

was calculated at eight or nine quanta, each quantum being able to cause the necessary chemical change in one molecule of visual purple in the retina. Professor Hecht pointed out that "judging by the structure of the retina, the structure of light, and the chemistry of visual purple, it is hard to conceive of a biological system which could be more sensitive than this. Certainly there are no physical systems which even approach it."

Better use of the sulfa drugs in treating pneumonia and human ailments may come from laboratory studies was reported to us by Dr. George W. Raiziss, of the Graduate School of Medicine of the University of Pennsylvania, and Dr. M. Severac and J. C. Moetsch, of the Dermatological Research Laboratories of the Abbott Laboratories. Sulfapyridine is a better weapon against the pneumonia germ than sulfathiazole, although the latter is less toxic. Sulfathiazole, on the other hand, gives better results in treating infection with the staphylococcus aureus, the germ commonly thought of as the cause of boils and which also causes a serious form of blood poisoning. The effect of the two sulfa drugs in Type II and Type III pneumonia infections in mice was almost equal in the first 48 hours. After 28 days, however, 28 per cent. of the mice infected with Type II pneumonia and treated with sulfapyridine survived, compared to only 3 per cent. survival of mice treated with sulfathiazole. Of the mice infected with Type III pneumonia germs, 12 per cent. survived following sulfapyridine treatment, but only 3 per cent. survived with sulfathiazole treatment.

Dr. Harvey C. Rentschler, director of research for the

Westinghouse Lamp Laboratories, reported that germs inherit strong or weak constitutions from their ancestors, and the strength of a germ varies according to the stage of its life cycle. During a germ's weakest moment it is eight to ten times less strong than during its most healthy period of life. This variation is considerably greater than was suspected and must be seriously considered in making tests of the efficiency of germ-killing agents. Studies of the germ-killing action of ultraviolet rays led to Dr. Rentschler's discoveries about the strength and weakness of bacteria and also shed new light on how radiation affects bacteria. Contrary to the generally accepted "single photon hit" theory, according to which bacteria are either killed or escape unscathed when subjected to lethal radiation, Dr. Rentschler found that bacteria may be injured, if not killed outright, by sublethal doses.

Dr. True W. Robinson, of the University of Illinois, reported that one of the substances that promotes growth of roots in plants was found to be effective in checking growth of one type of cancer in mice. He soaked pieces of mouse sarcoma tissue in a solution of indole-3 acetic acid, and then transplanted them into the bodies of mice. In eighteen experiments, only one piece "took," while in parallel control experiments with similar tissue not given the preliminary soaking, all 18 sarcomas grew. In other experiments, Dr. Robinson tried the effects of injecting the indole-3 acetic acid into the mice themselves, both before and after they had received implants of sarcoma tissue. These experiments also indicated that the acid has an inhibitory effect on the growth of the sarcoma.

INDEX TO ADVERTISEMENTS

Akatos, Inc. 34
Aloe Company, A. S. 50
American Electric Incubator Co. 77
American Genetic Association 24
American Instrument Co. 49
American Paulin System 20
American Telephone & Telegraph Co. 26
Angel & Co., Inc., H. Reeve 9
Associated Students Bookstore 77
Bausch & Lomb Optical Co. 40
Becker Inc., Christian 51
Biddle Co., James G. 33
Blakiston Company 2
Brooklyn Botanic Garden 74
Bureau of Publications, Teachers College, Columbia Univ. 74
Burke & James, Inc. 16
Cambridge Instrument Co., Inc. 20
Cargille, R. P. 17
Carnegie Institution of Washington 74
Carver, Fred S. 35
Central Scientific Company 39
Chicago Apparatus Company 12
Chicago Press, University of 72
Chronica Botanica Co. 73
Clay-Adams Co., Inc. 9, 24
Coleman & Bell Co. 22
Corning Glass Works 79
Denoyer-Geppert Company 15
Duke University Press 73
Eastern Engineering Company 48
Ednal Company, Inc. 22
Edwards Brothers, Inc. 77
Electro-Medical Laboratory, Inc. 19
Frober-Faybor Co. 16
Gaertner Scientific Corp. 23
General Biological Supply House, Inc. 14, 23
General Electric X-Ray Corporation 37

Ginn and Company 74
Glass Industries, Inc. 17
Harper and Brothers Publishers 64
Hartman-Leddin Company 21
Harvard Apparatus Company, Incorporated 47
Hengar Company 15, 21
Hoke, Inc. 22, 77
Holt and Company, Henry 61
Houghton Mifflin Company 70
International Emulsifiers 19
International Equipment Co. 27
International Textbook Company 70
Interscience Publishers, Inc. 65
Kern Company 77
Laboratory Construction Company, Inc. 38
LaMotte Chemical Products Co. 24
Lea & Febiger 68
Leitz, Inc., E 25
Linde Air Products Company 18
McGraw-Hill Book Co., Inc. 62, 63
Macmillan Company 58, 59, 60
Marine Biological Laboratory 75
Matheson Company 22
Menasha Products Co. 22
Merck & Co., Inc. 7
Minnesota Press, University of 71
Mosby Company, C. V. 69
National Technical Laboratories 32
Neville Company 21
New York Scientific Supply Co. 51
Offner-Electronics 45
Pacific Animal Supply 77
Parr Instrument Company 19
Paragon C. & C. Co. 13, 36
P.C. 77
PerfeKtum Products Co. 29
Phipps & Bird, Inc. 78
Photovolt Corporation 18

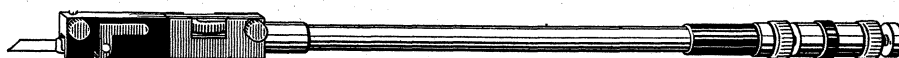
Polaroid Corporation 20
Powers and Powers 16
Precision Optical Supply Co. 77
Psychological Corporation 76
Purina Mills 14
Radio Corporation of America 41
Rahm Instruments Inc. 30
Reinhold Publishing Corporation 66, 67
Research Laboratories, S.M.A. Corporation 8
Rex Rheostat Co. 20
Ross, Harry 77
Ryker, Inc., Harrison C. 24
Saunders Company, W. B. 1, 3
Schwarz Laboratories, Inc. 77
Science Press, 75, 76, 77
Science Press Printing Co. 10, 11
Sorvall, Ivan 13
Spencer Lens Co. 80
Spindler & Sauppe, Inc. 18
Standard Scientific Supply Corp. 28
Stanford University Press 73
Synthetical Laboratories 77
Taylor & Co., Inc. 22
Tech Laboratories 22
Thomas Company, Arthur H. 18, 31
Triplett Electrical Instrument Co. 12
Troemner, Henry 19
Upjohn Company 6
Warren-Knight Co. 17, 21
Welch Scientific Company, W. M. 78
White Company, O. C. 49
Wiley & Sons, Inc., John 52, 53, 54, 55, 56, 57
Williams & Wilkins Company 4, 5
Wilmot Castle Company 50
Wisconsin Press, University of 73
Yale University Press 72
Zeiss, Inc., Carl 43

SCIENCE IS PRINTED BY THE SCIENCE PRESS PRINTING COMPANY, LANCASTER, PENNSYLVANIA

Estimates for printing scientific books, monographs and journals supplied on application

PHYSIOLOGICAL APPARATUS

for SCHOOLS *and* COLLEGES



THE 10 mm. Magnet—a magnetic signal with self-contained relay. One-half the actual size. Two binding-posts on the casing place in independent circuit an enclosed magnetic key which registers the instant of interruption. The coil is served by terminals at end of rod. The vibrator is tuned to 120 d.v. per second for 60-cycle a.c. with low-voltage transformer.

THE Harvard Apparatus Company is incorporated as a non-profit organization for the furtherance of teaching and investigation in the Medical Sciences.

In providing sound apparatus for the student at low cost, it perpetuates an enterprise originating many years ago in the machine-shop of a university laboratory as a contribution to the growth of American physiology.

Its product now goes direct to laboratories on every continent—to high-schools, junior colleges, universities, and institutes for advanced research.

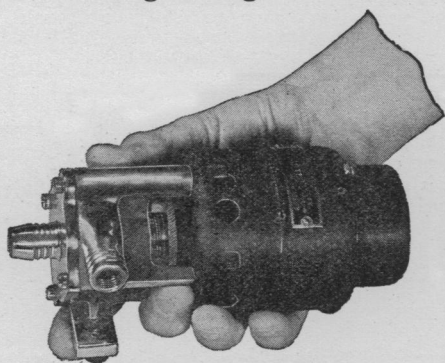
Write for a descriptive catalogue

The HARVARD APPARATUS COMPANY, *Incorporated*

Dover, Massachusetts

IF IT'S AN EASTERN *it's the BEST OF ITS KIND*

In the field of laboratory equipment, the Eastern Engineering Company has won far-flung recognition for performance far out of the ordinary. Eastern Midget Pumps, in particular, cover an almost unlimited range of applications; other Eastern laboratory equipment is equally noted for dependability and sound engineering.



Models A and B

For laboratory work and experiments of all kinds. Identical in size, these pumps differ in power and performance. Model A has a 1/100 HP motor, while Model B is rated at 1/20 HP.

Type: Centrifugal. Universal motor

Size: $4\frac{1}{4} \times 2\frac{3}{4} \times 2\frac{1}{2}$

Weight: $2\frac{3}{4}$ lbs.

Maximum capacity

Model A 4.5 gals.

per minute

Model B 7 gals.

per minute

Maximum pressure

Model A 11 lbs. per square inch

Model B 17 lbs. per square inch

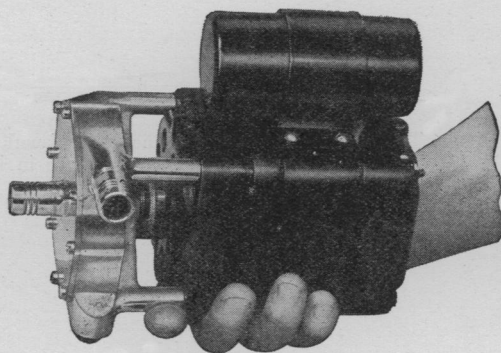
115 volts D.C. or 25-60 cycles A.C.

Prices:

Model A \$18.50 Model B \$21.50

Model A \$21.50 Model B \$24.50

Chromium plated bronze
Monel metal or stain-
less steel



Model D

For continuous duty in industrial or laboratory operations. Sparkproof motor is safe under hazardous conditions.

Type: Centrifugal

Weight: 14 lbs.

Size: $7\frac{3}{4} \times 6\frac{3}{8} \times 5\frac{1}{2}$

1/20 HP split capacitor motor 115 volts,
60 cycle, single phase

Maximum capacity 5 gals. per minute

Maximum pressure 17 lbs. per square inch

Chromium plated bronze \$35.00

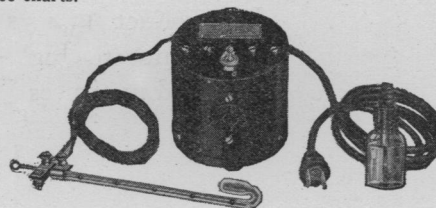
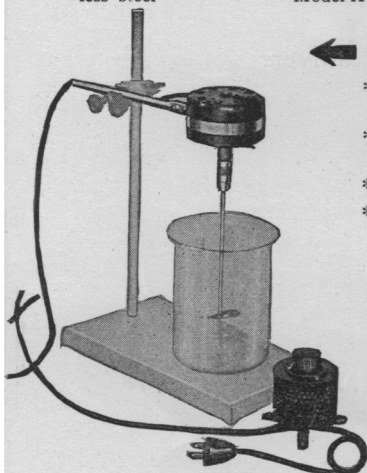
Monel metal or stainless steel \$44.50

Write for our Midget Pump Catalog, describing our full line of pumps, and giving complete specifications and performance charts.

← Laboratory Stirrers

- * Variable speed models for laboratory use
- * All sizes for industrial service
- * Monel metal propellers
- * Precision built throughout

Write for catalog



Precision Temperature Regulator

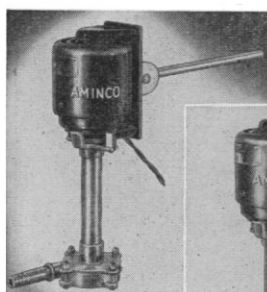
Accurate—Dependable—Portable—Inexpensive

Ideal for ovens, incubators, water baths, oil baths, organic reaction mixtures and general laboratory service. Responds to temperature changes of $1/50^\circ$ Centigrade. Range up to 300° C. Relay units available for 110 volt, 60 cycles A.C., and also for 110 volt D.C. Handles heaters up to 1100 watts. Price \$18.50.

EASTERN ENGINEERING COMPANY

39 Fox Street

New Haven, Conn.



*New
Improved*



Three Types of Mounting

Laboratory support rod mounting and C-clamp mounting (illustrated), also flange mounting.

CAPACITIES
With 6 ft. of $\frac{3}{8}$ -in. i. d. tubing

Head, ft.	Capacity, gal. per min.
0	2.4*
1	2.1
2	1.8
3	1.5
4	1.3
5	0.9

* With $2\frac{1}{2}$ ft. of $\frac{3}{8}$ -in. i. d. tubing at no head, capacity is 3.75 gal. per min.

Continuous Duty Laboratory CIRCULATING PUMP

Can Be Used Also as a Stirrer

NO HEAT LOSSES . . . intended for submergence in the liquid to be circulated, there are no heat losses through the pump . . . ideal for circulating water or oil through refractometers, condensers, etc., and for other constant temperature applications.

DESIGNED FOR CONTINUOUS OPERATION . . . husky, dependable, and long-lived.

NO PARTS TO WEAR OUT . . . no bearings, packing, stuffing boxes or glands in the pump . . . no parts to rust . . . no replacement expense or bother.

NO LUBRICATION REQUIRED . . . the only bearings are in the motor, and these are grease-sealed.

NO CONTAMINATION OF CIRCULATING LIQUID . . . as no lubricant is used in the pump, contamination of the circulating liquid is impossible from this source.

NO EXTERIOR MOVING PARTS.

COMPACT . . . easily portable . . . weighs only 11 lb.

