

SCIENCE

VOL. 83

FRIDAY, JUNE 5, 1936

No. 2162

<i>The American Association for the Advancement of Science:</i>		
<i>Nuclear Chemistry, the Neutron and Artificial Radioactivity:</i> PROFESSOR WILLIAM D. HARKINS	533	
<i>Obituary:</i>		
Charles Velmar Green: C. C. L.	543	
<i>Scientific Events:</i>		
<i>The British National Human Heredity Committee; The Summer Symposium on Theoretical Physics at the University of Michigan; National Research Fellowships in Physics, Chemistry and Mathematics; Award of the Chandler Medal to Professor Giaque; In Honor of Professor Osborn; Award of the Two Hundred and Fifty Thousandth Bausch and Lomb Microscope to Professor Novy</i>	543	
<i>Scientific Notes and News</i>	547	
<i>Discussion:</i>		
<i>Is Geology a Science?:</i> DR. CHESTER K. WENTWORTH. <i>A Plea to Publishers of Scientific Books:</i> M. GRAHAM NETTING. <i>Notice of Possible Suspension of Rules of Nomenclature in Certain Cases:</i> DR. C. W. STILES	550	
<i>Scientific Books:</i>		
<i>The Migrations of Animals:</i> DR. ROBERT CUSHMAN MURPHY. <i>North American Fossils:</i> PROFESSOR B. F. HOWELL. <i>A Book of Wonder Plants:</i> DR. FREDERICK V. COVILLE	553	
<i>Societies and Meetings:</i>		
<i>The Southwestern Division of the American Association for the Advancement of Science:</i> VEON O. KIECH. <i>The Minnesota Academy of Science:</i> PROFESSOR H. K. WILSON.		
<i>The Ohio Academy of Science:</i> WILLIAM H. ALEXANDER	555	
<i>Reports:</i>		
<i>Report of the President of the National Research Council of Canada</i>	556	
<i>Special Articles:</i>		
<i>Synthesis of Substances of Possible Physiological Activity:</i> PROFESSOR L. F. FIESER and OTHERS. <i>Potassium: A Basal Factor in the Syndrome of Corticoadrenal Insufficiency:</i> PROFESSOR R. L. ZWEMER and DR. RICHARD TRUSZKOWSKI. <i>Dietary Production and Prevention of Anemia in Larval Amblystoma:</i> ESTHER M. PATCH	558	
<i>Scientific Apparatus and Laboratory Methods:</i>		
<i>Differential Staining of Thick Sections of Tissues:</i> MADELINE KNEBERG. <i>A Convenient Resistance for Determination of Redox Potentials in Biological Fluids:</i> MONROE E. FREEMAN	561	
<i>Science News</i>	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.

NUCLEAR CHEMISTRY, THE NEUTRON AND ARTIFICIAL RADIOACTIVITY¹

By Professor WILLIAM D. HARKINS

UNIVERSITY OF CHICAGO

(1) INTRODUCTION

NUCLEAR chemistry is just a decade old, yet it is now the most active of all the special branches of science. Nuclear reactions are very similar to ordinary chemical reactions, except that they deal with matter which is a million million times more dense than ordinary matter, and on this account the forces are extremely high and the energies involved are a million times greater than those of ordinary atomic chemistry.

¹ Address presented before Section C of the American Association for the Advancement of Science, and the St. Louis Section of the American Chemical Society, St. Louis, January 1, 1936. The section on deuterium (heavy hydrogen) has been omitted, and in its place an abstract of a paper "Deuterium as a Reagent in Nuclear Chemistry" presented at the April meeting of the American Chemical Society, has been substituted.

The purpose of this address is to outline some of the nuclear work done at the University of Chicago and especially to emphasize the point of view developed during the last few years, which is that only reactions of the chemical type occur among nuclei. Thus atoms may be artificially synthesized, but not artificially disintegrated.

Thus when two atomic nuclei meet they first combine to form a new nucleus, which on account of its large content of energy is unstable and therefore has a life which is short in large scale time, but not excessively short on a nuclear time scale. This intermediate product nucleus may then disintegrate in any one of a number of ways, which depend upon the nature and state of the metastable nucleus. Thus the disintegra-

American Journal of Physical Anthropology

Published by The Wistar Institute

Aleš Hrdlička, Managing Editor, Smithsonian Institution, Washington, D. C.

Vol. 21

Contents for March-June, 1936

No. 2

WM. M. SHANKLIN. Anthropology of the Akeydat and the Maualy Bedouin.

