brood which indicated that the queen had kept right on laying in her warm cosy nest regardless of what the thermometer was doing outside. On the twelfth of April the weather became warm and fine, and on the 14th the bees began to bring in pollen very freely. At that date all of my colonies that were alive were in good condition, and the next ten days were all that could be desired at that time of the year. On the 22nd I found that nearly every hive was packed so full of new honey from willow, soft maple, etc., that there was scarcely an empty cell to be found wherein the queen could lay an egg, and they had from eight to 12 combs each, according to strength of colony, yet, notwithstanding the warm favorable weather, some of my colonies which had no pollen in the hive wherewith to raise young bees in winter, dwindled down badly during that ten days of summer like weather; in their eagerness to gather in the rich harvest of nectar which nature supplied, they wore their life away and died with old age pure and simple. Those colonies which had plenty of pollen and bred up young bees in winter, were much better prepared to stand the strain of such labor, and are the best and strongest to-day. If other conditions are right, I, for one, much prefer that my bees should have pollen with their winter stores.

JOSHUA BULL.

Seymour, Wis., June, 1886.

FOR THE CANADIAN BEE JOURNAL.

## A BEE HIVE TEMPERER.

ON page 207, you make some suggestions about a "Bee hive temperer", and as I experimented quite extensively in that direction some ten or twelve years ago, it may be well for me to tell what I did, even at this late day.

Those of us who were readers of the bee papers during the years 1870 to 75 remember how much was said in them about the necessity of our bees, having winter flights to prevent getting diseased. A. Mr. Bidwell of Michigan, made some experiments with keeping bees in a glass covered house. The rays of the sun passing through the glass roof, so raised the temperature inside the house, that the bees could enjoy frequent flights during the winter. This plan failed of success on account of the large numbers of bees that did not return to their hives when the temperature became too low for them to fly.

About the same time Mr. Bidwell was making these experiments with flying bees under glass, some other person whose name I forget, wrote about having given his bees a flight in the winter by taking a few colonies at a time from the cellar into one of the rooms of his house that was heated to a temperature of 70° to 75°, instead of allowing the bees to range all over the room, he confined them to a glass covered box on top of the hives, the hive covers and honey boards being first removed. This was claimed to be successful, but so far as I know has never been practised by any one except the originator.

About the time these experiments were being discussed in the journals, were my days of disaster and trouble in the matter of wintering bees, and I was on a keen look out for some plan to avert future troubles of this kind. The idea suggested itself to me of combining the two plans mentioned, and I did so. Instead of allowing the bees from several colonies to fly inside of a large glass-covered room as Mr. Bidwell did, I confined them to a glass-covered box on top of the hive, the inside of the box being warmed by the rays of the sun instead of by a fire in a room as did the other person. I found on experiment that the glass would have to be sloped towards the sun, and be much larger than the top of the hive. To arrange this, an outer box some 5 or 6 inches larger all around than the hive, was made out of rough lumber, and the spaces between this and the sides of the hive were filled with chaff, which happened to be the material the easiest obtained; the object of using the chaff being to keep the bees from falling down outside the hive but compelling them to return to the open top of hive. Over this box was fitted a window sash, so as to leave a space of about six inches between top of frames and the glass. Over the frames was commonly kept a coffee sack filled with chaff, but whenever we would have a temperate sunshiny day, I would remove the sack and allow the bees to fly, which they would do quite freely. Tests with the thermometer showed that the sun's rays through the glass raised the temperature inside of the box from 40° to 50° higher than would be the temperature of the outside air.

The result of this experiment pleased me very much and I used it quite largely for the three or four following winters, but finally abandoned the use of the glass on account of the extra expense and labor required to use it, and the fact that the use of chaff seemed to be the really valuable part of the whole thing. Now, it may be possible to just temper the temperature in the hive by the use of glass to allow the bees to move round &c., as you suggest, but the practical difficulty will be to keep the amount of temperature so obtained under control. It will be of no value unless raised high enough to accomplish the objects aimed at, and a very few degrees higher than necessary, will start bees