CENTRIFUGAL TYPE WITHOUT BEARINGS . . . double intake . . . nickelplated brass casing and stainless steel impeller shaft, or made entirely of monel metal or stainless steel.

SPARKLESS MOTOR . . . grease-sealed . . . ball-bearing . . . fan-cooled . . . rubber mounted induction type . . . 1/30 hp. . . without brushes or commutator . . . quiet in operation . . . non-sparking . . . safe to use in the presence of inflammable gases.

*Fully
Described in*
**BULLETIN
2086-A**

AMERICAN INSTRUMENT CO.

8010 GEORGIA AVENUE • SILVER SPRING, MARYLAND

"WHITE" Adjustable Portable Lamp—Style No. PR4B

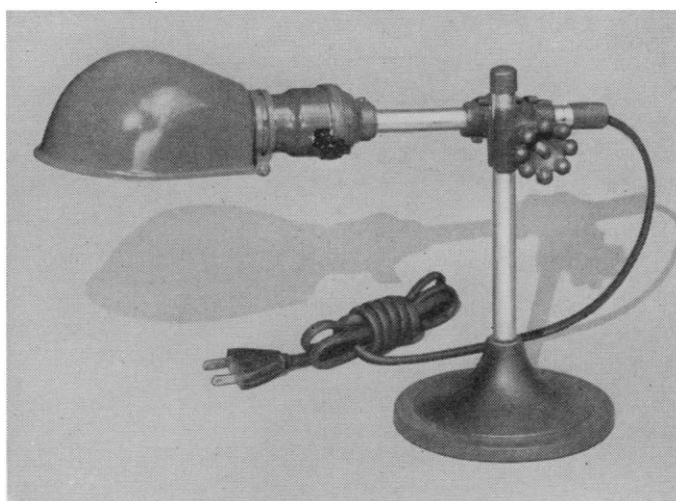
Useful Lighting in the Laboratory

A new departure in laboratory lighting. The style No. PR4B Portable is a Plus Lamp and it should never be the only source of light in a room. It is designed to add the proper quantity of suitable lighting for close application in laboratory study.

Its small size and modest finish make it inconspicuous and it does not interfere with the view of others in the same room. It is provided with adequate frictional adjustability to secure highest efficiency for its intended purposes.

This is the Lamp that is highly regarded by two nationally prominent universities for whom it was especially developed and it has aroused much interest in various biological summer stations where it accompanied members of the staff.

Write for illustrated bulletin and prices.



THE O. C. WHITE COMPANY—WORCESTER, MASSACHUSETTS

Built to give you precision work

Castle Incubators are precise because we have built into them every safeguard for the precision technique so important in accurately evaluating your results. Take for example such features as:

Temperature Uniformity $\pm \frac{1}{2}^{\circ}$ C. Radiation from the five sides of the water jacket maintains an even temperature. No matter where you place your dishes, results always check for there is never as much as a degree variation between top and bottom chambers.

$1\frac{1}{2}$ in. Water Jacket stores up residual heat, preventing a decided drop in temperature when the chamber door is open.

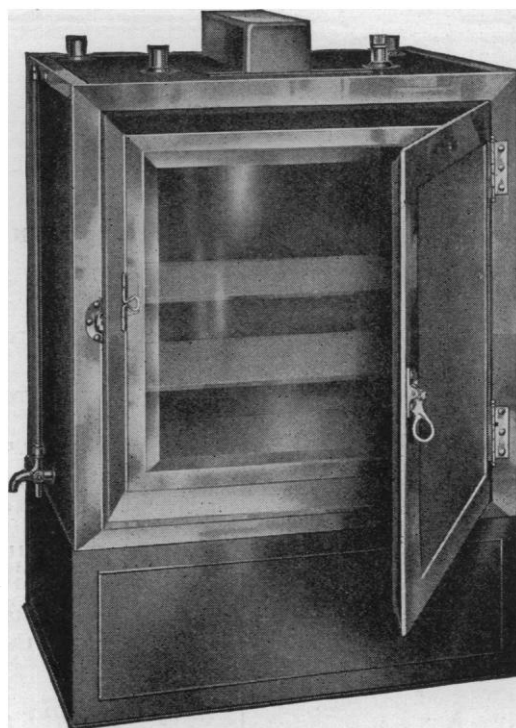
Constancy of Humidity. This eliminates the tendency of drying cultures inherent in incubators heated by gravity convection. All space is available so these incubators may be heavily loaded.

Built for Lifetime Service. These triple walled incubators are sturdily made, literally to last a lifetime. The middle and inner walls are of unusually heavy copper. Outer wall has rust-proof casing covered with thick cork. Dead air space, far superior in insulation efficiency, surrounds the incubator on all six sides outside of the water jacket. Shelves are adjustable and additional shelves are available.

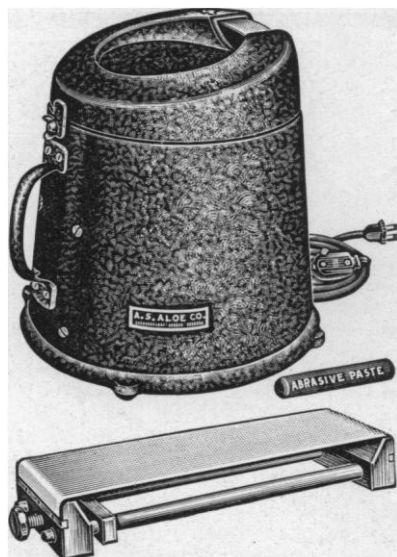
WILMOT CASTLE CO.

1212 UNIVERSITY AVE.

ROCHESTER, N. Y.



No. 540—Table Model is especially recommended for hospital laboratories and research—100% usable space—inside dimensions, 19" high x 18" wide x 14" deep.



Above, the sharpener. The wheel sits at a slight angle, permitting ease in holding knives on either side. Below, the linen strop.

Microtome Knife Sharpening at low cost, with improved results!

The ALOE

Precision Microtome Knife Sharpener

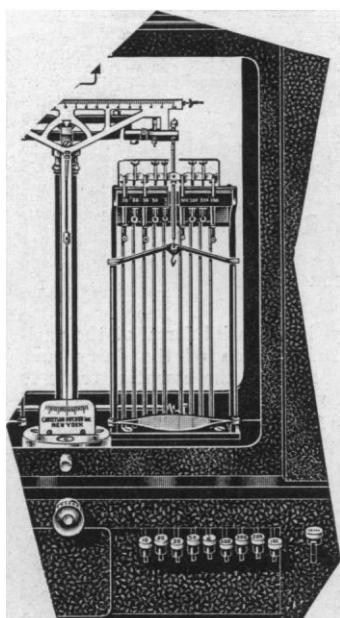
Developed by a manufacturer of fine microtome knives, and used commercially for resharpener, this machine has been thoroughly tested by long use. The apparatus consists of a special honing wheel operated by a motor. The desired bevel is always obtainable by use of knife backs of differing diameter, the back and knife edge being held evenly against the wheel during sharpening. Knives may be sharpened with the Aloe Precision Sharpener a hundred or more times before re-grinding becomes necessary. A few strokes on the linen strop provided smooths off the burr, leaving a perfect edge.

JL19-462—Aloe Precision Electric Microtome Knife Sharpener (For 110 V., A.C.) complete, with strop \$87.50

A. S. ALOE COMPANY

Clinical Laboratory
Supply Division

19th & Olive Sts.
ST. LOUIS, MO.



Christian Becker
Keyboard Analytical Balance No. 708-A
 (Patented)

Send for Bulletin No. 673

BALANCES
and WEIGHTS
of Precision

Analytical
 Assay
 Air Dash Pot
 "Chainomatic"
 Dairy
 Drug

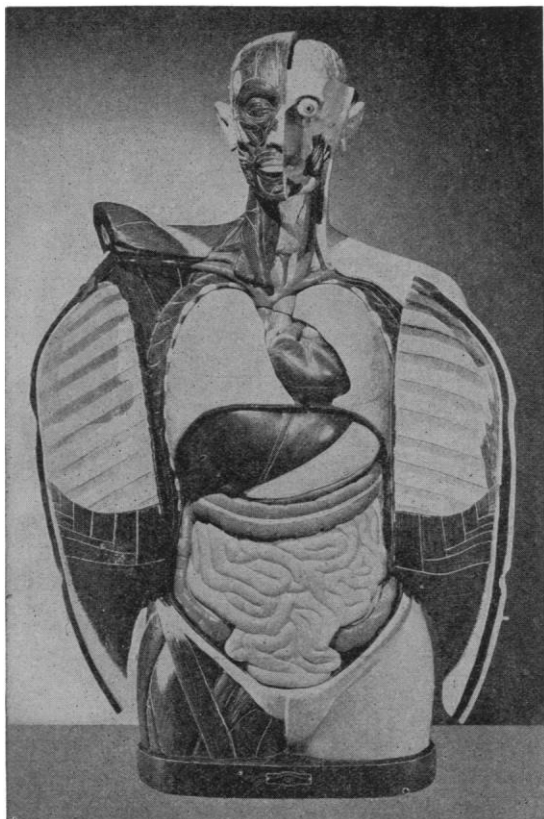
Laboratory
 Magnetically Damped
 Micro
 Projection
 Specific Gravity
 Surface Tension, etc.

Several Exclusive Features

CHRISTIAN BECKER INC.

Sales Offices:

92 Reade Street, New York City; 228 North La Salle Street, Chicago; 1400 Sixteenth Street, San Francisco
 Factory: 147-153 Eighth St., Jersey City, N. J.



RUBBER BIOLOGICAL MODELS

WITH our new rubber models for Human Anatomy, Zoology, and Botany, we make available to the Biology instructor a series of *truly unbreakable models*.

NO longer is it necessary to be nervous about the student touching or handling models. On the contrary, he can tip them over, strike them with other objects, even drop them to the floor, without damage; which would be impossible with models made of ordinary papier maché, plaster, or other compositions. Our rubber technicians have developed a compound that is not only tough and resilient in the finished models, but also markedly lighter in weight,—a feature which will be most welcome. Scientific accuracy, artistic presentation of parts, good workmanship, and high quality of materials are maintained at our usual standard.

BEFORE making out your requisition for supplies and equipment, consult our **Catalogue No. 7G**, describing and illustrating the new **NYSSCO-LATEX Biological Models**.

USE A NYSSCO-LATEX MODEL AND BE CONVINCED



NEW YORK SCIENTIFIC SUPPLY CO.

111-113 East 22nd Street

New York, N. Y.

Recent Wiley Books

Agriculture

Insect Pests of Farm, Garden and Orchard

By
Leonard M. Peairs
West Virginia University

A concise but adequate summary of the groups of insects and their classification, with particular attention to those groups which include important pests, predators and parasites. *Fourth Edition.* 549 pages. \$4.00.

Growing Trees and Small Fruits

By
H. B. Knapp
New York State Institute of Applied Agriculture, Farmingdale, L. I., and E. C. Auchter
Bureau of Plant Industry, Washington, D. C.

The latest information is included in this revised edition. New packing methods for apples, marketing data, preservation of fruit in storage, etc., are covered. *Second Edition.* 615 pages. \$2.75.

Soil Physics

By
L. D. Bayer
North Carolina State College

A college textbook for one-quarter or one-semester courses on the fundamentals and the applied aspects of soil physics. For use by advanced undergraduates and graduate students. 370 pages. \$4.00.

Astronomy

By
Clyde Fisher and Marian Lockwood
Both at the Hayden Planetarium

Biology

By
Howard M. Parshley
Smith College
Edited by **Gerald Wendt**

A brief, inclusive, modern account of scientific biology, setting forth concisely those principles which form the foundation of biology. Phases of plant and animal life are used equally to illustrate the facts presented. 232 pages. *College Edition.* \$1.75.

Judging Dairy Cattle

By
Edwin S. Harrison
Cornell University

A complete study, in pictorial form, of the variations in the conformation of the dairy cow. The text matter describes the essential features and the effect of variations on the usefulness of the cow. 132 pages. \$2.75.

Poultry Breeding

By
Morley A. Jull
University of Maryland

The many advances in breeding, rearing, feeding and kindred subjects are reflected in the completely revised second edition of this comprehensive book. *Second Edition.* 484 pages. \$4.00.

Practical Poultry Management

By
James E. Rice and Harold E. Botsford
Both at Cornell University

Long a standard textbook in vocational agriculture, "Rice and Botsford" has again been thoroughly revised and important data have been added throughout the book. *Fourth Edition.* 604 pages. \$2.75.

Astronomy

Edited by **Gerald Wendt**
A short, informative survey of the Earth as an astronomical body, of the solar system and the relations of its members to each other, and their place in the universe. 205 pages. *College Edition.* \$1.75.

Biological Sciences

Introduction to Parasitology

By
Asa C. Chandler
The Rice Institute

A standard work for more than twenty years. The contents have been broadened to include reference to or brief discussion of the more important parasites of the domestic animals. *Sixth Edition.* 698 pages. \$5.00.

JOHN WILEY & SONS, INC.

440 Fourth Avenue
New York

Recent Wiley Books

Elements of Botany

By

The late Richard M. Holman and
Wilfred W. Robbins
University of California

Follows the organization and approach of the earlier editions. Such subjects as hydroponics, root systems in relation to soil erosion, artificial pollination, etc., are included. *Third Edition.* 392 pages. \$2.75.

Atlas of Outline Drawings of the Dogfish Shark, the Necturus, and the Cat, for Vertebrate Anatomy

By

Samuel Eddy,
Clarence P. Oliver, and
John P. Turner
All at the University of Minnesota

Outline drawings to accompany the authors' "Guide to the Study of the Anatomy of the Shark, the Necturus and the Cat." An unusually large number of drawings is included. 69 sheets. \$1.50.

Chemistry

Fundamental Chemistry

By

Horace G. Deming
University of Nebraska

For college undergraduate courses. The book is designed to reveal the spirit of modern chemistry and to give a brief survey of its achievements. 756 pages. \$3.50.

Quantitative Analysis

By

Willis C. Pierce
University of Chicago, and
Edward L. Haenisch
Villanova College

A second revised edition of a successful textbook. The chapters on theory have been completely rewritten, with additional material, and the laboratory directions altered and clarified. *Second Edition.* 462 pages. \$3.00.

