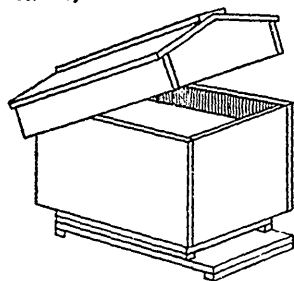


It is rendered much more easy for the bees to cluster and keep in reach of stores when large combs are used, if two three-eighth inch holes are made in each comb, near the top, to allow the bees free passage from one to the other. These must not be made till feeding is done, as they would probably close them up. With single-walled hives all the combs in one hive can be perforated at once. Have two three-eighth inch holes in one side in the desired position, and stopp'd with plugs. The borer is an iron rod, sharpened flat at one end, and having a crank on the other. Removing one plug at a time, and using a guide, bore slowly through the hive. There is no danger to bees or queen if the work is not done too rapidly. The borer should be plunged in hot water long enough to warm it before using.

About thirty pounds of stores per colony is required for winter and spring use.

When bees are to be wintered in the open air they should be made strong by uniting weak colonies, and rich in stores by feeding. Chaff hives require little other preparation, but single-walled hives must be protected by straw, chaff, forest leaves, or other non-conductor. This



WINTERING BEES.—Hive with packing case for outdoor wintering, showing space in top for cushion.

should be packed all around the hive to a thickness of from two to four inches, and held in place by outer boxes, which may be removed and stored in summer. The case illustrated is set over the hive, and the opening at the bottom, between the hive inside and the case, is stopp'd up with padded sticks. Replace the quilt on the frames by a porous cloth of best cotton, and on this place a three-inch cushion of chaff or other absorbent to take up moisture from the bees' breath. This is essential to their outdoor or cellar wintering. Fit the regular hive cover over all.

It is absolutely necessary that bees wintered outdoors be allowed to fly at will. It is true that many will be lost, but most of these are diseased, and, at any rate, it is better to loose a few healthy bees than incur the risk of losing, or greatly injur-

ing, a whole colony by the excitement caused by confining them when they wish to fly. Then, again, they should not be jarred or disturbed in any way in cold weather, as bees that leave the cluster often perish before they can get back. Besides, every disturbance causes them to eat more food, thus increasing the danger of dysentery. Leave the entrance open, but contracted to about five inches, and shaded from the direct rays of the sun.

As the winter advances, bees dying from natural causes clog the entrance, unless removed by means of a hooked wire. Snow should also be cleaned from the entrances after every storm.

"If Colonies are strong in numbers, and stores have upper moisture absorbents, easy communication from comb to comb, good ripe honey, shelter from piercing winds, and can have a cleansing flight once a month, they have all the conditions essential to wintering successfully in the open air."—Langstroth.

The experience of Mr. S. T. Pettit shows that one good flight, say in February, will suffice.

For indoor wintering a dry, well ventilated cellar is used. This is described on page 486 of the September 1st Farmer's Advocate, in "Model Bee-Yard Portrayed and Described,"

It may be added that a pipe opening near the floor and connected with the pipe of a stove in the room above, completes the ventilation. The stove is used also to regulate the temperature. The bees are moved in just after they have had a flight, about November 17th-20th, and piled one upon another on benches, which keep them up from the dampness of the floor. A cushion is placed on each as in outdoor wintering.

It is important that the temperature be not allowed to rise above 45° F., or fall below 40° F. This and ventilation require almost daily attention. Any murmur from the bees is indicative of discomfort, due largely to faulty temperature or ventilation, or external disturbances, such as noise or jarring. No sound should reach the bees while in cellar. This is the ideal condition, but of course cannot quite be attained.—Farmer's Advocate.

The following extract describes Mr. Pettit's cellar.

"The building to the right in the background is the honey-house, where extracting, etc., is done, and honey is stored until shipped. The other building is a work-shop, where Mr. Pettit makes all