President Truman congratulating 10 key scientists for their work in the wartime Office of Scientific Research and Development, January 20. Left to right, seated: James B. Conant, president, Harvard University; the President; and Alfred N. Richards, vice-president, University of Pennsylvania. Standing: Karl T. Compton, president, Massachusetts Institute of Technology; Lewis H. Weed, chairman, Division of Medical Sciences, National Research Council; Vannevar Bush, chairman, new Army-Navy Joint Research and Development Board; Frank B. Jewett, president, National Academy of Sciences; J. C. Hunsaker, Massachusetts Institute of Technology; Roger Adams, University of Illinois; A. Baird Hastings, Harvard University; and A. R. Dochez, Columbia University. Richard C. Tolman, California Institute of Technology, who also received a letter of thanks from President Truman, was not in Washington.
Stokes freeze-drying equipment for desiccation from the frozen state helped make possible the development of the Blood Plasma and Penicillin programs. It is in equally successful use for preserving serums and other labile biologicals by Drying by Sublimation under high vacuum.

Along with the University of Pennsylvania and Sharp and Dohme, Stokes pioneered in developing both the method and the equipment to make freeze-drying commercially practical. Today more than 275 Stokes units are in use in laboratories, hospitals, universities, government health services and commercial plants in many parts of the world.

Stokes engineers and manufactures complete equipment for the process, from test tube to plant-scale capacity. Facilities and authoritative assistance are available for research, development and application of this process. A complete pilot plant in the Stokes Laboratory is used for tests and demonstrations. Our technical staff invites your consultation.

F. J. STOKES MACHINE CO.
HOWELL - FULTON’S

TEXT BOOK OF PHYSIOLOGY

A basic text on applied physiology—that’s what this book is. All the facts which are directly helpful in the study of this science are included in this work, long one of the World’s best on physiology. Edited by JOHN F. FULTON, M.D., Sterling Professor of Physiology, Yale University School of Medicine, with the Collaboration of 10 Other Authorities. 1304 pages, 6” x 9½”, 507 illustrations. $8.00 Fifteenth Edition

Some of the Many Features Responsible for the New Success of this Standard Text

Newer concepts of high altitude physiology and much else that is new in the broad field of aviation medicine.

New work in the field of gastro-intestinal physiology.

The section on basal metabolism is reorganized to include recent disclosures on the part played by endocrines and the central nervous system in the integration of metabolic processes.

Sensory physiology is presented in clinical language, and the large clinical literature on sensory problems is coordinated in terms easily understood by both clinician and physiologist.

A completely rewritten section on muscle and nerve, and largely revised chapters on the central nervous system.

In the completely revamped section on the cardiovascular system, the excitability and conductivity of cardiac muscles are interpreted in the light of modern electrophysiology.

The entire section on the physiology of sex rewritten to keep pace with this rapidly unfolding branch of experimental medicine.

A completely revised discussion of water metabolism and the kidney bringing it into line with current teachings.

Gladly Sent on Request — New (1947) College Textbook Catalogue

W. B. SAUNDERS COMPANY, West Washington Square, Phila. 5, Pa.
CONTENTS

Work of Soviet Biologists: Theoretical Genetics: N. P. Dubinin ........... 109

Ultrashort Application Time of Penetrating Electrons: A Tool for Sterilization and Preservation of Food in the Raw State:
Arno Brasch and Wolfgang Huber ...... 112

News and Notes .......................... 117

Technical Papers

Differences in Physiological Activity in Brown and White Fat as Revealed by Histochemical Reactions:
Don W. Fawcett .......................... 123

High-Efficiency Counting of Long-lived Radioactive Carbon as CO₂: Warren W. Miller ............ 123

Effect of Flavonols on the Bacteriostatic Action of Dicoumarol: Joseph Naghsli, Michael J. Copley, and James F. Couch ............... 125

The Production of Experimental Pellagra by Adenine: Sigwin B. Raska .................. 126

Elasticity of the Aortic Wall: Allen L. King .................. 127

Undifferentiated Growth of Orchid Embryos on Media Containing Barbiturates: John T. Curtis ............... 128

The Inhibitory Effect of Sodium Dodecyl Sulfate Upon the Gastric Secretory Response to Histamine:
Harry Shuy, S. A. Komarow, and Herman Siplet ............... 128

In the Laboratory

An Apparatus for the Quantitative Separation of Volatile Substances by Fractionation and Distillation:
W. Riley McGaughran and S. C. Werch .......... 130

Stability of Penicillin in Glycerin and in Glycols:
R. J. Ferlauto and H. A. Clymer ............... 130

A Simplified Method of Preparing Active Extracts of B-Glucuronidase: William H. Fishman and Paul Toladay .................. 131

Frequency Analysis of Electroencephalograms:
Frederic A. Gibbs and A. M. Grass ............... 132

Book Reviews

Science, liberty and peace: Aldous Huxley.
Reviewed by R. T. Cox .......................... 134

Butlastic polymers: their preparations and applications. A treatise on synthetic rubbers: Frederick Marchionna.
Reviewed by H. L. Trumbull ............... 135

The production of tobacco: Wightman W. Garner.
Reviewed by F. A. Wolf .......................... 135

Notes on microscopical technique for zoologists: C. F. A. Pantin.
Reviewed by George R. La Rue ............... 136

Scientific Book Register ............... 136

(Cover photo by Press Association, Inc.)
The Microlux yields the highest intrinsic light intensity obtainable with an incandescent light source. It is compact, consumes little current, and can be used on 110 volt A.C. current.

