

them made up in time to use early in the season, but I think possibly they would be of greater advantage earlier in the season. It is a good super. We use a perforated follower and all these features that make it a first-class hive, but I think it is rather too much manipulation for a good swarm. I would rather have a good sized super, but, for putting on early in the season possibly those supers would be just as well.

Mr. Newton—As regards the rim, I am not quite so fortunate as Mr. Hall, to have a lot of rims lying around, and I have worked for the last two seasons without them. I sometimes work them till they come even and sometimes I use the large ones, which he says he does not want. I have some of them and, of course, I am trying to keep down expenses. If they are only one height, I sometimes put another one under the end of it, to level it up and then put on the cap. I have got on the last two seasons without any rims, and I think it can be worked without the aid of them. Mr. Hall is fortunate in having them. I wish I had them.

Mr. Gemmell—I got the idea from Mr. Hall as to those hives. My boy is getting the idea into his head that he is a better bee-keeper than I am. And he says get the small supers out of the way and get the Hedden hive out of the way so that I can get the queens clipped quicker.

Convention adjourned to 8 o'clock p. m.

### FIRST DAY, EVENING SESSION.

The President, Mr. Darling, called the Convention to order at 8 o'clock p. m.

The Secretary read a number of communications.

Mr. F. A. Gemmell moved, seconded by Mr. J. Newton, that the communications as read, be received and placed on file. Carried.

After some discussion on the question of changing the date on which the annual meeting should be held, Mr. R. F. Holtermann gave notice of motion to amend the by-law, changing the date at which the report of affiliated societies should be sent in, to the 15th of November, instead of, as at present, the 1st of December.

Address by Prof. Shutt, of the Experimental Farm, Ottawa, on the subject of "Foundations."

Mr. President and Gentlemen:—

It affords me the greatest pleasure to be with you. I assure you it was with much diffidence that I accepted the invitation of your president to address

this convention; not for want of sympathy or for lack of interest, but, as I acknowledged this afternoon, from my ignorance of any practical knowledge of your work. I have had no experience in practical bee-keeping. Nevertheless, I am not too old yet to learn, and by virtue of my office as chemist at the Experimental Farm, I am naturally interested in every branch of agriculture, and you will all admit that bee-keeping is one of not the least important branches of that industry. I am very pleased to devote my energies, as far as time permits me, to the solution of problems in all branches of agriculture that require chemistry for their solution. We have in the past done some work for those who are following the industry of bee-keeping in Canada, and it is with regard to those experiments, and the results obtained therefrom, that I purpose addressing you briefly this evening.

These investigations were carried on at the Experimental Farm, in connection with our practical bee-keeping during the years 1894, 1895 and 1896. This year has been such an exceptionally poor year for the honey flow that it was impossible to continue the investigations. I may say at the outset that these experiments were suggested by Mr. Holtermann, and, briefly, the object of those investigations was to ascertain the relative values of certain brands of foundation comb that were in the market.

Before I relate to you how I conducted those experiments, and the results obtained, I think it might be well for me just to say a word or two by way of preface as to what wax is, and, secondly, what we aimed at in this work; that is to say, we want to try and arrive at the objects that we had in view in furnishing bees with foundation comb.

Now, first of all, wax, looking at it from a chemical standpoint, is very closely allied to the fats. There are a large number of substances which fall into certain well-known classes; there are waxes, fats, sugars and other things. The chemist, for instance, knows of a great many kinds of sugar; he knows of a great many kinds of fats and these are all more or less related. Without going into any of the technical details with regard to the composition of wax, I wish to say, that although it is not a real fat, yet it is, as it were, a first cousin to it. It consists of carbon, hydrogen and oxygen in certain proportions, and the important point I would like to impress upon you, just here, is, that it does not contain nitrogen; in that regard it is similar to honey. Honey