

# SCIENCE

VOL. LXIII      FEBRUARY 26, 1926      No. 1626

## CONTENTS

<i>Isolation or Cooperation in Research:</i> DR. VERNON KELLOGG .....	215
<i>The Scope of Bibliographies:</i> DR. J. STROHL .....	218
<i>Carlos Werckle:</i> DR. PAUL C. STANDLEY .....	221
<i>Scientific Events:</i>	
<i>The Rumford Fund; The New Metallurgical Laboratories at the Pittsburgh Experiment Station; The Britten Bill to Extend the Use of the Metric System in the United States; Resolutions on the Freedom of Teaching; Geological Sciences at Pasadena</i> .....	223
<i>Scientific Notes and News</i> .....	225
<i>University and Educational Notes</i> .....	229
<i>Discussion and Correspondence:</i>	
<i>Morbidity of the American Indian:</i> DR. HAVEN EMERSON. <i>The Brown's Park Formation:</i> O. A. PETERSON. <i>The Quotations of Scientific References:</i> DR. HENRY LEFFMANN. <i>Simplified Literature Citations:</i> PAUL HANLY FURFEY .....	229
<i>Scientific Books:</i>	
<i>Annals of Eugenics:</i> PROFESSOR S. J. HOLMES .....	232
<i>Scientific Apparatus and Laboratory Methods:</i>	
<i>New Methods to Measure the Rate of Flow Produced by the Gills of Oyster and other Molluscs:</i> DR. PAUL S. GALTISOFF .....	233
<i>Special Articles:</i>	
<i>Displaced Series in the Spectrum of Chromium:</i> DR. C. C. KIESS and O. LAPORTE. <i>The Perfect Stage of Cyindrosporium Pomi:</i> PROFESSOR R. C. WALTON and C. R. ORTON .....	234
<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 13, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.

## ISOLATION OR COOPERATION IN RESEARCH<sup>1</sup>

THE phrase cooperation and coordination has become a familiar slogan in a number of fields of human activity. It is the slogan of an organization of scientific men with which I am connected. But not all scientific men accept it as a desirable slogan. Some scientific men think cooperation and coordination in science not only not desirable things to promote, but positively undesirable things to attempt to bring about. Part of this difference of opinion exists because there is no unanimity of understanding of what is meant by cooperation and coordination. But part of it exists because there is an honest disagreement as to the relative value of scientific men working as isolated individuals or as groups of individuals with a more or less well-defined program of work to be achieved.

Cooperation and coordination imply a certain degree of organization, and this word also brings its uncomfortable reactions. While scientific men will agree that organization is a good thing in business and industry, in factory production and in marketing, in carrying on war and managing a fleet, some of them do not at all like the word organization used in connection with science. They say that organization is out of place in science. They say that science, like music and art, ought not to be, and can not successfully be, organized. They ask if Copernicus, Galileo, Faraday, Darwin and Einstein could have been "organized." I am sure the answer is that they could not. Which is not at all to say, however, that much scientific work can not be advantageously organized, nor many scientific workers much aided by cooperating and coordinating measures. Even the Darwins can be helped by organized measures to remove material obstacles from their path; measures to relieve them of all distracting and wasteful exertions so that all their time and energy can be concentrated on their great adventures.

There are about six thousand professional working biologists in this country. But how many are Darwins? There are about seven hundred fellows and members of this society, but how many Hagens, Harrises, Walshs and Fitchs are there among us? That is to ask, how many of us scientific men are

<sup>1</sup> Annual public address before the Entomological Society of America, December 30, 1925, Kansas City, Missouri.

# Yale University

## SCHOOL of MEDICINE

FOUNDED 1812

Affiliated with the New Haven  
Hospital and New Haven  
Dispensary

For Information, Address:  
The Registrar, Yale University  
School of Medicine, New Haven,  
Conn.

## 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 approved colleges or scientific schools with at least 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.

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 academic year but not later than June 15th.

If vacancies occur, students from other institutions 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 October 1, and closes the second Tuesday in June. The course of instruction occupies four years and especial emphasis is laid upon practical work in the laboratories, in the wards of the Hospital and in the dispensary.

### TUITION

The charge for tuition is \$360 per annum, payable in three installments. There are no extra fees except for certain expensive supplies, and laboratory breakage.

The annual announcement and application blanks may be obtained by addressing the

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

Owing to an extensive building program about to be inaugurated at the Hospital and Medical School, it has been deemed necessary to withdraw, for the next two years at least, post-graduate instruction during the year as well as the summer course formerly given during June and July.

## School of Medicine Western Reserve University

Cleveland, Ohio

NEW LABORATORIES AND HOSPITALS

RESTRICTED CLASSES

THOROUGH INSTRUCTION

LARGE CLINICAL FACILITIES

HIGH STANDARD OF SCHOLARSHIP

Admission confined to students having academic degrees and to Seniors in Absentia.

