The Growth and Decay of Photo-thermionic Currents from Oxide-coated Filaments. H. D. Arnold and H. E. Ives. (Proc. Nat. Acad. Sciences, Dec., 1921.)—Merritt and Case have shown that the illumination of the oxide-coated filament of an audion is followed by an increase of the current between the filament and the plate. Merritt further showed that the increase was chiefly due to radiation of short wave-length and interpreted the effect as due to an increased emission of electrons from the filament under the excitation of the incident light.

In the present investigation light that had passed through a red glass fell on the filament. The change in space current was recorded by a string galvanometer. It was concluded that the heating effect of the red light is mainly responsible for the changes occurring. When light transmitted by blue glass was used the heating effect was quite small, yet there was still a change in the space current. A study of this, as the heating current in the filament varied, led the authors to believe that some light effect different from the true photo-electric effect is the cause of the phenomenon. There is a similarity in the features of the growth and decay of the current to the variation of selenium in resistance under illumination that justifies the suggestion "that the cause of the light effect in the oxide-coated filament may be closely related to that which gives selenium its photo-sensitive properties."

G. F. S.

Some Problems of the Sea. L. F. Faris. (Jour. Washington Acad. Sciences, March 4, 1922.)—"A problem of much importance in the study of the physics of the earth is the determination of the intensity of gravity at sea first, to furnish further information that will enable us to ascertain more accurately the shape of the earth, and second, to determine the distribution of the densities in the so-called 'isostatic shell' of the lithosphere.

"Researches in this and other countries have made it certain that the outer seventy miles of the earth's material is in a state of approximate isostatic equilibrium. If we assume a surface seventy miles below sea level under the continent and on this surface lay out squares approximately one hundred miles on a side and extend vertical planes from these to the surface of the earth, we should have the same mass in each of the columns, though some of the columns would be a mile or more longer than others. In other words, each column of equal cross-section is found to have about the same pressure on the nucleus at a depth of seventy miles below sea level as any other column. Do these conditions exist under the ocean? The answer to this question requires the obtaining of observations for the intensity of gravity over ocean areas."

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