

loss. We estimate the water by the loss in drying and if part of that loss is due to the decomposition of levulose we get too much moisture.

The longer the honey tube is in the drying oven the greater the loss—and the higher the percentage of water—apparently. If there were no decomposition we should be able to dry to a constant weight but this we find impossible. This in my opinion furnishes the explanation of the results as they appear in this bulletin of the Inland Revenue. Some analysts have dried for 24 or 48 hours and some have been attempting by still longer drying to get a constant weight. If there were no decomposition a constant weight should be obtainable. But the fact of the matter is that our experiments show you can go on drying these tubes for several days and still they lose weight. Day by day we weighed those tubes and put them back in the water oven and there was always a loss. From the first weighings we calculated the percentage of water and got numbers in the neighborhood of 14, 15, 16, after twelve hours more we obtained to 18 and then another 12 hours gave us 20 and 25 per cent., and then continuing the percentages of loss went up to 28, 30 and 32. Evidently there was no stopping place and what we were calculating as water was really in large part due to the decomposition of the honey.

Now in order to corroborate what I have said in regard to this question I will give you very briefly some of the results of the various analysts as appear in this bulletin:—The analyst for Halifax examined 24 samples of honey and he returns everyone of those honeys as genuine. His percentages of water are in the neighborhood of 17 per cent. An average of them all I find gives approximately, 18 per cent. of water. Why are his

results so concordant amongst themselves? Because he dried these honeys into the same bath for the same length of time he consequently gets results which are very concordant, so that according to this analyst we might expect to find about 18 per cent. of water in genuine honey.

Now I turn to the analyst's results for St. John, N. B. I find he has examined 21 samples and he obtains somewhat lower percentages. His results are generally from 14 to 18 per cent. of water and an average of them all gives approximately 15 per cent. of water in the genuine honeys. But there are still greater differences to come. Let us turn to the results of the analyst for Quebec and we shall find a different set of figures. He obtained data showing percentages of water from 21 to 33, and giving an average that is about 27 per cent.

Mr. Gemmell: Are they all treated the same length of time in the water?

Prof. Shutt: That is just it. They are not. The various analysts evidently dry the honey varying lengths of time. The method employed gives results according to the length of time the tube is in the drying bath and further we cannot say what is the correct time of drying. I am of the opinion that decomposition begins before all the water has been driven off. We have here a number of analysts at work and 180 samples here examined; they obtained results varying from 15 per cent. to 30 per cent. of water in what is termed genuine samples. Is this really the case? My contention is that this is purely a question of analytical method borne out by the fact that each analyst's results are closely concordant among themselves, and these differences only appear between the work of the different analysts. I will just give you the average amount as found by one or two of the other