

## NOTES.

*The Occurrence of Benzoic Acid Naturally in Cranberries.*—The chemists of the various State Dairy and Food Commissions have upon numerous occasions, published reports of preservatives found in certain food products which the manufacturer has denied placing in them. This fact has been brought before the writer upon several occasions, especially in regard to cranberry sauce, which it has been found does not require the use of a preservative in any instance. In all reports at the writer's command where a cranberry sauce has been examined, benzoic acid has been reported as having been used as a preservative. Knowing of Oscar Loew's report<sup>1</sup> on the occurrence of a small amount of benzoic acid naturally in cranberries, and supported by the strong denial of the preservative's addition by the manufacturer, the writer thought that benzoic acid might have occurred in larger quantities than supposed in this fruit.

With this end in view, samples of cranberries were purchased in the open markets of Allegheny and Pittsburg, Pa., and tested for benzoates. All of these contained benzoic acid in comparatively large amounts. The crystals produced on sublimation were sufficient evidence for any chemist to pronounce the samples preserved by the addition of benzoic acid. In order to be sure of the purity of the samples to be tested in verification of the above results several cranberry growers from different sections of the Northeast were written to, asking for samples of the berries and vines from the time the blossom appeared until the berries were fully ripe. Samples were received from growers in New Jersey, Massachusetts and Wisconsin. The first berries received were very small and green, but contained a faint trace of benzoic acid. The larger and older the berries became, the more benzoic acid was found to be present until a maximum was reached, when the berries became overripe and a very dark red. This shows that the acid forms during the process of ripening of the berry and increases up to full ripeness. The largest amount found was approximated at 1 part of the acid to 2,000 parts of the cranberries. This was determined by comparison with that produced from fruits containing a known added amount of benzoic acid. This amount is

<sup>1</sup>*J. prakt. Chem.* [2], 19, 312.

equal to that used in the preservation of most perishable foods, and in some cases is even larger than the amount necessary to preserve. The vines were tested at intervals during the cranberry season, but not even a trace of benzoic acid could be found.

The writer called the attention of Dr. W. D. Bigelow, of the United States Department of Agriculture, to the exceptionally large amount of benzoic acid naturally in cranberries, who immediately began a thorough investigation of this matter. We worked entirely independently of each other all summer and fall, and as far as I have been able to ascertain, our results have agreed in nearly every detail.

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*Determination of Nitrites in Waters.*—Apropos of R. S. Weston's interesting notes upon this topic<sup>1</sup> it may be worth while to call attention to the fact that the "nitrite" error, due to the presence of burning Bunsen lamps, is often much greater than is suspected. In the water laboratory here the chemically pure distilled water is prepared by the use of a large copper retort heated by a very broad Bunsen burner. Only one other lighted burner is constantly in the room and that a small one. Distilled water, as delivered by the tin worm, was tested with the following results, duplicates being run in each instance. One Nessler tube was exposed to the room atmosphere, after addition of the "nitrite" reagents, and the other carefully protected therefrom. The results are stated as parts per million.

Conditions under which distilled water was collected.	Nitrites present in protected tube.	Nitrites present in unprotected tube.
Not allowed to come in contact with air of laboratory.....	none	0.0015
Slight contact with air. Tin condensing tube entering neck of receiving bottle.....	0.002	0.003
Water allowed to drop six inches through open air to receiving casserole. ....	0.007	0.008

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*Pipette Weighing-bottle.*—Among chemists who are called upon to analyze milk the need of a combination pipette and weighing-

<sup>1</sup> This Journal, 27, 281.