward, Ellen Bergman; chaplain, Harry Wickstrom; treasurer, James Snell; secretary, Gustave Roberts; gate keeper, Ed. Johnson; Ceres, Anna Bergman; Pomona, Mrs. G. Roberts; Flora, Mrs. H. Wickstrom.

Forsyth Grange.—State Deputy Wilde organized a Grange at the Roby School in Forsyth township, Marquette Co., Wednesday evening, August 4, with the following officers: Master, John McCarthy; overseer, Joel Anderson; lecturer, Joseph Roby; steward, Alexander Provost; ass't steward, Aug. Gustafson; lady ass't steward, Mrs. H. Blanchette; chaplain, Mrs. J. McCarthy; treasurer, John C. Soderstrom; secretary, Frank Carrier; gate keeper, Henry Blanchette; Ceres, Stella Welran; Pomona, Anna Anderson; Flora, Cordelia Dugas.

AMONG THE LIVE GRANGES.

Barnard Grange, of Charlevoix Co., has a committee on selection of farm products for exhibition at the county fair and it has requested the individual members to select and prepare for exhibition the best of their several products, the same to be later collected and arranged.

Build Comfortable Sheds.—Liberty Grange, of Gratiot Co., has recently expended \$155 in building sheds adjacent to the comfortable hall owned by this organization. That this Grange is in comfortable circumstances is evidenced by the fact that its treasury contained sufficient funds to promptly meet the expense of this substantial improvement.

Grange Picnic.—Pokagon Grange, joined by members of Wayne, LaGrange and Berrien Granges, held an old-fashioned love feast at Wiest's resort, near Dowagiac, Aug. 5. Over 200 people were present and at one time the 100-foot dining table seated 200 persons, all of whom were bountifully supplied with the good things the sisters had prepared. Rev. James Springsteen delivered an appropriate address, and a program of athletic events was successfully carried out. It was decided to make these picnics an annual event. Pokagon Grange has also recently closed a successful contest which added 20 members to its list, giving the Grange a membership of 60.

COMING EVENTS.

Pomona Meetings.

St. Joseph Co., with Constantine Grange, Tuesday, Aug. 24. Deputy D. H. Pound, state speaker.

Emmet Co., with Pickerel Lake Grange, Friday, Sept. 24.

Western Pomona (Ottawa Co.) with Tallmadge Grange, Friday, Aug. 27.

Picnics and Rallies.

Haring and Selma Granges, of Wexford Co., will hold a rally on Saturday, Aug. 14. State Master Hull, state speaker.

Bronson Grange, Branch Co., will hold annual picnic at Matterson, Lake, Wednesday, Aug. 18.

Kent Co. Pomona Grange will hold a farmers' picnic in Byron township, Kent Co., Wednesday, August 25. Fourth and fifth degree session with Carlisle Grange in the evening. Master N. P. Hull, state speaker.

Lapeer Co. Pomona will hold Grange rally and basket picnic at Lake Pleasant, Cedar Landing, Thursday, Aug. 26.

Charlevoix Co. Granges will hold second annual picnic with Maple Grove Grange, Saturday, Aug. 28.

HOME AND YOUTH

HOLDING THE SACK.

BY JOHN E. WILLIAMS.

It was no fault of Ben Edmonds that he looked green, and less fault that he was green. Heredity and environment had each marked him as its own, and neither was of such a nature as to beget other than an inexperienced, pampered boy. His parents dying when he was still almost a baby, he had been raised by two spinster aunts, his father's sisters, who held fixed ideas about the rearing and care of house plants, and they applied the same methods to bringing up a growing boy that they used in raising geraniums.

No wonder then at sixteen, now that he had matriculated in the Albion Preparatory School at Custer, he found himself confronting a maze of difficulties. It was true that Aunt Emily had accompanied him, had spent a whole week in selecting a room for him, and still another in choosing a boarding house. Numerous visits had also been made to the professors for the purpose of impressing on their minds the boy's various whims and characteristics, and asking added concern for the welfare of "Bennie." But now Aunt Emily had returned home, and poor "Bennie" had to rustle for himself.

