

expect to get just what you advertise for. Now I will try to do your readers, yourself and myself a little good by dissenting from your leader wherever my experience has caused me to believe differently.

You think some bee-keepers, from some difference in location or management, winter bees in the open air with more success than others. I think the first part of that clause all right, but I fully believe that there is little in the management; if there were, a quarter of a century spent in freely exchanging ideas and methods would have reduced it to a common knowledge. But you are just right about its being a question of location.

Like yourself, I have learned to never attempt the wintering of bees without protection. When they are packed in wintering boxes, I have found out-door wintering best if the weather is not too severe. When it is the cellar is best. What we most need, is to know what the coming winter is going to be, and that we cannot tell until science has further progressed.

As your readers well know, bee-diarrhoea is the one great cause of our winter losses. And I believe that many of them further know that the consumption of pollen produces that disease; and, as low temperature is the main cause of pollen consumption, and dampness produces an equivalent to a low temperature, your leader is right to the point just the same. Certainly, cleansing flights remove the trouble as fast as it accumulates, provided they occur frequently enough.

Now to the question of protection. Can you tell why chaff hives, with such a narrow space between the walls, have shown a better record than the thicker packing where outside boxes were used? (Didn't know they had.—Ed. Rev.) I cannot, but such is the case. W. H. Shirley, a close observer and skillful apiarist, declares that two inches of space between the outer boxes and hive proper are better than more. He cannot explain why, neither can I, but I have a great big suspicion that it is true. Like yourself I use sawdust for packing, because I believe it is as good as anything and cheaper and handier to get.

I am just making 200 of the boxes you describe at the latter end of your leader. They will be absolutely water tight, and packing will be put in so full that it will require a weight to settle the cover into place. Now sir, I am arranging in this way purposely, that the whole thing will not be a non-conductor, but a partial conductor; because I propose to receive the heat of the sun's rays fall through the winter whenever it shines. By painting these boxes

black, or dark red, the sun's rays will heat them very rapidly, yet the color will have nothing to do with the heat radiating outward from the bees when the sun does not shine, and I am expecting to see this arrangement winter the bees better than larger boxes. I shall make these little boxes to stay made, not to be knocked into the flat, and I can pile them up anywhere, only keep them out of the sun. The rain will not injure them, and the sawdust can be kept right in them. But little material will be required for each colony.

In order to experiment with very shallow frames, I filled a set of eight Bingham frames, which are 22 inches long and have only  $4\frac{1}{2}$  in. of comb in depth, and I wintered the colony eight times out of doors. It was packed with just such thin packing as I have described, and it was among my very best colonies every year except one. One winter it died with the disease, but other winters, when my other stocks died in the cellar, it always came up booming and strong. Shallow frames are better than deep ones for wintering bees, as experience has demonstrated. The reason is obvious.

Yes, as I told you, what bees I winter in the cellar will be packed in these little, dark colored boxes all the spring, clear up until the surplus honey receptacles go on. I am making the boxes deep enough to take two brood cases of my new hive. Then when I desire to use one section I can do so handily either with or without the rim under it.

I tried the rim business pretty thoroughly with my new hive in the cellar, and did not realize from it the beneficial results that I expected. I thought I saw some points in its favor, and I believe it will prove valuable in case of severe winter losses.

I agree with you exactly in regard to chaff hives. No one who has once learned how to handle readily movable hives and enjoyed the great benefits to be derived from that kind of bee-keeping, would take chaff hives as a gift.

Ten or twelve years ago I conceived the idea of packing bees in outer cases having no bottoms, letting the packing come right down on the ground. I had some fear, and my friends had more than I, that absorption would raise the moisture from the ground clear up above the bottom stand and thus affect the hive, but actual experience demonstrated that the moisture did not rise one inch; and it is all right except that more material is required.

For three or four years I tried packing eight hives together in a clamp, and had no trouble at all with the bees mixing. I just moved eight hives up together anywhere in the apiary at any