

For The Canadian Bee Journal.

# EMPTY FRAMES, EMPTY COMBS, OR FOUNDATION.

I WAS much interested in query No. 75, asking which swarm would store the most extracted honey the first ten days after hiving, one hived in an empty hive, one Given foundation, or one given empty combs.

I wish that the query had been put in a little different form. Modern apiculture has divided a bee hive into two radically different apartments—brood nest and surplus department. Of course the brood nest *can* be made so large as to allow room for the honey as well as the brood, but most apiarists now prefer to have the brood by itself and the honey by itself. In view of this I would like to put the query something like this: If the *brood-chamber* of one hive is furnished with foundation, another with empty combs, and a third with empty frames, swarms exactly alike are hived at the same time in these hives, while the *surplus* apartments are furnished with foundation or empty combs, which surplus apartment will contain the most honey (either comb or extracted) at the expiration of ten days, or at the end of the season, and which brood-nest will contain the most brood? The bees are to be given access to the surplus at the time of hiving, and the brood chamber must be of such a size that the bees must, of necessity, also occupy the surplus apartment. Unless empty combs are used, a queen-excluding honey board will be needed.

According to experiments which I have made during the past two years, the swarm that builds its combs in the brood nest, will store the most honey in the surplus apartment, and have the most brood in the brood nest; next will come the swarm given foundation, while the swarm with empty combs will put the least honey in the super and rear the least brood. The experiments that I have made consisted of hiving one swarm on empty combs, the next on empty frames, and the third on foundation, continuing in this way until about 40 swarms had been hived each year.

When combs are given the bees proceed at once to fill them with honey, which in good honey weather they will often do in two days. In this way they get the start of the queens and they *keep* it. I cannot tell why it is, perhaps the bees feel that their job is finished, but after filling a set of combs in the brood nest, bees are very reluctant to commence in the boxes. Where they store their first honey after being hived there they seem willing to continue to store it; and when foundation is given in the brood nest and *combs* in the surplus apartment, the first honey goes into the super, as no honey can be stored in the brood nest until the founda-

tion is drawn. But in two days foundation becomes *comb*, and then the bees will store considerable honey in the brood nest, but they will continue work in the supers as they have made a *start* there. When hived upon empty frames and given combs or foundation in the super, all the honey must be stored in the super until combs can be built in the brood nest, and just as soon as a few cells are started in the brood nest the queen is ready to fill them with eggs, and as soon as eggs are laid in a comb that is being built the storing of honey ceases in *that* comb, as no honey is stored below where brood is started. The queen can keep pace with the building of natural comb, but *not* with the drawing out of foundation. When a swarm is hived upon empty frames and given access at once to a super furnished with foundation or combs, the result is that all the honey goes into the super, while the brood nest is filled with sheets of solid brood. According to the experiments that I made, if the foundation had been given to me, it would have been used at a loss when put into the brood chamber and swarms hived upon it.

At the Detroit convention Mr. H. K. Boardman said he had tried hiving swarms upon empty frames and was pleased with the result. Mr. J. B. Hall had also tried it, but too much drone comb was the result. This I attribute to his large brood chambers.

Mr. Doolittle's article, "Production of Wax" is right to the point, because bees in confinement require twenty pounds of honey to produce one pound of wax, it does not follow that a new swarm cannot build the combs in the brood nest to better advantage to their owner than to draw out foundation.

Mr. Doolittle speaks of dispensing with foundation because it is expensive. "A penny saved is a penny earned," etc. That is not the question. Bee-keepers do not look upon foundation as a *luxury*—something that *could* be dispensed with—but rather a *necessity*. It does not pay to "retrench as much as possible" in the use of *some* things. The question is "does it pay to use foundation in the brood nest when hiving swarms?" If it *does* where is the economy of allowing bees to build their own combs? If it *pays* the more we use the larger the profit, if it *don't* nobody will be fool enough to use it simply for the fun of the thing.

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We think friend Hutchinson that you have explained and answered the question both. Doubtless your experience would be the experience of any one who tried it the way you have done. There are many good points in