

would be a sample of honey fourteen or fifteen years old, and it seemed to be just as good, as far as I could judge, as any fresh honey I have examined. But with regard to these immature honeys I found with the temperature of the laboratory anywhere between 65 and 70 degrees that in the course of a few months these honeys began to ferment. Undoubtedly the unripe honey has very poor keeping qualities. This of course, points to the danger of putting such a honey upon the market, and also to the danger of mixing it with ripe honey. The honey season of 1902 was somewhat different, as you are aware, from the season of 1901. The work consequently was duplicated.

I now refer to the figures which we placed upon this second chart. There is only this difference, that we have not got the samples kept in the cellar. Half the samples were kept in the laboratory and honey room, and they are from capped, partially capped and uncapped combs, as in the year 1901. However, I should say this word about cellars. There are cellars and cellars, and with regard to this one in which Mr. Fixter keeps the honey, it is apparently dry, (and dryness is a great factor) or has air almost as dry as that of the honey room. These results no doubt would have been very different if the cellar had been damp, in which the air was moist. That will be very apparent to you when I call your attention to some figures upon this third chart upon the wall. But you must not think, from the results which are placed upon the first chart, that you can keep honey recovered in a damp cellar as well as you could keep it in a dry atmosphere. That inference must not be drawn from this chart.

In considering capped comb, this honey was extracted, you notice, about the first of August, and it was analyzed

the first week in November—that is to say three months later. The percentage of water again in 1902 was between fifteen and sixteen per cent. You see how very similar it was to the honey we had in 1901. That bears out my conjecture that the percentage of water in normal ripe honey is somewhere between fifteen and sixteen per cent. The cheese-cloth covered bottles, you notice, contain slightly more moisture, 17 per cent. in one case and 16½ in the other case; one kept in the laboratory, the other in the honey room. What does that mean? It means that the honey attracted moisture from the atmosphere. With regard to the partially capped and the uncapped comb honey, we do not notice that difference observably last year. In 1901 there was something like four per cent. but this year apparently the partially capped comb honey was of a very similar character. The only inference I can draw is that it is likely to vary according to the season. The results in experiments in storage of honey furnishes an explanation for that; it will depend upon the moisture in the atmosphere at the time.

The uncapped comb certainly shows a somewhat higher moisture content; it runs from 16.18 to 17.6 per cent., so that the average per cent. of water in the uncapped comb honey would be between 16 and 17 per cent. There is no doubt as to the better keeping qualities of ripe honey, and the fact that this immature honey will, if it is exposed to anything like a warm temperature, rapidly ferment.

MR. LOTT: Relative to the honey produced in 1901, how do you account for the greater percentage of water in partially capped honey and uncapped?

PROF. SHUTT: Practically it has been due to the character of the season. I have brought the 1902 samples here, and they are numbered so that you