

discouragement arising therefrom is one of the two influences that retard the development of the bee industry.

In the United States, serious harm has been done, but no definite statistics can be cited. The disease causes great losses and several States have enacted laws for the prevention of the disease, making it a legal offence for a person to keep in his apiary a colony of bees affected with foul brood.

In Canada, the Ontario Foul Brood Inspector (56) reports in the years 1890-1892 inclusive, 622 apiaries inspected and 2,395 cases; in the years 1898-1899, 527 apiaries inspected and the disease present in 212, or about 40 per cent.

In New Zealand and Australia, the disease is looked upon as being very wide spread. It will thus be seen that wherever bees are kept, serious losses are caused annually by this disease.

*Natural method of Infection.* With regard to the natural methods of infection, a good deal depends on the natural predisposition of the bees to disease and the state of health of the colony. Weak, sickly, or badly nourished bees are as a rule the most susceptible. We must also remember that germs themselves vary in their ability to produce disease. As in diphtheria, we may get a light or severe type of the disease; so also in foul brood, we may have a light or a severe attack; but the facts demonstrating the variability of this capacity are not well known; I have, however, noticed that after prolonged cultivation of *B. alvei* in which more than 30 transfers have been made, and the bacteria with spores have been given to bees in syrup, the virulence of the germ has seemed to be considerably impaired. In one case the colony experimented with was rather weak, was confined to the hive all day, and allowed flight only in the evening, and the spores were given in large quantities in syrup every day, nevertheless it was several weeks before the disease established itself, and then only in a light form. So we may have mild or severe epidemics and the liability to take the disease may be increased by chilling the bees or otherwise unfavourably modifying their metabolism; and in all such cases, they succumb more easily to the disease than when in a normal, healthy condition.

With regard to the manner in which the disease is carried from hive to hive, Cheshire (26) thinks that the larvae are most usually affected by the antennae of the nurse bees, and also that the tramp of the bees frequently detaches numbers of spores, which fly about in the air and settle here and there, often where they take effect. I think that in comparison with other diseases which are air borne there is usually not very much danger from this cause in the case of *B. alvei*. The spores are generally found in very sticky surroundings, which, even if dry, serves to fix and keep them *in situ*. Cheshire also states that he has not found the bacillus from honey or pollen in infected hives. This statement, however, is directly contradicted by the experience of practical bee-keepers and others. I have myself repeatedly found *B. alvei* in capped honey cells, and in the pollen masses found in diseased hives, the examination in the former case having been made by removing the capping with sterilized forceps and plunging a heated platinum needle into it and then putting the needle into melted agar, from which plates were poured, cooled and incubated.

Probably the chief method of carrying the disease from one hive to another is by the bees from healthy hives robbing colonies that have become weak and diseased. In such cases the robbers carry with them the germs of the disease. There is likely nothing to be feared from using wax foundation from the regular makers; for, as we have already stated, the wax, in the