

This year however all the drones were killed. † but not in one day, only a few at a time. This, I fancy, was owing to food being short on account of the ravages of *Sphinx atropos* earlier in the year.

Difference of climate most likely accounts for this, for the drones being perfectly lazy, collecting no honey, and consuming a considerable quantity, would in England help to exhaust the stores before spring, and hence greatly endanger the chance of the colony surviving the winter; but in Madagascar the bees work all the year round without intermission—except, perhaps, a day or two at most in Imerina—consequently there is no such danger, for they even find sufficient food to raise brood during the winter months. Only in one month during the whole of last year did I notice the hives without brood, and possibly there may have been some then for not having the colonies at that time in hives with movable frames, I could not examine the centre, where in all probability it would have been. The fact of the bees keeping their useless drones after the swarming season was past, and breeding more, would, one would think, point to a second swarming season in countries where brood can be raised all the year round; yet I have never seen or heard of such a thing here—in fact these bees seldom swarm at all unless cramped for room. I have now two hives that have not swarmed for three seasons; but one that was in a small native water pot, and full to the mouth, threw a very large swarm and four casts in one season, which weakened it to such an extent that, eventually losing its queen during fertilization, it died out. I watched it to see if there were any fertile workers, which I found to be the case. These fertile workers are supposed to be those which have been bred near the royal cells, and have inadvertently obtained a small amount of the royal food during the larva stage; but they never produce the eggs of workers, only those of drones, and cannot save a colony from extinction.—British Bee Journal.

Foul Brood And Foreign Bees.

THE following extract from the series of articles appearing monthly in the B. J. on "Development in the Honey Bee," by Mr. R. A. H. Grimshaw, appears in the Bee Keepers Review, an English publication, and is published as throwing some light in the subject of the spread of foul brood in

† Since writing the above I have discovered the presence of drones in two of my hives which have fertile queens.

England, by the introduction of Foreign bees :

"Whilst on the subject of the results amongst our bees of the admixture of foreign blood, we cannot close our eyes to the singular coincidence, to say the least of it, that before the importation of Italian and other bees the disease known as foul brood is not recorded in this country, so far as I can find (and I first got the idea of this fact from Mr. Hooker). The only serious disease that troubled the British skep-man was dysentery, until improved hives and improved bees (!) came into vogue. Foul brood was known, however, on the Continent, for in 1848 Dzierzyn lost nearly the whole of his 500 colonies by the pest, and from 1770 to 1780 (according to Della Rocca) an epidemic raged amongst the hives in the island of Syros, nearly annihilating all the bees. We have it since we began importing; we had it not before that time; and this significant fact, coupled with the knowledge that our Continental brethren were troubled with the disease amongst their bees, goes very far to support the theory that it was imported with imported bees, which were, of course, crossed with our own, and that these bees transmitted to their progeny, perhaps for all time, a tendency to succumb to the attacks of their microscopic enemies.

I look at the foul-brood question precisely as I look at those human or animal diseases which are the result of, or the accompaniment to, attacks by bacteria or bacilli. Diseases caused by spores or germs of bacilli are very often resisted by animals which have such a peculiar condition of the blood that the pathogenic germs effecting an entrance into the veins, or into the alimentary canal, are dealt with seriatim. Myriads of minute white bodies, swarming in the healthy blood, rush to heal up wounds and block up with their dead remains, glued together, every possible aperture likely to afford ingress to the marauding disease germs which would almost seem to be waiting for such an opening. When these find entrance the vigorous white bodies wrap themselves round the germs, rendering them innocuous, and carry them to where they may be cast forth, along with the self-sacrificing encystment, from the animal attacked. Should, however, the blood of the animal be so poor in these minute white bodies that they are neither numerous enough nor vigorous enough to keep up the defence of the citadel, each attacking soldier being seized by a defender, the gateway is passed, and the disease germs in such a suitable fluid medium multiply at so marvellously rapid a rate, the blood soon teems with them. Fever accompanies their