CURRENT PROGRESS IN X-RAY PHYSICS

By Professor DAVID L. WEBSTER
STANFORD UNIVERSITY

INTRODUCTION

While the title of this address covers a great deal of ground, it is really intended to limit the field rather than to widen it. Current progress in x-rays might well include the great advances in the application of x-rays to medicine, both in diagnosis and in therapy. Likewise it might include x-ray engineering. In that field there is rapid progress in the use of x-rays for testing engineering materials and also in the design and improvement of x-ray apparatus. While current progress in x-ray medicine and x-ray engineering are of vast importance, it is obvious that they can not be included in this address. Likewise, x-ray chemistry and mineralogy, by which I mean the use of x-rays in the study of the structures of molecules,

1 Address of the retiring vice-president and chairman of the Section of Physics, American Association for the Advancement of Science, Boston, December, 1933.

either in fluids or in crystals, would take us much too far afield. I must therefore consider only topics that are clearly x-ray physics.

Even within this limit the field is far too large to be covered uniformly. So I shall illustrate the nature of current progress in x-ray physics by taking as an example a still more restricted field within it, namely, the physics of x-ray emission.

HISTORY

To bring out the significance of current progress in x-ray emission, let us first consider some familiar landmarks in its history. The most familiar of all, probably, is the famous series of spectra photographed by Moseley in 1913 and shown diagrammatically, with extensions to lighter and heavier elements than those used by Moseley, in Fig. 1, after Siegbahn. Moseley's spectra showed such a regular-

The American Association for the Advancement of Science: Current Progress in X-Ray Physics: Professor DAVID L. WEBSTER 191

Scientific Events:
The British Department of Scientific and Industrial Research: The John B. Pierce Laboratory of Hygiene, at New Haven, Connecticut; The Eighty-seventh Meeting of the American Chemical Society. Recent Deaths 197

Scientific Notes and News 200

Discussion:

Reports:
Memorandum on the All-union Institute of Experimental Medicine: S. S. Goldwater 206

Societies and Meetings:
The Western Society of Naturalists: Dr. James L. Leitch. The History of Science Movement in Washington, D. C.: Morris C. Leikind 208


Special Articles:
Deuterium Oxide and Aspergillus: Samuel L. Meyer. The Effect of Ferric Chloride Injections in Experimental Tuberculosis: Dr. Valy Menkin. Frogs and Opaliniidae: Professor Maynard M. Metcalf 210

Science News 10

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKeen Cattell and published every Friday by

THE SCIENCE PRESS

New York City: Grand Central Terminal

Lancaster, Pa. Garrison, N. Y.

Annual Subscription, $6.00 Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.