

1937

## Optical Excitation of Mercury-Hydride

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by molten metals has been extended to include tantalum as a filament material. This report brings the work up to date. It includes the following metals as filament materials: nickel, platinum, molybdenum, tantalum, and tungsten. The following metals were evaporated from the molten state: aluminum, silver, gold, copper, nickel, chromium, and platinum.

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## OPTICAL EXCITATION OF MERCURY-HYDRIDE

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A mixture of mercury vapor and water vapor in a resonance tube is illuminated with, (1) a mercury and hydrogen discharge tube; (2) a mercury and helium discharge tube. Photographs of the fluorescent spectra show that some mercury hydride molecules are formed in the resonance tube.

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## THE ZEEMAN EFFECT ON THE HYPERFINE STRUCTURE OF OPTICALLY EXCITED MERCURY RESONANCE RADIATION

E. HOBART COLLINS

Optically excited mercury resonance radiation was used as a light source to provide the sharpest possible hyperfine structure lines of Hg. 2537. This light source was placed in magnetic fields varying from zero to 2000 gauss. A lummer plate and a camera with a special quartz lens was used to secure the Zeeman hyperfine structure patterns. The patterns were analyzed by the newly-installed micro photometer of the State University of Iowa. The measurements and theoretical interpretations are given. The experi-