

made by various species of Homoptera affecting the same plants, and the conclusion that these insects are responsible for a part at least of this injury seems to me to be very strongly suggested, though not demonstrated.

There is no question whatever that these Homoptera puncture grass, both blades and stems, to procure their food. This is shown by the numerous punctures and deadened spots on the leaves and stems, and can be verified by watching the insect itself. That the puncture of the stem just above the joint so as to enter the succulent base of the terminal node, and the extraction of the sap from that part, would cause their shrivelling and the consequent withering of the node above, seems sufficiently evident.

Knowing the habits of these insects, and considering the fact of their actual occurrence on the injured plants and the presence of injured spots, such as these insects make in getting their food, there seems to me no reasonable doubt of the *possibility* of these insects causing all the damage observed. The difficulty, in case we accept this view, is to explain why Silver-top is not more abundant than it is, or that such experiments as that by Mr. Fletcher in caging Hemiptera on grass did not produce it, for these insects swarm on almost every blade of grass. These insects, however, work on leaves and stems all the way from the surface of the ground to the tip, and their punctures are distributed promiscuously over all their surfaces. In stiff leaves and sheaths as well as in the stems above the succulent basal portion the shrivelling is confined to the few cells immediately surrounding the puncture, but in case the beak is thrust into the succulent part the effect is to kill the cells of an area through which all the sap for the nourishment of the upper node must pass, and, hence, the more conspicuous effect.

Some of my observations, moreover, show that this injury is not confined entirely to the upper joint, though always most conspicuous in the whitened head, but I have found the stem affected in lower nodes, and in some cases almost to the ground, in which cases also some of the upper leaves show the whitening effect of the injury.

The species of Homoptera most likely to be concerned in this work, are the common species of *Deltocephalus*, especially *inimicus debilis*, etc., which are serious grass pests, in any case, from their attacks upon the stems and leaves, and which I have recorded in some detail in a recent report to the Division of Entomology.