

the extension, and then pack old sackings, rags, or dry hay between the hive and case to the depth of about 4 inches; that is to say, the packing must come above the joining line of the outside cases. We have sealed air-tight the lower entrance to our air-spaces.

To seal the upper part we must first have a frame to roughly close the gaps. Out of thin lumber make a couple of pieces 4 x 18½, and another pair 25½ inches long, and just a trifle narrower than the spaces on each side of the hive. When nailed together and placed above the hive, the end pieces will rest on the ends of the hive; the side pieces should roughly fill the gaps between the sides. Then prepare four strips of wood ¾ x 1 x 10 inches.

Remove the oilcloth quilt, place the frame you have just made in position, lay the sticks across the frames at equal distances apart, place a couple of layers of sackings snugly all over, then finish with more sackings or dry hay to within 1 inch of the top. Now put on the cover, and then make certain that the rear of the bottom board is at least 1 inch higher than the front, so that no water can run back under the frames.

A colony so packed should winter perfectly and breed up quickly in the spring; in fact, it should be so strong by the time the soft and vine maples are in bloom that in the regions where they are plentiful a good surplus crop of this most delicious honey should be almost a certainty. As designed, the writer can see only two possible weak spots in the case, and these are the meeting-points of the two casings and where the casing rests on the bottom board. If poorly constructed there is a possibility of water finding entrance at these places, but strips of thin wood, a couple of inches wide and chamfered on the upper outside edge, nailed along the lower edge of each case, and projecting, say, ½ inch over the wood below, will provide perfect protection.

With such a method of packing it will be utterly impossible for bees to be tempted to fly in bright sunny weather with snow on the ground, as in 1913, to the utter demoralization of almost every hive on the Lower Mainland.

In Victoria the writer finds that when he orders a few cases at a time all the material necessary costs about \$3 a case, but an increased honey production of about 20 lb. would pay for that, and he is convinced from what he has observed that proper wintering means an increased honey production of over 50 lb.

Two notable cases, the only ones in his territory where every colony is winter-protected, are worth mentioning. One has thirty-six colonies; average hive production in 1914 being 150 lb. The other is owned by a beginner in his second year, and consists of five colonies; average hive production in 1914, 140 lb.

CHAPTER XIII.

Queens.

The average beginner naturally makes no effort to control his bees in their natural impulse to increase by swarming, but one season's experience of retrieving swarms, and of investing money in new hives, with not infrequently very little returns in the shape of honey, will soon arouse a desire within him to become master of the situation, so that increase shall be when he wants it and to the extent that will suit him. To attain this desirable end he must learn a few simple facts about the life-history of the queen, from the egg to the time when she begins to lay.

We have already learned that the egg from which a queen is to be raised differs in no way from that from which the ordinary worker develops. Furthermore, it hatches out the same, and for three days the young larva is fed like a worker-larva, but on the fourth day the latter is put on a less nutritious diet that prevents the development of the sex-organs. The food of the royal larva remains unchanged; its quantity is lavish; with the result that the full development of the insect is secured