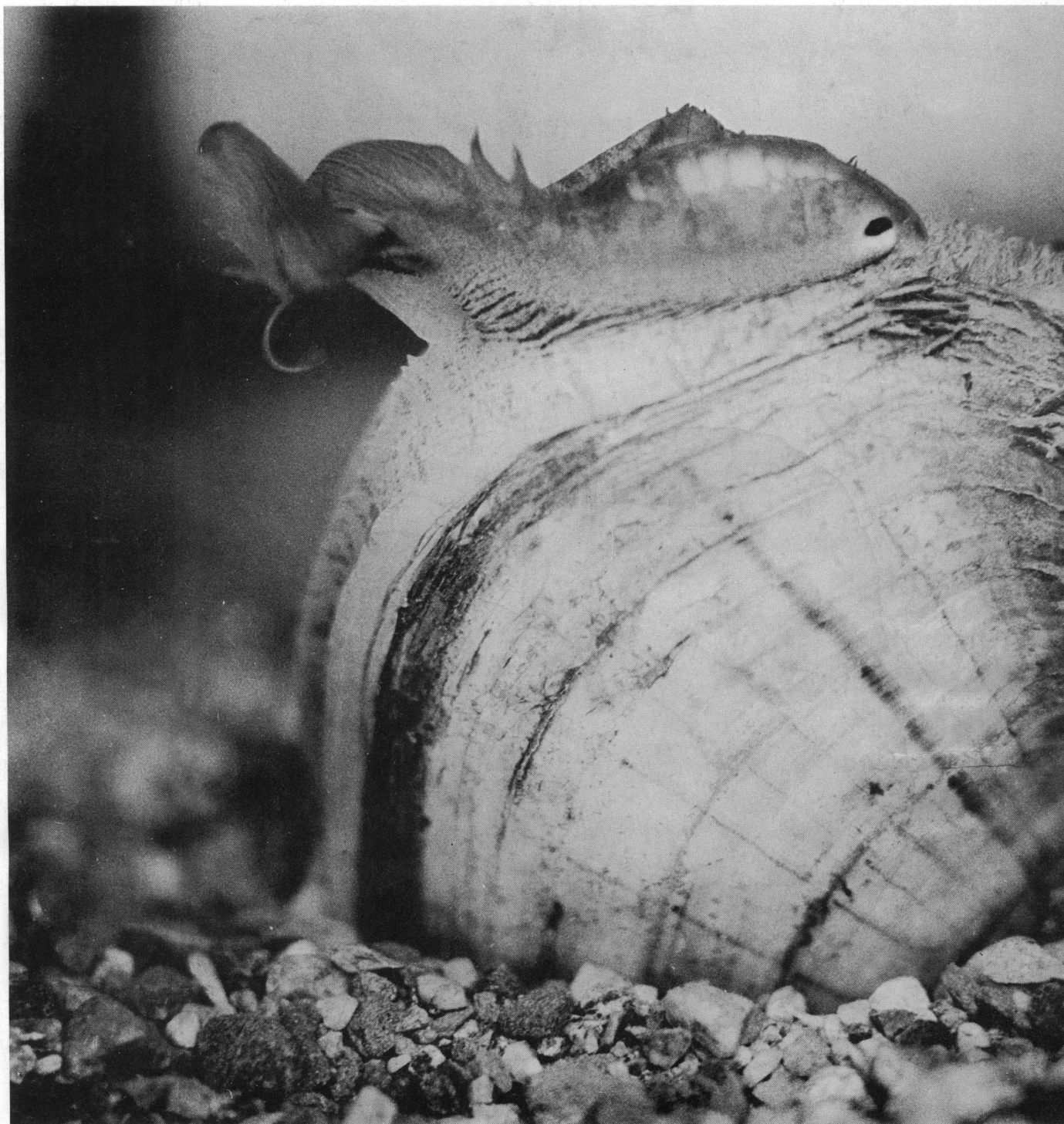


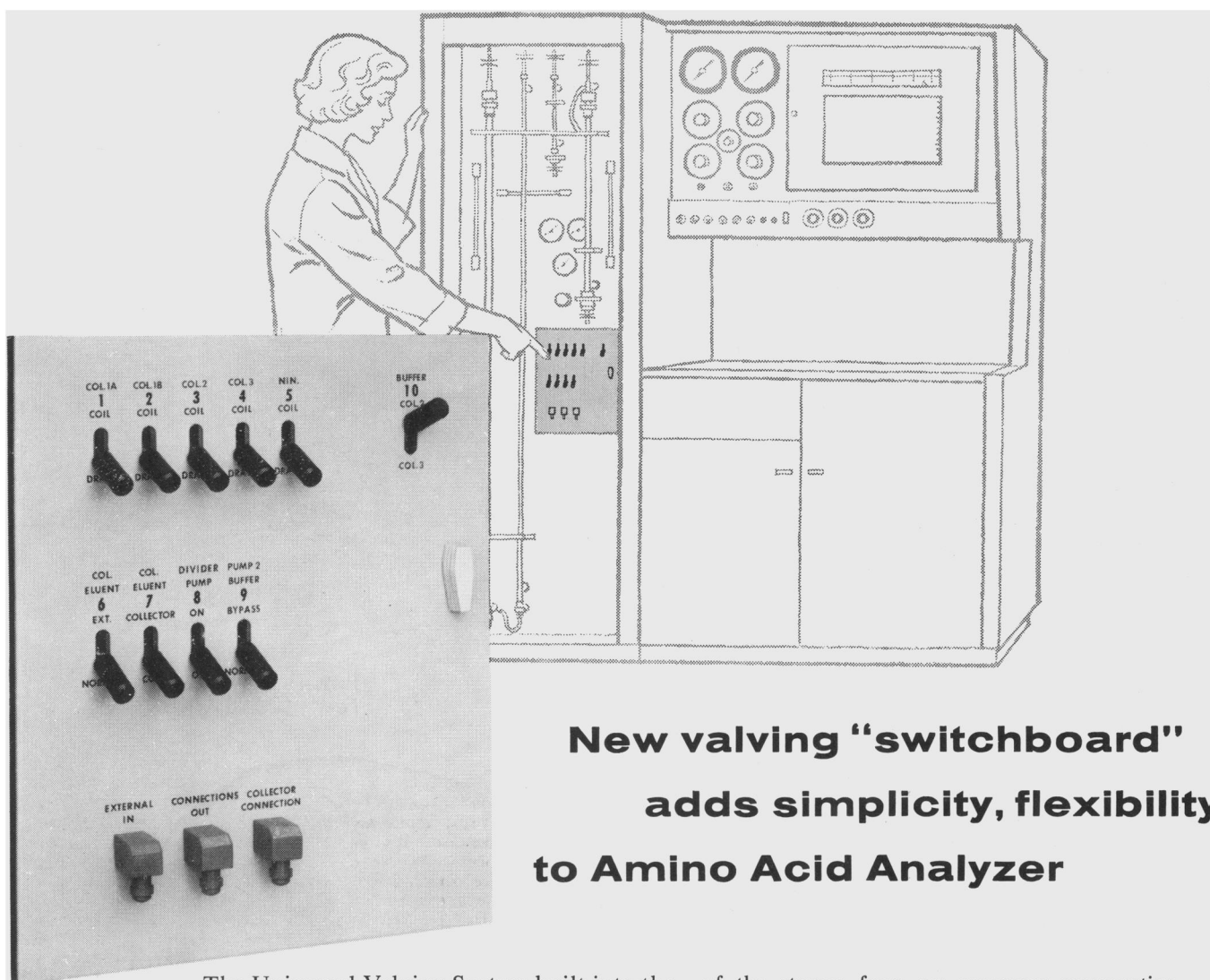
SCIENCE

14 July 1961

Vol. 134, No. 3472

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE





New valving "switchboard" adds simplicity, flexibility to Amino Acid Analyzer

The Universal Valving System built into the Beckman/Spinco 120 Analyzer provides two key advantages to instrument owners:

- it makes routine amino acid analyses simpler;
- it facilitates special analyses such as separating, identifying, and quantitating peptides, physiological fluid components, and radioactive amino acids.