An Introduction to Organic Chemistry

By

Alexander Lowy
University of Pittsburgh, and
Benjamin Harrow
City College, College of the City of New York

The changes in this edition include questions at the end of each chapter, a page of up-to-date models of organic molecules, a revised system of group and ring nomenclature, and revision of several chapters. *Fifth Edition.* 400 pages. \$3.00.

The Systematic Identification of Organic Compounds

By

Ralph L. Shriner and
Reynold C. Fuson
Both at the University of Illinois

Recently developed methods for the identification of organic compounds are incorporated in this thoroughly revised edition. Numerous new compounds and new derivatives have been added. *Second Edition.* 312 pages. \$2.75.

Introductory Readings in Chemical and Technical German

Edited by

John T. Fotos and
John L. Bray
Both at Purdue University

This book is a part of the four-volume Purdue series for students of chemistry and other sciences. It is suitable for use by those who have had elementary German grammar. 303 pages. \$2.50.

Introductory College Chemistry

By

Neil E. Gordon
Central College, and
William E. Trout, Jr.
Mary Baldwin College

Written from the standpoint of the learning process of the student, this volume offers an unusual integration of text, laboratory manual, and workbook. *Second Edition.* 753 pages. \$3.50.

JOHN WILEY & SONS, INC.

440 Fourth Avenue
New York

Recent Wiley Books

An Introduction to Chemical Science

By
W. H. Hatcher
McGill University

An exact, yet cultural survey, stressing economic features and applications to modern life. The book is intended for use in a complete, non-specialist course for liberal arts students. 423 pages. \$3.00.

Semi-Micro Qualitative Analysis

By
Carl J. Engelder
University of Pittsburgh
Tobias H. Dunkelberger
Duquesne University, and
William J. Schiller
Mount Mercy College

This thoroughly revised edition includes the re-writing of the theoretical material, a revision and improvement of the cation section, and a completely new anion scheme. *Second Edition.* 305 pages. \$2.75.

Laboratory Outlines and Notebook for Organic Chemistry

By
Cecil E. Boord and
Wallace R. Brode
Both at Ohio State University, and
Roy G. Bossert
Ohio Wesleyan University

A guide for laboratory work to accompany the usual lecture course in organic chemistry given to chemistry majors. The book is adaptable to either full-year or shorter courses. 241 pages. \$1.75.

Laboratory Manual of Elementary Organic Chemistry

By
George Holmes Richter
The Rice Institute

An elementary manual offering sound instruction in the technique and principal reactions of organic laboratory work. The exercises illustrate the important features of organic laboratory pedagogy. 128 pages. \$1.25.

An Introduction to Organic Chemistry

By
Ira D. Garard
New Jersey College for Women

Much descriptive material, and such additional reactions as are suitable for inclusion in a brief book of this nature, have been inserted. New experiments are given. *Second Edition.* 389 pages. \$3.00.

Twelfth Report of the Committee on Catalysis

National Research Council

A discussion of the state of progress today in catalytic research. Each chapter not only introduces the reader to current literature and research, but coordinates the results of these studies. 388 pages. \$5.00.

Statistical Mechanics

By
Joseph E. Mayer and
Maria G. Mayer
Both at Columbia University

A textbook for chemists, suitable for a course to be given in the senior or first graduate year. Emphasis is placed on the relationship between thermodynamics and statistics. 495 pages. \$5.50.

A Textbook of Fire Assaying

By
Edward E. Bugbee
Massachusetts Institute of Technology

This third edition is based on the principle that the student should understand the underlying reasons for what he does. The book starts from fundamentals, and the chemistry of all the reactions involved is clearly explained. *Third Edition.* 314 pages. \$3.00.

The Chemical Constitution of Natural Fats

By
T. P. Hilditch

In this volume the natural fats are considered as a group of natural organic compounds and are treated primarily from the standpoint of their chemical constitution. 438 pages. \$6.50.

JOHN WILEY & SONS, INC.,

440 Fourth Avenue
New York

Recent Wiley Books

Chemical Computations and Errors

By
Thomas B. Crumpler
Tulane University, and
John H. Yoe
University of Virginia

A book written by chemists, for the use of chemists and students of chemistry. It is designed to assist the student to interpret mathematical equations more readily. 247 pages. \$3.00.

Handbook of Chemical Microscopy. Volume II

By
E. M. Chamot and
C. W. Mason
Both at Cornell University

This volume describes the essential manipulative methods in detail, and presents a compilation of the most dependable tests for the inorganic cations and anions. *Second Edition.* 438 pages. \$5.00.

Organic Syntheses

Volume 20
Edited by C. F. H. Allen
Eastman Kodak Company

The methods developed during the past year in the preparation of organic chemicals. 113 pages. \$1.75.

Earth Sciences

Historical Geology

(Part II of Textbook of Geology)

By
Charles Schuchert and
Carl O. Dunbar
Both at Yale University

Among the many changes in this edition are a new chapter developing the reasoning employed in interpreting the stratigraphic record, a new treatment of the history of the Rocky Mountain region, and revised illustrations. *Fourth Edition.* 544 pages. \$4.00.

Earth Sciences

By
J Harlen Bretz
University of Chicago
Edited by Gerald Wendt

An elementary but sound study of the major fields of geology, physical geography, oceanography, and meteorology. Intended for use in an introductory or survey course. 260 pages. *College Edition.* \$1.75.

Principles of Economic Geography

By
Ellsworth Huntington
Yale University

In this volume *principles* are stressed throughout. After a discussion of the simplest elements of the subject, the physical conditions of earth, air and water are treated, and the plants, animals and minerals that provide basic commodities. 715 pages. \$4.00.

Principles of Human Geography

By
Ellsworth Huntington

Here the physical background is taken up first, in not too detailed fashion. The remainder of the book emphasizes the relation of the physiographic environment to man's activities. *Fifth Edition.* 594 pages. \$3.50.

College Geography

By
E. C. Case and
D. R. Bergsmark
Both at the University of Cincinnati

Particular emphasis is given in this edition to problems of human adjustment to the natural environment. The content is thoroughly up to date. *Second Edition.* 729 pages. \$4.00.

Coal

By
Elwood S. Moore
University of Toronto

This second edition discusses physical and chemical properties of coal, its origins, methods of classification, and structural features. New viewpoints, new discoveries, and new methods are incorporated. *Second Edition.* 473 pages. \$6.00.

JOHN WILEY & SONS, INC.

440 Fourth Avenue
New York

Recent Wiley Books

Mathematics

Wiley Trigonometric Tables

In addition to the usual trigonometric tables, this volume includes tables of powers and roots, *S* and *T* tables for accurate computation with special angles, and a set of frequently used constants. 81 pages. \$.75.

An Introduction to Abstract Algebra

By
C. C. MacDuffee
Hunter College

A textbook for beginning graduate students. Most of the material is classical, but the selection and method of presentation are designed to orient the student. 303 pages. \$4.00.

A Treatise on Advanced Calculus

By
Philip Franklin
Massachusetts Institute of Technology

While this book deals primarily with infinitesimal calculus, prerequisite parts of algebra and analysis and concepts needed for applications to geometry and physics have not been excluded. 595 pages. \$6.00.

Exterior Ballistics

By
Col. Thomas J. Hayes
United States Army

This book comprises Chapters X and XII of the author's larger book entitled "Elements of Ordnance." 98 pages. \$1.00.

Physics

Foundations of Modern Physics

By
T. B. Brown
The George Washington University

For students in all fields of learning this book makes possible an acquaintance with the fundamental discoveries of modern physics, together with some understanding of the theories whereby these discoveries are developed and interpreted. 333 pages. \$3.25.

College Physics

By
John A. Eldridge
State University of Iowa

A revised edition of a successful elementary textbook, for physics majors as well as liberal arts students. Expanded discussions clarify the subject matter. New problems and new data have been added. *Second Edition*. 648 pages. \$3.75.

Television—The Electronics of Image Transmission

By
V. K. Zworykin and
G. A. Morton
Both at RCA Manufacturing Company

A detailed survey of this newest of practical means of communication. The book is written from an engineering standpoint. 646 pages. \$6.00.

General Physics for Students of Science

By
Robert Bruce Lindsay
Brown University

An elementary book introducing the fundamental concepts of physics in logically rigorous fashion for students who have had mathematics through elementary calculus. 534 pages. \$3.75.

Proceedings of the Seventh Summer Conference on Spectroscopy

By
George R. Harrison
Massachusetts Institute of Technology

The twenty-nine papers of the 1939 Conference, presenting latest developments in the applications of the rapidly-growing science of spectroscopy. 154 pages. \$2.75.

[[The 1941 general catalog of Wiley books is now available, and will be sent on request to anyone interested.]]

JOHN WILEY & SONS, INC.

440 Fourth Avenue
New York

Recent Wiley Books

In press

Dana's Manual of Mineralogy

Revised by
Cornelius S. Hurlbut, Jr.
Harvard University

For the elementary course for undergraduates. The revision brings the book up to date and represents a more complete presentation of mineralogy in a much improved form. A mineral index is given. *Fifteenth Edition.* Ready in March. Probable price, \$4.00.

The Chemistry of Powder and Explosives

Volume I
By
Tenney L. Davis
Massachusetts Institute of Technology

This first volume of a two-volume text- and reference-book includes chapters on the properties of explosives, black gunpowder, pyrotechnics and aromatic nitrogen compounds. Ready in March. Probable price, \$3.00.

The Chemistry of Pulp and Paper Making

By
Edwin Sutermeister
S. D. Warren Company

In as simple language as possible, this book presents the chemical aspects of the pulp and paper industry. Thirteen contributors, all authorities in their fields, have prepared material for this revision. *Third Edition.* Ready in February. Probable price, \$6.50.

A First Year of College Mathematics

By
Henry J. Miles
University of Illinois

A textbook for a two-semester, five-hour freshman course in college mathematics. It includes college algebra, plane trigonometry, plane and solid analytic geometry, and a certain amount of beginning calculus. Ready in April. Probable price, \$3.00.

Dairy Cattle

By
**W. W. Yapp and
W. B. Nevens.**
Both at the University of Illinois

The methods described are again based upon the latest tested and approved practice of successful dairymen, and upon the results of recent scientific investigations. *Third Edition.* Ready in March. Probable price, \$2.50.

Farm Soils

By
Edmund L. Worthen
Cornell University

The results of extensive experimental and research studies have been incorporated, along with changes in recommended practices brought about through field demonstrations and the experience of successful farmers. *Third Edition.* Ready in March. Probable price, \$2.75.

The Body Functions

By
Ralph W. Gerard
University of Chicago

Edited by **Gerald Wendt**
This volume on the human body and on human biology is organized upon the basic concepts of function; its emphasis is chemical rather than anatomical. A sound, thorough, though compact survey of physiology as the basis of the medical sciences. Ready in April. Probable price, College Edition, \$1.75.

Identification of Pure Organic Compounds

By
Ernest H. Huntress
Massachusetts Institute of Technology, and

The late **S. P. Mulliken**
This book presents tables of data on selected compounds of Order I (compounds of carbon with hydrogen or with hydrogen and oxygen). The original Mulliken classification has been retained. The careful arrangement and completeness of information make the book a valuable tool. Ready Spring 1941. Probable price, \$7.50.

JOHN WILEY & SONS, INC.

440 Fourth Avenue
New York

Macmillan Science Books, 1940-41

Books on
science
for
laymen

THE SOCIAL RELATIONS OF SCIENCE By J. G. Crowther	<i>A distinguished scientist discusses the past and future of this important problem.</i>	\$3.50 Jan. 21
MAN ON HIS NATURE By Sir Charles Sherrington	<i>A great biologist expresses his philosophy.</i>	\$3.50 Mar. 4
SCIENCE AND EVERYDAY LIFE By J. B. S. Haldane	<i>About 70 brief articles on provocative topics.</i>	\$2.00 published
LIFE ON OTHER WORLDS By H. Spencer Jones	<i>The Astronomer Royal tells what science can postulate about life on other planets.</i>	\$3.00 published
BIOLOGICAL ASPECTS OF INFECTIOUS DISEASE By F. M. Burnet	<i>Gives the layman a new insight into the nature of disease.</i>	\$3.75 published

Texts for
college
courses
in
Biology

MAN AND THE LIVING WORLD By E. E. Stanford	<i>For orientation courses. Comprehensive, well written, lavishly illustrated.</i>	\$3.50 published
FOUNDATIONS OF BIOLOGY. 6th Ed. By L. L. Woodruff	<i>Thoroughly revised edition of one of the most widely used texts.</i>	Ready in April
GENERAL BIOLOGY. 2nd Ed. By J. W. Mavor	<i>A well liked text revised in the light of extensive classroom use.</i>	Ready in May
COMPARATIVE EMBRYOLOGY OF VERTEBRATES By A. F. Huettnner	<i>Many large, original illustrations; modern approach and interpretation.</i>	Ready in May
DYNAMICS OF INFLAMMATION By Valy Menkin	<i>The latest volume in the Experimental Biology Monograph series.</i>	\$4.50 published
TEXTBOOK OF ZOOLOGY. 6th Ed. By T. J. Parker and W. A. Haswell	<i>The new edition, revised by Otto Loewenstein, of a standard reference work.</i>	2-vol. set \$16.00
GENERAL ZOOLOGY OF THE INVERTEBRATES By G. S. Carter	<i>For advanced students. Originally published in England.</i>	\$5.50 published
INTRODUCTION TO THE STUDY OF FOSSIL PLANTS By John Walton	<i>For courses in paleobotany, thoroughly up to date.</i>	\$3.75 published

