orchard practice by many growers, and great gain has resulted in both the quantity and the much improved quality of the crop reaped. It is certain that during the past season the number of fruit-growers who sprayed was far greater than it ever was before. This was largely due to the efforts made by the Dominion and Provincial Governments to disseminate accurate information as to the nature of the injuries to crops and the best means of preventing them.

This is the time of the year that the farmer should decide whether he can afford to do without a spraying outfit. If he has an orchard or garden which is liable to be attacked by insects, or if he wishes to grow potatoes free of potato rot, it certainly will more than pay him to procure a spraying pump with a proper nozzle. There are many kinds of these now made by Canadian firms, some of which advertise in the FARMER'S ADVOCATE and all of which will send price lists on application.

There is a new orchard pest which has lately appeared in Canada, and to which it would be well for Canadian fruit-growers to turn their immediate attention.

1. The New York plum-scale ("*Lecanium cerasifex*"). In many plum orchards in Western Ontario there have been observed, during the last two or three years, shining, dark brown, hemispherical, conspicuous scales about one-sixth of an inch long by one-eighth of an inch wide and one-twelfth of an inch high. These scales may now be found on the trees, clustered along the small branches, particularly along the lower sides. All of these specimens are empty and dead, but on the same branches may also be seen large numbers of minute, flat scales only about one-fiftieth of an inch in length, which are those to be feared by the fruit-grower, for on the return of warm weather they will revive and, inserting their tiny beaks through the bark, will suck out the life of the tree. They will grow rapidly until the middle of May, soon after which time eggs will be found under the scales. The young hatch about the end of June and crawl out on to the leaves, where they remain until autumn. About September most of them migrate back again to the twigs, where they pass the winter. In the State of New York this insect has proved very injurious, and although up to the present it is not known that it has done very serious damage in Canada, from its abundance there is no doubt that the loss is considerable and that the pest is becoming more numerous. From experiments carried out last summer at Queenston and Grimsby (Ont.), it is known that kerosene emulsion is an effective remedy. This is made according to the ordinary formula, which is as follows: Kerosene (coal oil), two gallons; rain water, one gallon; soap, one-half pound. Boil the soap in the water till all is dissolved, then, while boiling hot, turn it into the kerosene and churn it constantly and forcibly with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. If the emulsion be perfect it will adhere to the surface of glass without oiliness. As it cools it thickens into a jelly-like mass. This gives the stock emulsion, which for this pest must be diluted with four times its measure of warm water before using. The above quantity of three gallons of emulsion will make fifteen gallons of wash. Scale insects breathe through small openings along their sides. The effect of kerosene emulsion is to suffocate them by stopping up these breathing pores.

Trees which are found to be infested should be sprayed at once, before the buds burst, with the above mixture. Care must be taken in directing the spray. Remember that most of the scales are on the small branches, but there are also thousands of them in the crevices of the bark all over the tree. Thus, to hit all, the spray must be directed from beneath the tree and every part of it drenched. The best time to spray is *now*, with the stock emulsion diluted with four parts of water, as directed above; but if this cannot be done, for any reason, before the buds burst, there is another opportunity when good work can be done, viz., in the last days of June, when the young scales hatch.

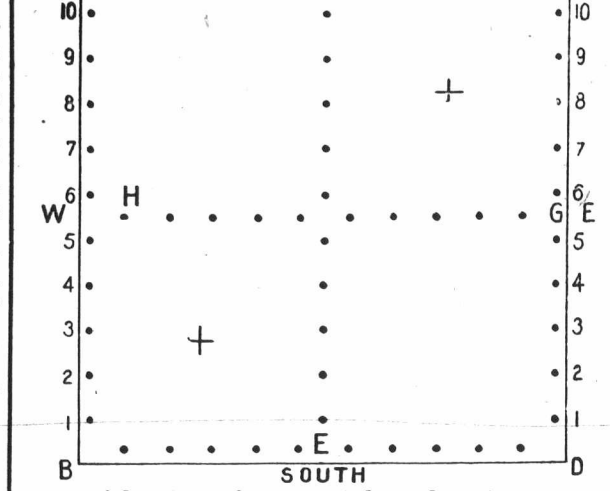
Clothes Moths.

