GARDEN & ORCHARD.

Expert Advice that Paid.

We are indebted to Mr. Cæsar, Demonstrator in Fungous Diseases and Insects at the Ontario Agricultural College, and author of the excellent series of articles which appeared in "The Farmer's Advocate" last spring, for the following letter from an old subscriber of ours in Oxford County, who is delighted with his results in spraying this past season. The letter was a personal one, addressed to Mr. Cæsar:

"Do you remember my bothering you considerably early last spring about spraying, spraying machines, and material to spray with, and when to spray? I am very thankful for the valuable information you gave me. I followed the instructions as nearly as I could, and had surprising results. I will tell you as nearly as I can how I treated my orchard. The fine days of last March we scraped all the loose bark off the trunks with hoes. I purchased a London machine, and we sprayed the trunks with lime-water (Mr. Carey, when he was here, told me I should have sprayed the whole top). Before buds burst, we sprayed with Bordeaux mixture and arsenite of lime, and before the blow opened we sprayed with the same mixture, and when blow fell we sprayed the last time with Bordeaux and Paris green.

"My orchard was a sod till last spring. In May we plowed it, worked it down, and manured it on top of plowing, and worked it occasionally till the apples weighted the limbs down too much. I sold the crop to a local buyer; the packers came on and put up 94 barrels, two grades: 89 barrels first, and 5 barrels seconds, and 1,100 pounds of culls. They turned out so many firsts, the buyer gave me 25 cents per barrel more than he was paying other people. My orchard is only small, as this was an off year, and some of the trees did not bear, and some had very few on. When we were picking, the mixture could be seen on the leaves. I intend to spray next spring again.

"Last year we had a full crop. I sold to the same man, and the packers put up just the same number of barrels, 94, two grades, but very few firsts, and 76,070 pounds of culls.

"I will tell you about two apple trees in my orchard. They were both common fruit, with the exception of one having some Spy grafts, but there were still some common fruit branches. We sprayed this one with the Spy grafts, but not the other one. The common fruit on the one we sprayed was so nice in color and in size that the packers put them up, and the fruit on the other tree was small, scabby little bits of things. I think this letter will give you to understand that I am well pleased with spraying."

Apples Originated in the Horticultural Division.

In the last three annual reports of the Central Experimental Farm, descriptions were published of 34 of the best varieties of apples which have been originated in the Horticultural Division, and 14 more are described in the coming report. Since the year 1897, many new seedling apples have been fruiting here. The first of these were of Russian parentage, the seed having been imported from north of Riga in Russia. Three thousand trees grown from this seed were set out in 1890, and began to fruit in 1897. Few of these proved of sufficient merit to propagate for use in Eastern Canada, but a number are being tested in the Prairie Provinces on account of their hardiness. In 1898, seed was saved of some of the best varieties of apples which fruited at Ottawa that year, and from this seed about 2,000 trees were raised and set out in the orchard. Of these, 523 have now fruited, 89 of which fruited for the first time in 1909. Among these are some very promising summer, autumn and winter apples. New seedlings of other sorts are being raised, which will be set out when large enough.

Some good varieties of apples have also been produced by cross-breeding, in the Horticultural Division. In 1909, there were 417 cross-bred trees growing, and there should be between 400 and 1,500 more young trees from the seed resulting from the crossing done in 1909.

In order to make the chances of obtaining desirable apples greater, quite a number of varieties have been used as parents, in most cases reciprocal crosses with the same varieties having been made, thus making many more combinations than the number of varieties might indicate.

The varieties used as parents have been Anisim, Antonovka, Baxter, Bethel, Duchess, Dyer, Fameuse, Forest, Hibernal, Lawver, Island Raspberry, Malinda, Milwaukee, McIntosh, McMahan, Newton, Northern Spy, Northern Greening, Scott Winter, Stone, Winter Walton.

A P. E. Island Potato-growing Experiment.

Dr. Andrew McPhail, whose experiment in the scientific growing of potatoes is causing so much interest in Prince Edward Island, has returned to Montreal. When seen by a representative of "The Farmer's Advocate," he spoke rather deprecatingly of the experiment in growing potatoes, which he and his brother were making. The experiment was unfinished and the results inconclusive, he said, and hoped no one would be led astray by the partial and comparative success they had met with.

But, more important than the success were the failures. The causes of them required further investigation. The great difficulty they had to contend with was scab. This, he said, was induced or aggravated by various substances which have been added to the soil—lime, ashes, shell. Certain areas showed the result of ashes which had been in the ground for seventy years. This fall they were burying all this "manure" by deep plowing, to bring to the surface fresh soil. If this did not remedy the evil, then there was no use, so far as he could see, contending further with the impossible. Other soil must be sought.

