

the spores from germinating in melted wax. We have there something more than temperature. If the wish of the Ontario Bee-Keepers' Association is carried out and I am appointed to develop bee-keeping in Canada and carry on experimental work, I hope to carry on this experiment on a much more extensive scale. I and those who know of Mr. Cowan would not for a moment dispute the accuracy of his work. Those of us who are practical bee-keepers do not believe that the spores of foul brood will germinate after the wax has been melted, and if we think for a moment we also can see that there need be nothing conflicting about this. Ed.]

Close Spacing of Frames.

—J. E. POND.

It is well-proved fact in bee-culture, in bee-culture, in fact so well proved, as to become an axiom, that bees will not seal up brood in cells deeper than $7/16$ inch. This has been proved in several ways in the past, and anyone who doubts, can easily prove or disprove it by a trial.

Now if we space bees just bee-space apart, so that the combs cannot be drawn out over $\frac{3}{4}$ inch thick, this will leave (with the septum) just the proper depth of comb in which to rear brood. Another fact in bee-culture has been conclusively proved. viz :—that bees will store honey in preference to brood, in cells where they can draw them out more than $7/16$ inch deep; they also will store honey above the brood in every instance. Now from the above proven facts, have we not the logical right to deduce the theory, that by giving space room in the brood chamber, only such, that the bees can draw their cells out to $7/16$ inch deep, and by giving a chance for deeper cells in the surplus chambers, that the bees will use the brood chamber only, for brood, and go at once into the surplus chamber to store honey?

We have tested this matter thoroughly, and find the answer, yes, to the above question every time.

If any have doubts, it is but little trouble to test the matter.

We believe the theory we advance to be a matter of importance to comb-honey raisers, and give it for what it may be worth to them, assuring them at the same time, that in our own apiary, the results

are uniform, and back up the theory in every instance.

North Attleboro, Mass., May 10th, 1897.

[Here is an interesting question for discussion. What have our bee-keepers to say about it? Ed.]

Distance Apart for Bee-Hives Foundation Fasteners.

BY E. F. BRAINARD.

In the March Canadian Bee Journal the question comes up as to the right distance apart to set bee-hives. To get a large number of colonies on a small piece of ground and yet not have them crowded, or have the bees entering the wrong hive, a good plan is to have them placed in groups of four hives each, two facing east and two west, with backs together. Many of our largest bee-keepers have them placed this way, especially those who practice outdoor wintering; but aside from the advantages gained in wintering, this arrangement of hives has several other advantages. It gives more room for a hive-cart or wheelbarrow, fewer shade boards are required, and while working with one colony the adjacent hives form a table for smoke and other tools, and last, but not least, an easy record can be kept of each colony without any numbers on the hives or stands for it is easy to remember that the N.E. colony in each group of four is No. 1, the S.E. No. 2, the S.W. No. 3, and the N.W. No. 4. The alphabet is used to indicate the number of the groups, commencing at a certain side or end; in the record book a letter and a figure represents a complete number; for example, A 3 would be the extreme south-west colony in the yard if you commence to letter them from the south side. For hive stands 3×4 inch scantling are used, cut 3 feet long, four of these pieces for each group; on these the hives are set with about 6 inches of space between the hives. Each group of hives is about 10 feet apart from center to center.

To fasten full sheets of foundation in sections, leaving but a small space between the edge of the foundation and the sides of the section, using but little wax and yet fasten the foundation strong enough to stand the rough usage they are often subjected to, requires a different machine to any I have yet seen described.

The machine should work upon the hot-iron-melted-wax plan. The front edge of the metal plate that melts the wax should