There are few who have not been annoyed by the injuries done by these little pests. If steps have not already been taken to protect winter clothes and sleigh robes against their depredations, no further time should be lost. The damage is done by small white caterpillars, which hatch from eggs laid by the tiny fawn-colored moths which are found flying in houses, particularly during May; not, as some suppose, by the large moths which fly around lamps at night when the windows are left open. The caterpillar can only originate from eggs laid by the moths, and only feed upon animal substances like wool, hair, feathers, etc. Paper is made of vegetable fibres, therefore clothes, etc., wrapped up securely in paper or put away in boxes made moth-proof by having old newspapers pasted securely over all cracks and openings, are safe from injury if they are put away before the moths appear. Should there be any doubt on this latter point the articles should be brushed or beaten well before being put away. Camphor, napthaline, etc., are only partially effective, acting as deterrents to keep the moths from laying their eggs near where these substances are; they will not kill the insects if the eggs have been already laid. Any one can make a moth-proof box as advised above; any old box will answer, and newspapers and paste can always be obtained.

GARDEN AND ORCHARD.

Setting Out an Orchard.

I propose to explain, in connection with the accompanying diagram, an easy, simple and accurate way of marking out the ground and planting the



trees without putting any stakes where trees are to be planted or removing any while planting. The stakes not only show where to dig the holes, but when the planting is to be done, the same stakes indicate the precise place where the trees are to be planted, always sighting by the stakes only in setting, without any regard to the trees planted. Thus all the stakes will be standing when the last tree is planted, showing the accuracy of the work done.

The outside line of the diagram represents the ground to be planted; the dots are stakes, by means of which the location of each tree can readily be found without any measurements; but none of them stand where trees are to be planted.

The ground being properly prepared for one hundred trees, provide sixty laths as very suitable stakes—light, straight, and of proper length—lay them on the ground or a board and whitewash on each side about a foot or more at one end, by which they can readily be seen at a distance, and distinguished from any other stake or object. Let two men with a tape line start at the corner of the ground at D, and measure 25 feet along the east side to 1, and then set a stake; thence measure to 2, forty feet, setting a stake, and continue to 10, putting a stake every 40 feet to C, setting all stakes as perpendicular as possible.

Then with ten stakes start at B and measure the same distance toward A, sticking a stake first at 25 feet, and after that 40 feet to correspond with those on the east side. And on the same plan and in the same manner, stick ten stakes 40 feet apart along the north and south bounds of the orchard, and entirely outside of where any trees are to be planted, being particular that no trees shall be planted nearer than 25 feet to the fences surrounding the orchard, for the reason that when the trees become large, as much as 25 feet of space will be necessary to allow a spraying wagon and fixtures to pass in spraying the trees properly, and to place ladders about the trees for gathering the fruit.

The stakes being set around the orchard ground at proper distances, the tape line is no longer needed, as the cross intermediate rows of stakes are to be set by sight. Now let one man take ten of the white-top stakes and go about to E (at bottom of cut—E at right indicates point of compass), and another man go to the first stake north of D, and sight the man at E precisely where to stick a stake in line with the two stakes, on opposite sides of the ground; then move northward to 2, and stick a stake between 2 and 2; and thus continue from south to north and from east to west through, and not far from the middle of the field, being careful not to place either of these intermediate rows where a row of trees is to be planted. These rows need not be straight, but each stake must be in line with the corresponding stakes at the right and left.

With the stakes thus placed, a person moving anywhere about the ground to be planted, can readily find by looking in the direction of two stakes in two directions at right angles, precisely where a tree is to be planted. Thus a person standing at either + is at a point where a tree must stand, and at either of those points will see two stakes in a line with him in two directions at right angles; and so of every point where a tree is to be planted. If men are to be employed to dig the holes who are not capable of setting a stake in line with two other stakes already standing (there are such men), let some one who can do so go through the field, and with point of stake or other thing, mark where the holes are to be dug.

With this arrangement no stakes are placed where the trees are to be planted. Any number of men can go on with the work of digging the holes and planting in any part of the orchard without reference to any other trees in any other part. The writer has planted about 150 acres of apple and 100 acres of peach orchard on this plan, and has furnished many parties brief descriptions of same for planting; has planted rows 30 to 40 rods long of nice trees, so straight in line that a stake two inches in diameter set up in the row would hide every tree from view, looking from the end thereof.

