

emit a loud, audible note, whose pitch could be studied against the background of another note maintained at a standard pitch. The pitch of the telephone note was tuned to this pitch. Let the distance between the plates in the first circuit change. A change in the pitch of the note coming from the telephone follows, and in consequence there is a difference in the number of beats heard in a second. A careful study showed that in practice altering the interval between the plates by one two-hundred-millionth part of an inch caused a perceptible change in the number of beats per second. The two notes were brought back into unison by moving the pointer in a variable condenser in the second circuit. When the distance between the plates in the first circuit was made to change by a relatively large distance, such as one one-hundred-thousandth of an inch, it was found that shifting the condenser pointer one-tenth of a degree compensated for separating the plates about three ten-millionths of an inch.

The method is so sensitive that the placing of a British penny on a stout bench supporting the apparatus caused a perceptible audible change, because it bent the bench, tilted the supports and changed the distance from one condenser plate to the other. In view of the fact that the wave-length of the shortest waves of visible light is about one sixty-thousandth of an inch it is seen that this new method of linear measurement can determine distances very much smaller than the wave-length of light; indeed, it is applicable to lengths as small as the diameter of an atom.

G. F. S.

**New Foods at a Banquet.**—The farewell banquet on February 16th tendered to Secretary Meredith by the scientific workers of the Department of Agriculture, was marked by inclusion in the menu of several articles of food that have been made available by the labors of the department. Two of these articles were materials, for the preparation of which patents have been issued to their devisors, but laid open to public use. These are the "perfect bread," the result of studies by Dr. Carl O. Johns and A. J. Fink, being the first food product furnishing a completely balanced ration, and candies made from sweet-potato sirup. The formula for the latter item has been patented by Doctor Gore. Other items of the menu were American roquefort cheese, saratoga chips made from the newly introduced vegetable, dasheen, a new soy-bean sauce developed by Doctor Church and new varieties of grapes, imported under the direction of Doctor Husmann.

H. L.

**Cellulose Acetate and Artificial Silk.** (*The Chemical Age*).—Cellulose acetate, from which dope for aeroplanes and airships is made, has proved itself to be of the utmost value in the aircraft industry, and the conception of laying down and completing the