

face this problem sooner or later, and although there are many difficulties awaiting the bee-keeper who proposes to raise his queens artificially, yet after he has mastered the subject I believe that he will consider the time well and profitably spent. The system of shook swarming lends itself admirably to production of the finest queens, and it is the writer's wish to sketch briefly such a method, one that can be readily adopted by any careful bee-keeper.

Wait until colonies are being shaken and there is plenty of brood in upper storeys.

There is nothing in the system which we use but what any bee-keeper can adopt. It is a well known system; it has been developed from several different queen breeders. We use the Doolittle plan for grafting cells, and the other apparatus is simply development along lines which will help in the making up of increase and making of nuclei. I think the first requisite in any operation for making up artificial queens is in getting the colonies in proper shape to raise them. A great mistake made is the starting to raise cells before the colonies are in condition, and starting to make increase before the brood is in condition for making up that increase. I believe it would pay any man to wait until his colonies are in shape before he starts any manipulation with the object of raising queens. We usually wait until the colonies are strong, and until possibly there are a few starting to prepare sealed cups. These colonies are shaken off on the new combs. The brood from these colonies is distributed around the yard to other stocks—possibly two or three combs given to one, and two or three to another, and it is not always given to the weak stocks either. It is given to the medium stocks usually, and these medium stocks are built up until they have brood above, until it is necessary to put on queen excluders; and when they are in this con-

dition I believe the yard is in good condition to start queen rearing.

The first step, of course, after the brood is in shape, is getting the cells started. The cells are grafted by the Doolittle system into prepared cell-cups. They are grafted from the best breeders in the yard, but I do not think it necessary to go into details of this, as it has been described so often. Before the grafting is done the swarm box is used. A swarm box is simply a box made like a hive to hold three combs, and it has a cover with a slot in it to hold this stick of prepared queen cells. The bees are simply taken and shaken into this box—that is, enough bees to fill the box nicely. A frame of honey and a frame of brood is put in, one on each side. The box is left in that condition for five or six hours until the bees realize their queenlessness and are ready to accept cells. Then this grafting is done and the grafted stock of cells is put in the box. Usually the shaking is done in the morning, the grafting is done in the afternoon, and the cells are left with the bees until the next morning. By that time those that have been accepted have been fed quite a bit of jelly, and they are then taken and put into the colony that the queen has been taken from, and the frame of prepared cells is put above the queen excluder with the queen below. The frame that holds the queen cells is simply an ordinary frame fixed up so that it will fit in. It is put in the centre of the upper storey of the cell-building colony. They go ahead and complete those cells, and when they are ripe in about ten days' time the cells are put into nuclei. Now, by having so much brood above queen excluders in the yard, the yard is in good shape to make up the nuclei, because the brood is capped over and there would be none lost by neglect or chilling; and by taking one or two frames of this brood that has been entirely capped over in rearing above, and giving it to the nuclei, we have the nuclei started. Any shaking

June, 1910

after that case frame of this excluder and young colony

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