

SCIENCE

VOL. LXX

FRIDAY, JULY 12, 1929

No. 1802

<i>The Economic Status of Scientific Men and Women:</i>	
<i>Budget Needs of College Teachers:</i> DR. BENJAMIN R. ANDREWS	19
<i>Salaries and Supplementary Earnings of College Teachers:</i> DR. FRANK P. BACHMAN	26
<i>Obituary:</i>	
<i>Professor John A. Mandel:</i> PROFESSOR W. C. MAC-TAVISH. <i>Recent Deaths</i>	29
<i>Scientific Events:</i>	
<i>The Opening of Down House; The Joint Meeting of the French and British Associations at Havre; The Royal Geographical Society; The Retirement of Dean Veranus A. Moore of Cornell University; Grants-in-Aid Fund of the National Research Council</i>	30
<i>Scientific Notes and News</i>	32
<i>University and Educational Notes</i>	36
<i>Discussion:</i>	
<i>Biological Control of the Prickly Pear in Madagascar:</i> DR. CHARLES F. SWINGLE. <i>Horses, Dogs and Cats:</i> AUSTIN H. CLARK. <i>Atmospheric Electricity:</i> DR. VICTOR A. ENDERSBY, PROFESSOR DUNCAN G. FOSTER. <i>Educational Science:</i> PROFESSOR SAMUEL W. FERNBERGER	37
<i>Special Correspondence:</i>	
<i>The Recent Bone-cavern Find at Bishop's Cap, New Mexico:</i> DR. WILLIAM ALANSON BRYAN	39
<i>Scientific Books:</i>	
<i>Fowler on Statistical Mechanics:</i> PROFESSOR J. H. VAN VLECK	41
<i>Scientific Apparatus and Laboratory Methods:</i>	
<i>A Method for Comparing the Value of Ammonia Nitrogen and Nitrate Nitrogen:</i> DR. WILLIAM G. FRIEDEMANN. <i>A New Type of Respiration Chamber:</i> T. J. MANEY, P. L. HARDING and H. H. PLAGGE	43
<i>Special Articles:</i>	
<i>Relation of External Environment to Course of a B. enteritidis Infection in Mice:</i> DR. I. J. KLIGLER and L. OLITZKI. <i>Botanical and Geological Evidence for an Ancient Lake:</i> DR. H. R. ALDRICH and DR. N. C. FASSETT	45
<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

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 ECONOMIC STATUS OF SCIENTIFIC MEN AND WOMEN¹

BUDGET NEEDS OF COLLEGE TEACHERS

By Dr. BENJAMIN R. ANDREWS

PROFESSOR OF EDUCATION, TEACHERS COLLEGE, COLUMBIA UNIVERSITY

THE teacher has three groups of personal budget needs: those connected with his profession; those concerned with living expenses of self and family, and those necessary for financial security. Every one must meet his living expenses; every one who spends intelligently tries to provide for financial security; but professional needs represent items that do not appear in the average person's budget. The teacher who does research as well as teaching must keep in close touch with the progress of his subject and his profession, and this involves annual expenses that every teacher knows. He must also be adding to his subject by his own studies and research, and

part of their cost with many workers comes back upon the private purse. He must also have a broad mental equipment and the personal and social resources of the traditional college teacher who deals with youth and desires to serve any intellectual or personal need that arises. Since the college teacher is responsible for the increase and dissemination of the knowledge necessary for civilization and for progress, society is concerned that he have personal income adequate to his function and that he administer his funds so as to function efficiently. In his professional expenditures the teacher is a public person, and even his private living conditions and his security are of public concern as far as they affect his work as teacher and researcher.

¹ Symposium of invited papers read before a general session of the American Association for the Advancement of Science, New York, December 28, 1928.

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
American Journal of Physical Anthropology
The American Anatomical Memoirs
Folia Anatomica Japonica (Tokio, Japan)
Stain Technology (Geneva, N. Y.)
Physiological Zoology (Chicago, Ill.)

Advance Abstract Sheets

issued semi-monthly, bearing Authors' Abstracts without bibliographic references, offer a practical means of making research immediately available in abstract form and of purchasing articles of special interest in reprint form without the necessity of subscribing to all the journals. Subscription, \$3.00 per year.