The Macmillan Company, 60 Fifth Avenue, New York

Macmillan Science Books, 1940-41

<p>↑</p> <p><i>Texts for college courses in Chemistry and Physics</i></p> <p>↓</p>	PRINCIPLES OF CHEMISTRY. 4th Ed. By J. H. Hildebrand		\$2.50
	A COURSE IN GENERAL CHEMISTRY. 3rd Ed. By W. C. Bray and W. M. Latimer	<i>The essential theory, laboratory work, and reference materials for a thorough course in general chemistry.</i>	\$1.60
	REFERENCE BOOK OF INORGANIC CHEMISTRY. 2nd Ed. By W. M. Latimer and J. H. Hildebrand		\$4.00 <i>published</i>
	FUNDAMENTALS OF SEMIMICRO QUALITATIVE ANALYSIS By E. B. Kelsey and H. G. Dietrich	<i>Helpfully clear and detailed text for teachers using this new technique.</i>	\$2.75 <i>published</i>
	ELEMENTARY LABORATORY EXPERIMENTS IN ORGANIC CHEMISTRY. 3rd Ed. By Roger Adams and J. R. Johnson	<i>Interesting, up-to-date experiments for a full year's course.</i>	\$2.00 <i>published</i>
	CALCULATIONS OF QUALITATIVE ANALYSIS By L. J. Curtman and S. M. Edmonds	<i>A large selection of problems, together with the necessary theory.</i>	\$2.00 <i>published</i>
	GENERAL CHEMISTRY. 4th Ed. By H. N. Holmes	<i>A thorough revision brings up to date one of the best of the standard texts.</i>	<i>Ready in May</i>
	CHEMISTRY OF FOOD AND NUTRITION. 6th Ed. By H. C. Sherman	<i>The standard text for this subject, brought up to date.</i>	<i>Ready in April</i>
	A COLLEGE COURSE OF INORGANIC CHEMISTRY By J. R. Partington	<i>A new text by a well-known British author.</i>	\$2.50 <i>published</i>
	INTERMEDIATE CHEMICAL CALCULATIONS By J. R. Partington and Kathleen Stratton	<i>An English text for fairly advanced work.</i>	\$1.80 <i>published</i>
<p>↑</p> <p><i>Mathematics</i></p> <p>↓</p>	AN INTRODUCTORY COURSE IN COLLEGE PHYSICS. 2nd Ed. By N. H. Black	<i>A new, revised edition of one of the most successful beginning texts ever published.</i>	<i>Ready in May</i>
	PHYSICS By F. L. Robeson	<i>Very teachably organized and presented for beginning courses.</i>	<i>Ready in May</i>
	FUNDAMENTALS OF MATHEMATICS By Moses Richardson	<i>An entirely new presentation of freshman mathematics for the liberal arts student.</i>	<i>Ready in April</i>
	COLLEGE ALGEBRA By P. R. Rider	<i>Emphasizes clear, logical thought processes.</i>	\$2.00 <i>published</i>
	CALCULUS By C. K. Robbins and Neil Little	<i>Outstandingly easy to follow.</i>	\$3.25 <i>published</i>
	ELEMENTS OF ANALYTIC GEOMETRY. 2nd Ed. By C. E. Love	<i>For the short course.</i>	\$1.75 <i>published</i>

The Macmillan Company, 60 Fifth Avenue, New York

Macmillan Science Books, 1940-41

↑
*Texts and
 reference
 books
 for
 medical
 students,
 doctors, and
 nurses*
 ↓

↑
*Applied
 psychology*
 ↓

ATLAS OF HUMAN ANATOMY. 2nd Ed. By Carl Toldt. Assisted by A. D. Rosa. Adapted to American, English, and International Terminology by Eden Paul	<i>An accurate pictorial presentation of all parts of the human anatomy. 1505 illus.</i>	2 vols. Set, \$8.00 published
BACILLARY & RICKETTSIAL INFECTIONS By Wm. Holmes, <i>Late Prof. Medicine, Northwestern Univ.</i>	<i>Shows the relation of medicine to the growth of civilization.</i>	\$6.00 published
BIOCHEMISTRY OF DISEASE By Meyer Bodansky, <i>Univ. Texas Medical School</i> , and Oscar Bodansky, <i>Brooklyn College</i>	<i>A correlation of biochemical principles with clinical medicine, and medical interpretation of recent laboratory findings.</i>	\$8.00 published
COMMUNITY HYGIENE By Elizabeth Soule, <i>Dir., Washington Univ. Sch. of Nursing Ed.</i> , and Christine Mackenzie, <i>Univ. of Calif.</i>	<i>A simple presentation of the chief problems, how they are met and by what means.</i>	\$1.75 published
DIETETICS SIMPLIFIED. 2nd Ed. By L. Jean Bogert, <i>Univ. of Chicago</i> , and Mame T. Porter, <i>Nutritionist, N. Y. State Dept. Social Welfare</i>	<i>Up-to-date, complete directions and explanations of the use of foods in health and disease, in simple non-technical language.</i>	\$3.00 published
FUNDAMENTALS OF CHEMISTRY AND APPLICATIONS By Charlotte Francis and Edna Morse, <i>Teachers College</i>	<i>The basic facts of inorganic and organic chemistry and biochemistry and applications to nursing, physiology, nutrition, bacteriology, etc.</i>	\$3.00 published
MEDICAL ENTOMOLOGY. 3rd Ed. By William Herms, <i>Univ. of Calif.</i>	<i>"A valuable textbook for entomologists and parasitologists; an important reference for the physician, public health officer, sanitary engineer, and veterinarian." J. A.M.A.</i>	\$5.50 published
MEDICAL MICROBIOLOGY By Kenneth Burdon, <i>La State Univ. Sch. of Medicine</i>	<i>A standard text emphasizing the human aspects of microbiology.</i>	\$4.50 published
THE PHARMACOLOGICAL BASIS OF THERAPEUTICS By Louis Goodman and Alfred Gilman, <i>Yale Univ.</i>	<i>Complete discussions of every drug that has received clinical recognition.</i>	\$12.50 published
TEXTBOOK OF ANATOMY AND PHYSIOLOGY. 10th Ed. By Diana Kimber, Carolyn Gray and Caroline Stackpole, <i>Teachers College</i>	<i>A leading text in its field for over forty-five years.</i>	\$3.00 published
AS THE TWIG IS BENT By Leslie Hohman, <i>Johns Hopkins Med. Sch.</i>	<i>A sound, common-sense guide to the training of the normal child from infancy through adolescence.</i>	\$2.50 published
MODERN MARRIAGE. 2nd Ed. By Paul Popenoe, <i>General Dir., Inst. of Family Relations</i>	<i>A handbook addressed to men, but of interest to anyone seeking a successful marriage.</i>	\$2.50 published

The Macmillan Company, 60 Fifth Avenue, New York

HOLT PUBLICATIONS::HOLT PUBLICATIONS::HOLT PUBLICATIONS

Chemistry**1940**L. B. Richardson and A. J. Scarlett, *Dartmouth College***GENERAL COLLEGE CHEMISTRY**

\$3.75

A LABORATORY MANUAL OF GENERAL COLLEGE CHEMISTRY

\$1.40

T. R. Hogness and W. C. Johnson, *University of Chicago***QUALITATIVE ANALYSIS AND CHEMICAL EQUILIBRIUM, Revised**

\$2.90

1941Walter S. Dyer, *University of Arkansas***A PRACTICAL SURVEY OF CHEMISTRY**Warren C. Vosburgh, *Duke University***QUANTITATIVE CHEMICAL ANALYSIS**T. R. Hogness and W. C. Johnson, *University of Chicago***IONIC EQUILIBRIUM AS APPLIED TO QUALITATIVE ANALYSIS**

Mathematics**1940**C. H. Sisam, *Colorado College***COLLEGE ALGEBRA**

\$1.90

M. A. Hill, Jr. and J. B. Linker, *University of North Carolina***BRIEF COURSE IN ANALYTICS**

\$1.36

Arnold Dresden, *Swarthmore College***INTRODUCTION TO THE CALCULUS**

\$3.40

1941A. R. Crathorne and G. E. Moore, *University of Illinois***A BRIEF TEXT IN TRIGONOMETRY**A. S. Gale and C. W. Watkeys, *University of Rochester***ELEMENTARY FUNCTIONS AND APPLICATIONS**

Psychology**1940**R. S. Woodworth, *Columbia University***PSYCHOLOGY, Fourth Edition**

\$2.75

G. M. Smith, *College of the City of New York***WORKBOOK IN PSYCHOLOGY**

\$.50

R. S. Woodworth and G. M. Smith

CLASS DEMONSTRATIONS IN PSYCHOLOGY

\$.50

Otto Klineberg, *Columbia University***SOCIAL PSYCHOLOGY**

\$3.00

1941John E. Anderson, *University of Minnesota***HUMAN DEVELOPMENT AND ADJUSTMENT**

Botany**1941**Harry J. Fuller, *University of Illinois***BOTANY**

HENRY HOLT and COMPANY 257 FOURTH AVENUE NEW YORK

Selected List of RECENT MCGRAW-HILL BOOKS

AGRICULTURE AND FORESTRY

Commercial Timbers of the United States

By H. P. BROWN, New York State College of Forestry, and A. J. PANSHIN, Michigan State College. 554 pages, \$5.00

Soils and Soil Management

By A. F. GUSTAFSON, Cornell University. 424 pages, \$3.00

Soilless Culture—Simplified

By ALEX LAURIE, Ohio State University. 205 pages, \$2.50

Insect Transmission of Plant Diseases

By J. G. LEACH, West Virginia University. 615 pages, \$6.00

Planting Design

By F. B. ROBINSON, University of Illinois. 215 pages, \$2.75

Textbook of General Horticulture

By J. C. SCHILLETER and H. W. RICHEY, Iowa State College. 367 pages, \$3.00

BOTANY

A Manual of Aquatic Plants

By NORMAN C. FASSETT, University of Wisconsin. 382 pages, \$4.00

Plant Microtechnique

By D. A. JOHANSEN. 523 pages, \$4.50

Elements of Botanical Microtechnique

By J. E. SASS, Iowa State College. 222 pages, \$2.50

CHEMISTRY

An Introduction to the Practice of Organic Chemistry in the Laboratory

By HOMER ADKINS, S. M. McELVAIN and M. W. KLEIN, University of Wisconsin. Third edition. 294 pages, \$2.50

Quantitative Analysis

By H. S. BOOTH and V. R. DAMERELL, Western Reserve University. 246 pages, \$2.25

A Laboratory Course in General Chemistry

By R. H. CRIST, Columbia University. 219 pages, \$1.50

Physical Organic Chemistry. Reaction Rates, Equilibria, and Mechanisms

By L. P. HAMMETT, Columbia University. 404 pages, \$4.00

Experimental Chemistry for Colleges

By J. A. HARRIS and WILLIAM URE, University of British Columbia. 123 pages, \$1.25

Experiments in Colloid Chemistry

By E. A. HAUSER and J. E. LYNN, Massachusetts Institute of Technology. Second edition. 178 pages, \$2.00

Chemical Calculations

By J. S. LONG, Devoe & Reynolds Co., and H. V. ANDERSON, Lehigh University. Fourth edition. 266 pages, \$1.75

Industrial Electrochemistry

By C. L. MANTELL, Consulting Chemical Engineer. Second edition. 656 pages, \$5.50

Chemical Publications. Their Nature and Use

By M. G. MELLON, Purdue University. Second edition. 284 pages, \$2.75

Elementary Qualitative Analysis for College Students

By J. H. REEDY, University of Illinois. Third edition. 159 pages, \$1.50

Electronic Structure and Chemical Binding

By O. K. RICE, University of North Carolina. 511 pages, \$5.00

Experiments in General Chemistry

By H. W. STONE, M. S. DUNN and J. D. McCULLOUGH, University of California at Los Angeles. Third edition. 285 pages, \$1.60

GEOGRAPHY AND GEOLOGY

Principles of Economic Geology

By W. H. EMMONS, University of Minnesota. Second edition. 529 pages, \$4.00

Methods of Study of Sediments

By W. H. TWENHOFEL and S. A. TYLER, University of Wisconsin. 180 pages, \$2.00

Economic Geography of South America

By the late R. H. WHITEBECK, University of Wisconsin, and F. E. WILLIAMS, University of Pennsylvania. Third edition. 469 pages, \$3.50

MATHEMATICS

The Development of Mathematics

By E. T. BELL, California Institute of Technology. 583 pages, \$4.50

Mathematical Methods in Engineering

By T. v. KÁRMÁN, California Institute of Technology, and M. A. BIOR, Columbia University. 505 pages, \$4.00

Plane and Spherical Trigonometry

By L. M. KELLS, W. F. KERN and J. R. BLAND, U. S. Naval Academy. Second edition. 401 pages, \$2.00. With tables, \$2.75

Differential and Integral Calculus

By R. R. MIDDLEMISS, Washington University. 416 pages, \$2.50

Practical Mathematics

By the late C. I. PALMER; and S. F. BIBB, Illinois Institute of Technology. Part I. Arithmetic with Applications. Fourth edition. 186 pages, \$1.25. Part III. Geometry with Applications. Fourth edition. 206 pages, \$1.25

Statistical Procedures and Their Mathematical Bases

By C. C. PETERS and W. R. VANVOORHIS, Pennsylvania State College. 516 pages, \$4.50

McGraw-Hill Book Co., Inc.,

Selected List of RECENT MCGRAW-HILL BOOKS

Living Mathematics. A First Year College Course

By R. S. UNDERWOOD and F. W. SPARKS, Texas Technological College. 364 pages, \$3.00

Practical Algebra with Geometrical Applications

By J. H. WOLFE, W. F. MUELLER and S. D. MULLIKIN, Henry Ford Apprentice School. 303 pages, \$2.20

MISCELLANEOUS

French-English Science Dictionary

By LOUIS DE VRIES, Iowa State College. 546 pages, \$3.50

Principles of Television Engineering

By D. G. FINK, Managing Editor, *Electronics*. 541 pages, \$5.00

Textbook of Ore Dressing

By R. H. RICHARDS and C. E. LOCKE, Massachusetts Institute of Technology. *Third edition*. 608 pages, \$5.50

Fire Assaying

By O. C. SHEPARD, Stanford University, and W. F. DIETRICH, Sacramento Junior College. 277 pages, \$3.00

