

SCIENCE

NEW SERIES
VOL. LXIV, No. 1663

FRIDAY, NOVEMBER 12, 1926

ANNUAL SUBSCRIPTION, \$6.00
SINGLE COPIES, 15 CTS.

Published September, 1926

Gager—General Botany

Special Reference to Economic Aspects

689 Illustrations. Cloth, \$4.00

By C. Stuart Gager, Ph.D., Sc.D., Pd.D.

Director, Brooklyn Botanic Garden, Author of "Fundamentals of Botany," "Laboratory Guide to General Botany," etc.

The text of this new General Botany by Dr. Gager has been enriched with interesting information of educational value intimately related to the plant or to the botanical subject being discussed. The author shows that plant life has been, throughout history, and still is, closely interwoven with human life.

CONTENTS: Introduction; The Vegetative Functions of Plants; Reproduction and Life-Histories; The Great Groups of Seed-Bearing Plants; Genetics and Evolution.

Published September, 1926

Youngken—Pharmacognosy

2nd Edition

A Textbook, Thoroughly Revised

301 Illustrations. Cloth, \$6.00

By Heber W. Youngken, A.M., Phm.M., Ph.D.

Professor of Botany, Pharmacognosy and Materia Medica, Massachusetts College of Pharmacy, Boston; Author of "Pharmaceutical Botany," etc.

This new edition contains the results of many important investigations in pharmacognosy. Changes in official drugs, U. S. Pharmacopæia X, National Formulary V, Methods of Production, Commercial Sources of Drugs, etc., have necessitated rewriting much of the text and the inclusion of new chapters.

P. BLAKISTON'S SON & CO.

PUBLISHERS

1012 Walnut Street

PHILADELPHIA

University of
CALIFORNIA PRESS

**Plant Nutrition and
Crop Production**

BY SIR E. J. RUSSELL

Director of the Rothamsted Experimental Station

For the first time there is now presented, in vivid, accurate narrative, the complete story of the development of agricultural science, written by one of the foremost leaders in that field.

Every professor of agricultural science should have a copy of his own. It should be placed on the library shelves of every agricultural experiment station the world over.

*115 pages, 58 illustrations. Cloth, postpaid,
\$2.75*

University of California Press
Berkeley, California

We are the sole AMERICAN AGENTS

for

**BELL'S ADVANCED
MATHEMATICAL SERIES**

FIRST COURSE IN NOMOGRAPHY by S. Brodetsky. Price **\$3.00**

PROJECTIVE VECTOR ALGEBRA by L. Silberstein. Price **\$1.75**

FIRST COURSE IN STATISTICS by D. Caradog Jones. Price **\$3.75**

ELEMENTARY TREATISE ON DIFFERENTIAL EQUATIONS AND THEIR APPLICATION by H. T. H. Piaggio. Price **\$3.50**

ELEMENTARY VECTOR ANALYSIS WITH APPLICATION TO GEOMETRY AND PHYSICS by C. E. Weatherburn. Price **\$3.50**

ADVANCED VECTOR ANALYSIS by C. E. Weatherburn. Price **\$3.50**

MATHEMATICAL THEORY OF LIMITS by J. G. Leathem. Price **\$4.50**

Send for complete catalog

THE OPEN COURT PUBLISHING COMPANY

122 South Michigan Ave. Chicago, Illinois.

ANNOUNCEMENT

Volume VIII of *The Journal of General Physiology* will be a memorial to its founder, Dr. Jacques Loeb. This volume will contain papers by Dr. Loeb's pupils and his associates, together with a portrait and a sketch of his life. The volume will appear simultaneously with Volume IX. The publication of this volume began September 18, 1925.

Subscribers to the Journal, and others, may obtain the extra volume by sending their subscriptions (price \$5.00) to

THE JOURNAL OF GENERAL PHYSIOLOGY

AVENUE A AND 66TH STREET, NEW YORK, N. Y.

