

REV. DR FYLES : I am very sorry that our worthy chairman is afflicted with deafness. I am very sorry on my own account. I would wish to express the very great pleasure I feel on seeing so large a gathering to-day, and I may say a gathering of distinguished men. We have a very important subject to consider—that of the San Jose Scale insect, which is doing so much damage in the United States and in Canada.

I am happy to say we have an authority on this destructive insect in Prof. Webster, from Ohio, who will tell us about the pest and his experience in connection with it. We have also our own Dominion Entomologist, Prof. Fletcher, who has given much attention to the scale, and I trust we shall all benefit by the opinions that these gentlemen can give us. There are others who will be able to speak upon the subject under consideration, and I will now in the first place call upon Mr. Dearness to commence the discussion on this interesting subject.

MR DEARNESS : Mr. President and gentlemen. Yesterday evening I was asked to open the discussion on the San Jose Scale insect. I was aware that my name was on the programme, but I did not expect to have the honor of opening the discussion. I have hastily jotted down some notes by way of introduction.

Nineteen years ago Prof. Comstock published descriptions of a number of Coccids in the Genus *Aspidiotus*, one of which he very appropriately named *A. perniciosus*. The first American home of this scale is supposed to have been in the San Jose Valley, California, and hence the popular name of the species. No one knows how long it had inhabited the fruit trees in that district before Prof. Comstock labelled it. One doubtful theory is that it had been introduced ten years before that time from Chili. It is pretty well settled that it is now about thirty years since its effects on deciduous fruit trees were first observed in California. Singularly enough according to Prof. Comstock's information the peach and apricot were exempt from its attacks. In Canada and the United States, if it thrives particularly well on any kind of tree, it is on the peach. Earnest efforts have been made to fix the date of its introduction to the Eastern United States. It seems established that the first extensive distribution of it was by the Californian nursery stock sent out by two firms in New Jersey twelve years ago.

This summer an unsuccessful attempt was made to fix the date of its importation to Ontario. It may be that some of that 1887 New Jersey stock found its way here. A trustworthy and observant fruit grower, Mr. John Vanhorn, of Chatham, testified this summer that he detected this scale in his orchard six years ago, the suggestion to look for it having come from a New Jersey nursery firm—the Parry Brothers—with whom he had had dealings. It is not out of the range of probability that it was introduced into the southwestern part of Kent county ten or twelve years ago.

From the scientific point of view the *Coccidae* are an interesting and attractive family of insects. It is also a large family. Although it cannot be said to be well worked up, Prof. Cockerell's check-list published three years ago gives 770 species, to which his supplementary list, published this year, adds 322 species. More than a third of these additions are in the section *Diaspinae*, to which the San Jose Scale belongs.

Some of these may yet, when they go abroad, rival the San Jose in destructiveness. Several of them are capable, and guilty too, of killing the plant upon which they feed, but at present and for the past five years the San Jose overshadows all its relations in economic interest on account of its destructiveness. The sagacious Comstock nineteen years ago declared it as his belief that it is the most pernicious scale insect in the country.

What makes it so pernicious? Several other species are as strongly armored. Its larvæ are longer exposed than many others. It does not seem to set up a morbid condition of the tissue of the plant on which it feeds; like its congeners, it simply sucks the sap of its host. (It is true that its presence is characterized in some kinds of wood by a reddening of the subcuticular and cambium layers, but there is no distortion of the tissue as in the case of tissue affected by black-knot.) A gravid female does not contain nearly so many ova as a *Mytilaspis*. As a rule an insect that winters in the egg state, as the

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