He found at his boarding house a jolly crowd of happy hearts and voracious appetites. All seemed to realize the fact that Ben was very inexperienced in the ways of the world, and were ever ready at all times and under all circumstances to offer advice, information and pointers on every variety of question. It was true that, relying on this information and acting on this advice, more than once he had made what he easily saw were bad blunders; still it was hard to bring himself to doubt the veracity and integrity of such a whole-souled bunch of fellows, and it was not until the end of the second week that Ben decided they were making of him a butt for the ridicule of the whole school.

Once this decision dawned upon him, he felt the pangs of genuine lonesomeness and homesickness as he had never felt them before. Blue and discouraged almost to the limit of endurance, he went to his room to brood over some way of escaping these troubles, and possibly, alone by himself, to let a few tears steal out that were pressing hard at his eyelids. Numerous plans suggested themselves, but the one that suited him best was to pack up his trunk and return home. Still his aunts were ambitious concerning him and were anxious to give him the best education any school offered, and for that reason he hated to disappoint them. There was also within him somewhere a spirit that hated to admit defeat. But the life he had been forced to live the past few days was such that no boy of his raising could long endure. What would have been the outcome of this brooding is hard to determine, but just at this juncture he heard his landlady calling him from below stairs. Upon replying to her call he was told that a man at the door wished to speak to him.

At the door he met a man dressed in the conventional blue of a laborer. The shabbily dressed, this man had a pleasant face—one calculated soon to win the confidence of such a forlorn and lonesome boy as Ben.

"You're Tom Edmonds' boy, Ben, ain't you?" asked the man, and, upon receiving an affirmative reply, he added, "Well, I'm your Uncle Eben, your ma's brother." Ben had heard very little from his aunt of his mother's relatives, and what he had heard was calculated to give him the opinion that they were a shiftless, ignorant lot. His Aunt Emily had often intimated that his father had thrown himself away by marrying into such a family. None of these people had ever been encouraged to come to see Ben, and he had always been absolutely refused all permission to visit them. Aunt Emily must not have known that Eben, the one she apparently had the least use for of all, was living near Custer, else Ben would never have been sent there to school.

"I saw in the paper," resumed Uncle Eben, "that your Aunt Emily had been here startin' you in school an' that I'd wait till she left, an' you got good an' lonesome, then I'd come in an' take you out to see if Sarah an' me couldn't jolly you up a bit. I'm in today to do that, an' if you want to go we'll start anytime."

Ben had often that his aunts unduly prejudiced against his mother's people.

From others he had learned that tho they were not as wealthy as his father's people, still they were honest, industrious, hard-working people. For that reason it was not strange that his uncle's generous invitation awakened in him a wish that soon grew into a resolve to spend the next two days in the country. A short time later found the two seated in a farm wagon riding out of town.

As the ride continued, Ben's confidence in his uncle grew, and long before they reached the latter's house, all loneliness had been forgotten.

Aunt Sarah proved to be a very motherly creature, and displayed more real affection for Ben in ten minutes than Aunt Emily had allowed herself to bestow all her life. Aunt Sarah once had two boys of her own, but diphtheria had taken both away the same day about a year before this, and the vacant place this had left in her life such a boy as Ben could help to fill. Ben's appetite had gone wavering along with his courage, but it had been given a mighty stimulant by the bumping he had gotten riding in the farm wagon for four miles. Apparently his aunt had anticipated this, for the table was well laden with just such eatables as only a country mother knows will go to the right spot in a hungry boy.

Soon the three were seated at the table. The association of ideas must have brot to Ben's mind the latest subject under discussion at his boarding house. "Oh, my," said he, "I forgot all about the snipe hunt the boys were going to take me to tonight."

"The what?" asked Uncle Eben, a decided twinkle in his eyes.

"The snipe hunt," replied Ben. "The boys at the boarding house had arranged to go snipe-hunting and were going to let me go along. Did you ever hunt any snipes, uncle?"