The MICROLUX Provides These Outstanding Advantages:

- It can be used in photomicrography from low to high magnification with the complete two lens condenser of the substage of the conventional medical microscope. After alignment, adjustment to the light system with the 16mm objective, changes to objectives of shorter focal length—including the oil immersions—can be made without further adjustments of the entire illumination system.
- With each objective uniform illumination exists throughout the field, and the intensity is sufficient for short exposures even with a green filter.
- An aperture stop as well as a field stop is operative for the entire range of magnifications. The field of view is remarkably flat on the ground glass.
- For visual observation, a diffusing daylight filter is placed in the filter holder.
- For micro-projection, a projected image of satisfactory intensity approximately three feet in diameter can be obtained with a 16mm objective.
- The short focal length of the condenser permits optical conditions for uniform illumination, even at high magnification, to be met with the lamp placed relatively near the microscope. This makes the lamp controls easily accessible to the microscopist.
- The lamp can be tilted from a horizontal to an almost vertical position.
- The light source is a special low voltage lamp of small current consumption and high illumination intensity.
- At maximum rheostat setting, the light is of proper color temperature (3200° K) for use with Kodachrome Type B film without the need of auxiliary filters.
- Both condenser and lamp positions are adjustable for obtaining proper optical alignment.

E. LEITZ, Inc., 304 Hudson Street, New York 13, N. Y. (Dept. 801)

Please send us Catalog No. 1318, containing information on the Magarc, Microlux Lamp and the Micam Camera Attachment.

Name__________________________
Address________________________
City___________________________
Zone___________________________
State___________________________

My Dealer’s Name Is__________________
AUTOSCALER

for RADIOACTIVITY Measurements

The Tracerlab Autoscaler is a self-contained instrument for research laboratory, medical and industrial use. It provides operating voltage for any standard Geiger-Mueller tube, and a scaling circuit synchronized with a precision timer.

Several outstanding features are:

- Choice of scales up to 4096
- Three electronically regulated power supplies
- Fixed statistical error for each setting of scale selector switch
- Elimination of internal adjustments
- Terminal board construction throughout
- Automatic, electronically controlled operation
- Relay control contacts for totalizing more than 4096 counts

Tracerlab Inc. also offers other instruments, tracer compounds, routine radioactivity analyses service, and research in application of radioisotopes.

WRITE FOR DESCRIPTIVE BULLETIN

55-F OLIVER ST. Tracerlab INC. BOSTON, MASS.
NEW SYLVANIA G-M TUBES

... FOR DETECTION AND MEASUREMENT
OF RADIOACTIVITY!

For the first time, counter tubes of stable, uniform characteristics are now available for practical use in the field of radioactivity.

Formerly, tubes of this type were hand-made — delicate, variable products of the laboratory glass-blower. Through Sylvania research and development, vacuum tube production techniques have now been adapted to their manufacture, with the resulting advantages of stability during tube life, and uniformity from tube to tube.

Use of Sylvania laboratory and manufacturing techniques enables the external quench circuit tubes to be produced in quantity, to bring the customer the advantages of stability and much longer life.

FEATURES
LONG LIFE    UNIFORMITY
DEPENDABILITY STABILITY
CONVENIENCE

APPLICATIONS OF SYLVANIA GEIGER-MUELLER TUBES
Sylvania Tube GB-302 is a beta-ray counter, utilizing a thin but rugged window of metal foil. It is extremely sensitive to the beta-radiation of the majority of available radioactive isotopes.

The GB-302 will be particularly valuable in tracer techniques, and is also well adapted to medical diagnostic and therapeutic uses.

Sylvania Tube GG-304 is the gamma-ray counting companion to the GB-302. It is useful in radiological safety surveys and other applications where gamma radiation must be efficiently measured. In addition, Sylvania Tube GG-304 can be used for cosmic ray studies, especially in coincidence work.

Write for full details.

SYLVANIA ELECTRIC

Electronics Division . . . 500 Fifth Avenue, New York 18, N. Y.

