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EDITORIAL.

SPRAY THE POTATOES FOR BLIGHT AND ROT.

The Ontario Department of Agriculture knows human nature. It realizes that, to bring about any desired change in farm practice, the first thing to do is to arouse public interest. For years the steady decline of the potato-growing industry in the banner Province has been a matter of note. Experts knew the reason perfectly well. They knew that our potato fields were injured by blight and rot, which lessened the yield, injured the quality by causing premature dying of tops, and often resulted in the loss by rot of a considerable share of the crop. The blight is of two kinds, "early" and "late." "Early blight" usually begins to appear early in July in spots over the leaves, which gradually enlarge and unite. Finally the whole leaf withers and dries up, followed by the death of the plant, the real cause being often unsuspected. Though called "early blight," this disease may occur late, as well as early. The "late blight," besides affecting the tops, also affects the tubers, causing rot. Five dollars' worth of time and material per acre would keep the growing vines coated with Bordeaux mixture, thus preventing both kinds of blight, as well as the rot. It is true there is a bacterial form of rot, distinct from the disease caused by the blight, and on this bacterial rot Bordeaux has no effect, but the common rot can be prevented by the timely application of the above mixture. Moreover, this same mixture, when combined with Paris green, is the best treatment for the cucumber flea beetle, a minute black insect, which often does considerable harm to potato leaves at this season by eating small holes in them. Everyone knows that Paris green is death to potato bugs. By applying it along with Bordeaux mixture (bluestone, lime and water), the poison is made to adhere better, and fewer applications are necessary.

Experts knew all this long ago, and have been preaching it for years. Time and again "The Farmer's Advocate" has pointed it out. Annual experiments at Ottawa have shown that spraying with Bordeaux mixture increased the yield 94.5 bushels per acre. Experiments at Cornell, N. Y., and elsewhere, were even more striking. But most farmers deemed such spraying too troublesome, and went on using Paris green alone, while blight, rot and flea-beetles had it their own sweet way.

We presume it was to open the people's eyes—to make them sit up and think—that the Department appointed Mr. H. B. Smith, B. S. A., a bright young graduate of the Ontario Agricultural College, a committee to investigate the potato-growing industry. He visited dealers and growers, and picked up much information, all of which goes to corroborate what wide-awake men knew long before. An advance synopsis of his report appears in this issue. We trust it will have the desired effect, and that many growers who never used anything but Paris green before will now see the wisdom of combining with it Bordeaux mixture for each spraying necessary for bugs after the middle of July. When bugs cease to be troublesome, omit the Paris green, but keep the vines coated with Bordeaux to the end of the season. The man who sprays only with green is but half doing the job.

An incidental advantage of using Bordeaux along with the poison is that the lime in the Bordeaux will tend to prevent injury to the foliage by soluble arsenious acid in the Paris green. It will, also, as mentioned above, cause the poison to adhere longer to the vines.

To apply, buy a spray pump. Every farmer

who grows potatoes or fruit needs one, while it will also come in handy in whitewashing barns, outbuildings, fences, etc. A good pump, suitable for the purpose, will cost about \$25, and it has been proven by experiments at the Central Experimental Farm, Ottawa, that more than this can be saved in one year on one acre of potatoes sprayed to prevent blight and rot.

THE PLACE OF THEORY IN FARM PRACTICE.

There is a constant tendency in many minds to discount theory and stake everything on the altar of practice. We yield to none in emphasis upon the practical, meaning by that whatever tends to the betterment of man or his estate. The person who has learned how to live well is entitled to be called practical just as much as the one who makes a success of business. The Scotch are an eminently practical people, possessing virtues and qualities that are turned to good account, and in whatever line a Scotchman engages, whether farming, manufacture, commerce, teaching, or the ministry, he almost invariably climbs. It cannot be charged against the Scotch that they are a sordid people, for "sordid" and "practical" are not synonymous terms, although many people confuse them. The practical man is the useful man—the one who can do things, and do them well—anything from plowing to preaching or invention.

