

directly affect the production of wealth. It is, therefore, economic entomology which has a close relationship to the farmer's pocket, and, accordingly, bears a special interest for him.

In the last century entomology was held to be a trifling, insignificant affair. Nay, worse; for we are told that the will of a certain lady was set aside as that of an imbecile, on the sole ground that *she had been known to collect and study insects!*

We have got beyond that stage now, happily for us; but there are many farmers yet who have a general contempt for the whole world of "bugs," and do not think them worth any serious attention. Others, again, are debarred, though a feeling that the highways to knowledge are blocked with all sorts of scientific terms and the employment of foreign languages, which they consider highly confusing and unnecessary. This can be easily shown to be a mistake. Let us remember that science is universal, not local. We can, then, at once see that if every country named the various insects only in its own language, an immense amount of time would be wasted by scientists going over ground that had already been thoroughly explored by students of other nationalities. By the use of a common language like Latin or Greek, however, a vast amount of confusion and waste of time is avoided. Farmers, too, should realize that many of these necessary terms are by no means as formidable as they look, and are, in fact, a real assistance to him. Take, for instance, the great divisions or orders of the insect world—the Coleoptera (beetles), the Lepidoptera (butterflies and moths), the Orthoptera (crickets, locusts, etc.).

There is no chance work in this naming. Every word has a definite and useful meaning. Each order is named after some peculiarity of wing-structure. Thus, Coleoptera (Greek, *kolēas* a sheath, *ptera* wings) embraces all beetles, or, in other words, all insects having hard sheaths, or wing covers. Orthoptera (Greek, *orthos* straight, *ptera* wing) comprises those insects like grasshoppers and crickets, whose long posterior wings fold up straight and fan-like. It is perfectly easy to see that, when the meaning of the leading terms has been grasped, insects have a new and delightful interest for us. Not only this, but there is money in it; for to know the order to which an insect belongs is a step towards knowing its habits, as there are certain broad features common to, and characteristic of, all the members of each great order. As a matter of fact, the men of theory and the men of practice are indispensable to each

other. The scientist is continually receiving valuable assistance from the practical farmer, and the latter owes an immense debt to his scientific ally.

We sometimes accuse our theoretic friends of talking too learnedly to us to be useful or intelligible; but though this may occasionally be true, it is painfully true, on the other hand, that farmers are frequently so vague and inaccurate in their descriptions of insect pests that the entomologist who might otherwise help them is baffled and left almost in the dark as to the nature of the enemy.

Time and again a letter reaches him from an agricultural correspondent worded after this fashion: "There is a kind of brown bug destroying my crop of—. Tell me how to fix him!" It may be a bug, a beetle, or even a fly; but as the habits of these insects are widely different, it is impossible to suggest remedies.

While the assertion may be fearlessly made that no study is more fascinating than that of entomology, it would not be difficult to show the immense pecuniary benefit which would flow from its prosecution.

The toll which is being constantly levied on our products by this innumerable host of insect enemies is so appalling, that, once realized, apathy becomes impossible. It has been calculated by careful statisticians that the yearly loss to the United States is not short of *two hundred millions of dollars*. In 1857 one-third of the whole wheat crop of Canada was destroyed by the wheat midge. In 1882 the hop-aphis in England injured that crop to the extent of thirteen millions of dollars. But endless quotations of this sort might be given. When we come to fruit the devastation is equally terrible. Prof. Forbes, of Illinois, computed the annual loss to the apple-growers of that state from the attacks of the codlin moth at from three to four millions of dollars. The plum curculio, too, is a hardy and fearfully persistent pest. It not only attacks plums, but freely deposits its eggs in the peach, cherry, pear, and apple, and the consequent financial loss to the fruit grower is enormous. When in addition to these two insects we reflect on the teeming millions of cut worms, borers, lice, wire-worms, and so on, that are cheerfully and incessantly devouring or injuring the produce of his sweat and anxious thought, even the skeptical farmer must admit that this is a science well worthy of his earnest attention.

(To be continued.)