Nature Recreation

By W. G. VINAL, Massachusetts State College. 322 pages, 6 x 9. \$3.00

PHYSICS

Applied X-rays

By G. L. CLARK, University of Illinois. *Third edition*. 674 pages, \$6.00

Introduction to Electricity and Optics

By N. H. FRANK, Massachusetts Institute of Technology. 398 pages, \$3.50

Physics of the Air

By W. H. HUMPHREYS, U. S. Weather Bureau. *Third edition*. 668 pages, \$6.00

Making Your Photographs Effective

By J. A. LUCAS, McGraw-Hill Publishing Company, and BEVERLY DUDLEY, Managing Editor, *Photo Technique*. 385 pages, \$5.00

Geophysical Prospecting for Oil

By L. L. NETTLETON, Gulf Research & Development Company. 444 pages, \$5.00

Weather Analysis and Forecasting. A Textbook on Synoptic Meteorology

By SVERRE PETTERSEN, Massachusetts Institute of Technology. 505 pages, \$5.00

Elementary Photography

By G. G. QUARLES, University of Alabama. 350 pages, \$3.00

The Modern Theory of Solids

By FREDERICK SEITZ, University of Pennsylvania. 698 pages, \$7.00

Electromagnetic Theory

By J. A. STRATTON, Massachusetts Institute of Technology. 615 pages, \$6.00

Experimental College Physics

By M. W. WHITE, Pennsylvania State College. *Second edition*. 383 pages, \$2.75

ZOOLOGICAL SCIENCES

Human Biology

By G. A. BAITSELL, Yale University. 621 pages, \$3.75

Heredity and Social Problems

By L. L. BURLINGAME, Stanford University. 369 pages, \$3.50

This Living World

By C. C. CLARK and R. H. HALL, New York University. 519 pages, \$3.25

Entomophagous Insects

By C. P. CLAUSEN, U. S. Department of Agriculture. 688 pages, \$7.00

Fundamentals of Biology

By A. W. HAUPT, University of California at Los Angeles. *Third edition*. 443 pages, \$3.00

Laboratory Directions for General Biology

By A. W. HAUPT. *Third edition*. 65 pages, \$1.00

The Invertebrates. Protozoa through Ctenophora

By L. H. HYMAN, American Museum of Natural History. 726 pages, \$7.00

Embryology of Insects and Myriapods

By O. A. JOHANNSEN and F. H. BUTT, Cornell University. 462 pages, \$5.00

Animals in Action

By GAYLE PICKWELL, San Jose State College. 190 pages, \$4.00

Industrial Microbiology

By S. C. PRESCOTT and C. G. DUNN, Massachusetts Institute of Technology. 541 pages, \$5.00

Biology in the Making

By E. E. SNYDER, Little Falls (N. Y.) High School. 457 pages, \$2.80

Animal Biology

By the late R. H. WOLCOTT. Revised by members of the Zoology Department, University of Nebraska. *Second edition*. 621 pages, \$3.50

This is only a partial list of recent McGraw-Hill books. Send for complete catalogue containing descriptions of books in all fields.

330 W. 42nd St., New York, N. Y.

HARPER SCIENCE TEXTS—1940-1941

Biology

ANIMAL BIOLOGY

Third Edition

M. F. GUYER

Scheduled for early spring publication, the third edition of this classic textbook for elementary zoology classes will be improved in many ways, including the addition of an outstanding chapter on ecology, the inclusion of planaria under representative animals, a complete rewriting of the section on birds, and a reclassification of mammals. (\$3.75)

TEXTBOOK OF BOTANY

TRANSEAU, SAMPSON, and TIFFANY

Published only in October, this new botany text has been acclaimed by scores of teachers as the most teachable, the most constructive, and the most thoroughly modern volume in its field. The hundreds of fresh illustrations include a number in full color. A new workbook will be ready soon. (\$4.00)

UNRESTING CELLS

RALPH W. GERARD

An original and stimulating account of the living organism and its activities, described in non-technical language, in terms of the physical structures which underlie them. An excellent text in general physiology and for the science orientation course. (*Text edition*, \$3.00)

PREFACE TO EUGENICS

FREDERICK OSBORN

Unquestionably the most notable contribution in the eugenics field in many years. Utilizing much recent research, it discusses population trends and policies, and the social significance of a eugenic policy for America. (\$2.75)

A PHILOSOPHY OF SCIENCE

WILLIAM H. WERKMEISTER

This admirable presentation of an important philosophical point of view integrates the various fields of scientific knowledge and establishes an epistemological point of view. (\$4.00)

Psychology

PRINCIPLES OF ABNORMAL PSYCHOLOGY **MASLOW and MITTELMANN**

A thorough and well-balanced treatment, functional in character, of abnormal personality disturbances, with special emphasis on psychotherapy. (\$3.50)

FROM INFANCY TO ADOLESCENCE

An Introduction to Child Psychology **MERRY and MERRY**

A brief and simple textbook for the introductory course in child psychology, in harmony with the modern emphasis upon child study rather than formal educational psychology. (\$2.00)

COMPARATIVE PSYCHOLOGY OF MENTAL DEVELOPMENT **HEINZ WERNER**

A highly significant volume, in which the author compares the development of the child and historical and anthropological evolution, showing the universality of the laws of mental development. (\$4.00)

Engineering

TECHNICAL DRAFTING

A Text and Reference Book on Graphics **CHARLES H. SCHUMANN**

A new textbook, already known as the most complete and progressive text available for engineering classes in drawing, and an invaluable reference work for practicing engineers. A wealth of varied problems and nearly a thousand drawings distinguish the volume. (\$3.50)

DESCRIPTIVE GEOMETRY

LEVENS and EGGERS

Just published, this textbook makes an important contribution to engineering education, by means of a full presentation of the *two* great methods of descriptive geometry, the graphic and the algebraic. This presentation is in accord with actual engineering practice. (\$2.50)

HARPER AND BROTHERS PUBLISHERS

New York & London

49 East 33d Street, New York

INTERSCIENCE PUBLISHERS, INC., NEW YORK, N. Y.

Advances in Enzymology and Related Subjects

Volume I

About 360 pages. 52 ill. About \$5.00
Ready March

Manual of Clinical Chemistry

By Miriam Reiner, *The Mount Sinai Hospital, New York*

282 pages. 18 ill. \$3.00
Ready February

The Analytical Chemistry of Industrial Poisons, Hazards and Solvents

By Morris B. Jacobs, *Dept. of Health, City of New York*

About 640 pages. About \$6.00
Ready April

Die Biogenen Amine

und ihre Bedeutung für die Physiologie und Pathologie des pflanzlichen und tierischen Stoffwechsels

By M. Guggenheim, *Basel*

3d. completely revised edition. Basel-New York
1940. 654 pages. \$11.25

Biologic Fundamentals of Radiation Therapy

By F. P. Ellinger, *Montefiore Hospital, New York*

About 400 pages. 78 ill. About \$6.00
Ready March

Sedimentary Petrography

with Special Reference to Petrographic Methods of Correlation of Strata, to Petroleum Technology and other Economic Applications of Geology.

By Henry B. Milner, *Consulting Geologist and Petroleum Technologist*

3d. edition entirely revised and reset
1940. 690 pages. 52 pl. 100 ill. \$10.00

Polarography (Polarographic Analysis and Voltammetry with the Dropping Mercury Electrode and Platinum Micro-electrodes, Amperometric Titrations.)

By I. M. Kolthoff, *Univ. of Minnesota* and J. J. Lingane, *Univ. of California*

About 500 pages. 141 ill. About \$6.50
Ready April

Physical Chemistry of High Polymeric Systems

By H. Mark, *Polytechnic Inst. of Brooklyn* (Series: "High Polymers" Vol. II)

Translated from the German by K. Sinclair and J. E. Woods

1940. 344 pages. 99 ill. 94 tables. \$6.50

High Polymeric Reactions

By H. Mark, *Polytechnic Inst. of Brooklyn* and R. Raff, *Toronto*

(Series: "High Polymers" Vol. III)

About 400 pages. About 50 ill. About \$6.50
Ready April

Outlines of Structural Geology

By E. Sherbon Hills, *Melbourne*

1940. 172 pages. 105 ill. 4 pl. \$2.25

Functions of a Complex Variable with Applications

(Series: "University Mathematical Texts" Vol. VII)

By E. G. Phillips

1940. 140 pages. 17 ill. \$1.50

Statistical Methods for Medical and Biological Students

By Gunnar Dahlberg, *Prof. at the University of Upsala*

1940. 232 pages. 13 ill. 26 tables. \$2.75

Ask for our descriptive circulars

INTERSCIENCE PUBLISHERS, INC.

215 FOURTH AVENUE

NEW YORK, N. Y.

SILVER IN INDUSTRY

LAWRENCE ADDICKS

This volume contains the results of extensive investigations carried out by the government sponsored SILVER RESEARCH PROJECT, the purpose of which was to stimulate interest in the industrial possibilities of silver.

Edited by Dr. Lawrence Addicks, the book contains the work of thirty contributors, each of whom is particularly well qualified in the field on which he writes. The tremendous bibliography, containing over four thousand literature references, and a list of all the patents which have been issued on the industrial uses of silver are other valuable features of this interesting and timely volume.

636 Pages Profusely Illustrated \$10.00

THE RING INDEX

A list of Ring Systems used in Organic Chemistry

AUSTIN M. PATTERSON AND LEONARD T. CAPELL

The Ring Index is a compilation not of compounds but of structures. The collection attempts to be complete through the literature of 1938, but new systems reported in 1939 have been included as far as was possible up to the time of going to press. References are given to the original literature and to Beilstein's "Handbuch." The entries are arranged from the simplest system to the most complex.

661 Pages A.C.S. Monograph \$8.00

PHYSICAL CONSTANTS OF HYDROCARBONS

GUSTAV ECKLOFF

Director of Research, Universal Oil Products Company

The scope of this work is such that it may be utilized in pure and applied science and in industries such as petroleum, natural and manufactured gas, chemical, rubber, plastic, resin and pharmaceutical, etc. The melting point, boiling point, specific gravity, and refractive index of all classes of pure hydrocarbons will appear in four volumes and their interrelationships in the fifth volume. Bibliographical sources of all experimental values are given. A.C.S. Monograph—To be published in five volumes.

Volume I—Paraffins, Olefins, Acetylenes, and Other Aliphatic Hydrocarbons, 416 pages \$9.00

Volume II—Cyclanes, Cycloenes, Cyclynes, and Other Alicyclic Hydrocarbons, 608 pages \$12.00

In Preparation

Volumes III, IV and V

PROPERTIES OF ORDINARY WATER-SUBSTANCE

In All Its Phases—Water-Vapor, Water, and All the Ices

N. ERNEST DORSEY

National Bureau of Standards

The scope of this monograph is so comprehensive that only a few of the more general topics can be mentioned. Among these are the thermodynamic considerations involved in the synthesis and dissociation of water-substance; thermal energy of dilated water-vapor; molecular and pressure-volume-temperature data for all forms of water-substance; acoustic data; optical properties; the structure of water and ice as revealed by Raman Spectra and X-rays; the reflectivity of ice and snow; electrical properties of water-substance; the color of water and of the sea.

700 Pages Illustrated \$15.00
A.C.S. Monograph

IMPORTANT NEW

Send for "Let's Look It Up" a 108-page Book catalog describing our 153 titles, including American Chemical Society Monographs.

TEMPERATURE

Its Measurement and Control in Science and Industry

The papers of the Symposium sponsored by the American Institute of Physics, with the cooperation of the National Bureau of Standards, National Research Council and a large group of officers and committees of many American scientific and technical societies with the following purposes in view:

1. coordination of the treatment of the subject of temperature in the several branches of science and engineering,
2. review of fundamental principles and a recapitulation of recent progress,
3. accumulation of contributions for a comprehensive text to be published after the Symposium,
4. improvement of technical curricula by making the latest information available.

Fundamental knowledge in the field of temperature and its measurement is exhaustively covered in this encyclopedic volume. The collection of 125 papers by chemists, engineers, metallurgists, physicists, physicians and biologists, presents thorough-going descriptions of all phases of temperature technique, and profound theoretical treatment of the thermodynamics and physics which underlie the various temperature scales.

The scope of this volume is all-inclusive. Innumerable methods of Precision pyrometry are described in detail. Low-temperature cancer therapy, cooling of massive concrete structures, temperature conditions in oil-well drilling, artificial fever, high-temperature arcs, molten steel pyrometry—these and many more subjects of compelling interest make this an essential reference work for laboratories and libraries, as well as for all who are engaged in any phase of temperature work.

1375 Pages 550 Illustrations \$11.00

PHOTODYNAMIC ACTION AND DISEASES CAUSED BY LIGHT

HAROLD FRANCIS BLUM, PH.D.

Research Fellow, National Cancer Institute,

National Institute of Health, U. S. Public Service

The vast extent of the research on both photodynamic action and diseases caused by light is not generally realized, and this is the first effort to systematize and correlate the findings of scores of investigators in this important field. As a necessary introduction the elementary principles of the physics of radiation, and of photochemistry are explained in detail. This is done with the needs of the biologist and medical scientist specifically in mind, and will be particularly valuable to those who must be inducted into the quantum aspects of radiation for the first time. The general nature of photobiological effects is also reviewed for the benefit of those unfamiliar with this field.

A large part of the volume is devoted to diseases caused by light in man and in domestic animals. Considerable space is given to the action of sunlight on normal skin. Physicians will find here an authoritative account of a group of skin diseases which are often wrongly grouped together as a single entity, but which have very different etiologies. Of general interest are the accounts of the relationship of sunlight to skin cancer, photosensitization by drugs, sunburn, and others. Photosensitization by cosmetics, by plants and by certain substances employed in industry will be of particular interest to those having to do with such materials.

Veterinarians and those concerned with animal husbandry will find discussions of not only the familiar buckwheat poisoning, but of less well known, though economically important, photosensitivities of domestic animals.

312 Pages Illustrated A.C.S. Monograph \$6.00

REINHOLD PUBLISH
330 WEST FORTY-

REINHOLD BOOKS

CATALYSIS Inorganic and Organic

SOPHIA BERKMAN, JACQUE MORRELL AND GUSTAV EGLOFF
Research Laboratories, Universal Oil Products Company

The fact that many modern chemical processes and industries are based on the use of catalysts clearly emphasizes the importance of a thorough knowledge of the subject of catalytic chemistry.

