

"Some of the brood fails to hatch. Cappings here and there are sunken and perforated at the centre. On opening one of these cells there will be found a dead larva lying on one side of the cell somewhat shrunken, and of a brownish colour, varying all the way from a light pale brown to a dark brown. In the more advanced stages the brown is of the colour of a coffee-berry after being roasted. In the incipient stages the brown is of the colour of the coffee we drink, when greatly diluted with milk. But so far all these symptoms may be present as the result of chilled, overheated or sac-brood. But to determine whether it is the American foul-brood, run a toothpick into the dead larva and then draw it slowly out. If the mass adheres to the end of the pick like spittle, stretches out from $\frac{1}{2}$ to 1 inch, and finally the fine thread breaks when the pick is drawn back, it is probably a case of foul-brood. With all other forms of diseased brood, with perhaps the exception of European foul-brood, where the roping is never more than slight, this ropiness does not appear; but with American foul-brood it is invariably present. The dried-down larva forms a scab which is tightly adherent to the lower wall of the cell.

EUROPEAN FOUL-BROOD.

The appearance of this form of foul-brood is thus described:—

"Adult bees in affected colonies are not very active, but do succeed in cleaning out some of the dried scales. This disease attacks larvæ earlier than does American foul-brood, and a comparatively small percentage of the diseased brood is ever capped; the diseased larvæ which are capped over have sunken and perforated cappings. The larvæ when first attacked occupy an unnatural position in the cell. Sooner or later the larva becomes a shapeless mass with the appearance of having been melted. Decaying larvæ which have died of this disease do not usually stretch out in a thread when a small stick is inserted and slowly removed; occasionally there is a very slight 'ropiness,' but this never very marked. The thoroughly dried larvæ form irregular scales, which are not strongly adherent to the lower side-wall of the cell. The disease attacks drone and queen larvæ very soon after the colony is infected. It is, as a rule, much more infectious than American foul-brood and spreads more rapidly. European foul-brood is most destructive during the spring and early summer, often almost disappearing in late summer and autumn."

SAC-BROOD.

This is the name given to a disease of the brood about which very little is at present known. The larva usually dies stretched out in the cell. Its shape changes much less than in the case of foul-brood. The skin usually remains intact, and the body contents before they dry up are more or less watery. The disease is mildly infectious, but usually does little damage and disappears without treatment.

BROOD DEAD FROM OTHER CAUSES.

We have seen that there may be a sudden stoppage of nectar at certain seasons; consequently, in a hive that is short of stores at such a time, thousands of the young must literally starve to death. In extremely hot weather, when ventilation is deficient, the inside temperature of the hive may become so hot as to cook the young larvæ; on the other hand, a sudden drop in temperature will cause the bees to contract their cluster, exposing many of the young so that they freeze to death. Then in the fruit-bloom season some ranchers spray before the blossoms fall with a poisonous solution, and, of course, the bees that visit such an orchard not only die of the poison, but frequently are able to empty their load into the cells before succumbing. The poisoned honey kills any brood to which it is fed.

We see, therefore, that the presence of dead brood in a hive demands instant consideration. The first question to be asked is, what is the likelihood of starvation? The condition of the stores should answer that. Next, has any one in the neighbourhood been spraying blossoms with a poisonous mixture? The bee-keeper should