Essentially a "switchboard," the Valving System allows you to select instantly the proper flow arrangement for each chromatographic experiment. For example, separated fractions from analytical columns can be directed outside the Analyzer for scintillation counting or ultraviolet scanning, then returned to the instrument for ninhydrin analysis. Flows from special external columns can be fed into the instrument. A sample

of the stream from an accessory preparative column can be monitored for peptide or amino acid content, while the fractions are collected separately.

Instrument operators will appreciate the special valves of stainless steel, PVC, and teflon that have replaced glass and glass-plastic stopcocks. The valves are leak-free, precise, non-sticking, self-lubricating, and are individually accessible on a swing-out panel.

Other features of the Analyzer include installation, operator training, and a full year of routine and emergency service—all at no extra cost.

For complete information on the 120 Amino Acid Analyzer, write Beckman Instruments, Inc., Spinco Division, Stanford Industrial Park, Palo Alto, California. Ask for Data File 120-5.

Beckman® / **Spinco Division**
Beckman Instruments, Inc.

From Saunders — NEW EDITIONS — NEW BOOKS

New (2nd) Edition!

Prosser & Brown — **COMPARATIVE ANIMAL PHYSIOLOGY**

Presents a systematic organization and evaluation of comparative physiology, organized on a functional rather than on a phylogenetic basis. In this unified picture of comparative physiology you'll find a complete study of the interaction of environments and organisms, and comprehensive treatment of the effector and integrative systems. Evolutionary relationships of various kinds of animals are fully described, as well as the diverse ways in which they meet their functional and environmental requirements. Contents include chapters on: nutrition; nitrogen excretion; mechanoreception, equilibrium reception

and phonoreception; chemoreception; photoreception; muscle and electric organs; amoeboid movement; bioluminescence; chromatophores and color change; endocrine mechanisms. Because this book is written for upper-class undergraduates and first-year graduates, it is assumed that basic principles of Physiology, both of cells and organisms, are known.

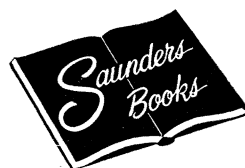
By C. LADD PROSSER, Ph.D., Professor of Physiology, University of Illinois; and FRANK A. BROWN, JR., Ph.D., Professor of Biology, Northwestern University. About 687 pages, 6½" x 10", with 271 illustrations.
New (2nd) Edition—Just Ready!

New! Orr —

VERTEBRATE BIOLOGY

Covers the life of North American vertebrates—fishes, amphibians, reptiles, birds and mammals. Each group is discussed separately—its general characteristics (skeletal, muscular, circulatory and digestive systems, etc.) and its special characteristics (coloration, appendages and locomotion, scales, teeth, antlers and horns, feather arrangements, etc.). Special emphasis is placed on characteristics such as structural adaptations of appendages and the integumentary system because they have significant correlations with behavioral differences. No one vertebrate species is dealt with in its entirety, but certain phases of the activities of selected animals have been used to illustrate various behavior patterns and to present, wherever possible, reasons for these patterns. Related topics include systematics, territory and home range, population movements, dormancy, reproduction, growth and development, and population dynamics.

By ROBERT T. ORR, Ph.D., Curator of Birds and Mammals, California Academy of Sciences; Professor of Biology, University of San Francisco. 400 pages, 6¼" x 9¾", with 153 illustrations.
New—Just Published!



New! Carpenter —

MICROBIOLOGY

Introduces microbiology to students in the sciences; covers microbiology for students in the arts, education and nursing fields. So that all students may readily grasp the material, facts are woven into concepts and relationships; thus, understanding is acquired without tedious memorization. It is neither too medical in approach nor too superficial in treatment. Four phases of microbial study are covered: 1) a general survey of microbial life; 2) a detailed study of the biology of bacteria—their metabolism, growth, death and genetics; 3) the ecologic relationships and roles of microorganisms in natural or controlled environments such as soil, water, foods and milk, and in industry; and 4) the interaction of pathogenic microorganisms and their animal or plant hosts. Students thus learn the basic unity of vital processes; understand the relationships among microscopic organisms; discover the interplay between micro- and macro-organisms. Illustrations emphasize principles and general concepts.

