

SCIENCE

VOL. LXV

MARCH 4, 1927

No. 1679

THE RELATION OF BIOLOGY TO PHYSICS¹

CONTENTS

<i>The Relation of Biology to Physics:</i> PROFESSOR THOMAS H. MORGAN	213
<i>Solar Records in Tree Growth:</i> PROFESSOR A. E. DOUGLASS	220
<i>The Significance and Scope of the Idea of Frequency in Physics:</i> DR. WM. S. FRANKLIN	221
<i>Scientific Events:</i>	
<i>The New Harvard College Observatory in South Africa; A Medical Center for Washington; Lowell Lectures by Professor A. V. Hill; Chief of the U. S. Bureau of Chemistry and Soils; Memorial Meeting for Dr. Charles D. Walcott</i>	223
<i>Scientific Notes and News</i>	225
<i>University and Educational Notes</i>	229
<i>Discussion and Correspondence:</i>	
<i>Summer School of Geology and Natural Resources:</i> PROFESSOR RICHARD M. FIELD. <i>The Composition of Geological Publication in the Biennium 1921-1922:</i> DR. CHESTER K. WENTWORTH and EARL T. APFEL. <i>The Encystment of Bucephalus Cercariae:</i> ARTHUR E. WOODHEAD. <i>A Protest:</i> PROFESSOR H. S. UHLER	229
<i>Scientific Books:</i>	
<i>Mendiola's Manual of Plant Breeding for the Tropics:</i> DR. E. B. COPELAND. <i>Wile on Emile Berliner:</i> DR. F. C. BROWN	233
<i>Special Articles:</i>	
<i>The Piezo-Electric Effect in Rochelle Salt Crystals:</i> PROFESSOR JOSEPH VALASEK. <i>The Influence of Epinephrin and of the Sympathetic System on Skeletal Muscle Fibers and Capillaries:</i> DR. FRANK A. HARTMAN, JAY I. EVANS and HELEN G. WALKER	235
<i>The Indiana Academy of Science:</i> HARRY F. DIETZ	236
<i>Science News</i>	x

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

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.
New York City: Grand Central Terminal.
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.

Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 8, 1879.

It came to me as a great surprise that a biologist should be invited to give an address at the dedication of a physical laboratory. I realized my unworthiness to represent the many sides of biology on such a significant occasion, but I dared not decline on these grounds, because there are certain things that I want to say, and your invitation gives me a chance to say them.

First of all, I should like to point out that one of the most important developments in recent times is the recognition of the need in the biological sciences of workers trained in physics. It seems to me that the reverse is also true—that a biologist is needed in physical laboratories. Perhaps to-day is the first time that this has been recognized, and Vassar has been foremost to recognize this fact, even though the biologist is allowed to remain for only one short hour.

When we dedicate a new building to *biology* at Columbia I shall see to it that one of your physicists is invited to respond to the sentiment, "the relation of physics to biology." As there is no immediate prospect of this building there will be several years to think it over.

If the president of Vassar or the program committee or whoever arranged these dedication exercises had intended that the speaker to-day should analyze the relation of *physiology* to physics, he or they, I am sure, would have picked out a physiologist. The physiologist would have had an easy and even a delightful time, for physiology has long since been wedded both to physics and to chemistry. A modern physiological laboratory is scarcely to be distinguished from a physical laboratory, having borrowed its instruments, at least, from the former.

There is, however, another side of biology that is conspicuous by its absence from most physiological laboratories. The traditional physiology of the schools is interested in the functioning of the organs. It takes the *organism* for granted and tries to find out how its organs work in health and in disease. The close relation of functional physiology to medicine explains and justifies this limitation of its field of interests.

¹ One of a series of addresses given at the inauguration of the new physical laboratory at Vassar College in October, 1926.

Science

65 (1679)

Science **65** (1679), xii-236.

ARTICLE TOOLS

<http://science.sciencemag.org/content/65/1679.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.