In order to arrive at an understanding of catalysis, it seemed logical in the present work to arrange the findings of the various workers in the field and their original interpretations into a systematic presentation of the subject with some consideration of its historical evolution. The phenomenon of Catalysis itself is defined and discussed in detail with special emphasis on the physico-chemical aspects. The activity of many different catalysts and methods of measuring their activity are fully described. Exhaustive tables of the various catalytic reactions in both organic and inorganic chemistry are provided. All the specific types of reactions which have been extensively studied will be found in these tables. The physical conditions and types of catalysts which have been used to effect chemical changes in definite types of reactions and in compounds of definite molecular and atomic structure are also given.

The book has been divided into chapters, each pertaining to a particular branch of the field significant in itself and at the same time related to the general subject of catalysis. This will permit the reader to acquire a knowledge of each specific branch of the subject and perhaps to visualize a logical thread running through the field of catalytic chemistry thereby simplifying and facilitating a critical analysis of the available experimental facts.

The vast number of observations outlined in the present volume may prove indispensable to the development of industrial processes necessary for the increases in the production of such essentials as aviation fuel, high explosives and synthetic rubber, products so vitally needed in our National Defense Program.

1150 Pages Illustrated \$18.00

WHAT ARE THE VITAMINS?

WALTER H. EDDY

Every day a newspaper or magazine article describes some new Vitamin discovery or application. Advertising campaigns stress "Vitamin content." From breakfast to bed-time, broadcasters croon claims for Vitamins. How much of this is truth? How much exaggerated nonsense? How much dangerous and expensive untruth?

Dr. Walter H. Eddy, Prof. of Physiological Chemistry at Teachers College, Columbia University, and Director of the nationally famous "Good Housekeeping Bureau" of New York, answers your questions in a new, simple, authoritative book that has just been published.

HOW MANY OF THESE QUESTIONS CAN YOU ANSWER?

1. How does cooking affect the Vitamins in food?
2. Do Vitamins prevent colds?
3. How effective is ultraviolet irradiation in increasing the Vitamin content of milk?
4. What effect do Vitamins have on blood-clotting?
5. Has sunbathing any really beneficial effect?
6. Can alcoholism be treated successfully with Vitamins?
7. What are the most common sources of Vitamins?
8. How is eyesight influenced by Vitamin A?
9. Do Vitamins play any part in treatment of anemia, arthritis and hemorrhage?
10. Do Vitamins play an important part in modern warfare?

This book answers all of these—and many more.

254 Pages Illustrated \$2.50

ING CORPORATION
SECOND ST., NEW YORK, N. Y.

Ready soon! THE CHEMICAL ACTION OF ULTRAVIOLET RAYS

CARLETON ELLIS AND ALFRED A. WELLS
Second Edition, Revised and Enlarged
FRANCIS F. HEYROTH

*Kettering Laboratory of Applied Physiology,
University of Cincinnati*
About 960 Pages Illustrated \$12.00

MODERN PULP AND PAPER MAKING

GEORGE S. WITHAM, SR.

Second Edition

MODERN PRACTICE IN LEATHER MANUFACTURE

JOHN ARTHUR WILSON

MARINE PRODUCTS OF COMMERCE

*Their Acquisition, Handling,
Biological Aspects and the Science
and Technology of Their
Preparation and Preservation*

DONALD K. TRESSLER, PH.D.

A Reprint of the 1923 Edition—JUST OUT
The scope is not limited to food products, but includes all commercial forms of plant and animal life. The subjects run from sea salt to whales, and from edible algae to pearls of great price, not to mention the ordinary products of the fisheries.

760 Pages 300 Illustrations \$12.00

THE TOOLS OF THE CHEMIST, THEIR ANCESTRY AND AMERICAN EVOLUTION

ERNEST CHILD

A history of the manufacture of laboratory apparatus and the part it has played in the development of American Chemistry. Entertaining and instructive, the book describes the events and personalities that were responsible for the creation and growth of chemical laboratories in the United States, with appropriate emphases on the European background from which they sprang. The author traces the history of such laboratory necessities as balances, glassware, filter paper, porcelain, heating apparatus, metal ware, alundum, rubber ware, platinum ware, scientific optical instruments and a short sketch of the beginning of the American Chemical Society.

220 Pages Profusely Illustrated \$3.50

PHENOMENA AT THE TEMPERATURE OF LIQUID HELIUM

E. F. BURTON, H. GRAYSON SMITH AND
J. O. WILHELM

Dept. of Physics, University of Toronto

It is of the greatest importance for both physicists and chemists to be familiar with the peculiar action of matter at excessively low temperatures.

The essence of the book is found in the latter half where are presented the results of the impact of curious low-temperature phenomena on modern theories of matter, the nature of superconductivity, the behavior of specific heats and magnetic properties of matter and the freakish antics of liquid helium below 2°K. Particular attention has been given to the definition and measurement of temperature, and to the intriguing problems of the approach to the absolute zero.

384 Pages Illustrated \$6.00
A.C.S. Monograph

New and Standard Text-Books

BOYD'S PATHOLOGY OF INTERNAL DISEASES

The Pathology of Internal Diseases. By WILLIAM BOYD, M.D., F.R.C.P., F.R.S.C., Professor of Pathology and Bacteriology in the University of Toronto, Toronto; etc. Third edition. Octavo, 874 pages, illustrated with 353 engravings and 4 colored plates. Cloth, \$10.00, net.

COWDRY'S TEXT-BOOK OF HISTOLOGY

A Text-Book of Histology. By E. V. COWDRY, Professor of Cytology in the School of Medicine, Washington University, St. Louis, Mo. Second edition. Imperial octavo, 600 pages, illustrated with 323 engravings, some in colors. Cloth, \$7.00, net.

CRAIG AND FAUST'S PARASITOLOGY

Clinical Parasitology. By CHARLES FRANKLIN CRAIG, M.D., M.A. (Hon.), F.A.C.S., F.A.C.P., Col. U. S. Army (Retired), D.S.M., Professor of Tropical Medicine, and ERNEST CARROLL FAUST, M.A., Ph.D., Professor of Parasitology in the Department of Tropical Medicine, The Tulane University of Louisiana, New Orleans, Louisiana. Second edition. Octavo, 772 pages, illustrated with 244 engravings. Buckram, \$8.50, net.

CUSHNY'S PHARMACOLOGY AND THERAPEUTICS

Pharmacology and Therapeutics. By ARTHUR R. CUSHNY, M.A., M.D., LL.D., F.R.S., Late Professor of Materia Medica and Pharmacology in the University of Edinburgh. Thoroughly revised by C. W. EDMUNDS, M.D., Professor of Materia Medica and Therapeutics in the University of Michigan, Ann Arbor, Michigan and J. A. GUNN, M.D., D.Sc., Professor of Pharmacology in the University of Oxford, Oxford, England. Twelfth edition. Octavo, 852 pages, illustrated with 66 engravings. Cloth, \$6.50, net.

FAUST'S HUMAN HELMINTHOLOGY

Human Helminthology. A Manual for Physicians, Sanitarians and Medical Zoologists. By ERNEST CARROLL FAUST, A.B., M.A., Ph.D., Professor of Parasitology and Director of Laboratories, Tulane University of Louisiana. Second edition. Octavo, 780 pages, illustrated with 302 engravings. Cloth, \$8.50, net.

RONY ON OBESITY AND LEANNESS

Obesity and Leanness. By HUGO R. RONY, M.D., Formerly Attending Physician, Cook County Hospital, Chicago, Illinois, etc. Octavo, 300 pages, illustrated with 32 engravings. Cloth, \$3.75, net.

KENDALL'S MICROSCOPIC ANATOMY

The Microscopic Anatomy of the Vertebrates. By JAMES I. KENDALL, Ph.D., D.Sc., Assistant Professor in Biology in the City College, New York City. Second edition. Octavo, 342 pages, illustrated with 197 engravings. Cloth, \$3.75, net.

LIPPINCOTT ON POULTRY PRODUCTION

Poultry Production. By WILLIAM ADAMS LIPPINCOTT. Revised by LESLIE E. CARD, Professor of Poultry Husbandry, University of Illinois, Urbana, Illinois. Sixth edition. 12mo, 603 pages, illustrated with 215 engravings and a colored plate. Cloth, \$4.00, net.

LUCAS' HUMAN PHYSIOLOGY

Elements of Human Physiology. By MIRIAM SCOTT LUCAS, B.S., Ph.D. Octavo, 400 pages, illustrated with 158 engravings, 12 in color. Cloth, \$4.50, net.

MUSSER'S INTERNAL MEDICINE

Internal Medicine. Its Theory and Practice. In Contributions by American Authors. Edited by JOHN H. MUSSER, B.S., M.D., F.A.C.P., Professor of Medicine in The Tulane University of Louisiana School of Medicine. Third edition. Large octavo, 1428 pages, illustrated. Cloth, \$10.00, net.

PARK and WILLIAMS' PATHOGENIC MICROORGANISMS

Pathogenic Microorganisms. A Practical Manual for Students, Physicians and Health Officers. By WILLIAM HALLOCK PARK, M.D., Late Director, and ANNA WESSELS WILLIAMS, M.D., Former Assistant Director, Bureau of Laboratories of the Department of Health, New York City. Eleventh edition. Octavo, 1056 pages, illustrated with 247 engravings and 13 full-page plates. Cloth, \$8.00, net.

HADEN'S HEMATOLOGY

Principles of Hematology. With 104 Illustrative Cases. By RUSSELL L. HADEN, M.D., Chief of the Medical Division of the Cleveland Clinic, Cleveland, Ohio. Second edition. Octavo, 362 pages, illustrated with 321 engravings on 167 figures including 173 original photomicrographs and 100 original charts and drawings and a colored plate. Cloth, \$4.50, net.

SCHAFER'S ESSENTIALS OF HISTOLOGY

Essentials of Histology. Descriptive and Practical for the Use of Students. Edited by H. M. CARLETON, M.A., University Lecturer on Histology, New College, Oxford. Octavo, 630 pages, illustrated with 665 engravings, some in colors, and 2 colored plates. Cloth, \$5.00, net.

WIGGERS' PHYSIOLOGY

Physiology in Health and Disease. By CARL J. WIGGERS, M.D., Professor of Physiology in the School of Medicine of Western Reserve University, Cleveland, Ohio. Third edition. Octavo, 1144 pages, illustrated with 218 engravings. Cloth, \$9.50, net.

LEA & FEBIGER

☐ Please send books listed on margin below.

Name
(S-2-7-41)

WASHINGTON SQUARE
PHILADELPHIA, PA.

☐ Please send catalogue.

Address

NEW MOSBY TEXTS *for Class and Reference Use*

PRINCIPLES *of* GENETICS

By E. GRACE WHITE, Ph.D., Professor of Biology, Wilson College, Chambersburg, Pa. 430 pages, 179 illustrations. **PRICE, \$2.50.**

In writing this text the interests of the average student in the wider aspects of genetics, and in its practical applications, have been kept constantly in mind, and every effort has been made to stimulate thought and encourage further investigation. Full emphasis has been placed on the recent work on radiation and on the structure of the salivary chromosomes. The chemistry of the gene has been given more space than is customary. Historical matter is blended with the subject matter and mathematical studies are arranged progressively from simple to more complex. References and review chapters follow each chapter.

ESSENTIALS *of* ZOOLOGY

By GEORGE EDWIN POTTER, Ph.D., Professor of Biology, Agricultural and Mechanical College of Texas, College Station, Texas. 532 pages, 204 illustrations. **PRICE, \$3.75.**

The author brings into this book the essential fundamentals which every zoology student should have, regardless of the length of the course he happens to take. Some emphasis is placed on the economic aspect, on the human relation, and on the principles involved. The arrangement of the chapters is in an order which seems logical, however they are written in such a way that the teacher may change their order with no difficulty. Since this is true, the teacher has some option in the possibility of striking a workable combination of "types" and "principles" material as well as balance in laboratory-lecture program.

TEXTBOOK *of* PHYSIOLOGY

By W. D. ZOETHOUT, Ph.D., Professor of Physiology in the Chicago College of Dental Surgery (Loyola) & W. W. Tuttle, Ph.D., Professor of Physiology, College of Medicine, State University of Iowa. 7th Ed. 743 pages and 302 illustrations. **PRICE, \$4.50.**

This new seventh edition brings with it a closer approach to perfection through the addition of Dr. W. W. Tuttle as its co-author. Because of Dr. Tuttle's having taught Physiology both in the undergraduate school and in the school of medicine, he naturally is familiar with the balance needed for an undergraduate book in Physiology. This balance is implanted into this new edition. Both authors have worked in bringing this material up to date so that it now offers the latest thoughts and developments. The book is comprehensive in its coverage; clear and understandable in its style; and practical in its descriptions and applications.

The C. V. MOSBY COMPANY, St. Louis, Mo.

INTERNATIONAL'S Science Experiences

A Series of Three Books Designed by
Carleton J. Lynde for Use With
Elementary and Junior High
School Classes in Science

Science Experiences—

with Home Equipment	240 pages, illustrated, \$1.34
with Inexpensive Equipment	272 pages, illustrated, \$1.60
with Ten-Cent Store Equipment	to be published in April

These science projects are in accordance with modern principles of education, that "book learning" should be interpreted in terms of everyday life. The author, Professor Emeritus of Physics and Household Engineering, Teachers College, Columbia University, has demonstrated that a vast wealth of science information can be gained by experimenting with household equipment, inexpensive equipment, and ten-cent store equipment. The experiences are simple, to the point, and sufficiently explained by directions and illustrations.

Send for Examination Copies on Approval

INTERNATIONAL TEXTBOOK COMPANY

Scranton

Dept. 2-H

Pennsylvania

a spring publication

Physics

THE PIONEER SCIENCE

BY LLOYD WILLIAM TAYLOR

Oberlin College

AN ENRICHED COURSE for first-year college students

Increased cultural value for the standard introductory physics course is achieved in Dr. Taylor's book by setting the exposition of technical physics in an "historical matrix." The history of physics is the history of the conquest of the scientific method. In this book the student, as he learns his basic physics, learns also the dramatic part that physics has played in "the making of the modern mind."