By PHILIP L. CARPENTER, Ph.D., Professor of Bacteriology, University of Rhode Island. 424 pages, 6½" x 9¾", with 246 illustrations. \$6.75.
New—Just Published!

New (2nd) Edition!

Fischer — **QUANTITATIVE CHEMICAL ANALYSIS**

Covers all phases of quantitative analysis—from fundamental principles to the intricacies of polarography. Designed for students already familiar with the subject matter of the average general chemistry course, this text is organized so it may be adapted to varying circumstances. The author has included 43 experiments interspersed throughout the book, sample problems worked out completely, and many problems for assignment, permitting this single volume to serve as both text and lab manual. Through this text all phases of quantitative analysis can be taught in a single, comprehensive one-semester

course. You'll find principles of analytical balance, types of quantitative analysis, gravimetric and volumetric methods, optical and electrical methods. The chapter on treatment of analytical data is self-complete, so it may be postponed until later in the course. In this New (2nd) Edition, additional laboratory experiments are included, involving equipment which is relatively inexpensive, and in some cases, can be constructed by students.

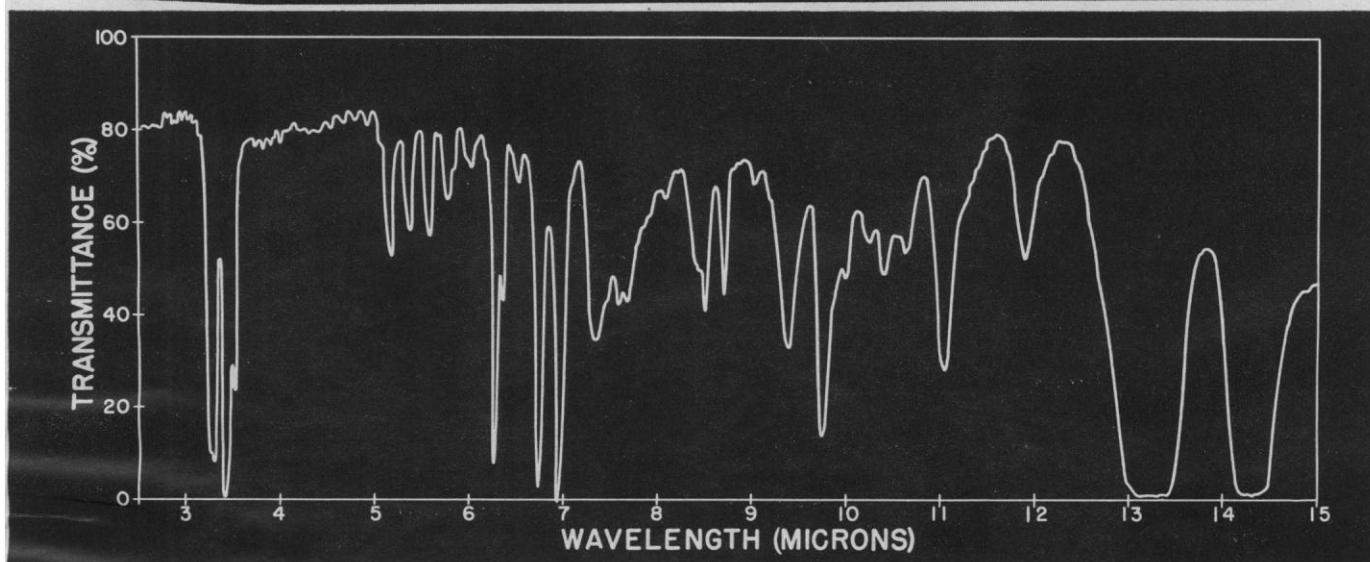
By ROBERT B. FISCHER, Ph.D., Professor of Chemistry, Indiana University. 501 pages, 6¾" x 9¼", illustrated. \$6.75.
New (2nd) Edition—Just Published!