SCIENCE

VOL. LXIV NOVEMBER 12, 1926 No. 1663

CONTENTS

<i>Hygiene as a World Force: DR. ANDREW BALFOUR</i>	459
<i>Arrangements for the Philadelphia Meeting of the American Association: DR. BURTON E. LIVINGSTON</i>	466
<i>Samuel Boardman Brown: PROFESSOR EARL R. SCHEFFEL</i>	469
<i>Scientific Events:</i>	
<i>The Volcanic Eruption on the Island of Bali; Results of the Smithsonian-Chrysler Expedition to Africa; The Greenland Expedition of the American Museum; Grants from the Laura Spelman Rockefeller Memorial</i>	469
<i>Scientific Notes and News</i>	471
<i>University and Educational Notes</i>	476
<i>Discussion and Correspondence:</i>	
<i>A Priceless Darwin Letter: DR. HENRY FAIRFIELD OSBORN. Mammoth found in Loess of Washington: O. W. FREEMAN. A Correction: PROFESSOR EDWIN B. WILSON</i>	476
<i>Quotations:</i>	
<i>Dr. Welch's New Chair</i>	478
<i>Scientific Books:</i>	
<i>Gager's General Botany: DR. JOHN M. COULTER</i>	478
<i>Special Articles:</i>	
<i>The Factor of Age in the Chemical Stability of the Blood during Gestation: PROFESSOR WILLIAM DE B. MACNIDER. The Magnetic Moment of Atomic Hydrogen: T. E. PHIPPS AND J. B. TAYLOR</i>	479
<i>American Association for the Advancement of Science:</i>	
<i>The Fall Meeting of the Executive Committee</i>	481
<i>Science News</i>	x

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

THE SCIENCE PRESS

Lancaster, Pa. Garrison, N. Y.
New York City: Grand Central Terminal.
Annual Subscription, \$6.00. Single Copies, 15 Cts.

SCIENCE is the official organ of the American Association for the Advancement of Science. Information regarding membership in the Association may be secured from the office of the permanent secretary, in the Smithsonian Institution Building, Washington, D. C.

Entered as second-class matter July 18, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879.

HYGIENE AS A WORLD FORCE¹

My first and pleasing duty is to thank most heartily and sincerely the authorities of the Johns Hopkins University for the great honor they have done me in asking me to be present here to-day and to deliver an address upon such an auspicious and important occasion. It would have been very easy for them to find on this side of the Atlantic some one well fitted to perform the task and far more in touch with the great march of public health in the United States than I am; some one also with a more extensive knowledge of hygiene as now practiced and developed in countries with temperate climates, for many years of my working life were spent in a land where public health work was in its infancy. It is only since taking up residence in England, and especially since my association with that undertaking which, in large measures, owes its inception and progress to the beneficent generosity of the Rockefeller Foundation, that I have had opportunities of becoming intimately acquainted with those modern movements which have wrought so great a change in the domain of state medicine.

A study of hygiene in England, and particularly of the history of hygiene, has, however, shown me why, in all probability, those responsible desired to have a speaker from that country. England is undoubtedly the cradle of modern hygiene, that is to say, it was in England that the principles and practices of hygiene were first properly developed and placed on a sound administrative basis. Thus other nations have acquired the habit of looking upon England as a leader in the great campaign against disease and death. This habit, flattering to the old country, and the term "old country" includes Scotland, Ireland and Wales, was undoubtedly justifiable in the early days of public health, and I trust may still be looked upon as wise and salutary, even though the old country has now much to learn from other lands, more especially from this great and wealthy republic of the west. On the other side of the Atlantic we are perhaps a little apt to forget that, in the historic sense, America has public health traditions of considerable antiquity and that, if England is a cradle

¹ Address delivered at the fiftieth anniversary celebration of the Johns Hopkins University, at the exercises commemorating the opening of the new building of the School of Hygiene and Public Health, on October 22, 1926.

Metallurgical Chemists

like No. 41 for Iron
and Aluminum
Hydroxides.

They say it is a
pleasure to have such
a rapid filtering paper
handy when analyzing
a complex alloy.

*Let us send you
a sample packet.*

H. REEVE ANGEL & CO.

Incorporated

7-11 Spruce Street

New York, N. Y.

WHATMAN
High
Grade **FILTER PAPERS**

New and Outstanding Books

Enzymes

BY SELMAN A. WAKSMAN, Ph.D., *New Jersey
Experiment Station*, and WILBURT C. DAVISON,
M.D., *Johns Hopkins Hospital*.

The most detailed and comprehensive study
of enzymes so far attempted.

