

"Good afternoon. If you see anyone of your bee-keeping friends who wishes a mutilated comb fixed so that it will be a surprise to him, tell him to give it to a little colony fixed the way I have described it to you, and let him watch what nice work they can do at patching with all-worker comb."—Conversations with Doolittle in Gleanings.

Chemical Work in Connection with Bee-keeping 1903.

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Our experiments towards ascertaining the conditions under which it is best to store honey were begun in the season of 1902, and I was able to present to this association at the last annual convention certain results that showed most emphatically that extracted honey should not be kept in a moist, cold atmosphere. The data we obtained and my remarks thereon are to be found in the last report (1902) of this association, but in order to refresh your memories I shall ask you to note the following table, in which I again bring before you the more important of these results. They indicate that honey is exceedingly hygroscopic; that is, that it is capable of absorbing large quantities of water if exposed to a moist atmosphere. We further found this absorption of moisture was merely the first step towards fermentation and the spoiling of the honey.

Experiments on the Storage of Honey, 1902.

	Water Per cent.
Ripe honey, from capped comb	15.83
Ripe honey, exposed to dry atmosphere one month . . .	14.24
Ripe honey, exposed to moist atmosphere one month . . .	31.46
Ripe honey, exposed to dry atmosphere 20 days	13.84
Ripe honey, exposed to moist atmosphere 20 days	48.23

a—Honey placed in glass cylinder.

b—Honey placed in open evaporating dish.

We have repeated this experiment during the past season with extracted honey, with similar results, and also have had under trial honey in the comb. This latter is also shown to deteriorate rapidly in a moist atmosphere. The plan of the experiment was as follows:

Extracted Honey.—This was weighed into flat-bottomed, open dishes and exposed for three weeks (1) to the air of the laboratory, (2) in an atmosphere saturated with moisture under a bell jar in the laboratory, (3) in the air in a pantry of a house on the Experimental Farm, and (4) to the air in the cellar of the same house—this cellar being fairly dry and ventilated. The temperature in 1, 2 and 3 varied from 60 degrees F. to 70 degrees F. and in 4 from 50 degrees F. to 60 degrees F. during the period of storage October 12th to November 12th. The extracted honey exposed in the saturated atmosphere showed, in the course of a few days, marked signs of deterioration in quality, becoming thin and watery and beginning to ferment. At the end of the three weeks period of the experiment it was quite unsaleable, and, indeed, unfit for use as an article of diet. That which had been kept in the ordinary atmosphere (both in laboratory and the pantry) had not perceptibly altered in appearance or taste, and was in excellent condition. The cellar-stored sample had at the end of the three weeks begun to ferment.

Comb Honey.—While not suffering to the same degree as the extracted honey, that in the comb deteriorated considerably when placed in the cellar, and still more so in the saturated atmosphere artificially provided in the laboratory. The latter, before the close of the three weeks' period, showed