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## Studies on the Effect of Ultra-Violet Rays upon Yeast Metabolism - I. The Effect of Ultra Violet Light upon the Medium

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A TABLE OF WAVE-LENGTHS AND FREQUENCIES OF  
ELECTROMAGNETIC RADIATIONS FROM  
ZERO TO INFINITY

A. C. BAILEY

(*ABSTRACT*)

The table includes about seventy known octaves ranging from 20 X units to 20,000 meters. The octaves are plotted on a logarithmic scale 1 X arbitrarily chosen as the end of the first octave. The wave-lengths and frequencies of such radiations as are characteristic of known phenomena as well as those which limit certain known regions, are charted with notations of interest made opposite.

An inset of sound vibrations is included in its proper place in the table, in parallel with the electro-magnetic vibrations, the octaves running up from the first octave ending with two vibrations per second, to about the sixteenth octave, and continuing on through the electro-magnetic vibrations to about the seventieth octave, or a frequency of about  $3 \times 10^{20}$ .

Two classifications are given in the table of the different types of radiant energy and the limits arbitrarily set for each type.

IOWA STATE COLLEGE.

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STUDIES ON THE EFFECT OF ULTRA-VIOLET RAYS  
UPON YEAST METABOLISM. I. THE EFFECT  
OF ULTRA-VIOLET LIGHT UPON  
THE MEDIUM

A. C. BAILEY, J. W. WOODROW, AND ELLIS I. FULMER

(*ABSTRACT*)

Exposure of the medium (composed of optimum concentrations of salts and sugar) to ultra-violet light renders it less effective for the growth of yeast. The development of the toxicity increases with duration and intensity of irradiation. An exposure of seven hours through quartz at about 15 cm from a quartz mercury vapor lamp affects the medium in such a way that yeast will show practically no growth in the medium. The work is

being continued in order to obtain quantitative results and to explain the phenomenon.

IOWA STATE COLLEGE.

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THE DIFFRACTION OF X-RAYS BY LIQUIDS

E. HOBART COLLINS

(*ABSTRACT*)

An experimental test of the theory of Ramam and Ramanathan on the diffraction of x-rays by liquids.

PARSONS COLLEGE.

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THE GROWTH OF CHICKENS AS EFFECTED BY THE  
SUNLIGHT TRANSMITTED THROUGH GLASS  
SUBSTITUTES

L. V. CRUM AND J. W. WOODROW

(*ABSTRACT*)

Three weeks' old chicks which had been deprived of direct sunlight and fed on a rachitic diet, were placed behind common glass and glass substitutes for four weeks. Those behind glass made an average gain of 180 per cent, while the groups behind the substitutes made gains of 300 per cent and 250 per cent. All outward appearances of rickets had disappeared among those behind the glass substitutes, while the disease was in evidence in the case of those behind glass.

IOWA STATE COLLEGE.

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AN ATTEMPT TO DETECT A PREDICTED PRESSURE  
EFFECT IN GASES

G. E. DAVIS

(*ABSTRACT*)

Fairbourne (*Phil. Mag.*, June, 1922) describes an apparatus which he considers capable of demonstrating the limit of applicability of the second law of thermodynamics, by causing gas molecules to build up a difference of pressure, and consequently to do mechanical work at the expense of their kinetic energy. Articles published later by Witmer and by Fisher (*Phil. Mag.*,