Methods of preparation, purification, preservation and determination of the enzymes of the human and animal body, plants, seeds and microorganisms are given.

Enzymes are classified on the basis of substances they act upon. Chemical and physical properties governing activity and secretion are outlined; the role of enzymes in biological processes and applications in industry and clinical medicine are discussed.

As an authentic text and reference the book is likely to serve as standard for many years to come.

Cloth bound 6 x 9 Bibliography
Price, \$5.50

Hydrogen-Ion Concentration

BY LEONOR MICHAELIS, *University of Berlin*.
*At present Lecturer at the Johns Hopkins
Medical School*.

First English Translation (by William
A. Perlzweig) of Second Edition.

This second edition of Michaelis' classical work on hydrogen-ion concentration includes such a vast amount of new material that it has expanded the original one volume to three. This first of the three volumes presents the physico-chemical principles. The following volumes will present methods, colloid-chemical, physiological, and medical applications.

A fundamental book for everyone whose work involves physical chemistry.

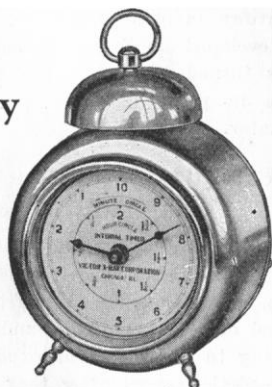
Blue cloth bound 6 x 9 References
Price, \$5.00

[EITHER BOOK MAY BE HAD
ON 10 DAYS' APPROVAL]

THE WILLIAMS & WILKINS COMPANY

Publishers of Scientific Books and Periodicals
Baltimore, U. S. A.

Every
Laboratory
Needs
This



Victor Interval Timer

with Automatic Alarm

Measuring time in periods ranging from
15 seconds to 2 hours

Price \$4⁵⁰

Over 30,000 in use!

VICTOR X-RAY CORPORATION
Merchandising Dept.
2012 Jackson Boulevard Chicago, Illinois

GRAMERCY BLOWERS

Gramercy Reagent Bottles

Gramercy Stirrers

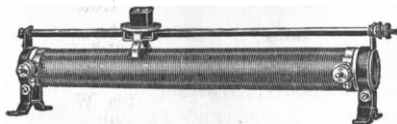
Write for additional data and prices

EIMER & AMEND

Est. 1851

Inc. 1897

Third Ave., 18th to 19th St. New York, N. Y.



JAGABI RHEOSTATS

meet a definite need in Educational, Research
and Industrial Laboratories.

By means of sliding-
contacts the resistance
values can be varied
from zero to full rat-
ing, in exceedingly
small steps.

We find greatest de-
mand for Rheostats
with tubes 16" long, as
illustrated above.
Write for Descriptive Bulletin
1140-S.

JAMES G. BIDDLE, PHILADELPHIA
1211-13 ARCH STREET



Chemical Indicators

The Coleman & Bell Company
manufacture a complete list of indi-
cators, including all of the common
indicators used in analytical and bio-
logical work, the hydrogen-ion indi-
cators recommended by Sorensen and
Clark and Lubs, and in addition
many rare indicators suitable for
special work.

Complete catalogue of Laboratory
Reagents upon request.

The Coleman & Bell Company

(Incorporated)

Manufacturing Chemists
NORWOOD, OHIO, U. S. A.



INVENTIONS-PROCESSES

We have responsible clients in the Industrial
field who desire to secure rights to inventions
and processes of proven or potential commer-
cial value.

We invite correspondence from Physicists
and others who desire to profit by their inven-
tions, and we make no charge for consultation
and advice.

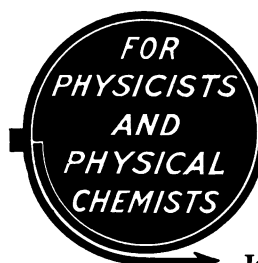
H. R. VAN DEVENTER, Inc.,

342 Madison Ave.

New York

Consulting and Industrial Engineers.

Specialists in Waste Utilization, Refrigeration, and
the Development of Electrical and Radio Devices.
Our Patent Department under the personal super-
vision of H. R. Van Deventer, Solicitor of Patents.



