

perfering the deeper Quinby. He said, away back in "Gleanings": "As we found again and again that the smallest crops came from the smallest hives (Langstroth) on an average, and that whenever the crop was short, twenty-seven out of every thirty small (L) hives had to be fed, while the large colonies (on Quinby frames) had generally enough, we transferred all the bees out of the Langstroth hives. For twenty years our large Quinby hives have given us better results than our small ones (Langstroth.)"

There is a further serious objection to the Hoffman Langstroth as turned out of late years. Many years ago I was able to show that there was a certain advantage in working during the honey season with stock frames set $1\frac{1}{4}"$ to $1\frac{3}{8}"$ apart. Especially is this the case when starting new swarms on full sheets of foundation, reducing the weight of bees to each sheet, and thus avoiding sagging. Now the manufacturer's idea is to set up a fixed space of $1\frac{3}{8}"$ in all seasons—a most serious blunder in wintering.

The space is probably widened when the frames are used for extracting, but the stock combs remain at $1\frac{3}{8}"$. For wintering. I prefer a wider than natural space between the stock combs, and the following quotation from the 1893 edition of "A Modern Bee Farm" (p. 244,) may be of interest.

"Let it be considered that during cold weather the combs are really unnecessary except as the store cupboards. Under normal conditions, during late Autumn, at the central lower portion of the combs the cells are all empty just as vacated by the later batches of brood. As the cold weather comes on the bees form upon that portion of the combs, the nearest possible approach to a perfectly unbroken cluster. Some of them occupy the empty cells and rest head to head on opposite sides of

the centre wall of the combs, while others crowd between."

"Thus they make the best of the situation as they find it; but careful experiments, conducted over a series of years, have always shown me that the bees prefer to cluster in winter where there are no combs at all to intersect them, and in this situation have less difficulty in maintaining that animal heat so necessary for the preservation of life."

"We can therefore meet them halfway as it were, and while not removing the stores can alternate heavy combs with empty frames, thus bringing the cluster into a more compact mass, and entirely avoiding the frequent destruction of the unfortunate interseams of bees."

The close narrow spacing for winter is then no more nor less than a death-trap. It acts detrimentally in two different ways. The cluster is broken up too much, so that it is not compact; while on the other hand the stores sealed over in those thin combs will often deceive the owner. He thinks there is sufficient, and yet he will find the food disappear all too quickly at a period when perhaps he cannot replace it. The stores between each close-spaced pair of combs are quite inadequate, and the danger of starvation is augmented when the bees cannot shift to the other ends of the same scantily stored combs.

During 1910 Ed. E. R. Root began to write up this same question of the winter clustering nest; but he did not go far enough. His mind did not expand in either a vertical or a lateral direction, hence he could not realize that his shallow narrow-spaced frames were not a good example for illustration of the ideal winter nest.

Referring to page 20, Jan. 1st, 1911 "Gleanings," we find an illustration of four Langstroth frames, which are offered as affording sufficient food and clustering space for a moderate colony during win-

ter. Because of the two central combs a dangerously small even a moderate considers the thinness of

On the other hand it is considered that will consume more space. I should therefore the number of these even for the use of considering the thin $1\frac{3}{8}"$ frames; and should tend the space between benefit of the cluster.

Alterations—TI

It is always a serious making alterations plant. It would in hives as well as frame the frames need or deeper, the same body with very little alteration the better, as protection be added.

The $16 \times 10"$ frame in Great Britain in position from some of those adequate shallow. The cost incurred by discarding frames is one that cannot be covered the first year. have increased their than 50 per cent the first change.

The Langstroth frame for Canadian bee-keepers reduce their winter have discarded it. We lead, and show friends what a deeper frame aggressive bee-keepers?

Heathfield, Sussex, 1
Note—This second a (without revision) after lively comments my first ed. That is just what the bee-keepers' minds to I want my friends to eat