

we have what is known in science as a friction of air currents, the bees wasting energy in expelling it, as they do in forcing the warmed atmosphere down. Another objection is that more or less of the exhausted, impure air, must be drawn back into the hive by what is known as diffusion of gasses.

But what makes this advice so dangerous in colder climates, and I have no doubt that this advice has led to the loss of many a colony of bees during the past winter, is that as the moisture-laden air returns to the colder parts of the hive it condenses and freezes, the distance inside the hive the moisture condenses depending upon the cluster, the size of the hive, the size of the entrance, and the efficiency of the packing. Such conditions were common, and the cold and damp atmosphere with the frozen entrance destroyed the bees. Let me say that cold alone rarely kills bees. I saw in Norfolk during the latter part of March bees alive and apparently in fair condition, that had been standing out all winter in hives with upper stories and a 7-8 inch hive cover, the combs and the bees in lower chamber of the hive did not even have a thin cloth above them, the nearest protection was the warped 7-8 board at the top of the upper story. Cold was there surely in abundance, but no moisture in the atmosphere about the bees.

The right method is the chimney principle; the foul air carried away at the top, packing enough to keep the bees warm, but not so abundant or so compact that the foul air could not rise through the packing of the hive. Here where the moisture leaves the hive the hive is warm, the heat of the cluster and the air rising, and no condensation takes place until the moisture reaches the top of the packing, or until it strikes the under side of the outside case cover. Here it can be disposed

of at favorable periods, by allowing moderate ventilation under this cover. The common opening ventilator is wrong in principle in any climate, but particularly injurious and dangerous in a cold climate. I trust I have made this clear.

In inside wintering there have been heavy losses, chiefly in repositories which could not maintain an even and sufficiently high temperature. The moisture above mentioned has also not been carried off, this combination with low temperature resulting in heavy losses.

Our own repository, which will hold 1,000 colonies, and has this winter 700 in it, is specially built with the object of securing a uniform but sufficiently high temperature. The fresh and the foul air is not brought in at the same entrance, but for convenience and economy of space the back of the hive is raised two inches on the stand and 3-8 inches from the bottom board. Through this rear opening the foul air escapes.

In conclusion let me say, not alone will these periodic attacks occur to bee-keeping but the cheapest production and the best goods will not be secured, neither will we have our markets developed to their best until we secure that recognition for bee-keeping and that aid in the development of the industry which has been given to other branches of agriculture. We may bluster, we may make statements that bee-keeping does not require such aid, but it cannot be shown by a line of logic that in this respect the principles which govern its development are different to other branches of agriculture. Dairymen would not go back to the days before it had no fostering care. Fruit growers value the help they are getting; the poultry industry has been put upon a more profitable footing; and so might bee-keeping have a new