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## The Chemiluminescence of Solid Sodium

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PHOSPHORESCENCE IN A PHOTOELECTRIC CELL OF  
FUSED QUARTZ

GEORGE V. EMERY

While using a quartz spectrograph and a fused quartz photoelectric cell, a large leak was observed immediately after shutting off the exciting light. This was apparently due to a phosphorescence of the fused quartz. Only a few seconds exposure sufficed to give the saturation value. The current decreased according to the regular law of decay of phosphorescence reaching zero in about one minute.

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THE COLOR AND INTENSITY OF THE CHEMILUM-  
INESCENCE OF SOLID SODIUM

R. M. BOWIE

The fact that solid sodium reacts with the moisture in the air to produce a faint glow has been known for years. The color of the light was said to be greenish and its intensity extremely low; however, no measurements had been made. In this article, a method is described for determining its intensity by means of a photoelectric cell. The determination of the spectrum of the light as obtained both by filters and spectrographically is described. The intensity was found to vary from 3.57 to  $10.5 \times 10^{-7}$  lumens per square inch of metal surface while the spectrum was found to consist of a band between 5000  $\text{A}^\circ$  and 5300  $\text{A}^\circ$  with a maximum at about 5100  $\text{A}^\circ$ .

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## THE CHEMILUMINESCENCE OF SOLID SODIUM

R. M. BOWIE

Since the time of Davy, it has been known that freshly cut surfaces of sodium, when viewed in the dark, give off a faint light.

G. Rebaul, in 1910, stated that the effect was due to the formation  
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of the hydroxide upon reacting with the moisture in the air. In this article a series of experiments to determine the nature of the chemical reaction which caused the luminescence are described. It was found that the light was accompanied by the liberation of hydrogen, but that its liberation was not always accompanied by luminescence. Reactions in which halides were formed produced no light. The luminescence was evidently due to the breaking of a hydrogen-oxygen bond of a vaporous polar molecule.

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