"Yes, a few," was the reply, the twinkle having by this time grown into a smile. Aunt Sarah also showed unmistakable signs of being amused.

"What you folks smiling so about?" asked Ben, seeing there must be a joke somewhere.

"So the boys was goin' to take you snipe-huntin'?" replied Uncle Eben. "Well, seein' you was hand-raised the way you was, I ain't surprised you'd have gone. But s'pose you go, anyhow. You an' me, Ben, 'll hatch up a scheme to take them college chaps snipe-huntin'. You leave it to old Uncle Eben an' if we don't have them holdin' the sack, I'll treat."

Part II.

It was supper time at the boarding house the following Friday evening. The boys were mightily good-humored; all ate heartily, as all seemed anxious to get the meal over; some scheme was surely under way.

With his courage bolstered up by the two days spent in the country, Ben had appeared at school again on Monday morning. He told all inquirers concerning his absence that he had been unexpectedly called out of town. Uncle Eben's common sense advice had caused him to commit a lesser number of blunders than previously, and this particular night found him at the table in as high spirits as any of his fellows. The boys early in the week had expressed their disappointment that he had not been able to accompany them on the snipe-hunt the previous Friday evening, and upon Ben's showing such a keen desire to take such a hunt, they had arranged another for this particular night.

"I tell you, Ben," said one, "you'll have the sport of your life tonight. I'll never forget the first night I hunted snipes."

"I was asking an old farmer about it today, and he said the best country he knew for snipes was in a ravine about four miles out the Medbury road," said Ben.

"I've heard that was a good place, too," chimed in half a dozen. "We may as well go there tonight."

And so it happened that just as dusk was beginning to give way to darkness, a company of some fifteen youths could be seen walking out the Medbury road. Behind them came a rather rusty looking man, riding in a farm wagon.

"Hello, boys!" said the man as he neared them, "if I had better accommodations I'd ask you to ride."

"Oh, never mind about the accommodations," said the boys, "we'd like to ride anyhow. We're going out in the country a few miles to hunt snipes. Young fellow here never hunted any, and is crazy to try his hand at it. Mighty exciting business, anyhow. Did you ever hunt any snipes?"

"Well, I reckon yes," was the reply. "Ever since I was a kid. Great country for 'em out here about five miles. Best place I ever saw. The place is just lousy

with 'em. If you don't mind goin' so far, I'll take you there, as I go right past the place."

All agreed that this was the thing to do, so on they rode, each telling of past experiences they had had while on such hunts. Many remarkable captures were narrated, but none equal to those told by the old man. Seeing him enter so heartily into what they thought the spirit of the occasion, the boys were mightily pleased with the outcome of the trip.

After driving for some considerable distance, they drew near to a place where the road passed thru a deep ravine. By this time darkness was upon them, and the trees along the ravine made it still darker there than in the open country. The wagon was stopped at the bottom, and the boys were told if they would continue up the ravine about a mile they would find the best trysting place for snipes in all the country.

All jumped from the wagon and started thru the darkness in the direction mentioned. The place was so dark that some seemed inclined to hesitate, but the nature of the hunt required that the most lonesome place possible be selected, so on they journeyed.

After some time they found what was undoubtedly the place suggested. Here they gathered together to make the arrangements for the hunt. Most of them by this time were so impressed with the darkness and stillness of the ravine, that the compact bunch that assembled to arrange matters indicated that the courage of more than one was on the wane. Just at this moment Ben spoke up:

"Say, boys, I don't believe I care to hunt snipes tonight after all. That old fellow we rode out with is an uncle of mine, and lives just over the edge of the ravine there. I believe I'll go over and spend the night with him. My going will of course in no way interfere with the hunt. I hope the rest of you will have some great sport and catch a lot of snipes. Good-night!"

TREE STUDY.

BY HOPE DARING.

Try it with the children. It requires no botanical knowledge, altho a study of modes of growth, division of leaves, and staminate and pistillate flowers would be profitable. But select a few trees and study, one at a time, the part they have played in history and literature.