MAKERS OF ELECTRONIC DEVICES: RADIO TUBES, CATHODE RAY TUBES, FLUORESCENT LAMPS, FIXTURES, WIRING DEVICES, ELECTRIC LIGHT BULBS
Revised edition of
"One of the classics of modern physics."
—N. Y. HERALD TRIBUNE

Electrons (+ and −)
PROTONS, PHOTONS, NEUTRONS, MESOTRONS, AND COSMIC RAYS
by ROBERT A. MILLIKAN

* Including 5 entirely new chapters on nuclear energy, radioactivity, and fission, the atomic bomb, the mesotron, and cosmic rays. "No advanced student of physics can afford to be without it."—N.Y. Times. "A veritable education in modern atomic progress."—Indianapolis Times.

602 pages, 124 illustrations, $6.00

Sponsored by the University of Chicago Committee on Publications in Biology and Medicine.

AT ALL BOOKSTORES
THE UNIVERSITY OF CHICAGO PRESS
5750 ELLIS AVE., CHICAGO 37, ILL.

MAMMALS OF NEVADA
By E. Raymond Hall

* An account of every kind of native wild animal known in Nevada within historic time. It stresses geographic variation and speciation and summarizes natural history information for each species.

xii + 710 pages, 11 plates, 486 figures.

Price, $7.50

UNIVERSITY OF CALIFORNIA PRESS
Berkeley 4, California

Helps Research Results
PURINA LABORATORY CHOW

Purina Laboratory Chow contributes to experimental work in these ways:

1. It's nutritionally complete for rats, mice, hamsters and dogs — easily supplemented for cats and monkeys.

2. Constant in formula.

3. Prepared from selected ingredients.

4. Comes in convenient Checker form.

5. It's an economical ration to feed.

RALSTON PURINA COMPANY
1704 Checkerboard Square
St. Louis 2, Missouri

Please send me your new 28-page handbook on the care and feeding of laboratory animals.

Name: ..........................................

Address: ..........................................

City, State: ...........................

MAMMALS OF NEVADA

By E. Raymond Hall

* An account of every kind of native wild animal known in Nevada within historic time. It stresses geographic variation and speciation and summarizes natural history information for each species.

xii + 710 pages, 11 plates, 486 figures.

Price, $7.50

UNIVERSITY OF CALIFORNIA PRESS
Berkeley 4, California

Electrons (+ and −)
PROTONS, PHOTONS, NEUTRONS, MESOTRONS, AND COSMIC RAYS
by ROBERT A. MILLIKAN

* Including 5 entirely new chapters on nuclear energy, radioactivity, and fission, the atomic bomb, the mesotron, and cosmic rays. "No advanced student of physics can afford to be without it."—N.Y. Times. "A veritable education in modern atomic progress."—Indianapolis Times.

602 pages, 124 illustrations, $6.00

Sponsored by the University of Chicago Committee on Publications in Biology and Medicine.

AT ALL BOOKSTORES
THE UNIVERSITY OF CHICAGO PRESS
5750 ELLIS AVE., CHICAGO 37, ILL.

Helps Research Results
PURINA LABORATORY CHOW

Purina Laboratory Chow contributes to experimental work in these ways:

1. It's nutritionally complete for rats, mice, hamsters and dogs — easily supplemented for cats and monkeys.

2. Constant in formula.

3. Prepared from selected ingredients.

4. Comes in convenient Checker form.

5. It's an economical ration to feed.

RALSTON PURINA COMPANY
1704 Checkerboard Square
St. Louis 2, Missouri

Please send me your new 28-page handbook on the care and feeding of laboratory animals.

Name: ..........................................

Address: ..........................................

City, State: ...........................
you know
your tissues
will spread
even-l-y

The water temperature will be just right for smooth, even spreading: never too hot or too cold. No melting paraffin to distort tissues; no folds or wrinkles. No bubbles due to frequent water change... temperature stays constant day in, day out. Bulletin 6320 gives particulars: send for it.

TECHNICON COMPANY, 215 E. 149th St., New York 51, N. Y.

... it's a

Technicon
constant temperature
water bath
for Built-in Accuracy,

Speed and Simplicity

in Micro-Projection

VISUAL demonstrations of microscopic specimens are presented with exceptional speed and effectiveness by the Bausch & Lomb Model AA Micro-Projector. This complete unit offers utmost simplicity and convenience of operation. All optical parts are accurately aligned at correct relative distances, and mounted on a sturdy one-piece base. It is necessary only to center the light source, set the projector, insert the specimen, and focus. A high intensity, clock-feed arc illuminator assures adequate brilliance for sharp, distinct screen images. Equipped to accommodate objectives ranging from a 72mm Micro Tessar to a 4mm microscope objective, the Model AA Micro-Projector will handle a wide variety of specimens. Details available in Catalog E-20. Bausch & Lomb Optical Co., 642-A St., Paul Street, Rochester 2, New York.

BAUSCH & LOMB
OPTICAL COMPANY
ROCHESTER 2, N.Y.

Cooperating with Men of Science since 1853