

cooking is done by slow digestion, no more heat being added.

"The heated vessels containing the food will retain a high temperature for several hours, so that a dinner put into the apparatus at 8 in the morning, would be quite hot and ready by 5 in the afternoon, and would keep hot up to 10 or 12 at night, because the felt clothing so completely prevents the escape of the heat; as the whole is enclosed in a box, there are no currents of air to carry off any other heat by convection.

"The principle on which this cooking apparatus acts, is that of retaining the heat; and it consists of a heat-retainer or isolating apparatus shaped something like a refrigerator, and one or more sauce pans to fit into it."

In selecting the materials for hives, with a view to the greatest warmth, it should be remembered, that air conducts nearly twice as much heat as cork, the ratio being as 49 to 29. Carded wool and wool-felt conduct about four times as much as cork. Blotting paper conducts about as much as wool. Sawdust conducts about seven times as much as cork. Wood generally conducts seventeen times as much heat as cork, "more than four times as much as wool, and more than ten times as much as air."

Cheshire says, "If a hive side of $\frac{3}{4}$ inch zinc have its protective power represented by 1, that of a double side with dead (?) air space would equal 4, while the same wooden sides packed tightly with chaff would equal 10." "Further experiments proved that the cork dust in lieu of the chaff packing, gave a non-conductivity to be represented by 14."

My own experiments have satisfied me that straw is a much better heat retaining material than wood. Each straw has a dead-air chamber between the joints, and when the straws are pressed together, the air lying between them is comparatively "dead."

I made some experiments last winter with an old-style Jones hive made of straw, and a single walled eight-framed Langstroth hive. I found that the same quantity of hot water cooled much more quickly in the Langstroth. For covering hives on top there is nothing available as good as quilts filled with sheep's wool. There is a kind of batting used by upholsterers which I think would answer nearly as well. It is made of old woolen rags, and costs, at wholesale, less than half the price of wool.

Cork dust at wholesale costs about five or six cents per pound. A cubic foot well packed weighs about eight pounds. About three pounds will be required to give an $\frac{1}{4}$ inch of filling for the walls of ordinary hives. I use picture-backing and three thicknesses of carpet felt-paper for the inner skin of my hives, and $\frac{1}{2}$ inch pine for the outer skin. Hives with walls thus filled will measure about 2 $\frac{1}{2}$ inches larger each way. They will weigh about five or six pounds more, and will cost about as much more as single-walled hives of the same capacity.

The question which every bee-keeper will ask before incurring the extra expense is, will it pay to use these double-walled hives? I think it will be admitted that their advantages for early spring brood-rearing are as great as for wintering, but leaving the former out of the question, if, during the time one of these hives lasts, it should be the means of saving in good condition a colony of bees, which in a single walled hive

would have died, it will pay to use hives with packed walls.

S. CORNELL.

The discussion on this paper will be given in our next issue, also the balance of the convention report.

ONTARIO BEEKEEPERS ASSOCIATION

A MEETING of the members of the O.B.K.A. was convened on the evening of Thursday Dec. 5th after the evening session of the I. A. B. A. at which meeting it was resolved that the O.B.K.A. affiliate with the International American Bee-Keeper's Association.

DIRECTORS MEETING.

On the following morning at 9 a. m. a meeting of the directors was held at the Kirby house for the purpose of formulating a program for the coming annual meeting. The secretary was instructed to ask for papers from Prof. Fletcher, of the Dominion Experimental Farm at Ottawa, Allan Pringle, S. Cornell, F.A. Gemmill and F.H. Macpherson.

It was decided to write Prof. Wm. Saunders, the superintendent of the Dominion Experimental Farms to be present and deliver an address.

A resolution was passed instructing the president to obtain from the author his lowest price for a supply of Doolittle's book on queen rearing to be given to the members of the O.B.K.A. for the coming year with instructions to report at the annual meeting. A resolution was passed fixing the individual fee for auditing the books of the association at \$2.

On motion a meeting of directors was fixed for the evening of the day previous to the first session of the meeting at Belleville to close the accounts for the year.

Bee-keepers' Letters.

MANY bee-keepers and tradespeople are careless about their correspondence. Careless, we mean, as to its form and materials. We wish to call attention to the slipshod and go-as-you-please style of their paper and envelopes. The morning mail of any supply dealer or manufacturer always brings a great variety of communications: Important orders finely written on postal cards, with