

# SCIENCE

VOL. LXXII

FRIDAY, OCTOBER 17, 1930

No. 1868

*The British Association for the Advancement of Science:*  
*A State Experiment in Chemical Research:* PROFESSOR G. T. MORGAN ..... 379

*Obituary:*  
*Recent Deaths; Memorials* ..... 390

*Scientific Events:*  
*The British Geological Museum; The Great Smoky Mountains National Park; The Scott Fund Expedition to Montana; The George Fisher Baker Non-resident Lectureship in Chemistry at Cornell University* ..... 391

*Scientific Notes and News* ..... 394

*Discussion:*  
*Yadang and Zastruga:* PROFESSOR ELIOT BLACKWELDER. *What Is Chitine?* DR. WM. T. M. FORBES. *Topographic Control of Cloud Distribution:* PROFESSOR R. J. HOLDEN. *Twin Seedlings in Angiosperms:* DR. ROBERT H. WOODWORTH. *Mineral Resources of Greece:* MAURICE H. BIGELOW ..... 396

*Scientific Apparatus and Laboratory Methods:*  
*A Practical Method of Determining the Fall in Potential in a Microelectrophoresis Cell:* JAS.

GIBBARD. *The Measurement of Arm Girth:* PROFESSOR H. T. MANUEL ..... 398

*Special Articles:*  
*The Logistic Curve and the Census Count of 1930:* PROFESSOR RAYMOND PEARL and PROFESSOR LOWELL J. REED. *Lignin as a Possible Factor in Lodging of Cereals:* DR. JEHIEL DAVIDSON and DR. MAX PHILLIPS ..... 399

*The National Academy of Sciences. II* ..... 402

*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.

## A STATE EXPERIMENT IN CHEMICAL RESEARCH<sup>1</sup>

By Professor G. T. MORGAN, F.R.S.

SUPERINTENDENT OF THE CHEMICAL RESEARCH LABORATORY, DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

AT the Bristol meeting of 1875 my predecessor, Professor A. G. Vernon Harcourt, spoke to this section on the teaching of chemistry, and in the course of his very inspiring address he remarked that "the science of chemistry would advance more rapidly if it were possible to organize chemists into working parties having each a definite region to explore," and he went on to inquire, "Is such an organization in any degree possible?"

I propose this morning to describe the attempt recently made by a department of state, namely, the Department of Scientific and Industrial Research, to give effect to Professor Vernon Harcourt's prophetic vision. The answer to his question is in the affirmative. Such an organization is in some degree possible, and has actually become an accomplished fact. I must, however, leave for one of my successors in this

chair the further inquiry, "Can such an organization become permanent and still retain its primary and paramount function of chemical exploration?"

### ORIGIN OF THE CHEMICAL RESEARCH LABORATORY

The work of the Department of Scientific and Industrial Research began in 1915, and during the ensuing ten years the department had at various times become interested in investigations of a chemical nature, such, for example, as (1) large-scale researches on the chlorination of methane; (2) large-scale researches on the production of formaldehyde, (3) investigations on the production of glycerine, (4) investigations on the manufacture of chemical products from fish residues, (5) general researches on the corrosion of metals, (6) general researches on high-pressure reactions, including the reactions between carbon monoxide and hydrogen.

These investigations, which were undertaken mainly

<sup>1</sup> Address of the president of Section B—Chemistry, British Association for the Advancement of Science, Bristol, September, 1930.

# Recent McGraw-Hill Books

## *MacLeod and Nason's Chemistry and Cookery*

Some Theories of Chemistry and Applications to Cookery Processes.

By Anne Louise MacLeod, Dean of the College of Home Economics, Syracuse University, and Edith H. Nason, Professor of Foods, Syracuse University. *McGraw-Hill Euthenics Series.* 546 pages, 5½ x 8. \$3.50

A concise and readable presentation of present-day chemical theory and its application particularly to the study of foods. The fundamentals of chemistry are developed from the electronic point of view, in such a way as to reduce the memorization of unrelated facts to the minimum and replace this by the habit of deductive thinking.

