

would condense as it struck the surface of the packing, in long continued weather the moisture would accumulate, claiming that practically no hermetically sealed covers can be found.

Mr. Gemmell thought in his case it would not be advisable to have too much packing and the packing should be of saw-dust and the outside cover pressing tightly on the packing and the outside cases painted a dark color in order to absorb the sun's rays.

He claimed the solar heat in conjunction with heat of the bees themselves would tend to dispel any moisture in the hive. This same could be made use of for building bees up in the spring, to paint single walled hives in this way would be all right in the spring but they would require to be shaded in the summer, he had heard of several cases when the combs melted down the cause being that the dark hive absorbed the sun's rays too much.

Mr. Hall mentioned that when unpacking his hives this week with the ice three-eighths of an inch thick the hives and surrounding leaves were very warm, he did not want his bees very warm in the winter and thought injury might be done in that way, they would breed too early.

### Queen-Rearing.

#### THE RESULT OF THREE YEARS' EXPERIMENTAL WORK.

The preceding portions of this article may be said to contain a brief *resume* of such experience as has been acquired in carrying out a course of experiments (not a few still incomplete) having for their object the gathering up of all that is good in many methods of queen-raising and adding thereto such improvements or alterations of my own as have, in practice seemed to me desirable. The results have been given to readers of the B. J. in fulfilment of a promise, and although I fear that too much of your valuable space has been occupied in the endeavor to place my experiences on paper, I am not without hope that—when my experiments are further advanced—I may be allowed to resume the interesting subject. In a word, I shall go on trying to make my practice as perfect as may be, and "tell it out" to readers, if your pages are, as in the past, open to me.

There are, however, one or two matters upon which readers who are so inclined might bring their minds to bear, and publish the result of their observations for the

general good. I enumerate them as follows:

1. Why are queens bred late in the season a different color to those bred during the natural swarming time?

2. Why is it that there are two sorts of drones in a hive at one time (different in shape)?

3. From whence really comes the little black, shiny bees which are found in all hives at certain seasons of the year?

4. What is the—no doubt—far-seeing purpose which causes the change in the appearance of the worker-bees the winter approaches?

I mention these particular points—not yet satisfactorily cleared up—from a long list now before me which go to prove that the mystery of the bee-hive is still unsolved, and that there is a wide field in research for inquiring minds. I have certain data on all these queries, and have also some not quite definite theories as to the relation of queens and drones, but as yet no actual facts to warrant a positive assertion. We think lightly of the "cumbrous, lazy drone," but the full part he takes in the economy of the hive is not yet ascertained, and, to my mind, until this is known, and the drone is made an equal object of study with our queens, we cannot expect to attain the highest results in our craft.

I well remember on one occasion making up a small nucleus in which a queen-cell was affixed, and in this nucleus there was not a single drone; but about the eighth day after the queen had hatched I counted over 200 drones enter that hive, the noise and excitement at the entrance being something to remember.

I must not omit mention of another series of experiments made for the purpose of settling in my own mind the question as to what were the best bees for all purposes. I took the common native Black or German bees, Carniolans, Italians, and Cyprians. These last may be at once dismissed from consideration, as I found them vicious, delicate, bad winterers—in fact, possessing hardly a virtue to recommend them save perhaps, the beauty which is but skin deep. The Carniolan I found the best tempered bee of the lot, and those who desire increase or swarms it is no doubt the best of all bees, but for honey-getting, combined with good all-round qualities, I consider them far behind either Ligurians or Blacks. Both the latter-named bees seem to me to possess qualities which if combined, would produce a first-rate all-round bee. If the desire to swarm could be eliminated, the Italians, according to my experience, possess most virtues. I find them industrious