

EVENING SESSION.

Mr. CASTON: I want to ask Prof. Fletcher in reference to an insect that is so very common that we never took much notice of it in past years—that is the grasshopper. During the last season, that was one of the most destructive insects we had in our section, because, after they could not do any more harm to the farmers, they invaded the gardens and ate the young apple trees, and sometimes attacked the apples themselves; and they sometimes destroyed the vegetable gardens also. I think this is a pretty difficult insect to deal with. Some years ago, when he was very bad out in Kansas, one of the comic papers represented him as a soldier, and called him General G. Hopper. We want to know how to fight him; because it is the opinion of a great many that if we do not have severe frosts to destroy the eggs, we will have enough of them. If they increase in our section in the same proportion as they did last spring, there will be enough of them to eat up every green thing in the country. I thought that Paris green was a sufficient cure for almost any insect, provided you could get it to eat it. I tried it on turnips, but the grasshoppers devoured every turnip. They even ate part of the bulbs. I tried Paris green first mixed with water, but the turnip leaf is so glossy that it will not stay on it. Then I tried it with plaster and flour, and it would adhere to the leaf, but the mystery was that those leaves were all eaten, and on examination I found only one dead grasshopper; and I am inclined to believe he died from natural causes. (Laughter.) The Paris green seemed to have no more influence on them that it would on a graven image. I consider Prof. Fletcher one of the best authorities on entomology that we have in this country, and I want him to tell us how to fight Gen. G. Hopper, if he comes next summer.

GRASSHOPPERS.

Prof. FLETCHER: I feel somewhat that I am in a delicate position speaking here this evening. You had your programme already made out, and I do not believe in any outsider coming in—especially myself, who had not the possibility of telling you whether I was coming or not, so that there was no arrangement made; but I shall speak for a short time on your invitation, and I hope that what I say may be suggestive of further questions on matters upon which I may be able to give you some light. As to the grasshoppers, I do not wish to put myself up as a prophet, but I think we shall not have the same visitation as we had last year—in the same districts where those insects were bad this year. The excessive increase of any particular pest is due generally to some exceptional circumstance; and, as you are all aware, last summer we had exceptional drouth in many parts of Ontario. From the crop reports you will see that the grasshopper plague extended over some areas in Ontario. This gave a chance to the grasshoppers. Regarding the suggestion that a cold winter would destroy the eggs, it is just as well for everybody to understand that the most excessive cold is not going to affect the eggs of any insect at all. The eggs of insects are prepared by nature to stand the conditions of the climate where they are found—in all places, at least, where an insect pest increases in large numbers. Insect eggs have been submitted to very great temperatures of heat and cold—far greater than are found in any place in nature—by artificial means, and they have not been found to destroy the eggs at all unless the eggs were brought into unnatural conditions. The life of our common grasshopper is simply this: The eggs are laid in the late autumn. Each female lays about four pods, or collections, of eggs. The eggs are arranged in four rows, and there are seven to ten in these rows. The eggs are deposited by the female, which bores a hole in the ground, generally in the sand—and in passing I may mention that grasshoppers are generally more abundant in sandy districts. When the eggs are laid they are covered with a glutinous material by which they hold together like a little pod. The eggs are beneath the surface of the ground, and when there, no extremes of cold will affect them in the least; but we find by experiment that if these pods are broken up, or brought into an unnatural condition, they are easily destroyed.