

To the eye of the scientist, however, they mark the trail of helium atoms ionizing the gas as they pass along. The ions of the gas form nuclei for the condensation of the vapor which has been brought to the right conditions by pressing the bulb and as the vapor condenses the droplets quickly become visible.

"This trail might be called a wreckage of atoms which are left in the wake of the speeding alpha-ray," Prof. Knipp says. "It is quite similar, on a miniature scale, to the path left by a tornado as it travels across the country."

One of the most important features of the apparatus is the inclosure of the radium salts in the glass tube, through a thin window of which the rays emanate. By this process of construction the inventor has avoided any contamination of the field into which the rays are projected and consequently has produced rays coming from one point only. Heretofore it has been impossible to obtain this effect.

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#### TWO HOUR OLD LEMONADE SWEETER THAN FRESH DRINK

Lemonade at bed-time is not the same thing it was at supper-time when sister made it. It is sweeter. Its chemical composition is actually different, according to Miss Edna M. Koster, experimenter in the bio-chemical laboratory of Dr. Max S. Dunn of the University of California, Los Angeles.

Patrons of soft-drink counters have noticed that fresh lemonade, made directly on short order from the fruit and cane-sugar, is sharper and sourer than the "ripened" variety which has been stored for a few hours before use. In their care to issue only a fresh sanitary beverage the dispensers are thus fostering excessive sugar consumption, already a national evil.

Experiments by Miss Koster with a polariscope and other instruments indicate that within an hour and a half practically all the cane sugar in lemonade disappears, and in its place there comes a much sweeter mixture of the two simpler sugars glucose and levulose. It is probable that this action is the cause of the greater sweetness of the older beverage. The levulose is the principal sweetener, but recent experiments in another laboratory indicate that glucose, long rated at a low value, is not far behind cane sugar in actual power to sweeten a complete food product. The mixture of the two sugars is accordingly much ahead of the common sugar of trade.

This process of sugar transformation, well known to syrup manufacturers under the name of "inversion", is virtually the same as the process of digestion in the stomach. In the case of lemonade the high content of citric acid takes the place of the hydrochloric acid which engineers the digestive process.

Obviously the sweetening of lemonade by more lapse of time is entirely harmless. In fact the resulting beverage, being partially digested, is even more readily assimilated than fresh sugar. Furthermore, the citric acid, itself very beneficial, does not seem to suffer in the process which it promotes. No yeast or other outside organism is needed, and the process bears no direct relation to fermentation or alcohol production.

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