BUYING THE MACHINES.

The difficulty of making a selection may seem great. My advice is to buy the best; it is none too good. This may appear a great difficulty, for all manufacturers are striving to prove that their pattern is the best. Send to the leading manufacturers for catalogues. Order the machine that gives the best guarantee, for this is the greatest proof of superiority.

SELECTION OF EGGS.

A very important thing is the selection of eggs; in fact, many poultrymen attribute their success mainly to the selection of well-formed eggs, strongly fertilized, and from vigorous stock. It is important to set your own eggs, for then you know precisely what kind of birds they are from. See that the breeding stock is in good condition, and never breed from any bird that has been seriously affected with disease. Such a bird is likely to be constitutionally weak, and the eggs laid by her to contain weak germs, and from these weak chickens are the usual result. Always select from well-matured hens, if possible. If pullets are used, they should be fully matured. This is a most important point. Remember the male is half of the pen; see to it, then, that he is vigorous and well matured. Keep the pen containing the breeding stock well ventilated, and free from dampness. Fresh air and dryness are essential. Feed nourishing foods, avoiding mashes; give plenty of grit and fresh, pure water. Attention to these little essentials is very necessary.

OPERATING THE INCUBATOR.

It is impossible to give rules applicable to all the machines on the market, as they differ so greatly. But there are a number of rules which should be suitable to either hot-water or hot-air incubators. We enumerate some as follows:

(a) The best place to set the incubator is where there is the least drafts and jarring. A well-ventilated cellar is recommended by many, but such is not possessed by all. Set the machine an inch or more from the wall to avoid jarring.

(b) Disinfect the machine thoroughly by spraying or washing it out with a solution of some good disinfectant. Put in the lamp none but a high-grade oil.

(c) When the machine has run for a day at 100 degrees, disinfect it again, and while the machine is damp, put in the eggs.

(d) Watch the air-cells, and ventilate according to the directions that accompany the machine.

(e) When the eggs begin to pip, if your machine has a single glass door, hang a curtain across it, leaving about an inch at the end. The theory is that the chicks, being attracted by the light, will make their way to it, and drop into the nursery below. In some of the English-made machines, the nursery is at the top of the incubator, and it is claimed that the temperature of the nursery is the same as that of the incubator—a point of no little import.

(f) Do not open the door on any account. The chicks should get out of their shells without aid. Opening the doors to help one chick, often kills several. After the hatch is done, we take out the trays, and leave the chicks in the incubator for 36 hours. The chicks have sufficient food in the yolk of the egg to supply them with nourishment for the time named.

BERT SMITH.
Lambton Co., Ont.

GARDEN & ORCHARD.

Insects Attacking the Pear.

Most of the insects already described as attacking the apple, attack also the pear. In addition to these, there are two others that require attention.

The Pear Psylla.—The psylla is a crimson-colored, tiny, clear-winged insect, about 1-10 of an inch in length. If disturbed, the adults very quickly spring up and fly away. The winter is passed in the adult stage under loose bark, and in crevices on the trees. Early in spring, before the buds burst, they lay numerous little orange eggs on the twigs, usually near buds. The eggs soon hatch, and the immature insects begin to feed on the opening leaves and new growth. There are several broods in a year, and both the adult and immature insects feed almost continuously, sucking the juice from the tree. Badly-affected trees become sickly-looking, and often appear as if covered with smoke. This is due to a black fungus which grows on the great quantity of honey dew that these insects secrete as they feed.

Means of Control.—1. In a number of orchards natural enemies of the psylla, such as ladybird beetles, larvæ of lacewing flies, and assassin bugs, have almost annihilated it, but they cannot always be relied upon to do so.

2. A number of good fruit-growers in the Niagara District have informed the writer that they have not been troubled by this insect since they began to spray their orchards every spring, before the buds burst, with lime-sulphur.

3. Kerosene emulsion of the ordinary strength, or whale-oil soap, 1 pound to 6 gallons of water, applied as soon as the leaves are out, and repeated at an interval of 10 days or so, is very helpful, and is much used in the United States.

