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## Physical Properties of Some Vegetables

Earl C. McCracken  
*Iowa State College*

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## THE FLUORESCENCE OF COD LIVER OIL

C. A. MOREHOUSE

The fluorescence was produced by the radiation from a Cooper Hewitt quartz mercury vapor lamp. A Corex "A" blue purple filter was used to filter out that part of the spectrum of the exciting light in which the fluorescence appeared. The filtered light, which was almost entirely ultraviolet, was focussed directly onto the surface of the cod liver oil by means of a quartz lens.

The fluorescence spectrum was determined by means of a constant deviation glass prism spectrograph. A bright band was obtained for the cod liver oil in the region extending from 546  $\mu$  to 436  $\mu$ . With a 1% solution of the cod liver oil in alcohol, the same band was found but it was much fainter.

A solution of cholesterol in alcohol also gave a fluorescence band in this same region, i.e., 546  $\mu$  to 436  $\mu$ . This cholesterol had been previously tested by the Chemistry Department and shown to be capable of being activated by ultraviolet light.

IOWA STATE COLLEGE,  
AMES, IOWA.

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MAGNETIC PROPERTIES OF THIN COBALT FILMS,  
ELECTROLYTICALLY DEPOSITED

E. P. T. TYNDALL and W. W. WERTZBAUGHER

Initial magnetization curves and hysteresis loops of cobalt films from 40 to 100 millimicrons thick show the same general characteristics as iron films of the same range of thickness. The specific properties, however, are largely dependent on the acidity of the electrolyte. The linear relation between thickness and reciprocal of coercive force discovered for iron films is not in general true for cobalt, though it is approximated in some series of films.

STATE UNIVERSITY OF IOWA,  
IOWA CITY, IOWA.

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## PHYSICAL PROPERTIES OF SOME VEGETABLES

EARL C. McCRACKEN

Extensive investigations are being made by the Household Equipment department of the Home Economics division of Iowa

State College on the possible economy of cooking foodstuffs by the direct application of an electric current. Consequently a more complete knowledge of the related physical properties of such materials is essential to the proper development of a satisfactory process.

In this paper are given the results of measurements of the specific heats of some vegetables and of the internal temperatures and electrical resistances of potatoes under the action of different a. c. voltages.

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AMES, IOWA.

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## A METHOD OF DETERMINING THE THERMAL CONDUCTIVITY OF WALL BOARD AND OTHER HEAT INSULATING PRODUCTS MADE FROM CORN-STALKS

HERBERT STILES and HAROLD STILES

The apparatus herein described was designed to measure the thermal conductivity of wall board and other heat insulators made from corn-stalks in the laboratories of the Chemical Engineering Department of Iowa State College.

The essential parts of the apparatus are a boiler, nearly a foot in diameter, in which steam is generated; the top of the boiler being a plane brass plate upon which is placed the specimen to be tested. Upon the specimen is placed a metal container the bottom of which is another brass plate similar to the top of the boiler.

The container has an inner compartment of bakelite about five inches in diameter which is fastened by a water-tight connection to a short brass ring which in turn is soldered to the bottom of the container. The bakelite cylinder which is about five inches high is fitted with a hard rubber lid with a hole in its center for rubber stopper into which is fitted a glass tube the upper part of which has two bulbs one above the other. Two fine marks are etched on the tube, one above and the other below the lower bulb.

The bakelite cylinder is filled with cracked ice, ice water and a weight to keep the ice against the bottom. The glass tube is filled with ice water well up into the upper bulb. As the ice melts the water sinks in the tube. The times are noted when the water reaches the two etched marks, the volume between which has been carefully measured, and the quantity of heat which has passed into the cylinder during the time interval can be computed.