Let us send you full information about this new book.

HOUGHTON MIFFLIN COMPANY

Boston

New York

Chicago

Dallas

Atlanta

San Francisco

Important New Books from The University of Minnesota Press

Chemistry and Medicine

Edited by Maurice B. Visscher

Authors: Best, Bronk, Burr, Cannon, Freundlich, Gasser, Green, Heidelberger, Helmholz, Long, McQuarrie, Peters, Smith, Visscher

Covers colloid chemistry, osmosis and renal function; vitamins, fat in nutrition, blood clotting; four special aspects of immunity and chemotherapy; and the chemistry of nerve function.

"Simple enough to be comprehensible by the nonspecialist but comprehensive and intensive enough to satisfy the specialist." *American Medical Association*.

"In no other book is it possible to find such a synthesis of the works and the interpretations of so many authorities." *Journal of Physical Chemistry*.

1940. 295 pages, 75 figures and 19 tables. \$4.50.

The Kosher Code of the Orthodox Jew

Rabbi S. I. Levin and Dr. Edward A. Boyden

A literal translation to which is appended a discussion of Talmudic anatomy in the light of the science of its day and of the present time.

"... will gain the undying gratitude of all those interested in medical history." *Annals of Medical History*.

"A great amount of highly valuable information is, for the first time, made available." *Isis*.

1940. 243 pages, glossary, and index. \$4.50



Let's Talk About Your Baby



Dr. H. Kent Tenney, Jr.

"The baby's point of view, a common sense attitude, and the availability of the doctor are all stressed. . . . Enjoyable and valuable reading. . . . A perfect book for parents." *Journal of American Medical Association*.

115 pages, illustrated, index, brief record. \$1.00

Child Care and Training

Marion L. Faegre and John E. Anderson

"A new fifth edition of this well-known text which has deservedly won a permanent place in educational circles. . . . We know of no better book on the general care and training of children." *Journal of Pediatrics*.

327 pages, illustrated, bibliography, index. \$2.50

To be Published in 1941



BIBLIOGRAPHY AND INDEX OF THE LABORATORY RAT

W. T. Heron

13,370 scientific articles in 163 journals. Complete to January, 1938. Indexed by subject and title. An indispensable reference necessary to every well-equipped laboratory—especially in medicine, nutrition, psychology, biochemistry, and bacteriology.

May 1941

Tent. Price \$7.50

BUTTERFLIES

Ralph W. Macy and Harold H. Shepard

The only comprehensive study of the butterflies of the northeastern United States. Will be the standard reference for many years to come. 29 specimens in kodachrome, 37 half-tones, plus maps and diagrams.

April 1941. 240 pages. Tent. Price \$3.50

THE TEETH OF CIVILIZED MAN

Dr. Peter J. Brekhuis

A careful and comprehensive analysis of our present knowledge of dental caries and pyorrhea. An orientation for the dentist and his patients in comparative zoology, anthropology, and dental history. What is happening to our teeth? What may happen in the future if present trends continue? The author is recipient of the William J. Gies Award for research sponsored by the American College of Dentists. 50 illustrations.

April 1941. 256 pages. Tent. Price \$2.50

The Geese Fly High

Florence Page Jaques, illustrations by Francis Lee Jaques.

"An informing, fascinating picture of a little known country." Frank M. Chapman in *Natural History*.

"It is a hearty, outdoors book." *New York Herald Tribune*.

102 pages, quarto, 56 illustrations, 23 full-page. \$3.00

The Indoor Gardener

Daisy T. Abbott

Complete, clearly stated instructions for the year-round care of 80 kinds of house plants.

117 pages, 96 illustrations, index. \$1.50

USE THIS PAGE TO ORDER. CHECK TITLES DESIRED, SIGN AND MAIL TO
THE UNIVERSITY OF MINNESOTA PRESS, MINNEAPOLIS

SCIENCE IN PROGRESS.

First Series

Second Series

★ Edited by George A. Baitsell

Both of these volumes, which are based on the National Sigma Xi Lectures, are selections of the *Scientific Book Club*. Each volume contains important contributions from ten leaders in various scientific fields.

"Practically indispensable to anyone attempting to keep abreast of the rapidly progressing field."—*Boston Transcript*. Contributors to the First Series are E. O. Lawrence, H. C. Urey, W. M. Stanley, L. O. Kunkel, K. E. Mason, R. R. Williams, E. Allen, T. S. Painter, E. N. Harvey, and F. G. Benedict. Contributors to the Second Series are J. C. Hunsaker, J. F. Fulton, L. J. Stadler, F. W. Went, D. Johnson, A. C. Lane, H. P. Robertson, C. D. Anderson, J. W. Beams, and D. A. MacInnes.

Illustrated Each Volume \$4.00

THE MATERIAL BASIS OF EVOLUTION

★ By Richard Goldschmidt

"This book contains the only basically new theory of organic transformation propounded during the current century. . . . It must be recognized that Goldschmidt's keenly critical analysis has emphasized the weaknesses and deficiencies of the neo-Darwinian conception of evolution. It would seem that this fact alone obliges anyone interested in modern evolutionary thought to read the book."—Th. Dobzhansky in *Science*.

Second Printing Illustrated \$5.00

THE DEVELOPMENT OF THE SCIENCES

Second Series

★ Edited by Lorande L. Woodruff

Discussions by eight well-known Yale scientists, representing the fields of Mathematics, Astronomy, Chemistry, Physics, Geology, Biology, Psychology, and Medicine. Each of the first seven lectures traces the development of one of the basic sciences from its beginnings to its most recent results. The last chapter shows the interdependence of these various sciences as illustrated by specific examples in the history of medicine.

To be published April 8 \$3.50

Yale University Press
NEW HAVEN, CONNECTICUT

*The most authoritative
work on coal in the
English language . . .*

GEOLOGY OF COAL

By Otto Stutzer

Translated and revised

By Adolph C. Noé

From world wide sources comes this comprehensive data on the origin of coal and of coal beds, the classification, nature and variations of the associated rocks, geologic age of beds, size and extent of deposits, irregularities that affect ease of recovery, the structural features of coal beds, gases and other substances they contain, and the mineralizations by which they are affected.

454 pages, 198 illustrations, \$5.00

INTRODUCTION TO ALGEBRAIC THEORIES

By A. Adrian Albert,

Author of *Modern Higher Algebra*

Makes possible a new course in algebra in the undergraduate curriculum, bridging the gap between the usual intuitive first course in the theory of equations and the rigorous abstract treatment of *Modern Higher Algebra* \$1.75

THE AMERICAN AND HIS FOOD

By Richard Osborn Cummings

From the pork-and-bean days of the colonists up to today's frozen foods, with particular attention to the effects of World War I, the depression, and the current "stamp plan" on national digestion. A fascinating story of the discovery of vitamins and the science of nutrition.

Illustrated, \$2.50

A BIBLIOGRAPHY OF HUMAN MORPHOLOGY

1914-1939

By Wilton M. Krogman

The first complete bibliography since 1928 and the first in America, this book covers some 970 journals and lists over 25,000 references by subject matter.

484 pages, planographed, paper bound.

Ready February. \$3.00

THE UNIVERSITY OF CHICAGO PRESS

DUKE PUBLICATIONS

BOOKS

- Axial Bifurcation in Serpents: An Historical Survey of Serpent Monsters Having Part of the Axial Skeleton Duplicated. Bert Cunningham. vii, 117 pp. 134 ills. \$2.50.
- The Compleat Pediatrician: Practical, Diagnostic, Therapeutic, and Preventive Pediatrics. Wilburt C. Davison. Third edition. 317 pp. \$4.00.
- Ferns of North Carolina. Hugo L. Blomquist. xii, 131 pp. 78 ills. \$2.00.
- The Migrations of Animals from Sea to Land. A. S. Pearse. x, 176 pp. \$3.00.
- Minor Mental Maladjustments in Normal People. Based on Original Autobiographies of Personality Maladjustments. vi, 298 pp. \$3.00.
- The Psychology of Belief. Helge Lundholm. vii, 245 pp. \$3.00.
- Religion and the Sciences of Life: With Other Essays on Allied Topics. William McDougall. xv, 263 pp. \$3.00.
- Social Science Principles in the Light of Scientific Method. Joseph Mayer. (in the press) \$4.00.
- Tobacco Diseases and Decays. Frederick A. Wolf. xix, 454 pp. 111 ills. \$5.00.

PERIODICALS

- Character and Personality. (A psychological quarterly). \$2.00 per year.
- Contributions to Psychological Theory. (Psychological studies published irregularly in series. \$5.00 per volume.)
- Duke Mathematical Journal. (Quarterly). \$4.00 per year.
- Ecological Monographs. (Quarterly researches of ecological interest from entire field of biological sciences). \$6.00 per year; special offer of first 10 volumes, \$50.00, limited number.

DUKE UNIVERSITY PRESS

Durham, North Carolina

The Biochemistry of
Symbiotic Nitrogen Fixation

By Perry W. Wilson

For investigators in plant and soil science who want a complete but not detailed, an authoritative but not narrow, a readable but not "popular" account of contemporary research. Illustrated.

Cloth, \$3.50

THE UNIVERSITY OF WISCONSIN
PRESS

MADISON : WISCONSIN

temporarily sold out,
now again available:—

EXPERIMENTELLE
CYTOLOGIE

von HANS H. PFEIFFER

"A New Series of Plant Science Books," edited by Frans Verdoorn, Vol. 4.—Published in Holland in 1940, 240 pages, 28 illustrations, 4 dollars.

Chronica Botanica Co., Waltham, Mass.
New York Buenos Aires Rio de Janeiro
G. E. Stechert Acme Agency Livr. Kosmos

New and forthcoming

BOOKS FROM STANFORD

☐ **VOLUMETRIC AND PHASE
BEHAVIOR OF HYDRO-
CARBONS**

Bruce H. Sage and William N. Lacey

"A gem of clear exposition and explanation."—*Journal of Physical Chemistry*.

Ready. \$5.00

☐ **OIL WELL DRAINAGE**

Stanley C. Herold

A book of more popular appeal than his *Analytical Principles of the Production of Oil, Gas, and Water from Wells*.

Late Spring. \$5.00 (?)

☐ **THE PROFESSION OF
ENGINEERING**

Theodore J. Hoover and John C. L. Fish

A book that all prospective engineers should read.

Late Spring. \$5.00 (?)

☐ **THE MECHANISM OF THE
ELECTRIC SPARK**

Leonard B. Loeb and John M. Meek

An important addition to the literature—develops the new streamer theory of spark discharge. Spring. \$3.50

☐ **COMPARATIVE CHORDATE
ANATOMY**

Clair A. Hannum

A laboratory text for comparative anatomy courses.

Spring. \$2.00

☐ **ILLUSTRATED FLORA OF
THE PACIFIC STATES**

Volume II. LeRoy Abrams

Describes and illustrates 1,655 species of families from Buckwheats to Kramerias.

Spring. \$7.50

☐ **DESERT WILD FLOWERS**

Edmund C. Jaeger

A complete handbook—every species illustrated.

Ready. \$3.50

STANFORD UNIVERSITY PRESS
STANFORD UNIVERSITY,
CALIFORNIA

EARLY CARNEGIE INSTITUTION OF WASHINGTON PUBLICATIONS

A Few Copies Now Available at Reduced Prices

Pub. No.

86. Peters, C. H. F., and E. B. Knobel. *Ptolemy's Catalogue of Stars. A Revision of the Almagest.* Quarto, vi+307 pp., 1 plate. \$1.00, paper; \$1.50, cloth.
169. Callaway, Morgan, Jr. *The Infinitive in Anglo-Saxon.* Octavo, xiii+339 pp., \$1.00, paper; \$1.50, cloth.
259. Davenport, Charles B., and Mary T. Scudder. *Naval Officers: Their Heredity and Development.* Octavo, iv+236 pp., 60 charts. \$1.00, paper; \$1.50, cloth.
323. Joslin, Elliott P. *Diabetic Metabolism with High and Low Diets.* Octavo, viii+334 pp. \$2.00, paper; \$2.50, cloth.
382. Willis, Bailey. *Studies in Comparative Seismology: Earthquake Conditions in Chile.* Quarto, xi+178 pp., 75 plates, 19 text-figures. \$2.00, paper; \$2.50, cloth.

THE ROSE GARDEN OF THE Brooklyn Botanic Garden

A monograph by Montague Free, treating of Rose Species, Historical Roses, the various groups of Horticultural Varieties, and the Cultivation of Roses. Bibliography of recent publications. 57 pages. 12 full page illustrations. 50 cents, post-paid.

ECOLOGY

All Forms of Life in Relation to Environment

Botanical Editor: FRANCIS RAMALEY

Zoological Editor: THOMAS PARK

Established 1920. Quarterly. Subscription, \$5 a year for complete volumes (Jan. to Oct.). Back volumes, as available, \$6 each. Single numbers, \$1.50. Foreign postage: 40 cents.

GENETICS

Research in Heredity and Variation

Managing Editor: M. M. RHOADES

Established 1916. Bi-monthly.

Subscription, \$6 a year for complete volumes (Jan. to Dec.). Single numbers, \$1.25 post free. Back volumes, as available, \$7.00 each. Foreign postage: 60 cents.

Orders should be placed with

The Secretary, Brooklyn Botanic Garden
1000 Washington Ave., Brooklyn, N. Y., U. S. A.

A Book of Modern Adventure



McPHERSON • HENDERSON • FERNELIUS • MACK

CHEMISTRY

A TEXTBOOK FOR COLLEGES

This new book, by distinguished authors, provides a stimulating and authoritative introduction to the field of modern adventure in chemical science.

A discussion of the particle nature of matter opens the course. A group treatment of metals is used. Latest methods for the manufacture of important chemical products are described. The presentation of organic chemistry is unusually full. \$3.75, subject to discount.

GINN AND COMPANY

Boston New York Chicago Atlanta Dallas
Columbus San Francisco

SCIENCE IN MODERN LIVING SERIES

Prepared by the Bureau of
Educational Research in Science
of Teachers College, Columbia University

Invaluable teaching material designed especially to relate science to problems of modern living. Each volume deals with social and economic aspects of some phase of contemporary science.