Bibliographic Service Cards

with complete bibliographic references, printed on Standard Library-catalogue cards, are of value and assistance to Librarians 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

Thirty-sixth St. and Woodland Ave. Philadelphia, Pa.

ZOOLOGICAL PUBLICATIONS

OF

The Philippine Bureau of Science

AMPHIBIANS AND TURTLES OF THE PHILIPPINE ISLANDS. By E. H. Taylor. 193 pages, 17 plates, and 9 text figures; postpaid, \$1.00.

THE SNAKES OF THE PHILIPPINE ISLANDS. By E. H. Taylor. 316 pages, 37 plates, and 32 text figures; postpaid, \$2.50.

THE LIZARDS OF THE PHILIPPINE ISLANDS. By E. H. Taylor. 272 pages, 23 plates, and 53 text figures; postpaid, \$2.50.

INDEX TO THE GENERA OF BIRDS. By R. C. McGregor. 185 pages; postpaid, \$1.00.

A MANUAL OF PHILIPPINE BIRDS. By R. C. McGregor. 2 parts, 769 pages; postpaid, \$4.00.

THE PHILIPPINE JOURNAL OF SCIENCE, a monthly, issued in three volumes a year; per year, \$5.00.

A list of the publications of the Philippine Bureau of Science and a sample copy of the Philippine Journal of Science will be sent upon request.

Subscriptions and orders for publication should be sent to

THE BUSINESS MANAGER

Philippine Journal of Science

Bureau of Science,

Manila, P. I.

Save \$3.50
by Ordering Now

LABORATORY AND FIELD ECOLOGY

By

VICTOR E. SHELFORD

will be published July 15. It is the result of twenty years' research aimed at discovery of the way of life of animals in nature and at their transplantation to the laboratory for scientifically controlled experiment, simulating climatic and other natural conditions as closely as possible.

THE FIRST BOOK IN ITS FIELD

The viewpoint of animal ecology is defined and its problems stated. Various chapters deal with particular environmental factors and with the methods of measuring and controlling such factors.

Equipment is fully and particularly described. Specifications are given for laboratory furniture; methods of keeping records are given in detail, plans for equipment are outlined based on a sliding scale of funds available; sources of supply of equipment are given in classified form.

Illustrations play a prominent part. There are 219 figures, including charts, graphs, line-drawings and half-tones. A bibliography of 1,000 references is appended.

A Comprehensive Reference Book with Information not Available Elsewhere

The price is \$10.00. If ordered on or before date of publication (July 15th, 1929) the price is \$6.50. Send no money now. Order subject to return within 5 days after receipt if the book is not up to expectation.

**The Williams & Wilkins
Company,** Baltimore, U. S. A.

Publisher of Scientific Books and Periodicals

Recent McGraw-Hill Books

Berry--Paleontology

By EDWARD WILBER BERRY, Professor of Paleontology in the Johns Hopkins University. 392 pages, 6 x 9, 175 illustrations. **\$3.50**

Wardle--Problems of Applied Entomology

By ROBERT A. WARDLE, Professor of Zoology, University of Manitoba; formerly Associate Professor of Entomology, University of Minnesota and Lecturer in Economic Zoology, University of Manchester. 587 pages, 6 x 9, 31 illustrations. **\$6.00**

Graham--Principles of Forest Entomology

By SAMUEL A. GRAHAM, Associate Professor of Forest Entomology, University of Michigan; Agent, U. S. Dept. of Agriculture, Bureau of Entomology. *McGraw-Hill Publications in the Zoological Sciences.* 339 pages, 6 x 9, 149 illustrations. **\$3.50**

Humphreys--Physics of the Air—New Second Edition

By W. J. HUMPHREYS, Meteorological Physicist, United States Weather Bureau. Second Edition, revised and enlarged. 654 pages, 6 x 9, 226 illustrations. **\$6.00**

Weldon--Economic Biology

A Text for Students of Agriculture and General Biology

By GEORGE P. WELDON, Instructor in Biology, Entomology and Pomology, Chaffey Union High School and Junior College, Ontario, Calif. *McGraw-Hill Vocational Texts.* 457 pages, 5½ x 8, 191 illustrations. **\$2.50**

Send for copies on approval

McGRAW-HILL BOOK COMPANY, Inc.

