

Queen-Rearing.

THE RESULT OF THREE YEARS' EXPERIMENTAL WORK.

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The cells being ready, dip the end of each in hot wax, and at once place them *in situ* on the bar before described, preparatory to the royal food and larvæ being transferred into them. The cells are placed about $\frac{1}{2}$ in apart, alternatively towards the outer edges of the bar. Here, however, like many others who endeavored to follow in Mr. Doolittle's footsteps, I did not get on quite satisfactorily, only an average of 50 per cent. of my cells being accepted; and so, after many trials, I departed somewhat from his methods; but before touching upon this, it may be well to finish the outline of Mr. Doolittle's final operations, as follows:—Having your frame ready—with artificial cups in position—cut out a queen-cell containing a good supply of royal jelly (from a stock made queenless on purpose to obtain the first supply), remove the young larva which it contains, and place a very small portion of the royal food at the bottom of the artificial cup (Mr. Doolittle is rather indefinite as to the quantity necessary)—the amount required, however, is a small drop about the size of the inflammable portion of a common safety match; place this right in the centre of the artificial cup, and, if made after my method it should rest in the apex of the *natural base*. Having supplied all the cups with this food, remove a comb of just hatched larvæ from the hive containing your best breeding queen, and transfer the larvæ to the prepared cells, putting each tiny grub directly into the royal food already therein. The larvæ must be under thirty-six hours old to procure the best results. (In case the operator does not know how to judge the age of the larvæ take only the smallest.) Place the frame of cells in the prepared super. To do this, of course quickly and well, requires practice, but one soon gets expert at it, for, with the cells already on the frames, I have gone to a hive, removed a frame of brood and bees, returned with same to my heated work-room, transferred larvæ to the prepared cells of three frames (nine cells in each), placed same in three different supers, and returned frames of brood to hives, which includes opening and closing four hives, all in the space of twenty minutes. In transferring the larvæ nothing answers so well with me as a thin little slip of wood cut very thin and pliable at the point, and slightly curved so as to slide easily and smoothly under the little grub, and raise it

bodily from the bottom of the cell. By the above method I could count on 50 per cent. of the cells being accepted and turned into fine queens. Considering the fickleness of our climate and other disadvantageous circumstances beyond control, this was a fairly good result, yet I was not satisfied, and after trying many improved methods, including that adopted by Willie Atchley (of Texas, U.S.A., who has the repute of being the youngest and one of the most extensive queen-raisers in America), I at last hit upon the following method, by which I can ensure 70 to 80 per cent. of equally good queens every time:—I prepare the frame and wax cups exactly as already described, but before placing either the royal food or young larvæ therein I set the frame in a prepared super of a queened stock for the acceptance by the bees. If the bees destroy the cells, or treat them with indifference, as they will do if they don't want them—I pass on to the next hive and give them a similarly prepared frame. But it is very seldom they are refused if the hive is properly prepared and honey is coming in. Occasionally, however, and from some cause beyond my present knowledge, I have known a hive refuse the prepared cups to day and accept them to-morrow. If accepted, they are converted into perfect embryo queen-cells, narrowing the orifice and working the thin outside edges the same as if starting ordinary queen-cells. About twenty-four hours usually proves whether the bees have accepted the cells, and then, if found right and being worked at, the royal jelly and larvæ can be placed at once in each cell and given to the bees to complete. This is a sort of "approbation" process because I give the crude cells to the bees first "on appro." to get them worked at and modelled to meet their little requirements before placing the food and young grubs therein. Far less risk is thus incurred of having them ultimately refused, and the result has shown me that I get a far higher percentage of cells finished. Some will be refused, even after acceptance at first; but, if the right time is chosen, from 70 to 80 per cent is the average of accepted cells.

The actual manipulations connected with the transference of young grubs from the natural comb to the prepared cells may seem to many a tedious and difficult task before trial; but if a square inch of comb containing the young larvæ is cut out, and the cells shaved down to about $\frac{1}{4}$ in., the task is much more easy than it looks. What I desired, however, was to arrive at some method of retaining the advantages of the Doolittle plan and yet save this transference of the larvæ; for although I succeeded perfectly with it myself, it is very prob-