Pear and Cherry Slug.—The slug that attacks both the pear and cherry foliage is the caterpillar of a black, four-winged fly, about the size of a house-fly. The slugs themselves are easily recognized on the leaves. They are dark-colored, slimy, and taper from the head-end to the tail, looking like little tadpoles. They begin to make their appearance about the middle of June, and feed on the upper surface of the leaves, eating all the green part off, and leaving the skeleton. Sometimes, as this last season, they make sad havoc of the foliage, especially on cherry trees. There are two broods in a year, and slugs may be seen up to the cold frost in autumn. The winter is passed in earthen cases in the ground.

Means of Control.—This is an easy insect to control. All that is necessary is simply to examine the trees in June and July, from time to time, to see if there are a sufficient number of slugs to require attention, and if so, spray the trees with arsenate of lead, 3 pounds to 40 gallons of water. Dusting fresh air-slaked lime, or even fine dust, over them will usually keep them fairly well under control.

DISEASES OF THE PEAR.

Pear Scab.—The pear scab resembles very closely in appearance the apple scab. It begins, however, somewhat earlier in the season, and so requires an earlier spraying.

Means of Control.—Spray (1) just before the buds burst, (2) just as the blossoms are ready to burst, (3) just after the blossoms have fallen. Either Bordeaux (4, 4, 40) or lime-sulphur may be used. If the latter be chosen, use the regular spring strength of either home-boiled or commercial for the first application, and the commercial, about 1 gal. to 30 or even 40 gals. of water, for the second and third. Either fungicide, if thoroughly applied, will control the scab, even on Flemish Beauty pears.

Pear Blight or Fire Blight.—Pear blight is the worst disease that attacks the pear. It attacks, also, the apples, and is then usually called Twig Blight. It is not a fungous disease, but a bacterial one, and cannot be controlled by spraying to any appreciable extent. The disease passes the winter on the trees in the dead areas or cankers caused by itself the previous year. Insects are the agents in its transference from tree to tree. These get the tiny bacteria on their mouth-parts and bodies, and when they attack any part of another tree, some of the germs are left in the wounds made. Usually, the disease begins on the tenderest twigs and watersprouts, and works rapidly down towards the main branches and trunks, killing the part as it passes along. Often trees are killed in a single season.

Means of Control.—There is only one known way of treating this disease, namely, to cut out every branch or twig as soon as it is seen to be affected. Always be sure to cut about a foot below where the diseased bark is seen, and take care not to run the saw through a diseased part. If this should accidentally happen, disinfect the saw with formalin, which should be carried along in a pail. The fruit-grower should go through his pear orchard every two weeks in the summer, and see that the blight is attended to. In this way he can often, with little trouble, keep his trees healthy for years, whereas they would otherwise soon perish. In the spring of the year, before the regular pruning, every sign of the blight should be cut out with special care, so that it may not be carried by insects. On apple trees it often dies out of its own accord, especially on old trees; young orchards should, however, be attended to like pears. If a young pear-orchard is being set out, it is wise to plant blight-resisting varieties, especially Kieffers.

SUMMARY OF RULES FOR SPRAYING APPLE AND PEAR ORCHARDS.

1. Shortly before the leaf-buds burst, use preferably home-boiled or commercial lime-sulphur, regular spring strength; no poison is required, as a rule.

2. Just before the blossoms open, use either Bordeaux (4, 4, 40) or commercial lime-sulphur (about 1 gallon to 30 of water); 2 pounds arsenate of lead should be used to every 40 gallons of either of the above fungicides.

3. Immediately after the blossoms have fallen use the same fungicide and poison as in No. 2, but the fungicide should be somewhat weaker, as this has to be a heavier application to control the codling moth.

These three sprayings are usually all that are required in most orchards.

Note.—Do not expect excellent results unless you do thorough work. Personally see to it that the spraying is well done.

