

SCIENCE

VOL. 77

FRIDAY, APRIL 28, 1933

No. 2000

From the Ponderable to the Imponderable: PROFESSOR OTTO HAHN 397

Scientific Events:

Human Remains Discovered by the British East African Expedition; The Morris Arboretum of the University of Pennsylvania; Dedication of the George Eastman Research Laboratories of the Massachusetts Institute of Technology; The Minnesota Academy of Science; The Salt Lake City Meeting of the Pacific Division of the American Association for the Advancement of Science 404

Scientific Notes and News 406

Discussion:

The High Cost of German Medical and Scientific Periodicals: EILEEN R. CUNNINGHAM. *Is Longevity Compatible with Optimum Growth?:* DR. C. M. McCAY. *Soluble Sesquioxides and Organic Matter from Alkali Treatments on Soils:* G. T. SHAW and DR. R. R. McKIBBIN. *The Attraction of Spheres:* HENRY NORRIS RUSSELL 409

Scientific Apparatus and Laboratory Methods:

A Two-field Stroboscope: PROFESSOR PAUL F. GAEHR. *Regulating the Air Supply of Micro Burners:* CORNELIUS A. DALY 412

Special Articles:

Accelerated, Experimental Poliomyelitis in Nasally Instilled Monkeys: DR. SIMON FLEXNER 413

Science News 8

SCIENCE: A Weekly Journal devoted to the Advancement of Science, edited by J. McKEEN CATTALL 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.

FROM THE PONDERABLE TO THE IMPONDERABLE¹

By Professor OTTO HAHN

DIRECTOR KAISER WILHELM INSTITUTE FOR CHEMISTRY, BERLIN-DAHLEM, NON-RESIDENT LECTURER
IN CHEMISTRY AT CORNELL UNIVERSITY ON THE GEORGE FISHER BAKER FOUNDATION

CHEMISTRY has for its purpose the study of the composition of our material world. Its first task is to determine the simple basic substances—the chemical elements—out of which all other substances are made, and artificially to produce new kinds of substances from these same elements. After its problem had been thus recognized and defined, thanks chiefly to Robert Boyle, chemistry could be spoken of as a “science,” striving, in contrast to the direction of earlier efforts, towards an ideal objective through unprejudiced researches. The prerequisite for these researches was the recognition of the fact that the weight of a chemical compound is equal to the sum of the weights of its constituents. We owe to the French chemist Lavoisier the recognition of the full significance and the ingenious application of this law. We have him to thank for introducing the well-

known balance as a reliable guide in chemical work, whereby Lavoisier became the true founder of modern chemistry whose victorious march began in the nineteenth century and has continued at a steadily increasing tempo.

To be sure, Lavoisier’s immortal services were poorly rewarded by his contemporaries; in 1794, during the confusion of the French Revolution, the Revolutionary Tribunal sent him to the guillotine.

My topic is “From the Ponderable to the Imponderable” in chemistry, in physics, and I might also add, in biology. How far can we extend the limits of our qualitative and quantitative tests of chemical compounds? Are there methods of investigation that are reliable at and beyond the present limits of our balances? What are the lower limits?

As a science develops, its methods are improved and its aids become more and more refined. The

¹ Introductory public lecture.

Science

77 (2000)

Science **77** (2000), 8-414.

ARTICLE TOOLS

<http://science.sciencemag.org/content/77/2000.citation>

PERMISSIONS

<http://www.sciencemag.org/help/reprints-and-permissions>

Use of this article is subject to the [Terms of Service](#)

Science (print ISSN 0036-8075; online ISSN 1095-9203) is published by the American Association for the Advancement of Science, 1200 New York Avenue NW, Washington, DC 20005. 2017 © The Authors, some rights reserved; exclusive licensee American Association for the Advancement of Science. No claim to original U.S. Government Works. The title *Science* is a registered trademark of AAAS.