Penn Terminal Building

370 Seventh Avenue

New York

SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

WITH WHICH IS COMBINED THE

EDUCATIONAL REVIEW

EDITED BY WILLIAM McANDREW

JUNE 15

The Philosophy and Organization of Research: B. R. BUCKINGHAM.

Research in Child Development: ARNOLD GESELL.

Educational Events:

Public Playing Fields in Holland; Education in Ontario; The Rockefeller Foundations; The Ditson Bequest to Musical Education; The Nursery School of Western Reserve University; Guggenheim Exchange Fellowships between the United States and Latin-America; American Home Economics Association; Troubles at Clarkson College of Technology; Retirement of Members of the Faculties of the University of Chicago.

Educational Notes and News.

Discussion:

Concerning Overlapping of Professional Courses in Teacher-training Institutions: LILIAN HUNSICKER. *The Ethical Training of Children:* EMILY RAY GREGORY.

Special Correspondence:

The Virginia Polytechnic Institute's Service to the State: R. H. McNEIL.

Reports:

The Relations of the National Government to Education.

Quotations:

The Government and Education; Inter-American Education.

Educational Research and Statistics:

Evasive Factors Tending to Reduce Correlations between Intelligence Test Ranks and College Grades: FRANK S. FREEMAN.

JUNE 22

Selection as a Function of American Secondary Education: W. CARSON RYAN, JR.

The Drama in Education: HENRY S. CURTIS.

Educational Events:

Peking Union Medical College; The British School at Ypres; Library Extension in British Columbia; Offenses Committed by Continuation School Boys in New York State; Summerfield Scholarships at the University of Kansas; The Summer School of Harvard University; The Department of Superintendence at Atlanta; Honorary Degrees Conferred by the New York University.

Educational Notes and News.

Discussion:

Sources of Information Covering Research in Progress and University Dissertations: LAWRENCE HEYL. *Insurance Endowment:* LAWRENCE PIKE.

Special Correspondence:

Honors Work in School and College: JULIAN PARK.

Quotations:

The Million Pupils of New York City.

Educational Research and Statistics:

What the Chicago Doctors of Philosophy are Doing: M. O. WILSON.

JUNE 29

The Function of the National Council of Education of the National Education Association: JOHN K. NORTON.

Remodeling Our University Libraries: JAMES GOODWIN HODGSON.

Educational Events:

The World Conference of Librarians; The Education of Architects; Report of the American-Scandinavian Foundation; Grants and Fellowships of the American Council of Learned Societies; Radio Education; Summer Library Conference at the University of Wisconsin; Appropriations for the Chicago Public Schools; The Murry and Leonie Guggenheim Foundation.

Educational Notes and News.

Discussion:

The Responsibility of Appointing State Superintendents: JESSIE GRAY. *A Phase of Record Keeping:* A. R. KEPPEL.

Special Correspondence:

The Summer Sessions of Columbia University.

Quotations:

Education and the British Labor Government.

Reports:

Federal and Local Support of Schools: RAY LYMAN WILBUR. *A Department of Education:* THOMAS E. F'INEGAN.

Educational Research and Statistics:

Factors Affecting Ability in Handwriting: MILTON WITTLER.

JULY 6

Unity Amidst Diversity in the Educational Service: JAMES C. MILLER.

Educational Events:

The Deaf and Dumb in British Industry; Summer Courses for Teachers of the International Bureau of Education; Child-labor Conditions; The Right to Dismiss a College Student; The Experimental College of the University of Wisconsin; Salaries at Yale University; The Institute of Arts and Sciences of Columbia University; The Williamstown Institute of Politics.

Educational Notes and News.

Discussion:

Lay Administration of Education: W. CARSON RYAN, JR. *Indore's Gratitude:* T. B. GOGATE. *Educational Statistics:* ATA HMAIN.

Special Correspondence:

The International School of Geneva: F. C. WOOTAN.

Quotations:

Children and the Films.

Reports:

Committee on Problems of Secondary and Higher Education.

Educational Research and Statistics:

The Effect of Absence on Scholarships: BLAKE CRIDER.

EDUCATIONAL REVIEW

Edited by WILLIAM McANDREW

Books for the Profession: HOI BIBLIOLOGOI.
Index to Volume XXIX.

\$5.00 A YEAR

PUBLISHED WEEKLY

15 CENTS A COPY

THE SCIENCE PRESS
GRAND CENTRAL TERMINAL, NEW YORK CITY