LIFE AND ENVIRONMENT. By PAUL B. SEARS, Professor of Botany, Oberlin College. 175 pp. Cloth \$1.85. An interpretation of situations and problems arising out of the interrelations between human society and its living and non-living environment.

STOREHOUSE OF CIVILIZATION. By C. C. FURNAS, Associate Professor of Chemical Engineering, Yale University. 562 pp. Illus. Cloth \$3.25. An account of the role of the earth's materials in shaping our modern civilization.

CONTROL OF ORGANISMS. By FREDERICK L. FITZPATRICK, Professor of Natural Sciences, Teachers College, Columbia University. 336 pp. Illus. Cloth \$2.75. The story of man's efforts to control undesirable organic factors of his environment.

GENES AND THE MAN. By H. BENTLEY GLASS. In press.

Other volumes in preparation.

BUREAU OF PUBLICATIONS
Teachers College, Columbia University
New York City

THE AMERICAN NATURALIST

The oldest biological journal and the second
oldest scientific journal in the United States.

Established in 1867

Edited by J. McKEEN CATTELL and JACQUES CATTELL

Read the new department of REVIEWS AND COMMENTS—edited by DR. CARL L. HUBBS.

From a survey made recently we found it possible to reduce the subscription price of *The American Naturalist* to \$3.00 for individuals residing in the United States.

Over 300 persons have voted to subscribe at this rate, making it possible to put the new rates into effect.

Additional subscriptions are invited on this basis.

THE SCIENCE PRESS

LANCASTER

PENNSYLVANIA

AMERICAN MEN OF SCIENCE

A Biographical Directory

Edited by

J. McKeen Cattell and Jaques Cattell

The sixth edition of the Biographical Directory of American Men of Science contains about 28,000 sketches and extends to 1608 pages. It is an invaluable work of reference for scientific men. It is useful for libraries, newspapers, educational executives and all who have relations with those engaged in scientific research.

*Price, twelve dollars net,
postage paid*

THE SCIENCE PRESS

Lancaster, Pa.
Grand Central Terminal
New York, N. Y.

BIOLOGICAL MATERIALS

The Supply Department of the Marine Biological Laboratory has given fifty years of dependable service. We have the following stock of excellent materials: preserved specimens, plain, or injected with starch or latex; botanical mounts and specimens; microscope slides; protozoan and *Drosophila* cultures; and living animals for experimental purposes.

For the past several years we have been supplying living marine materials and marine aquaria sets. All of the specimens we send in our marine aquaria sets are freshly collected here at Woods Hole. We believe we are the only Supply House sending living marine materials and marine aquaria sets direct from the source of supply to the customer.

Catalogues sent on request

MARINE BIOLOGICAL
LABORATORY
Supply Department

Woods Hole

Mass.

Ready March 1

LEADERS IN EDUCATION

A Biographical Directory

Second Edition

EDITED BY J. McKEEN CATTELL, JACQUES CATTELL AND E. E. ROSS

Contains biographies of those in America who have done the most to advance education, whether by teaching, writing, research, or administration. They are those to whom daily reference is made in the press, from whom all positions of importance are filled. It is a work essential to all who have relations with those engaged in educational work and is necessary to every reference library.

Over 1,000 pages—Over 17,000 biographies

Price \$12.00

THE SCIENCE PRESS
Lancaster, Pennsylvania

The Measurement of Intelligence of Infants and Young Children

By PSYCHE CATTELL, Ed.D.

270 pages fully illustrated, cloth binding, \$8.00

Sets of Test Materials:

Without Stanford-Binet Items	\$17.50
With Stanford-Binet Items	20.00

These tests are a downward extension of the Terman-Merrill Revision of the Stanford Binet Scale, Form L, suitable for children between three and thirty months. Materials and procedures are the result of extensive research. The test items are conveniently packed in a suitcase so that the examiner can readily place his hands on any object without unpacking.

THE PSYCHOLOGICAL CORPORATION

522 Fifth Avenue

New York City

In Preparation

BIOGRAPHICAL DIRECTORY OF AMERICAN SCHOLARS

Edited by JACQUES CATTELL

The American Council of Learned Societies is sponsoring a *Biographical Directory of American Scholars*, for which generous assistance has been granted by the Carnegie Corporation of New York. Names of approximately ten thousand scholars of the United States will be included who are engaged in research in the fields of the humanities and of the social sciences. The *Directory* will be a companion volume to the well-known *American Men of Science* and *Leaders in Education*.

It is hoped that those engaged in scholarly work will wish to own a copy and will see that the book is to be found in institutions and libraries.

Advance sale price to those included \$6.00
To all others \$10.00

THE SCIENCE PRESS
LANCASTER, PENNSYLVANIA

UNUSUAL OPPORTUNITY

awaits biochemist who is thoroughly familiar with endocrine chemistry. Nationally known Michigan pharmaceutical manufacturer wants experienced scientist for independent research position to investigate protein endocrine products.

If you are prepared by education and experience to conduct and supervise work in this field, send full particulars about your research interests, education, experience, and salary desired, also your photograph, to Box No. "P.C.", c/o SCIENCE, 3941 Grand Central Terminal, New York, N. Y.

A Manual of the Flowering Plants of California
by Willis Linn Jepson

Containing an essay on distribution, geographic origins and endemism in the native flora. Reinforced binding, waterproof buckram with design of Calochortus in gold on side; 1248 pages, 1023 illustrations. \$5.00 + .06 postage. (In Cal. add .15 sales tax.)

Associated Students Bookstore,
University of California, Berkeley, Cal.

FRONT SURFACE MIRRORS**ALUMINIZED. NON-TARNISHABLE**

The ideal surface mirror for Telescopes, Cameras, Range Finders, Optical and Scientific apparatus. Workmanship fully guaranteed.

PRECISION OPTICAL SUPPLY CO.

1001 E. 163rd ST. NEW YORK CITY

from Our Own Laboratories . . .

GLUTATHIONE

NUCLEIC ACID • SODIUM NUCLEINATE
Immediate Delivery Highest Purity

Write for detailed information and price list

SCHWARZ LABORATORIES, INC. 202 East 44th St.
New York, N. Y.

NOW IS THE TIME

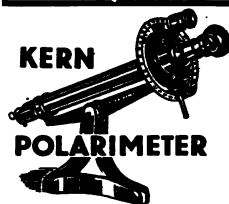
to turn

USED EQUIPMENT INTO CASH!

All Scientific and Laboratory Apparatus
BOUGHT — SOLD — EXCHANGED

Send stamp for OUR Catalog

HARRY ROSS 70 West Broadway, N.Y.C.



KERN

POLARIMETER

Since 1819

KERN scientific
instruments of highest
quality.

Write:

KERN COMPANY

136 Liberty St. New York

BALANCE-ACCURACY

96 chicken eggs



Balance between temperature, moisture, and humidity in this inexpensive incubator approximates natural conditions for every purpose. Where temperature change of less than 1° F is needed, this American machine does the job well. Excellent for storage of cultures as well as incubation of all kinds of eggs. Metal shelves can be substituted for egg trays. \$39.00
AMERICAN ELECTRIC INCUBATOR CO.
Dept. S New Brunswick, N. J.

SULFONPHTHALEIN INDICATORS

for pH Measurement

Guaranteed quality—low prices

Direct or through your dealer

The Synthetical Laboratories

5556 Ardmore Avenue Chicago, Ill.

LITHOPRINTING

*"The Answer to the Problem of the
Small Edition"*

Textbook Printing - Our Specialty

Write for information and samples

EDWARDS BROTHERS, INC.

LITHOPRINTERS

ANN ARBOR, MICHIGAN

**A HISTORY OF
WOMEN'S EDUCATION IN
THE UNITED STATES**

By **THOMAS WOODY**

Professor, History of Education
University of Pennsylvania

Two Volumes

1338 pages

Price \$10.00

THE SCIENCE PRESS
LANCASTER, PA.

**The Hoke-Jewel
TORCH**

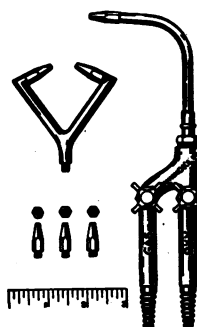
ONE HAND CONTROL

Clean, quick, noiseless, safe—works
Pyrex glass and quartz at set-up,
fine soldering, brazing, melting
Platinum—burns with city gas—
interchangeable Y-tip seals off
evacuated ampoules.

Bulletin S25 gives further details

Your Dealer or

HOKE, Inc. 585 Eagle Ave.
New York, N. Y.

**Standardized****WHITE SWISS MICE**

Shipped anywhere in U. S. A.

Competitive prices

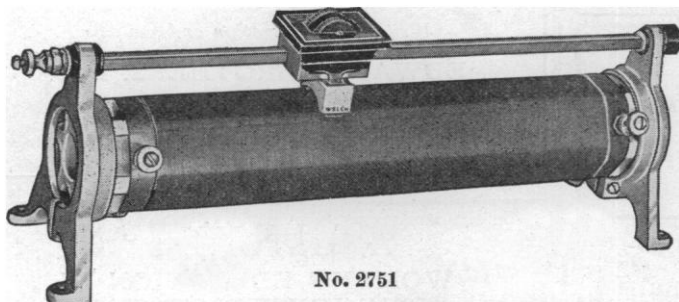
Live delivery and satisfaction guaranteed

Pacific Animal Supply

126 N. Sparks St., Burbank, Calif.

Improved AIR FLOW SLIDE-WIRE RHEOSTAT

with Coors Porcelain Tube



Made in a variety of resistances and carrying capacities . . . Prices, each . . . \$8.00 and \$8.50

Send for descriptive circular

W. M. Welch Scientific Company

Established 1880

1517 Sedgwick Street

Chicago, Illinois, U.S.A.

WELCH

The universal device for obtaining any desired resistance for laboratory purposes.

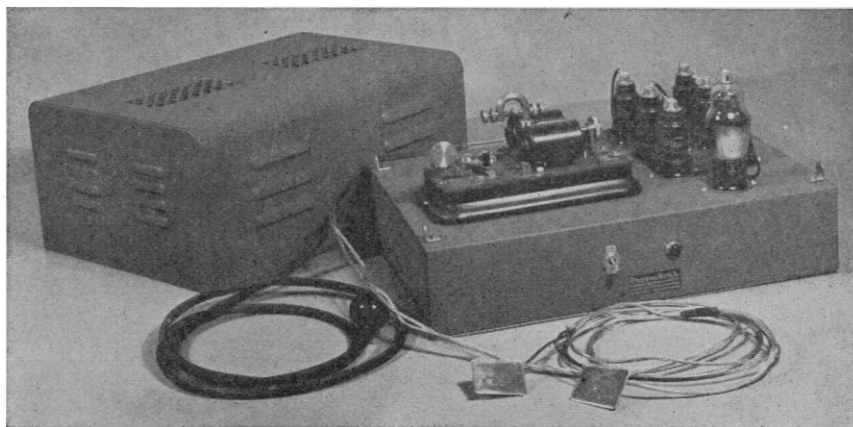
CHECK THESE FEATURES:

NON-INDUCTIVE COORS TUBE is non-magnetic. Its shape helps to dissipate heat and glazed porcelain composition enables it to stand safely very high temperatures.

RESISTANCE WIRE of nickel-chromium-iron alloy is heavily oxidized to prevent large contact losses.

END-SUPPORTS are die-cast with open construction to avoid interference with the cooling effects.

SLIDE-CONTACT has easily turned central fine adjustment wheel and graphite-copper brushes. Free to move over entire length of rheostat.



PARMENTER-McLEAN CARDIOTACHOMETER

The Parmenter-McLean Cardiotachometer is a recent development for obtaining continuous record of heart rates on humans as well as dogs, pigs, and similar sized animals. Two electrodes are fastened to the sternum, and heart beat potentials

operating through the amplifying system serve to operate a relay. A signal magnet on the kymograph may be attached through the relay for continuous pulse records.

\$120.00

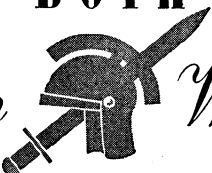
Write for further information

PHIPPS AND BIRD, Inc.
Richmond, Virginia

★

★

BOTH

Born in  *War Time*

★



By a strange coincidence both Pyrex brand Laboratory Ware and Vycor brand Glassware were born in war time.

“Pyrex” ware was introduced shortly after the outbreak of World War I —“Vycor” ware just before the present war began. Both are products of Corning Research in Glass. Together with the new Pyrex brand Fritted Glassware, recently announced, they help to assure the continued independence of the American Laboratory.

Today industries, hospitals and schools can pursue their laboratory work undeterred, confident that, because of Corning Research and Corning’s facilities, a ready supply of laboratory glassware will always be available.

★

“Pyrex” is a registered trade-mark and indicates manufacture by

CORNING GLASS WORKS • CORNING, N. Y.





SPENCER SLIDING MICROTOMES

—provide wide adaptability and positive control

Spencer sliding microtomes handle conveniently the many assignments which reach the laboratory such as the sectioning of—

Tissues—	Bone and Teeth	Soft metals
Frozen	Textile fibres	Soldered joints
Celloidin	Wood and fibre boards	Plastics
Paraffin	Rubber products	Asbestos

The high precision of the knife slide bearings and feed mechanism of Spencer microtomes has long been recognized as an engineering achievement. These features, combined with many other constructional advantages, account for the widespread popularity and acceptance of these Spencer instruments.

A new catalog on Spencer sliding, rotary and clinical microtomes has just been printed. Write Dept. P1 for your copy.



Spencer Lens Company

BUFFALO, NEW YORK

Scientific Instrument Division of

AMERICAN OPTICAL COMPANY



Sales Offices: New York, Chicago, San Francisco, Washington, Boston, Los Angeles, Dallas, Columbus, St. Louis, Philadelphia, Atlanta

Spencer Instruments will be demonstrated in Booths D12-D14, A.A.S.A. of the N.E.A. Convention, Atlantic City, N. J., February 22-27.