—*T. G. Y. in Country Gentleman.*

DAIRY.

Dairying.

[From a Farmers' Institute paper prepared by S. P. Brown, O. A. C. Dairy School.]

In these years of keen competition—and that keenness ever steadily increasing—this seems to be one of those industries which offers the quickest and best returns to the farmers who participate therein. While it yields good returns, it does not impoverish the lands from which the products are marketed, but, on the contrary, enriches them, if properly managed.

Some one says: "We are held down by over-production now." No! We are held down with an excess of dairy and other products which cost more than the consumer is willing to pay, and a great percentage of which is a great detriment to the producer and the reputation of Canada, because of being quite inferior or far from prime articles. It is of this that our over-production consists. Even in the hard times of the past few years really prime articles of any class are quickly picked up at a handsome profit to the producer; hence, I say, we need to intensify our operations. How shall we do it?

I think I shall not exaggerate the facts when I claim that fully 20 per cent. of the cows in the country now are existing and producing what dairy products they do yield at a dead loss to their owners. This being a fact, the first step to take is to get rid of these cows at once. If they will pay for feeding send them to the shambles as quickly as possible; if they won't pay that way, take off the hide, feed the flesh to the pigs and chickens, and make fertilizers of the bones; but get that sort of a cow out of the dairy herd. Do so as soon as she ceases to make a profit for you in some way.

Keep no cows whose milk will not produce in a year 250 lbs. of butter, which means about 6,000 lbs. of 4 per cent. milk, or a corresponding increase in quantity as the quality decreases. Every herd that has one or more drones in it is being held back from making the record of profit for the owner that it should. While he may be showing a profit on the whole, still he may be losing money on part of the herd. One poor cow in a herd may make just the difference between profit and loss; the loss being not only in the feed and care bestowed upon this poor one, but also in robbing the good cows of so much good and valuable material from which they would make a profit to their owner.

Again, we must utilize every available means to increase the production of forage and grain crops per acre, which are most valuable, either as food for the production of the best milk or to exchange for that which promises to give even better results. In order to do this and reap the best results from those good cows we have retained, it is necessary that we should house our cows during the day in the hot, dry, fly season. I believe every one is willing to admit that pasturing is a very expensive way of feeding cows. There is no doubt that milking cows housed in well-ventilated stables, screened and darkened during this season, with but one feed a day of green fodder, will yield more profit on less acreage than if pastured. When they are put in to milk—which they shoud be—in the morning, there is no extra work connected with having them in, and when coming to dinner the time taken to put on a load of fodder is very little if a man calculates his work for it. By this method, the land which produces the early forage crops is always cleared early enough to get a crop of corn or millet or other fast-growing crop. This will almost or quite double the crop grown on the acreage under early forage crops.

More About Lucern Growing.

SIR,—Owing to numerous inquiries regarding lucern, I take the opportunity, through your valuable paper, of relating my experience with it. I was one of the first in this section to try lucern. About six years ago I sowed three acres as an experiment, with good results. Being beside a public road, I have been besieged with inquiries as to what it was and how to cultivate? It was green when all other pasture was dried up during the past very dry seasons. As a soiling crop I find it excellent, furnishing an abundance of very nutritious food. I have fed eight to ten cows, besides four work horses, from the time it was large enough to cut (about June 15th) till it was fit for hay, and then cut three tons of good hay from a little over two acres, the balance of three acres being fenced off for hogs. Just here let me say hogs should be changed quite often, as they will eat it so close as to weaken the vitality of the plant so much it may not recover. It makes the finest hay I ever fed for all stock, there being no waste whatever if properly cured.

How I seeded: I sowed the seed with oats at the rate of 15 lbs. per acre (barley preferred, and 20 lbs. per acre), lightly harrowed after sowing. Sow after danger of frost is over, as it is very tender when young. Sow on good, rich, mellow soil well drained, as water lying on it in the winter will kill it, as the crowns are above ground and not under the surface as in red clover. Although it will succeed on poor, light soils, it will do on any soil well drained (the richer the better). Cut when about half the bloom is out; do not let it get too dry before raking; rake in small windrows, put in small cocks, and let stand as long as weather will permit