# SCIENCE

VOL. LXIX MAY 3, 1929

No. 1792

#### CONTENTS

The American Association for the Advancement of Science:	
The Application of Science to the Practice of Medicine: Dr. G. CANBY ROBINSON	459
A Note upon the Probable Mode of Evolution: PROFESSOR W. H. LONGLEY	462
Scientific Events: The Gorgas Memorial Institute; Memorial to Dr. Salmon; The Medals of the Franklin Institute; Presentation of the John Fritz Medal to President Hoover	465
Scientific Notes and News	467
University and Educational Notes	470
Discussion: The Report of the National Academy of Sci- ences on Reapportionment: EDWARD V. HUNTING- TON. The Rate of Work Done by a Ricksha- Coolie: PROFESSOR ADOLPH BASLER. Chemical "Tests": DR. J. L. ST. JOHN. Atmospheric Electricity during Sand Storms: R. H. CANFIELD	471
Scientific Books: Life and Work of Sir Norman Lockyer: IDA BARNEY. Ostwald's Autobiography: Dr. BEN- JAMIN HARROW	475
Societies and Academies: The American Society of Mammalogists: A. BRAZIER HOWELL	477
Scientific Apparatus and Laboratory Methods: A Simplified Digital Sphygmograph: Dr. FRANCIS MARSH BALDWIN. An Economical Laboratory Table Light: Professor A. M. REESE	477
Special Articles: Photoionization of Caesium Vapor: DRS. F. L. MOHLER, C. BOECKNER, R. STAIR and W. W. COB- LENTZ. Hemoglobin Maintenance upon Synthetic Diets: DRS. DAVID L. DRABKIN and C. STANLEY WAGGONER	479
Science News	x

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.

# THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

# THE APPLICATION OF SCIENCE TO THE PRACTICE OF MEDICINE\*

THE practice of medicine is generally described by that time-worn phrase as being an art and a science. This definition infers that although the practice of medicine is an applied science, there is something beyond the realm of science that is needed in the discharge of the functions of the physician in his relation to his patients. Every one is ready to concede that this is true, but there is no clearly defined idea as to where science leaves off and where art begins, nor have the terms science and art as applied to medical practice received an exact definition.

Professor John Dewey<sup>1</sup> has written:

Just in the degree in which a physician is an artist in his work he uses his science, no matter how extensive and accurate, to furnish him with tools of inquiry into the individual case, and with methods of forecasting a method of dealing with it. Just in the degree in which, no matter how great his learning, he subordinates the individual case to some classification of diseases and some generic rule of treatment, he sinks to the level of the routine mechanic. His intelligence and his action become rigid, dogmatic, instead of free and flexible.

Professor Dewey presents the idea that it is the accurate and discerning application of science to meet the needs of the individual patient that constitutes the art of medicine.

There seems to be, however, another meaning to the phrase "art of medicine," which is associated with the so-called force of personality, knowledge of human nature and prestige by which a physician is often able to persuade or command or influence or even mislead a patient into a better state of health and comfort. The enormous following given to "healers" who make no use of the application of science in its usual sense testifies to the fact that human needs may at the present time be satisfied by systems of practice that have no basis in the natural sciences. Every intelligent person, however, recognizes the fact that although science is not related to many of the

<sup>\*</sup> Address of the president and vice-president of Section N-Medical Sciences-American Association for the Advancement of Science, New York, December, 1928.

<sup>&</sup>lt;sup>1</sup> John Dewey, "Reconstruction in Philosophy," p. 168, New York, 1920.



# The Wistar Institute Bibliographical Service

# is of invaluable assistance to

### Librarians-Investigators-Teachers

It brings to them, in AUTHORS' ABSTRACT form, a brief review of all original papers on Biological Subjects which appear in the following journals:

Journal of Morphology and Physiology The Journal of Comparative Neurology The American Journal of Anatomy The Anatomical Record The Journal of Experimental Zoology The Journal of Experimental Zoology American Journal of Physical Anthropology The American Anatomical Memoirs Folia Anatomica Japonica (Toklo, Japan) Stain Technology (Geneva, N. Y.) Physiological Zoology (Chicago, Ill.)