But there is need for theory, too. And what is theory? The dictionary gives four meanings, but it will answer our present purpose to consider two. One of these we quote as follows: "The philosophical explanation of phenomena, either physical or moral." This might almost be summed up in the one word conjecture, which means to judge from probabilities or possibilities. To illustrate, a man assumes that such and such is so and so. Certain known facts indicate plausible deductions. The inference he draws is a theory of the case under consideration. It may or may not be correct, but in attempting to prove or disprove such theories, a vast amount of useful knowledge has been gained. Columbus reasoned that the earth was round, and on this assumption sought a short-cut to India. His attempt led first to the discovery of America. Afterwards the rotundity of the earth was positively ascertained, and Columbus' theory turned out to be true. Of course, a great many such theories or conjectures, when tested, fail to "hold water," and are discarded, hence, until finally established, they are a very unreliable guide for ordinary practice; but for all that, theorizing, or day-dreaming, as it is sometimes contemptuously called, has been a great blessing to the world, having led to untold lengths of discovery and invention. The fact that theorists are not always practical in applying the results of their theorizing, should not debar them from an honored place in our esteem.

There is another kind of theory, which signifies an exposition of the general principles of a science. If we were framing a definition of our own, it would be: "Theory is the generalized deduction which is based on the result of a wide variety of experience and observation in a certain science or art." If this theory is formulated by a man of a practical turn of mind, who is widely informed on his subject, and has had enough personal experience to thoroughly acquaint himself with the circumstances and needs of the class for whom he is theorizing, and can thereby avoid or guard against little snags that might otherwise crop up unexpectedly in the application of his conclusions—then such theory becomes the best possible guide for practice. The fact that in agriculture conditions are so incomprehensibly diverse, and

vary, moreover, with almost every season, makes the science of agriculture exceedingly complex and the formulation of agricultural principles extremely difficult. No farmer can ever succeed who literally works by rule or rote. There is increasing demand for the play of individual judgment. This is not an unmixed evil. It has made farmers a practical and capable class of people, but, on the other hand, it has tended in some cases to discourage the application of scientific principles, and has induced a too common contempt for "book learning."

Science has done much for farming, and is doing more. Two factors contribute to make science increasingly useful in agriculture. First, agricultural science is being taken up, investigated and preached by a more practical class of men year by year, men who study in the field as well as the laboratory, and who are acquainted with actual farm conditions; men who are not merely chemists and biologists and physicists, but farmers as well, or sons of farmers, at least. The theories that agricultural science offers the farmer are becoming more helpful every year. What was incomplete is amplified; what was abstruse, simplified and made plainer; what was untrue, retracted, and what was absurd, reconciled with common sense. The second reason why science is able to help us more than formerly is that the farmer is learning the place of science in his calling, learning what she can do for him, and how to employ her assistance. But of this anon.

THE VALUE OF AN EXPERT ENTOMOLOGIST.

Sometimes the average citizen is inclined to wonder what value the country receives for its expense of supporting the paid experts in entomology, botany, chemistry, bacteriology and otherologies, who are maintained at Ottawa, Guelph, Truro, Winnipeg, Ste. Anne, Que., and other places. We cannot answer the question. To compute in dollars the practical benefit these men have been is impossible. Could it be done, the figures would be astounding. They accumulate and diffuse accurate information concerning things which otherwise would be hazy, contradictory and indefinite in the public mind. When a new bug or weed becomes troublesome, we call on the biologist, who comes to our aid ready armed with full knowledge about its life-history and remedies, obtained from countries where the new pest has been encountered and studied before. A case in point has been furnished by the discovery of the dreaded brown-tail moth in the Annapolis Valley, of Nova Scotia. A winter nest of the moth was sent to Dr. James Fletcher, Entomologist and Botanist, of the Experimental Farms, Ottawa, who immediately identified it as belonging to the brown-tail moth, which for years has been so expensively fought in the New England States, particularly Massachusetts. To be forewarned is to be forearmed. Through the press and otherwise, Dr. Fletcher at once made known the unwelcome news, with the result that immediate and thorough search was instituted throughout the suspected territory. Information was broadcasted, and the whole country aroused. The Provincial Department of Agriculture took up the matter energetically. Inspectors were sent out, who held meetings and visited schools and farms. To further encourage the destruction of the nests, a bounty of 3 cents apiece was offered to the schools. On June 7th a largely-attended meeting was held at Annapolis, at which measures were discussed for the control of the moth, and, in fact, no stone is being left unturned to stamp out the pest.

And all this was due to the timely warning of our expert entomologist. The Annapolis Valley