For information address:

THE REGISTRAR

2109-15 Adelbert Rd. CLEVELAND

## School of Medicine and Dentistry THE UNIVERSITY OF ROCHESTER

Medical School, Strong Memorial Hospital and Out-Patient Department of the University of Rochester and the Municipal Hospital of the City of Rochester, all under one roof. Medical, Surgical, Obstetric, Pediatric, Contagious and Neurological patients admitted. Unusual opportunities for school and hospital cooperation in medical and dental teaching.

### Admission

Medical and dental candidates must have completed three years of college work with special requirements in chemistry, physics and biology. The entering class will not exceed 40, men and women being admitted on equal terms. Instruction will begin September 23, 1926.

### Tuition

Charge for tuition will be \$300 per annum, payable in equal installments at the beginning of each semester.

For information address

The Dean—School of Medicine and Dentistry, Elmwood Avenue, Rochester, N. Y.

## BOSTON UNIVERSITY SCHOOL OF MEDICINE

ORGANIZED IN 1873

### ANNOUNCEMENT

may be obtained by application to

THE REGISTRAR

80 East Concord Street,

Boston,

Massachusetts

### COLLEGE OF MEDICINE

OF

### LONG ISLAND COLLEGE HOSPITAL

Founded 1858. Sixty-eighth annual session begins September 27, 1926.

**Admission:** Not less than two years of college work leading toward a baccalaureate degree, including specified courses.

**Facilities:** Well-equipped laboratories, with full-time teachers. Superior clinical advantages in The Long Island College Hospital and five other leading Hospitals in Brooklyn.

For particulars, address

THE DEAN OF THE MEDICAL SCHOOL  
350 Henry Street Brooklyn, New York

**WANTED**—For research in the vicinity of Philadelphia, a young graduate entomologist. State fully in application training, experience, references and salary. "R. H.," care of Science, Grand Central Terminal, New York, N. Y.

### KYMOGRAPH WANTED.

Have you an old Blix-Sandström Electrical Kymograph which you desire to sell?  
Address P. O. Box 1408. Stanford University.

## Marine Biological Laboratory

Woods Hole, Mass.

### INVESTIGATION

Entire Year

Facilities for research in Zoology, Embryology, Physiology, and Botany. Fifty-two private laboratories \$100 each and ninety-four private laboratories \$200 each for not over three months. Fifty-six tables are available for beginners in research who desire to work under the direction of members of the staff. The fee for such a table is \$50.00.

### INSTRUCTION

June 29 to August

9, 1926

### SUPPLY

### DEPARTMENT

Open the Entire

Year



Courses of laboratory instruction with lectures are offered in Invertebrate Zoology, Protozoology, Embryology, Physiology and Morphology and Taxonomy of the Algae. Each course requires the full time of the student. Fee, \$75.00.

Animals and plants, preserved, living, and in embryonic stages. Preserved material of all types of animals and of Algae, Fungi, Liverworts and Mosses furnished for classwork, or for the museum. Living material furnished in season as ordered. Microscopic slides in Zoology, Botany, Histology, Bacteriology. Catalogues of Zoological and Botanical material and Microscopic Slides sent on application. New Zoology catalogue ready in February. For catalogues and all information regarding material, address:

GEO. M. GRAY,

Curator, Woods Hole, Mass.

The annual announcement will be sent on application to The Director, Marine Biological Laboratory, Woods Hole, Mass.

### University of Manitoba

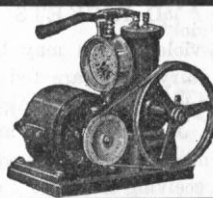
### HUDSON'S BAY COMPANY RESEARCH FELLOWSHIP

The above fellowship, of the annual value of \$1,500.00, tenable at the University of Manitoba, in any branch of pure or applied science, open to graduates of any Canadian University, will be filled for 1926 about May 1. Applications should be in the hands of the Registrar of Manitoba University, Winnipeg, Manitoba, by April 1. Further particulars on application. Address:

THE REGISTRAR

University of Manitoba

Winnipeg, Manitoba



### VACUUM PUMPS

28" vacuum guaranteed. 1½ cu. ft. free air per minute. Piston type for continuous duty. Complete with motor gauge, etc.

Write for circular.

ALSO ENGINEERING CO.

47 W. 63rd St., New York

### PHONELESCOPE

TEACHES THROUGH THE

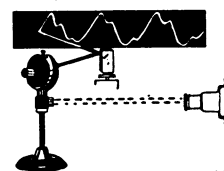
The Movies for all

SOUND

WAVE MOTION

ELECTRICITY

HERBERT GROVE DORSEY



*"The emulsion used on this material is the only one with which I have ever worked which reproduces everything there is in the negative."*

*—Opinion of a leading  
commercial photographer  
in Chicago.*

*Referring to*

# Raygraphs

A high speed emulsion on an opaque fibre base.

Fast enough for direct exposure.

Ten times faster than printing paper.

Extreme latitude for over-exposure.

Use Raygraphs on negatives usually considered failures and note results—contact print or enlargement.

Every laboratory doing any amount of photography will find RAYGRAPHS invaluable for various phases of their work.

*Send for samples and prove them out.*

**VICTOR X-RAY CORPORATION**

*Supply Sales Department*

2012 Jackson Blvd.,

Chicago