For instance, the oak. In England two thousand years ago the people and their priests, the Druids, were worshipping this tree, and their religious ceremonies were conducted in oak groves. About the same time or a little before the young Greeks were wandering thru the forests, looking for the Dryads, the beautiful maidens who lived in oak trees. They listened to the song of the wind in the leaves, and at last the faint rustle resolved itself into words, and the Dryads sang:

"Rest you, rest you,
Green boughs shade you,
Soothe you, soothe you,
Sleep you, sleep you,
No bee hum near you,
No bird flit o'er you,
Dream you, dream you."

The Greeks also claimed that their chief god, Zeus (the Jupiter of the Romans) was born beneath an oak tree, and a mighty one which grew at Dodona was sacred to him. When the leaves rustled, the priests claimed that Zeus was giving them a message for the people. The Jews venerated the oak, and the tree is several times mentioned in the Bible. In Ezekiel we read how "tars to idols were erected in the shade of these trees. To win a "crown of oak" was considered a great honor by a Roman citizen. The Saxons, whose vast herds of swine fattened upon the acorns, by them named mast, called the right to let the herds feed in a forest "pannage." This right was sometimes a part of a fide's dowry or a church was endowed with it.

The study of the oak includes many charming historical stories. Among these may be mentioned that of the hollow oak in which William Wallace slept, the oak in which the fugitive king, Charles II, took refuge, and our own Charter Oak of Connecticut. Then there are the many poetical references. To compare the poet's impression with the tree itself is a fascinating and instructive pastime.

Read Hans Christian Anderson's "Last Dream of the Old Oak Tree," Henry Van Dyke's "The First Christmas Tree," Lowell's "The Oak," and that familiar "Woodman, Spare That Tree."

Then there is the pine with its entirely different leaf formation and habits of growth. While this tree has not so far-famed a history as the oak, its cousins, the fir and cedar, were used in the building of the Temple at Jerusalem and in Solomon's House. In Shakespeare's "The

ON FOOD

The Right Foundation of Health.

Proper food is the foundation of health. People can eat improper food for a time until there is a sudden collapse of the digestive organs, then all kinds of trouble follows:

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"Last summer I was suddenly taken with indigestion and severe stomach trouble and could not eat food without great pain, my stomach was so sore I could hardly move about. This kept up until I was so miserable life was not worth living.

"Then a friend finally, after much argument, induced me to quit my former diet and try Grape-Nuts.

"Altho I had but little faith I commenced to use it and great was my surprise to find that I could eat it without the usual pain and distress in my stomach.

"So I kept on using Grape-Nuts and soon a marked improvement was shown, for my stomach was performing its regular work in a normal way without pain or distress.

"Very soon the yellow coating disappeared from my tongue, the dull, heavy feeling in my head disappeared and my mind felt light and clear; the languid, tired feeling left, and altogether I felt as if I had been rebuilt. Strength and weight came back rapidly and I went back to my work with renewed ambition.

"Today I am a new woman in mind as well as body and I owe it all to this natural food, Grape-Nuts." "There's a Reason."

Look in pkgs. for the famous little book, "The Road to Wellville."

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

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Tempest," the well-beloved sprite Ariel was imprisoned within a "cloven pine."

The Indians of North America loved the pine and told wondrous tales in which it bore a part. One legend tells that the music made by the wind in the branches is the voices of the great chiefs who besought Glooskap to make them taller than their fellows and let them live longer than others. The god changed them into pine trees, thus granting their request. The well-known Hiawatha, when building his canoe, asked of the larch, a member of the pine family, his fibrous roots to bind the canoe together and of the fir his balsam.

Of poetical references there are many. Read "The Pine Forest of Monterey," by Bayard Taylor, Longfellow's "My Cathedral," and "The Legend of Skadi," by Lucy Larcom.

These references are only suggestive. Nearly all the trees that grow in sight of your home have as interesting a history as these two. Try this form of nature study with the children, and you will find it a delight.

CONCERNING JELLY MAKING.