## *Liddell's The Metallurgists' and Chemists' Handbook*

New Third Edition

Compiled by Donald M. Liddell, Member of Weld and Liddell, Economists and Engineers. *Third edition.* 847 pages, pocket size, flexible. \$5.00

A thorough revision of this standard reference book of tables and data for the student and metallurgist. The book gives in compact form the most commonly used tables, formulas, constants and reference data. This revision presents much new material covering chemical and metallurgical progress in recent years.

## *Saidla and Gibbs' Science and the Scientific Mind*

By Leo E. Saidla, Assistant Professor of English, Polytechnic Institute of Brooklyn, and Warren E. Gibbs, Instructor in English, Columbia University. 508 pages, 5½ x 8. \$3.00

A collection of non-technical scientific articles dealing with the scientific mind and its relations to the many aspects of modern culture. The essays are the work of such well-known scientists as R. A. Millikan, John Tyndall, Edwin E. Slosson, Thomas Huxley, Henry Fairfield Osborn, Bertrand Russell, J. S. Haldane, Michael Pupin and Thorstein Veblen.

## *Shapley's Star Clusters*

By Harlow Shapley, Professor of Astronomy, Harvard University, and Director of the Harvard Observatory. *Harvard Observatory Monographs.* 276 pages, 6 x 9, 103 illustrations and tables. \$3.00

This book presents a thorough survey of the field of galactic and globular star clusters, showing the part these stellar organizations have played in discovering the transparency of interstellar space, in finding the distance and direction of the center of the Galaxy, and in the general measurement of the dimensions of the sidereal universe.

## *Fitzpatrick's The Lower Fungi—Phycomycetes*

By Harry M. Fitzpatrick, Professor of Mycology, Cornell University. *McGraw-Hill Publications in the Agricultural and Botanical Sciences.* 331 pages, 6 x 9, 112 illustrations. \$4.00

A comprehensive general reference work on the Phycomycetes. This book offers the only complete modern treatment of the taxonomy of the lower fungi available in any language. Keys are provided to all the known genera of the Phycomycetes.

Send for copies on approval

**McGRAW-HILL BOOK COMPANY, Inc.**

Penn Terminal Building

370 Seventh Avenue

New York

## CARNEGIE INSTITUTION OF WASHINGTON

Publications of the Institution present in monographic form the results of its own research activities, and include a few books on other subjects.

Nearly 600 volumes have been issued, representing studies in the following fields:

Archaeology	History
Anthropology	Literature
Astronomy	Mathematics
Biology	Nutrition
Botany	Palaeontology
Chemistry	Palaeography
Ecology	Philology
Economics	Physics
Embryology	Terrestrial Magnetism
Genetics	Zoology
Geology	

Descriptive lists and prices may be obtained by addressing:

**CARNEGIE INSTITUTION OF WASHINGTON**  
WASHINGTON, D. C.

## THE MICROSCOPE

By SIMON H. GAGE, of Cornell University  
Revised, Dark-field Edition (1927) now Available.

The Old and the New in Microscopy, with a special chapter on Dark-field Methods and their Application.

Postpaid, \$3.50

COMSTOCK PUBLISHING CO., ITHACA, N. Y.

### Second Edition; Revised and Enlarged THE RAT: DATA AND REFERENCE TABLES

Memoir No. 6: 548 pages. Bibliography: 2206 titles

**HENRY H. DONALDSON**

Published by THE WISTAR INSTITUTE

Philadelphia, Pa., U. S. A. Price, \$5.00

The Rat: A bibliography. 1924-1929.

L. E. DRAKE and W. T. HERON.

1353 titles—with subject index.

Price—50 cents.

Orders may be sent to

The Wistar Institute, 36th Street & Woodland Ave.,  
Philadelphia, Penna.

### A Guide for the Dissection of the Dogfish

(*Squalus acanthias*, *Squalus sucklii*, or *Mustelus canis*)

5th edition; 32 pages, large octavo; paper cover.

50 cents, postpaid

Lawrence E. Griffin, Reed College, Portland, Ore.

# NATURAL COLOR IN PHOTOMICROGRAPHY

**ARE YOU USING** black-and-white photographs to record a colored subject?

If so, you'll be interested to know that many medical, pathological, and metallurgical research laboratories are using Agfa Color Plates to obtain correct color in photomicrography and other photographic records.

