

the growth was restricted to the inoculation track after 48 hours at 37° C.

c. In addition to the above experiments, agar was made containing the same proportion of disinfectant as was used in feeding the bees of diseased hives; 15 c. c. of this agar was taken for making a plate culture, and several plates were streaked with two loopfuls of spores, and incubated at 37° C. Strength of agar,—2 c. c. creolin to 1 litre of water, i.e., about half a teaspoonful to a quart.

Results —Creolin agar, four tests—no growth.

Control agar, abundant growth.

This antiseptic in the strength used by Cowan for feeding purposes, would prevent the germination of the spores; and if there was a large amount evaporating in the hive, a slight antiseptic result would take place.

(8) *Eucalyptus*. This substance was introduced by Beauverd (69). A small tin box, with a cover pierced with small holes, is placed upon the floor board of the diseased hive, and filled with essence of *Eucalyptus*. The colony receives every four or five days a litre of syrup containing a teaspoonful of tincture of eucalyptus (oil eucalyptus, 1; alcohol, 9). Then from time to time some drops of the same tincture are dropped into the hive. Auberson, who was the metayer of Bertrand's Apiary and was managing his own higher up the mountains, cured a number of colonies by means of this method. He finds that there is a great difference in the effect produced by the remedy. In some cases, the effect follows the remedy quickly; in others, the effect is slower. Sometimes more than a year passes without resulting in a complete cure. When the disease is of long standing, the remedy must be proportionate to the gravity of the evil. When there are only a few diseased cells, Auberson simply pours some drops of the essence along the back wall of the hive. He renews the dose every eight days; and in six weeks, sometimes sooner, the colony is cured. In cases where the hive is badly affected, he takes a clean hive and floor board and impregnates the interior, floor board, and division board with eucalyptus, and then transfers combs, brood, and bees to the new hive. He leaves the foul brood colonies their rotten combs, as this is the only handy means of disinfecting them. Three weeks later, during which he has twice poured eucalyptus on the floor board, he examines the new brood. If it exists in healthy patches he simply pours a few drops of the essence on the floor board until the cure is complete. If, however, the fresh brood still disclose some diseased spots, the queen is killed and replaced by another, and every fifteen days the essence is spread on the floor board until the cure is completed. If the colony is very weak, he strengthens it by the addition of bees and healthy brood. If he has to feed a diseased hive, he never fails to put the essence in the syrup.

Besides these well authenticated cases of cure by the essence of eucalyptus, there are a number of others, and the method has been extensively used in Europe. The great drawback to the use of this remedy is that it is liable to cause robbing.

*Experiments on the antiseptic value of eucalyptus.* (a) *Eucalyptus* oil. The cotton plug of a spore-inoculated sloped agar tube was saturated with the oil, and incubated at 37° C. In eighty-four hours there was no growth, but a fresh plug being inserted good growth occurred in twenty-four hours.

(b) Agar plates inoculated with spores and containing four drops of eucalyptus on a piece of blotting paper were incubated at 37° C. No growth formed, but when the eucalyptus was removed good growth immediately ensued. On plates containing two drops the growth was restricted to the inoculation track, but when the oil was removed abundant growth took