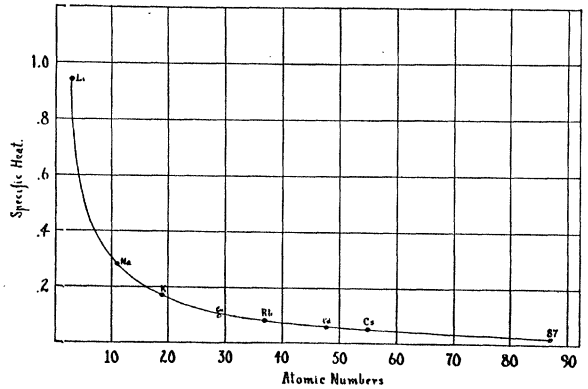

FIG. 4. Specific heats of the alkali elements plotted against their atomic numbers, with the value for element 87 extrapolated.

atomic volumes, melting points, boiling points and specific heats of the alkali elements, when plotted against their atomic numbers, with the value for element 87 extrapolated in each instance.

Fig. 5, representing the wave-lengths of maximum photoelectric sensitiveness of the alkali elements in

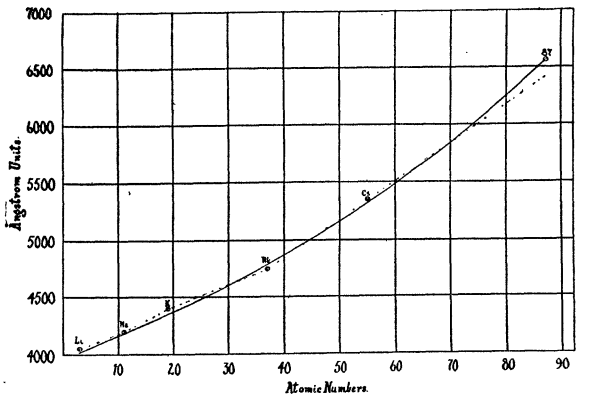

FIG. 5. Wave-lengths of maximum specific photoelectric sensitiveness of the alkali elements in contact with argon, plotted against their atomic numbers, with the value for element 87 extrapolated.

contact with argon, has been plotted from the values given by Miss E. F. Seiler in the *Astrophysical Journal*, Vol. 52, 1920, and is for the metals in comparatively thick layer.

Fig. 6 is a composite curve from two curves showing the sensitivity curve of the caesium on caesium oxide photocell (solid line) and the analogy curve for a similar cell made with element 87, assuming that the same wave-length difference between caesium and element 87 would occur in cell and in maximum photoelectric sensitiveness of curve 5. The curves from which the composite was drawn are from Koller (*J. O. S. A.* and *R. S. I.*) and Zworykin and Wilson ("Photocells and Their Application"). Since the sensitivity peaks broaden and flatten with increasing

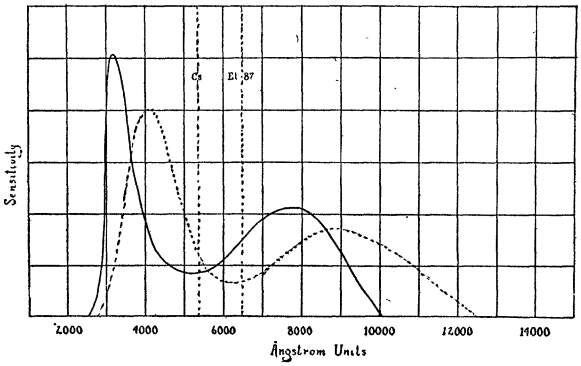

FIG. 6. Photoelectric sensitivity curve of caesium in monatomic layer on caesium oxide; solid line. Analogy curve for element 87; dotted line. The vertical dotted lines represent the wave-lengths of maximum specific photoelectric sensitiveness shown in Fig. 5 for Cs and El 87.

atomic number, a photocell utilizing element 87 might have a considerable sensitivity well into the infra-red.

From the atomic volume, the specific gravity of element 87 may be calculated as approximately 2.2. Its large atomic number makes it probable that several isotopes exist. Since the radioactive degeneration series does not pass through the element, there is no reason to expect that it will be radioactive to any greater degree than the other alkali elements. It should be possible to separate the element from admixture with caesium by differential light ionization in an electrostatic field, since presumably the vapors of the two elements would be ionized at different light frequencies.

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ALBANY, N. Y.
OCT. 17, 1931.

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