Using Agfa Color Plates, photographically colored transparencies are ready for exhibition or projection fifteen minutes, if necessary, after the exposure is made. Every color in the subject is faithfully recorded, the Agfa Color Plate covering the complete color scale of the spectrum with its myriad gradations.

Agfa Color Plates eliminate expensive hand coloring costs in lantern slides, give an absolutely true record, and can be obtained in less time and with less labor than is involved in black-and-white photographs. And the same camera equipment required for black-and-white plates is used for these Agfa Color Plates.



## COLOR PLATES



The explanation of color photography is intensely interesting. The coupon below will bring you a complimentary copy of the Agfa Color Plate handbook.

AGFA ANSCO OF BINGHAMTON, N. Y.

Please mail me free copy of the Agfa Color Plate handbook

Name \_\_\_\_\_

Address \_\_\_\_\_ C 1

WE DESIGN and manufacture a variety of electrical instruments and accessories for making measurements in the communication-frequency spectrum (0 to several million cycles per second). Our catalog lists the complete line of stock items and indicates the kind of special work we are prepared to undertake. Write for Catalog E-S



## GENERAL RADIO COMPANY

Manufacturers of Electrical Measuring Apparatus  
for Laboratory and Industrial Use

CAMBRIDGE A, MASSACHUSETTS

Frequency Standards  
Tube and Tuning-Fork Oscillators  
Bridges  
Resistance Boxes  
Calibrated Inductors  
Variable Air Condensers  
Attenuation Networks  
Voltage Dividers  
String Oscillograph  
Thermionic and Oxide-Rectifier  
Voltmeters  
Rheostats, Transformers, Relays,  
etc.

## MIRAKEL

DAYLUX  
BINOCULAR



\$35 Stereoscopic pocket  
8 power, 10 oz., 150 yds.  
field.

## \$15 OR MORE FOR YOUR OLD GLASS

To apply on the new improved \$35, Mirakel 7 power, 7 ounce, universal focus prism binocular. A few used ones, guaranteed, for \$19.50. Send for catalogue of new and used makes of glasses.

J. ALDEN LORING,  
Box 8, Owego, N. Y.

## BIOLOGICAL and NATURAL HISTORY MATERIAL



Zoological Groups  
Embryological Slides  
Botanical Life Histories  
Drosophila cultures

Catalogs on request: Address

## MARINE BIOLOGICAL LABORATORY

Supply Department  
Woods Hole, Mass., U. S. A.



## High-Speed MIXERS

Clamp to any tank, operate from light circuit, mix all liquids, maintain even temperature baths. Thousands used in sizes for 1 to 50,000 gallon tanks.

Write for Catalogue  
**ALSO ENGINEERING CO.**  
39 West 60th St., New York

## PHONESCOPE

### Teaches Through the Eye

SOUND, ELECTRICITY  
CAPITAL APPARATUS WORKS

Box 885

Washington, D. C.

## THE SCIENTIFIC MONTHLY

An illustrated magazine, devoted to the diffusion of science.

Annual Subscription, \$5.00.  
Single number, 50 cents.

## THE AMERICAN NATURALIST

A bi-monthly journal, devoted to the biological sciences.

Annual Subscription, \$5.00.  
Single numbers, \$1.00.

## SCHOOL AND SOCIETY

A weekly journal covering the field of education in relation to the problems of American democracy.

\$5.00 a Year 15 cents a Copy

## THE SCIENCE PRESS

Grand Central Terminal, New York City

## PHOTOELECTRIC CELLS

In the world of science the new Type "A" G-M VISITRON photoelectric cell is hailed as the outstanding achievement. Physical and electrical characteristics described in our Bulletin 119. Send for it—it's free!



## GM LABORATORIES INC

1808 Grace Street

Chicago, U. S. A.

## FINE SHELLS

I have one of the largest stocks in the World, 25,000 species. Prices right. Collections furnished of any size, or sent on selection. Look them over in your own home, and pay for what you keep. Send one dollar bill and get fine four-inch land shell, with one of its eggs, white, blown, 1 inch long, fine for teaching. Have hundreds others just as interesting. Get started buying this class of material and you will find teaching easy.

WALTER F. WEBB

202 Westminster Road

Rochester, N. Y.

Use Hoke devices for the control of compressed gases

Ask for folder S-2

Hoke Inc. 22 Albany Street New York City

Hoke Valvo-Gage