

was destroyed. Dreadful havoc was again made of the crops in the United States in 1874, when the damages from the Rocky Mountain locust were estimated at \$100,000,000 in the four states of Kansas, Nebraska, Iowa and Missouri.

Q. What are you quoting from?—A. '*Insect Life*,' the monthly magazine published by the United States' Department of Agriculture, Division of Entomology, at Washington. These figures have been frequently quoted and challenged, and as frequently confirmed.

Q. It includes the corn crop, I suppose?—A. Yes; cereals of all kinds. The general estimate of damage in the United States from the chinch bug, in 1887, was \$60,000,000, and it is estimated that the total loss every year is between \$200,000,000 and \$300,000,000. These figures have been carefully made up on the lowest possible computation. There is no doubt, as I have said, that at least one-tenth of the whole of the crops produced is lost every year through the attacks and injuries of insects, and I have no hesitation in saying that a very large proportion of this could be saved every year by the adoption of simple remedies, if the farmers would only take the trouble to find them out. At the present time, I am glad to say, our farmers are taking this trouble, as testified by the correspondence in my department, which is now very large indeed, farmers in every province utilizing the services of the department in this manner. Therefore, it gives me very much pleasure to come before this Committee, whose members frequently learn of injuries to crops in their constituencies, extending over districts in Canada to which I have had no opportunity of giving attention, and I shall take it as a great favour if members, whenever they hear of injuries of this kind, will write and let me know, so that I may investigate the matter. Members of Parliament often do me and the country great service in this way. I am dwelling at some length on this, because I wish to impress upon you what I myself know to be the case, that these studies are of enormous importance if we get agriculturists, gardeners and others to apply them and put them into practice. In the bulletin which I have already referred to I draw attention to some of the most commonly occurring insects all over the country. Now, Mr. Chairman, with your permission, I am going to speak of one or two of these, to impress upon the members that these studies are of the value I claim for them. A general truth requires an illustration to bring it home to ourselves. The general truth that the injury is great will be acknowledged by all, and I purpose to refer to the treatment advised for three or four of our worst insect enemies, to illustrate that economic Entomology has provided us with means for averting much of this injury. There is probably no farmer who has grown turnips who has not suffered from the turnip flea beetle, or "turnip fly," and who is not familiar with its destructiveness. Yet this is an insect which is very easily dealt with indeed. It is a very general practice for good farmers, all over the country, to apply gypsum, or land plaster, to the young turnips, as soon as they appear above the ground. This is done to provide the plant with a quick-acting fertilizer, and this is frequently done so as to enable the plant to outgrow the attacks of the flea-beetle, and it very frequently fails in this object; but if we mix with the gypsum some Paris green (1 pound to 50), there is no more labour required to apply the mixture, but at the same time the turnips are helped, the insects are destroyed and the crop is no longer checked. Another remedy, the result of experience and observation, is choosing the proper time for sowing turnips, so as to escape the different broods of this insect. There are two or three broods in the year. It is not confined to turnips, but attacks several

Recipes for
treatment of
some well
known in-
sects.

The turnip
fly.