Gladly sent to college teachers on approval

W. B. Saunders Company West Washington Square Philadelphia 5, Pa.

SCIENCE is published weekly by the AAAS, 1515 Massachusetts Ave., NW, Washington 5, D.C. Second-class postage paid at Washington, D.C., and additional mailing office. Annual subscriptions: \$8.50; foreign postage, \$1.50; Canadian postage, 75¢.

NEW THREE-MINUTE FAST SCAN TRIPLES YOUR INFRACORD® OUTPUT



Typical spectrum of polystyrene, run on the two-speed Model 137-B in three minutes.

A new high in *speed of infrared analysis* is now possible with Perkin-Elmer's Model 137-B Infracord, the most widely used low-cost double-beam spectrophotometer. You now can select a *three-minute scan* or a standard twelve-minute run.

With the newest Model 137-B, you can (1) triple the analytical output and efficiency of your lab; (2) follow fast-moving reactions automatically; (3) obtain rapid spectral recordings of unstable samples; and (4) reduce unavoidable waiting time between spectra. Results with the three-minute scan are sufficiently precise for the majority of analytical problems. The

twelve-minute scan is at your fingertips when the ultimate in spectral precision is required.

High-speed scanning is a unique Perkin-Elmer innovation in low-cost infrared instrumentation. Like other instruments in P-E's Infracord line, the Model 137-B is designed to make infrared spectroscopy a more useful laboratory tool for the bench chemist. The Model 137-B with NaCl

prism scans the fundamental infrared spectrum from 2.5μ to 15μ —the spectral region of significance in practically all analyses involving organic chemicals.

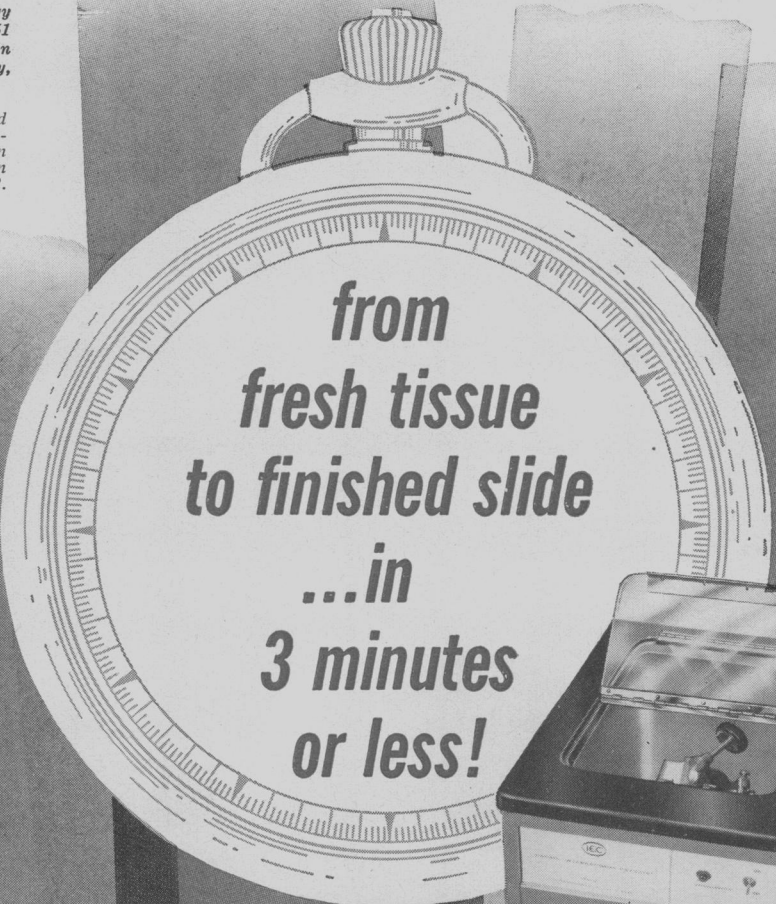
And—as in *all* Infracords—accessories for sampling and special analysis are available. For complete information and sample spectra, write to the Perkin-Elmer Corporation, 910 Main Avenue, Norwalk, Connecticut.

