

are also washes and insecticides that can be applied with excellent effect—for instance, various preparations of arsenic, such as London purple and Paris green. These are applied with a syringe, or by means of a spray-pump, a common force-pump with a long flexible tube, and a peculiar jet which divides the fluid into the finest spray.

34. At what period should that be applied to destroy the insect?—It should be applied before the fruit is formed. The insect deposits its eggs on the ovary when the flower is expanded. By using this wash freely a large number of the insects are killed in the young state. One advantage of the bands is that the insects are prevented from depositing eggs. The washes are most effective at the time the insects are depositing eggs.

35. Is the codlin-moth now in all parts of New Zealand?—In all parts without exception. It is as abundant in Central Otago as it is in any other part of the colony—quite as abundant there as it is in Auckland.

36. No system of management, as far as the removal of trees is concerned, would prevent the evil from spreading?—No. There may be small isolated localities where it is not so bad, but I do not think there is any place that is entirely free from it.

37. *Mr. Dodson.*] When the insect leaves the tree does it deposit eggs?—On leaving the chrysalis state a perfect insect is developed, and eggs are deposited.

38. In the half-grown fruit?—No, not in the half-grown fruit. The matter is a little complicated. We have a native moth that is working considerable mischief in that direction, and it is so much like the codlin-moth that it is commonly mistaken for it.

39. The killing of the larva is to prevent the eggs being deposited the following year?—Yes.

40. Do you think the larva, going up a tree in fourteen days, will then deposit eggs on apples half-grown?—I do not think so. I do not think the codlin-moth does that, but I think the native moth does.

41. *The Chairman.*] Would the band around the tree prevent the spread of the native insect as well?—I do not know the habits of the native moth. I have not been working at that lately. There is another point worthy of notice: the codlin-moth lives very largely upon the pips of the apple. In apples affected you find the pips more or less eaten away.

42. *Mr. Dodson.*] You know of several washes that will deal with the insect when it is ascending the tree?—Yes; there are several well-known washes. Those commonly used are the washes I have mentioned. They are useful only at one stage—early in the spring.

43. But later on you can syringe the trees with great advantage with mild water with kerosene well mixed with it?—Yes. I prefer mixing a little caustic potash with the water. It is not the common washing-soda. You do not use much of it.

44. Caustic potash is made from beach-ashes in America?—It can be largely extracted from wood-ashes. Any woods except pines contain more or less.

45. Do our New Zealand woods contain much?—Some of them; not all.

46. A liquor made of our charcoal-ashes would do?—The wood-ashes placed in a receptacle with water would form valuable wash available at any time for rough purposes.

47. *The Chairman.*] What proportion of caustic potash would you recommend?—I should say from one to two tablespoonfuls to the gallon. It would depend a good deal on the season. When trees are growing very freely you cannot use much of it; the tissues are too soft and succulent. In the winter season you can use it freely. The native moth—possibly there may be more than one—deposits eggs in the apple at a later period than the codlin-moth. I have seen apples that have been infected with the true codlin-moth that have also been visited by two other caterpillars, presumably of native moths.

48. All these insects you mention would suffer from the application of the washes you have indicated?—Yes.

49. Can you give us any information about the slug-leech which destroys the cherry?—It destroys the cherry, pear, and plum, and the walnut also. It can be attacked by sprinkling wood-ashes or fine dust over the tree, but the application needs to be repeated. The best method is to spray the affected trees with a wash of hellebore powder, which should be repeated about the tenth day.

50. What are the habits of the slug-leech?—It is the larva of a fly. After eating the cellular portion of the leaf the leech falls to the ground, and burrows somewhat under the surface, where it passes the winter in a chrysalis state. It emerges in the spring a perfect insect—about the middle of November usually—and deposits its eggs on the leaves of its favourite tree.

51. Where did it come from?—It is of American origin. I do not think there is any doubt about that.

52. *Mr. Mackenzie.*] Does it greatly injure the tree?—Yes; it destroys the leaves, so that the tree cannot make growth. The food of the tree is chiefly assimilated by the leaves. The insect is not restricted to the hawthorn.

53. Have you treated of the scale-blight in your report?—Most of the injurious insects are mentioned in the report. I consider insect pests are not so injurious as fungoid pests. I have dealt with that in the report to a certain extent. There is peculiar difficulty in working out the life-history of fungi. They are far more difficult to deal with than insects. In some cases they infest different trees at different stages of their life-history.

54. What pest do you indicate?—I may mention the so-called fire-blight, which is destroying pears, especially in the North. Entire orchards have been destroyed.

55. Is it a kind of moth?—No; it is a vegetable, and attacks the leaf. I will send specimens in different stages for the inspection of the Committee. It appears first in the form of brown or black specks on the leaf. These develop excessively minute spores to such an extent that the leaf seems covered with a black powder, which is diffused far and wide by the wind.