ELECTRICAL MEASURING INSTRUMENTS

EQUIPMENTS SUITABLE FOR
RESEARCH AND INDUSTRIAL
LABORATORIES

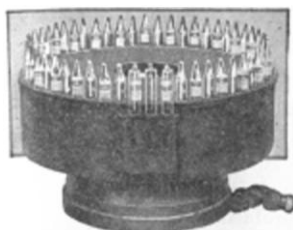
List of Publications Furnished on
Request

LEEDS & NORTHRUP CO.

4901 STENTON AVENUE

PHILADELPHIA

Meeting the Demands of Progress



Patent Applied For

Research work in recent years has shown the importance of accurate control of acidity and alkalinity by the hydrogen ion concentration method.

The LaMotte Roulette Comparator

is meeting the most advanced demands of progress in this field. Workers in many branches of science and industry find it the most practical, accurate and convenient equipment for the application of hydrogen ion control.

Write for our new brochure, "The A. B. C. of Hydrogen Ion Concentration" and descriptions of the various LaMotte Sets.

LaMotte Chemical Products Co.

418 Light St.

Baltimore, Md., U. S. A.

STAIN TECHNOLOGY

A quarterly devoted to biological stains and to microscopic technic closely related to staining.

Subscription price: \$1.50 a year

Published by the Commission on Standardization of Biological Stains.

(First number appeared in January, 1926, and will be included in new subscriptions if desired.)

For subscriptions apply to the Chairman of the Commission:

H. J. Conn, Lock box 299, Geneva, N. Y.

SUPPLY DEPARTMENT
Open the Entire Year



THE MARINE BIOLOGICAL LABORATORY
Woods Hole, Mass.

BIOLOGICAL SUPPLIES

For the classroom, museum or collector.

First class preparations.

Send for new (1926) Catalogue No. 1. Zoological and Embryological material, Life Histories and Habitat Groups.

Catalogue No. 2, Botanical Material

Catalogue No. 3, Microscopic Slides

Address all correspondence regarding material and catalogues to:

GEO. M. GRAY, Curator

THE INTERSTATE TEACHERS' AGENCY

New Orleans, La.

Established 1902. 615 New Orleans Bank Bldg.

Teachers for all departments of SCIENCE are urged to place their names with us now for present vacancies, for the second term, and for September, 1927. School and college positions. Send for enrollment blank and booklet.

A LAPIDARY (Male) for the Department of Mines, Ottawa, Canada. Salary range \$1,200-\$1,560 per annum. Candidates must have full apprenticeship and at least three years' experience as a Lapidary, some knowledge and preferably experience of modern museum preparatory methods. Applicants under 35 years of age preferred. Apply, submitting samples of work, to the Secretary, Civil Service Commission, Ottawa, Canada, not later than January 6, 1927.

SCIENTIFIC PERIODICALS

We wish to purchase complete files of Bound and Unbound Magazines such as Journal of Experimental Zoology, American Journal of Physiology, Biochemical Journal, as well as other Scientific Magazines. Odd volumes and copies also interest.

B. LOGIN & SON

29 East 21st Street

New York

SCHOOL OF MICROSCOPY

Room 1500, Pershing Square Building, New York City, Evening Classes. Course of instruction includes lectures and demonstrations on the Microscope and Accessories; Preparation of Material, Staining, Sectioning, Slide Making; Outline of Photomicrographic Methods. Fees nominal.

CHARLES F. TITUS, Director

Telephone 2830 Walker



Hy-Speed Filter Tank

Pumps, Mixes and Filters all kinds of liquids.

Glass-Coated Tanks—All sizes and shapes up to 150 gallons. Open or closed; round or square. Made to order. Coated inside and outside.

47 W. 63rd St., New York

Write for circular.

Aisop Engineering Co.

THE MICROSCOPE

By **SIMON H. GAGE**, of Cornell University

Revised Edition (14th) Ready

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

Postpaid, \$3.50

COMSTOCK PUBLISHING CO., ITHACA, N. Y.

THE SCIENCE PRESS PRINTING COMPANY

PRINTERS OF

SCIENTIFIC AND EDUCATIONAL JOURNALS,
MONOGRAPHS AND BOOKS

A. E. URBAN, General Manager

Correspondence Invited

LANCASTER, PENNSYLVANIA