

influences. How many of us have not noticed that on a cool day, or when a damp raw wind is blowing, and especially when honey is scarce that bees are very irritable. In a warm locality, however, where the atmosphere is all that could be desired, even though there be no honey coming in, bees are not irritable. The difference in the temperament of the bees, without doubt, is due principally to the difference in the atmosphere. There is little doubt if the bees we now have were selected and bred very carefully they would give us as good results as any that we are likely to find in foreign lands, unless perchance some new race is discovered which possess superior qualities. If all the money and effort that have been put forth to secure foreign races had been judiciously expended in improving the bees we have, we have no doubt that the results would be more satisfactory. If we have climate, food and surroundings that are desirable, we can improve our bees every year by careful selection. Careful and systematic selection has given us the finest grades of stock which we now have.

For THE CANADIAN BEE JOURNAL.

Sterilizing Wax.

I AM pleased to see the candour with which Mr. Jones discusses the subject of my paper in the last issue of the C. B. J. It is evident that he is not disposed to contend unreasonably for the interests of the supply business, if they are found to be opposed to the interests of bee-keepers.

In the Norwegian cooking apparatus, it will be remembered the food is boiled for five or ten minutes, and then the saucepans are placed in a box lined with felt, which retains a great part of the heat. At the expiration of nine or ten hours the food is found to be thoroughly cooked.

In this apparatus the principle is the same as I have suggested for "cooking" the spores in wax, viz: that a long exposure to a lower temperature produces the same effect as an exposure to a higher temperature for a shorter time. Whether this is the only way or the best one I do not know, but I trust those who use foundation will not allow the matter to rest till the manufacturers adopt some infallible method for sterilizing their wax.

Mr. Jones admits that he would not care to

risk wax melted at a lower temperature than 212 °, because it might not be free from fertile spores. Did he ever test the temperature reached when rendering combs in the Jones wax extractor? I have found that a thermometer kept in the soft melting combs in the basket only went up to 175 °, and that when the bulb of another instrument was held in the stream of melting wax running from the spout, it varied from 180 ° to 200 °.

Mr. Jones says that in melting the wax by steam, preparatory to sheeting, it can be heated to a point which will kill the foul brood spores. It may be so, but did Mr. Jones ever test the temperature of a tank of wax just liquified by steam? When the only object is to melt it, I doubt very much if the heat of the liquid mass is ever higher than 180 ° or 190 °.

Mr. Jones says that in his somewhat extensive experience, he has never had a case in which foul brood returned after the germs had been submitted to the temperature of boiling wax, or of boiling honey. I wanted to get the temperature of boiling wax lately, and as I had no suitable thermometer, I got a friend who has one that registers up to 360 ° to attempt to make the test. He heated the wax until the mercury went up to the top of the scale, and yet there was no sign of boiling, but there was smoke and when cooled the wax was very much darkened. Will Mr. Jones please give us the temperature at which wax boils? I agree with him that it would be certain to kill the germs of foul brood.

As to 235 °, the temperature of boiling honey, being sufficient to kill the germs, the results reached in the bee-yards are not quite uniform. In a report of the N. E. Convention, page 54, A. B. J., 1881, a Mr. Rians is reported as saying that he fed out foul-broody honey which he had boiled till it nearly boiled over; in consequence he had ten or a dozen stocks affected with foul brood instead of two.

But Mr. Jones goes farther, and says that the temperature of boiling water will kill the germs. He believes so because he never had the disease return after feeding honey which had been subjected to this degree of heat. Again the experience is not uniform. Dr. Dziertzon tells us in his "Rational Bee-Keeping," that after boiling a hive the disease reappeared, and he attributes it to the fact that the germs were not killed by the temperature of boiling water.

If a very careful experimenter was set to work to sterilize honey by heat, his first step would be to satisfy himself that it actually contained spores. Mr. Jones is so certain that the disease lurks in the honey of infected hives, he