BY E. E. R.

When fruit juice refuses to jellify after cooking from ten to twenty minutes with an equal quantity of granulated sugar, it is a sure indication that something is wrong.

Certain conditions must be maintained in jelly making in order to obtain best results. The fruit must not be over-ripe. The perfect product only must be used. If currants, they better be partly green than dead ripe, and the same is true of other fruits. The jelly will make more quickly and the color will be better if taken before the prime eating condition is reached.

To make currant jelly the fruit may be slightly cooked, and then drained, to extract the juice. The raw fruit may be crushed and pressed thru a strong cloth bag. Probably as convenient a way as any is to scald it then pour into a cloth to drip for several hours, or over night. The juice must be measured and equal parts of sugar prepared. If more convenient both may be weighed instead. Boil the fruit juice for ten minutes, and add the sugar, which has been heating in the oven. This is not imperative, but the hot sugar retards the boiling less than cold. As soon as boiling begins again, test a little of the syrup in a cold dish. If it jellies, remove from the fire at once. Long continued cooking darkens it and adds nothing to the firmness.

Jelly to be perfectly clear must be absolutely free of any particles of pulp; straining thru a flannel cloth at the last will have a most satisfactory effect. Have tumblers scalded, with or without the caps, and pour the hot jelly into them with as little delay as possible. Allow them to stand until cool before sealing. Melted paraffin seals the tops completely against mold, and is much better next to the jelly than paper. The paraffin may be used from one year to another by remelting. Paste white paper over the tops, if the glasses are not provided with covers, and store in a dry place.

Common pieplant or rhubarb makes excellent jelly when flavored with pineapple. So also do apples. The latter takes flavor from other fruits particularly well and makes a clean, firm product.

Pectine is the element which causes fruit juices to jellify. Sweet fruits do not make firm jelly unless accompanied by an acid. Ripe cherries, altho tart, are lacking in pectine, hence do not make a firm jelly.

FOR THE HOME NURSE.

BY GLADYS HYATT SINCLAIR.

I have had considerable experience in home-nursing, and there are a few things of which I wish to speak. Clear the sick room of all unnecessary articles of furniture and hangings, and keep it as spotlessly clean as possible. For your own convenience and the comfort of the patient, which depends a great deal upon your ease and repose, raise the bed by placing a block of hardwood, three to four inches wide, at the foot and head of the bed upon the rails, held in place by a cleat on the inside, and then place the springs and mattress upon this, which is easily done. It is a relief when bathing or tending the patient, not to have to stand in a bent position. Have some squares of white table oil cloth, a scentless powder, alcohol, a good soap, plenty of bath towels, and wash cloths made of surgeons' gauze. Sponges are not allowed in hospitals. Have two or three

white enamel earthen wash-bowls, a hot water bottle, fountain syringe, vaseline and bed-pan. When giving the patient a bath, or whatever it may be you have to do, get the things you are going to use where you can reach them, without any disturbance, and when you are ready, begin gently but firmly and proceed quietly and steadily. Your precision will give great confidence to your patient; and this precision you will not feel unless you have articles suited to the use to which you put them.

COOKING AN OLD FOWL.

BY MARY FOSTER SNIDER.

It occasionally happens when one wants spring chickens to cook, that an old fowl must be substituted, and very careful cooking will be required to make it really palatable. It is always safer to serve it in a soup or puree, or slowly simmered with some vegetables and sweet herbs, to give it a more pleasing flavor. Some of the best ways of preparing such a bird are the following:

Fowl with Rice.—Draw and clean a large fowl in the usual manner, put it into a saucepan and cover it with warm water. Add two or three onions, a carrot, half a turnip, a tablespoon of parsley, and a small bunch of sweet herbs. Let it come to a boil, then skim it well and keep it simmering until almost tender enough to serve. Add salt and pepper to season and put in one teaspoon of well-washed rice; let simmer until the rice is soft and the gravy is all absorbed. Remove the herbs and vegetables, place the fowl on a heated platter and serve with the rice heaped around it. A small lump of butter should be stirred into the rice before dishing it.