INSTRUMENT DIVISION
Perkin-Elmer Corporation
NORWALK, CONNECTICUT

Editorial	The Company They Keep	75
Articles	Electrical Resistivity at Low Temperatures: <i>J. S. Dugdale</i>	77
	The pressure dependence of the electrical resistance of metals gives some clues about their Fermi surfaces.	
	Shark Attacks: <i>L. P. Schultz, P. W. Gilbert, S. Springer</i>	87
	Worldwide records through 1960 show when and where predaceous sharks are likely to attack man.	
Science and the News	The Drug Hearings: To No One's Surprise, Kefauver and the American Medical Association Do Not Agree on What Should Be Done	89
Book Reviews	Guide to Biological Horizons: <i>M. Graubard</i>	93
	Is this volume an authoritative source book or does it have handicaps that make it useless?	
	A. P. Merriam's <i>Congo</i> , reviewed by <i>I. Kopytoff</i> ; other reviews.....	94
Reports	Lead-210 in Natural Waters: <i>Rama, M. Koide, E. D. Goldberg</i>	98
	Discharge Patterns of Neurons in Cochlear Nucleus: <i>R. G. Grossman and L. J. Viernstein</i>	99
	Search for Evidence of Axial Current Flow in Peripheral Nerves of Salamander: <i>R. O. Becker</i>	101
	Variable Expressivity of a Mutant Gene in Leopard Frog: <i>E. P. Volpe</i>	102
	Variations in Thermal Sensitivity: <i>D. R. Kenshalo, J. P. Nafe, B. Brooks</i>	104
	Dating Desert Ground Water: <i>L. Thatcher, M. Rubin, G. F. Brown</i>	105
	Haptoglobin and Transferrin Gene Frequencies in a Navajo Population: A New Transferrin Variant: <i>W. C. Parker and A. G. Bearn</i>	106
	Intrinsic Barriers to Dispersal in Checkerspot Butterfly: <i>P. R. Ehrlich</i>	108
	Potential versus Time Asymmetries in Adsorption Membranes: <i>R. A. Sjodin</i>	110
	Radioprotective Activity of a Phenanthrene Derivative in Mice: <i>W. H. Rooks II and R. I. Dorfman</i>	111
	Optical Properties of Sugar Flavazoles: <i>P. Nordin and M. Doty</i>	112
	Deamination of Adenine by Ionizing Radiation: <i>C. Ponnampereuma et al.</i>	113
Departments	Forthcoming Events	114
Cover	A female <i>Lampsilis ovata ventricosa</i> (Barnes). This fresh-water mussel is one of a family having glochidia or young that are parasitic on the gills of fishes. The females of this group, during the breeding season, develop lures, such as the fish-like projections of the edge of the mantle shown here. These projections attract fish to the vicinity of the mussel, thereby assuring transfer of the young larva to the host. [J. H. Welsh, Biological Laboratories, Harvard University]	

**American Journal of Clinical Pathology*
Vol. 33, No. 2, February 1960, pp 144-151
"Application of Refrigerated Microtome in
Surgical Pathology" by Bernard Klionsky,
M.D. and Othello D. Smith, M.D.

The Journal of Histochemistry and
Cytochemistry Vol. 8, No. 5, Septem-
ber, 1960, pp 310 "A Frozen Section
Freeze Substitutions Technique and an
Improved Cryostat" by Jeffrey P.
Chang and Samuel H. Hori.



**from
fresh tissue
to finished slide
...in
3 minutes
or less!**

New Harris-International MICROTOME-CRYOSTAT revolutionizes frozen sectioning!



COMPLETE FROZEN SECTIONING PACKAGE includes:
Model CT Microtome Cryostat; rust-proof International
Minot Rotary Microtome; Quick Freeze Attachment
for freezing fresh tissue directly to Minot chuck;
Anti-Roll Attachment for keeping sections flat; Suction
Pickup for transferring sections.

A demonstration will convince you that this pathologist-directed* development of International Equipment Co. combines speed, accuracy and economy as never before resulting in finished slides which offer exceptional cytological detail. It brings rewarding advantages to pathology laboratories of all sizes.

