

air drawn in at the entrance was far greater than anyone had supposed. We then began placing the little wooden strips between the top bars of the frames on nearly all of our hives to prevent the escape of the heat." He then adds; "The above plan has been a great success, resulting in the loss of fewer bees, and a consumption of far less stores than any plan of upward ventilation we have tried.

Now, I have been wintering in cellar, generally successfully till last winter when I lost nearly all. And this winter out of twenty-four stocks, I concluded to leave seven on their summer stands. For this purpose I had made seven hives with an outer and inner wall four inches apart, and some six or eight inches space between top of frames and lid. Chaff was packed between the walls and in the upper space, before your advice reached me. I placed three sticks, about an inch square on the frames, next to this a porous cloth, next an oil cloth, next a cushion of leaves, then three thicknesses of paper, and over all went, of course, the board roof, fitting closely. The entrance to the hive is six inches by one-half, which was to be left open, protected by a board in the shape of a "lean-to."

In this my object, as may easily be perceived, was to prevent the heat from the bees going up, and the cold outside gaining admission.

In laying my plans thus I knew I had on my side the bee instinct, as ever on the approach of cold will they close all apertures, except the entrance. Then I had placed over them for some time oil cloth, and I was unable to observe any moisture about them. Hence I thought if bees remain dry, with no upward ventilation during a moist October and part of November they will do so throughout winter.

Besides this, I had occasion to visit the Ottawa Valley in the beginning of the present civil year, and during my stay there called on a man who keeps bees in a very primitive way. His method of wintering was to remove the bottom board, and suspend the hives to the ceiling of a room built of stone at the end of his dwelling. Here, certainly was no upward ventilation as the top of hive was of wood, an inch thick, nailed down tight, and covered inside with wax and propolis. I asked the owner as to his success in wintering, and his reply was "I seldom lose any" and this spring after the extreme cold especially in the Ottawa Valley, I was informed they came through safely.

Still I feel that your statement in advocacy of top ventilation is not to be lightly treated as it doubtless is based on a large experience. But "when doctors differ" what is a poorbody to do?

J. R. BLACK.

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We do not recommend a strong current of air through the hive but that the absorbents or porous coverings be so arranged as to allow the moisture to escape and yet retain the heat as much as possible and have no visible current to affect the bees. In hives without this ventilation we have known such a condensation of moisture to occur that the distillation ran down the sides of the hives freezing at the bottoms and blocking the entrances. Have also seen hives split open from top to bottom allowing the moisture to escape through the openings, such hives wintered splendidly. The moisture in the hive must be got rid of in order to make wintering successful. In those hives which were suspended from the ceiling the moisture would condense and settle down and escape from the underside of the hive, especially if there was warmth enough generated in the hive to cause a downward escape and that would naturally carry the moisture with it. If the bees have no more combs than they can cover when tightly clustered, the space in the hive will be so contracted by the division board that the heat will escape through the entrance and this will prevent the condensation of moisture among the combs. We do not say that *it is not possible* for the bees to winter without upward ventilation in fact we have known bees to winter well in so many different ways that we might take almost any plan and prove it a success but from our own experience and from all the information we can gather we are fully convinced that what we advocate is best. It is not possible to be at all times successful with any particular method; sometimes when we think things are just right the result is not as we expect and we are at a loss to know wherein our method has proved a failure. Probably the best method to adopt is that one which each finds the most successful after a long course of experiments.