L. CAESAR.
O. A. C., Guelph.

Last week, an editorial squib concluded with the question, "Who knows but that ten dollars a hundredweight will be realized for hogs before this paragraph strikes the reader's eye?" Sure enough, the Buffalo market report recorded heavy hogs $9.95 to $10.00. We prophesied better than we knew.

THE FARM BULLETIN.

Education, Organization, Demonstration.

The week commencing Monday, 21st February, has been of vast importance to those who love New Brunswick, and especially to those who work for the conservation and the advancement of its natural resources.

The Farmers' and Dairymen's Association of New Brunswick met in Fredericton in annual convention on February 21st. The session extended over two days.

On Wednesday, the Canadian Forestry Convension met in the Legislative Assembly Chamber, and it was said to have been the most interesting and profitable meeting on forestry questions ever held in Canada, and that the result of these meetings would be the quickening into life of the determination that Canadian forests will not be allowed to disappear, as have those of the Republic to the south.

On Thursday, the New Brunswick Fruit-growers' Association met in convention also in Fredericton, and held three very interesting sessions under their president, Isaac Stevenson, of Maugerville, and A. G. Turney, lately appointed Provincial Horticulturist. Each of these gatherings created an unusual interest, and the Farmers' and Foresters' meetings were crowded at every session.

The first session of the Farmers' and Dairymen's Association met at 8 p. m. The keynote of this meeting was education. Eack speaker endeavored to prove that education along right lines was just what our farmers most needed, the more difficult problem being where this education should begin, whether at the common school, consolidated school, high school, university, or at an agricultural school or college endowed for the purpose.

President Wetmore, in his opening address, endeavored to show that practical education would easily double the productive capacity of the farm, sharpen the business ability and insight of the farmer, so that he would be better able to make the most of his opportunitues, and fit him to hold his own among the sharp business men of our time. This, I think, was the impression Mr. Wetmore wished to leave with his hearers, and that it was poor policy to be stingy as regards the teacher.

Dr. Landry, the Commissioner of Agriculture, in his address, dwelt upon the need of a greatly-increased amount of farm products, seeing such large amounts of money were sent out of the Province for what it is quite capable of producing. Dr. Landry showed he had full confidence in the possibilities of our farmers being able to make such improvements as gradually to reduce these importations to the vanishing point. He told us his Department had been busy working out the details of a programme designed to advance the interests of the farming communities. He said farmers were showing a disposition to co-operate with the Government to improve their position, and advance the agricultural interests of the Province in general. Dr. Landry declared that when the present administration came into power, he found the agricultural societies of the Province diminishing. His Department had taken the stand that agricultural organization was essential, and through its efforts twenty-seven new societies have been organized during the past three years. Where the Provincial grant had been $10,000 a year, it would be necessary to increase it to $13,000. At the same time, the speaker thought the Government was not doing its whole duty to the agricultural community, and efforts were being made to provide for a greater measure of agricultural education for young people. At present the Government paid the transportation of students attending agricultural schools, but this was not sufficient. An experimental farm should be established at Fredericton. He had talked the matter over with Hon. Sydney Fisher, and he believed that it would come sooner than was expected.

W. S. Carter, Chief Superintendent of Education, said farming was no longer a drudgery, but a profession requiring more intelligence than most other occupations. In the past, farmers, in their ignorance, said they knew all about farming, laughed at scientific knowledge, robbed the earth of its fertility, without making any returns, and often labored under the burden of a heavy mortgage. But to-day the farmer is convinced he has a great deal to learn, and this promising state of mind has brought about the farmers' conventions. Mr. Carter declared that the charge that the public school was educating the young people away from the farm was not strictly true. The public-school instruction might sometimes seem useless, but even botany had its value. The speaker said many people were skeptical of school-gardens, but the fact was it afforded the chance to our young people to secure practical education, and enabled them to appreciate the underlying laws of nature. —indeed, if it only taught the need of constant war on weeds and moths. He said that in Manitoba it is estimated that the loss due to the pressure of undesirable weeds would pay the cost of public education many times over. Mr. Carter advocated the establishment of small model farms all over the country to serve as object lessons.