The principle underlying success in farming, he said, was to find out what any given soil was best suited for, and then make it do its work. The theory of rotation of crops violated this principle, by asking the land to produce crops for which by nature it was never intended. Besides, manure which would help one crop, was fatal to another. For example, potatoes require a "poor," sandy soil, with hard subsoil, in which grain and grass will not thrive. He was afraid that the soil along the rivers was too heavy and rich for potatoes, and it might be necessary to select the "poor" land which was found in the hilly districts in the interior or along the seashore.

Rob Roy.

Hereford bull. A Royal champion.

[Note.—In the matter of rotation, Dr. Macphail has, we think, stated his principle much too broadly. As a general thing, rotation is of very great benefit, and only in special cases is it objectionable. Even in these, the benefits of a carefully-chosen rotation usually outweigh the objections.—Editor.]

The potato, he said, was at once the easiest and most difficult to grow; the most profitable, and the most liable to end in loss. That was why it was so interesting.

Potato-growing was also the most pleasant or the most disagreeable work on the farm—pleasant on a sunny September day, with white, clean potatoes lying in rows, at the rate of 400 bushels to the acre, and worth 55 cents a bushel in the market; but very unpleasant on a cold October day, scabbed and rotten, and fit only for "feed." When farming is made "pleasant," the boys will stay on the farm.

"In the light of your experience," Dr. Macphail was asked, "would you advise farmers to devote more attention to growing potatoes"

"Farmers are receiving so much ill-considered advice from theoretical farmers," he replied, "that I should hesitate to add to their burden; but it might be worth watching our experiment next year with 25 acres."

"Is there any money in growing potatoes with so much care?"

"That question can best be answered by our neighbors, who were good enough to supply us with several lots to fill orders which we accepted under the impression that our own yield would be better than it was."

Dr. Macphail said that the facilities for shipment by rail and steamer from Prince Edward Island were unsurpassed. The rates were reasonable, and the agents took as much care over a consignment as if it were their own.

The practice has been to exclude rigidly barnyard manure from the fields, and to employ commercial fertilizer instead, using the same ground year after year. If at any future time there would appear to be a lack of humus, it is proposed to supply it by one crop of clover or by seaweed. They compound their own fertilizer from nitrate of soda, sulphate of potash, and basic slag, using about 800 pounds to the acre, which costs $16. Their experience with the Bordeaux mixture was inconclusive and unsatisfactory. Indeed, they had serious doubts as to whether, in their hands, it was of any value whatever. They think that success lies primarily in the selection of seed; that is, of tubers growing under tops to which is attached the original set which had been planted in the spring. If this set were not perfectly sound in the fall, it was evidence that there were the elements of rot in the potato, whether it could be detected, or not.

[Note.—Here, again, an unwarranted statement has been made. While Dr. Macphail may have obtained no results from Bordeaux under his conditions, it certainly is of very great value, if properly applied, in combating blight and the particular form of rot induced by the spores of the late blight. For certain other forms of rot it is of no avail.—Editor.]

The farm where these interesting experiments are being carried on is situated in the thriving settlement of Wigg, on the Murray Harbor branch of the Prince Edward Island Railway, 20 miles from Charlottetown. The property consists of 75 acres, and is in close proximity to Wigg Station, making it convenient for shipping.

In this experiment, select tubers only were used for seed, after being treated with formaldehyde.

A planter was used which cut the sets and dropped them, and a fertilizing attachment distributed the fertilizer in the drill close to the sets, where the young plants could get access to it as soon as they were able to use it. The moulding attachment made up a drill. The drills were three feet apart. The cultivator was used between the rows before the plants came up, and the ground was kept stirred frequently to kill weeds and retain moisture. Bugs gave a good deal of trouble, but were kept in check by a plentiful use of Paris green.

The potatoes were harvested with an American and a Canadian potato-digging machine. The former did excellent work, leaving the potatoes in rows from which they were easily and quickly gathered. This machine took four horses to operate it, while the Canadian-made, also a good machine, when some weak parts are strengthened, was operated with two horses.

Only white potatoes were grown. Varieties included Green Mountain, Carman No. 1, Royal Kidney, Orwell Square, and others. The aim in this experiment is to produce ideal table potatoes by selection, the best methods of cultivation and fertilizing, and also to produce them in paying quantities.

For shipment, the tubers were packed in boxes holding 75 pounds each. A rigid selection was made, rejecting all that showed any defect. A good market was found for them in Montreal, and a lot was also shipped to Newfoundland, and sold to the Government, to be distributed for seed. To extend the acreage, next year's preparation has been made by sowing peas and vetches in June on old sod, which has been plowed down in October, and the land well worked up with disk harrow.

The yields obtained were very good, when we consider that the Prince Edward Island potato crop this year was very little over half an average one.

We look forward with confidence that Dr. Macphail's study of the potato, and the experiments he is carrying on, will be of great benefit to our farmers, as a man of the Doctor's scientific knowledge cannot fail to get some new and useful ideas that will make potato culture more profitable on this Island, and the crop a surer one, when we succeed in combating the blight, scab, etc. The soil of the Island in general is well