Chicken Puree.—Prepare the fowl for cooking, cut it into joints, and put into a large saucepan with three quarts of warm water, four or five cloves, a stick of cinnamon, a blade of mace, a bay leaf, two onions, two stalks of celery and a carrot. Bring to a boil, then skim it well, and let simmer slowly until the flesh will leave the bones easily. Strain the liquor thru a coarse sieve, take all the meat from the bones and chop very fine. Wash the saucepan, put the stock and fowl into it again, add half a teaspoon of well-washed rice, and salt and pepper to season, let simmer gently until the rice is tender. Stir in one tablespoon of flour that has been smoothly mixed with a little cold milk, and let it cook for five minutes, stirring constantly, then add one cup of cream (or an egg beaten up in a cup of milk). Let it just come to a boil, and serve at once.

Charlemagne Soup.—Prepare the fowl for cooking and let it boil, in just enough slightly salted water to cover, until it is so tender the flesh will leave the bones clean. Remove the meat from the bones, add to it a small cup of bread crumbs, that have been soaked in a little stock, and pound together well. Remove the fat from the liquor in which the fowl was boiled, strain the soup, and return it to the fire, to heat again, then put in the pounded fowl and bread-crumbs. Beat the yolks of two eggs in a cup of milk, stir them quickly into the hot soup, and serve immediately with sippets of fried bread.

COOLING DRINKS AND ICES.

BY G. A.

Pineapple Lemonade.

One pint water, one cup sugar, one can grated pineapple, juice of three lemons. Make syrup by boiling water and sugar together ten minutes; add pineapple and lemon juice; cool, strain and add one quart ice water.

Ginger Punch.

One quart cold water, one cup sugar, one-half pound Canton ginger, one-half cup orange juice, one-half cup lemon juice. Chop ginger, add water and sugar, boil 15 minutes; add fruit juice, cool, strain and dilute with crushed ice.

Orange Ice.

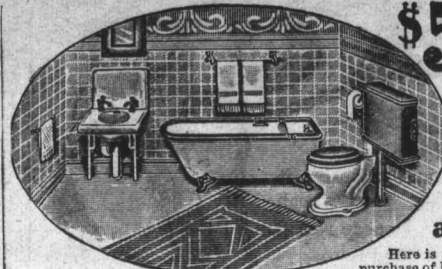
Four cups water, two cups sugar, one-half cup lemon juice, two cups orange juice and grated rind of two oranges. Make a syrup by boiling the water and sugar twenty minutes; add fruit juice and grated rind; cool, strain and freeze.

Currant Ice.

Four cups water, one and one-half cups sugar, two cups currant juice. Make a syrup by boiling water and sugar twenty minutes; add currant juice, cool, strain and freeze.

Milk Sherbet.

Four cups milk, one and one-half cups sugar, juice of three lemons. Mix the juice and the sugar, stirring constantly while slowly adding the milk; freeze.



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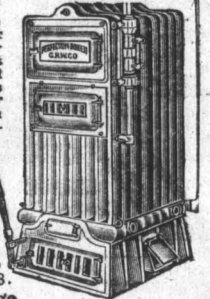
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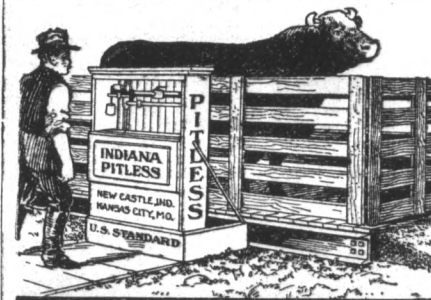
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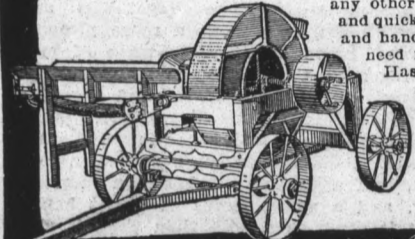
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