T. D. STEWART. The musculature of the anthropoids: I. Neck and trunk. Nine text figures.

E. REYNOLDS AND E. A. HOOTON. Relation of the pelvis to erect posture. Three text figures.

J. GILLMAN. Research opportunities in South Africa.

M. KNEBERG. Hair weight as a racial criterion.

M. R. DRENNAN. Report on a Hottentot femur resembling that of Pithecanthropus. One text figure and one plate.

The Anthropometric Committee of the American Association of Physical Anthropologists.

Proceedings and abstracts of papers presented at the seventh annual meeting of the American Association of Physical Anthropologists at the Institute of Human Relations, Yale University, New Haven, Conn., April 30, May 1 and 2, 1936.

Price \$6.00 per volume, Domestic; \$6.50 per volume, Foreign

Issued quarterly

Many early volumes are still available. Prices upon request

Address subscriptions to

The Wistar Institute of Anatomy and Biology

36th Street and Woodland Avenue

Philadelphia, Pa., U. S. A.

THE IDENTITY THEORY

By

Blamey Stevens

THE author claims to have discovered a new theory opposed to that of Relativity. The fundamental postulate of his theory is that Space and Time are identical entities, differing only in the number of dimensions into which they are divided. He points out that the constancy of the velocity of light follows directly from this fundamental postulate, whereas in the Relativity Theory the fundamental postulate of a space-time continuum does not, of itself, lead to such a conclusion. It is then shown that the electro-magnetic field equations comply with the identity postulate and finally that the gravity field is indirectly explained by it, thus covering all field phenomena. A considerable part of the text is free from mathematics.

Sherratt and Hughes, Publishers,
Manchester, Eng.

Also on order of author at
438 West 116th St., N. Y. City

Price \$2.00 postpaid.

Twelve page summary sent on application.

BIFOLIATE NUMBERS

by R. A. PHILIP

New numbers from quadratic equations.

Price one dollar.

THE MONOGRAPHIC PRESS

106 Washington St.

Fairhaven, Mass.

The Foundations of Science

By H. POINCARÉ

Pp. xi + 553.

Containing the authorized English translation by George Bruce Halsted of "Science and Hypothesis," "The Value of Science" and "Science and Method," with a special preface by Poincaré, and an introduction by Josiah Royce. Price postpaid, \$5.00.

THE SCIENCE PRESS

Grand Central Terminal

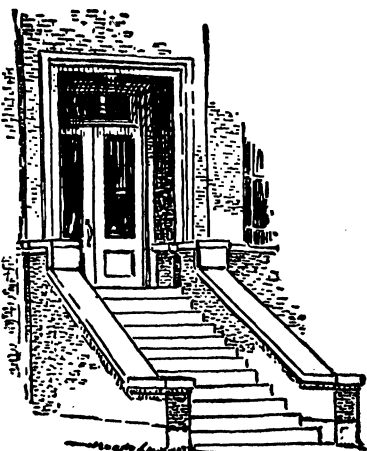
New York, N. Y.

An Improved Indicator for Vitamin C Titrations

CHEMICAL methods of analysis as compared with animal assays for the determination of vitamin C have the advantage of greater speed and convenience without loss of accuracy. The method employed by Bessey and King, using 2,6-dichlorophenol-indophenol, has proved very popular because of the ease of manipulation. Improved accuracy in this test is now made possible with the purified indicator recently perfected.

This purified indicator, listed in *Eastman Organic Chemicals*, List No. 27, as P 3463 Sodium 2,6-Dichlorobenzenoneindophenol, is supplied at the same price that prevailed for the older reagent—1 g., \$1.00. It is available for immediate shipment. Eastman Kodak Company, *Chemical Sales Division*, Rochester, N. Y.

EASTMAN ORGANIC CHEMICALS



Entrance to the Mead Johnson Research Laboratory, Evansville, Ind. The building is designed to provide for present undertakings and allow for change and expansion required by new projects. Equipment is the best obtainable, modern and adequate. Resources are ample for initiating and conducting investigations of worth.

Realizing the importance of original investigations

in the field of nutrition, Mead Johnson & Company are constantly enlarging their research department. ¶ The results have far surpassed expectations, not only because of the advantages accruing to the Company, *but in contributions* to pure science that have been made. Numerous materials previously unobtainable have been made *available* to scientists at a price only *slightly above* actual cost. ¶ It is a matter of much satisfaction that, without profit,

Mead Johnson and Company
is able to offer assistance to fellow investigators