

# NOTES FROM THE RESEARCH LABORATORY, GENERAL ELECTRIC COMPANY.\*

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## THE PLIOTRON OSCILLATOR FOR EXTREME FREQUENCIES.

By William C. White.<sup>1</sup>

The physical construction of the pliotron and its operation in various arrangements of circuits are described in detail with cuts. The connections for the production of frequencies as low as  $\frac{1}{2}$  cycle per second and as high as 50 million are shown by diagram and discussed. This latter frequency corresponds to a wave-length of 6 meters. The electrical conditions and methods for their measurement in such circuits are given.

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## THE LAW OF ABSORPTION OF X-RAYS AT HIGH FREQUENCIES.

By Albert W. Hull and Marion Rice.<sup>2</sup>

Measurements on "white" radiation from a tungsten target dispersed by a rock salt crystal, made by means of the ionization chamber, confirmed for copper and aluminum, the validity at even these short wave-lengths, of the law that the coefficient of absorption of metals varies approximately as the cube of the wave-lengths, except in the immediate vicinity of one of the wave-lengths characteristic of the metal. For lead the absorption of wave-lengths longer than 0.149 A. U. obeys the law, but below this wave-length excitation of the K fluorescent radiation begins.

Calculation of the "corrected absorption coefficient" or "transformation coefficient" shows that it is, for all substances and wave-lengths yet investigated, equal to a constant, peculiar to the substance, times the cube of the wave-length, over the entire range between absorption bands.

A table of the observed and calculated values for the mass absorption coefficients of aluminum, copper and lead at various wave-lengths from 0.392 to 0.122 A. U. is given.

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\* Communicated by the Director.

<sup>1</sup> General Electric Review, 19, 771-5, Sept., 1916.

<sup>2</sup> Physical Review, 8, 326-8 (Sept., 1916).