#### **Advance Abstract Sheets**

issued every few days, bearing Authors' Abstracts without bibliographic references, offer a practical means of making research immediately available in abstract form and of pur-chasing articles of special interest in reprint form without the necessity of subscribing to all the journals. Subscrip-tion, \$3.00 per year.

#### Bibliographic Service Cards

with complete hibliographic references, printed on Standard Library catalogue cards, are of value and assistance to Li-brarans and Investigators Subscription, \$5.00 per year.

#### Abstracts in Book Form

referred to above, are brought together periodically, with Authors' and Analytical Subject Indices. Price \$5.00 per volume

> Subscriptions to the Bibliographic Service and orders for reprints should be sent to

The Wistar Institute of Anatomy and Biology





methods through which these principles may be translated into practice. Postpaid, paper, \$2.00; cloth, \$2.75



# JOHNS HOPKINS UNIVERSITY SCHOOL OF MEDICINE

The School of Medicine is an Integral Part of the University and is in the Closest Affiliation with the Johns Hopkins Hospital.

#### ADMISSION

Candidates for admission must be graduates of ap-proved colleges or scientific schools with two years' instruction, including laboratory work, in chemistry, and one year each in physics and biology, together with evidence of a reading knowledge of French and German.

German. Each class is limited to a maximum of 75 students, men and women being admitted on the same terms. Applications may be sent any time during the aca-demic year but not later than June 15th. If vacancies occur, students from other institu-tions desiring advanced standing may be admitted to the second or third year provided they fulfill the requirements and present exceptional qualifications. INSTRUCTION

The academic year begins the Tuesday nearest Oc-tober 1, and closes the second Tuesday in June. The course of instruction occupies four years and es-pecial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the dispensary.

#### TUITION

The charge for tuition for 1929-30 will be \$600 per annum, payable in two installments. There are no extra fees except for certain expensive supplies, and laboratory breakage. Inquiries should be addressed to the

Executive Secretary of the School of Medicine, Johns Hopkins University, Washington and Monument Sts., Baltimore, Md.

Graduates in Medicine who satisfy the require-ments of the heads of the departments in which they desire to work are accepted as students for a period not less than three quarters. Tuition charge is \$50 a quarter.

# Allegany School of Natural History

In Allegany State Park, Quaker Bridge, N. Y.

Third Season-July 5 to August 24, 1929.

Registration limited to fifty (50)

Field studies in Botany, Zoology, Geology

Natural conditions favorable in richness and variety, suitable laboratories and equipment, comfortable living in a stimulating climate, guidance from experienced teachers and investigators.

Sponsored by the Buffalo Society of Natural Sciences, the New York State Museum, and the University of Buffalo (with college credit).

For circulars or registration, address until June 15: DR. ROBERT E. COKER, Director

Box 950

Chapel Hill, N. C.

# MOUNT DESERT ISLAND **BIOLOGICAL LABORATORY**

Summer Course. Problems in Field Natural History. July 1st-August 23rd, 1929.

Work of advanced college undergraduate or of graduate grade may be undertaken with insects, arachnids, fishes, amphibians, birds or mammals.

The enrollment will be confined to a limited num-ber of students each of whose applications will be considered individually.

Course work will be in charge of Dr. C. C. Little, University of Michigan, Ann Arbor, Michigan, to whom requests for further information should be made.

# FUSED QUARTZ

Fused quartz in various forms 1s now available on short notice.

Fabricated articles of unsurpassed quality and workmanship are produced daily for discriminating purchasers.

G-E clear fused quartz is used exclusively by-

The Cooper Hewitt Company in the production of quartz mercury-vapor lamps.

The Grinnell Company, Inc., in the production of its quartz-bulb sprinkler heads.

The Victor X-Ray Corporation and Burdick Corporation for ultra-violet therapeutic applicators and similar devices.

Special consideration is given to the requirements of educational institutions and research laboratories.

JOIN US IN THE GENERAL ELECTRIC HOUR BROADCAST EVERY SATURDAY AT 8 P.M., E.S.T. ON A NATION-WIDE N.B.C. CHAIN

GENERAL ELECTRIC CO., SCHENECTADY, N. Y., SALES OFFICES IN PRINCIPAL CITIES



Publication GEA-848 describes physical properties and electrical characteristics, and gives dimensions of quartz objects available. This will be sent on request. Address any G-E sales office, or the Special Products Section, General Electric Company, Schenectady, N. Y.

840-15