

dance of fall honey. And the winter has not been exceptionally hard. I find that lots of people still believe in "luck" and "chance" in bee-keeping. Of course the laws of nature overtake these people, or rather their bees, without fail and without ceremony. Well, the *fit* will survive, and the *unfit* get into some other more congenial and profitable business.

LARGE AND SMALL EATERS.

In the fall when fixing up for winter there is no telling how much a colony is going to eat or how little it is going to eat. Under apparently similar conditions one colony will consume 30 lbs. of honey and then starve, while another alongside of it will not consume five lbs. This being a fact which every bee-keeper will prove to his own satisfaction sooner or later, the lesson to be derived from it is to supply every colony with not less than 30 to 35 lbs of honey in the fall. Then if they starve on the last named figure they are, without doubt, gormandizers, and might as well "shuffle off." In carrying out the last of mine I noticed a couple of colonies to be very light, and upon examination found one without a single ounce of honey left. They had taken their last available meal, but seemed to be in excellent spirits. The other one had a meal or two left. Now, these colonies had at least 30 lbs. each of honey when put in. They may be fairly called "large eaters." The next day after this experience a party to whom I had sold five colonies in the fall came to my place to get some advice, and some honey for one of his which had got entirely through with its stores, while the other four had plenty. This colony had just as much as the rest (40 lbs. each) when they were taken away in the fall, for I weighed them.

HEDDON HIVE.

The bees I had in this hive wintered as well as the rest. But I only trusted one colony with a single brood-case or half brood-chamber. They came through all right with a little honey left. The case, however, was not full of honey when it was put in. I kept an eye on it from time to time towards spring. I can see no reason why bees will not winter all right in the new Heddon hive, and one case of honey is sufficient, provided they are wintered in a proper repository. But it is not a warm hive, owing partly to the joint in centre of brood-chamber, and they ought to be packed in sawdust or chaff when they are set out in the spring to remain packed till the first of June or later. I have fixed mine in this way: As soon as set out, after flight, I took the brood-case the bees occupied which contained some honey and brood, and placed it on top of the other half of the brood-chamber after nearly filling it with honey. I then put the "skeleton"

case over it, packed it around with sawdust, putting plenty on top, and put on the roof, which, of course, slants to shed the rain. The brood-case is put on top of the honey-case for the obvious reason that at this season of the year the brood will require all the benefit of the heat at the top.

ALLEN PRINGLE.

Selby, Ont., May 5th, 1887.

From The Country Gentleman.

ROBBER BEES AND ODORS.

A MUSK AND PEPPERMINT CONTEST.

I SHOULD like to give your readers the results of my experience and experiments, with robber bees, and a simpler method of checking this ruinous propensity. Twenty-five years ago I began bee-keeping with a row of hives, all planted alike, and placed close together, say 12 inches apart. This likeness and nearness of hives, together with my work and fussing, soon brought on the calamity—robbing right and left, stealing, fighting and killing, until some of the hives were empty, and the ground covered with dead bees. I rushed to my library, and then tried the plans prescribed as infallible remedies. Tied them up in sheets; deluged them with water; buried them in loose straw; smashed the robbers' combs; put them to sleep with chloroform; shifted positions of hives. But they still fought and robbed and killed like little demons.

Then I sat down to study out a remedy, or to see the end of the Kilkenny-cat process. I soon found the difficulty to be in this—that the robbed bees could not distinguish between the friends in their own family and their enemies from other families. I could tell which were robbers from their hesitating flight about the mouth of the doomed hive. The home bees came in like an arrow from a bow. The robbers hesitated, backed and filled, and seemed watching for a chance to get in. But of this sign the home guard seemed to take no notice. From this I concluded that they did not discriminate by sight.

In this way I went on to eliminate the different senses from their method of discrimination, until at last I reached the conclusion that the sense of smell was their chief, if not their only dependence. Any observant bee-keeper has found many evidences that this early conclusion was sound. (I should like to ask here whether there is any honey-producing blossom that is destitute of odor? And, by the way, one of the best plans for introducing queens is to give the strange queen and the swarm the same odor.