1. By reducing fresh-tissue-to-finished-slide cycles to 3 minutes or less, it speeds diagnostic service.
2. By producing large or small, thin, unwrinkled sections of single or multiple pieces of fresh frozen tissue, it provides undistorted cytological detail for research or regular pathological work.

3. By employing supermarket-proved "open-top cold box" principles, it maintains safe temperature between -10°C and -20°C even with the cover open.

4. By meeting budgetary limitations of small laboratories with a price based on mass-precision productive skills and experience, it makes frozen sectioning practical even for small-volume pathologic diagnosis.

Your nearby authorized International Dealer will gladly arrange for a convenient demonstration. Write for descriptive brochure.

INTERNATIONAL  EQUIPMENT CO.

1284 SOLDIERS FIELD ROAD, BOSTON 35, MASS.

AMERICAN ASSOCIATION
FOR THE
ADVANCEMENT OF SCIENCE

Board of Directors

CHAUNCEY D. LEAKE, *Retiring President, Chairman*
THOMAS PARK, *President*
PAUL M. GROSS, *President Elect*
HARRISON BROWN DON K. PRICE
HENRY EYRING ALFRED S. ROMER
H. BENTLEY GLASS WILLIAM W. RUBEY
MARGARET MEAD ALAN T. WATERMAN
PAUL A. SCHERER, *Treasurer*
DAEL WOLFLE, *Executive Officer*

Editorial Board

KONRAD B. KRAUSKOPF H. BURR STEINBACH
EDWIN M. LERNER WILLIAM L. STRAUS, JR.
PHILIP M. MORSE EDWARD L. TATUM

Editorial Staff

DAEL WOLFLE HANS NUSSBAUM
Publisher Business Manager

GRAHAM DUSHANE
Editor

JOSEPH TURNER ROBERT V. ORMES
Associate Editor Managing Editor

ELLEN E. MURPHY, *Assistant Editor*

NANCY TEIMOURIAN, *Assistant to the Editor*

News: HOWARD MARGOLIS, LILLIAN LEVY

Book Reviews: SARAH S. DEES

Editorial Assistants: NANCY S. HAMILTON, OLIVER W. HEATWOLE, EDGAR C. RICH, JOHN E. RINGLE, BARBARA SUTHERLAND, CONRAD YUNG-KWAI

Staff Assistants: GENEVIEVE M. KIRBY, PATRICIA D. PADDOCK

Advertising Staff

EARL J. SCHERAGO, *Director*

BERNICE SCHWARTZ, *Production Manager*

Sales: RICHARD L. CHARLES (New York, N.Y., PE 6-1858); C. RICHARD CALLIS (Old Bridge, N.J., CL 4-3680); HERBERT BURKLUND (Chicago, Ill., DE 7-4973); DILLENBECK-GALAVAN (Los Angeles, Calif., DU 5-3991)

SCIENCE, now combined with THE SCIENTIFIC MONTHLY, is published each Friday by the American Association for the Advancement of Science at National Publishing Company, Washington, D.C. SCIENCE is indexed in the *Reader's Guide to Periodical Literature*.

Editorial correspondence should be addressed to SCIENCE, 1515 Massachusetts Ave., NW, Washington 5, D.C. Manuscripts should be typed with double spacing and submitted in duplicate. The AAAS assumes no responsibility for the safety of manuscripts. Opinions expressed by authors are their own and do not necessarily reflect the opinions of the AAAS or the institutions with which the authors are affiliated. For detailed suggestions on the preparation of manuscripts, see *Science* 125, 16 (4 Jan. 1957).

Advertising correspondence should be addressed to SCIENCE, Room 1740, 11 West 42 St., New York 36, N.Y.

Change of address notification should be sent to 1515 Massachusetts Ave., NW, Washington 5, D.C., 4 weeks in advance. Furnish an address label from a recent issue. Give both old and new addresses, including zone numbers.

Annual subscriptions: \$8.50; foreign postage, \$1.50; Canadian postage, 75¢. Single copies, 35¢. Cable address: Advancesci, Washington.

Copyright © 1961 by the American Association for the Advancement of Science.

The Company They Keep

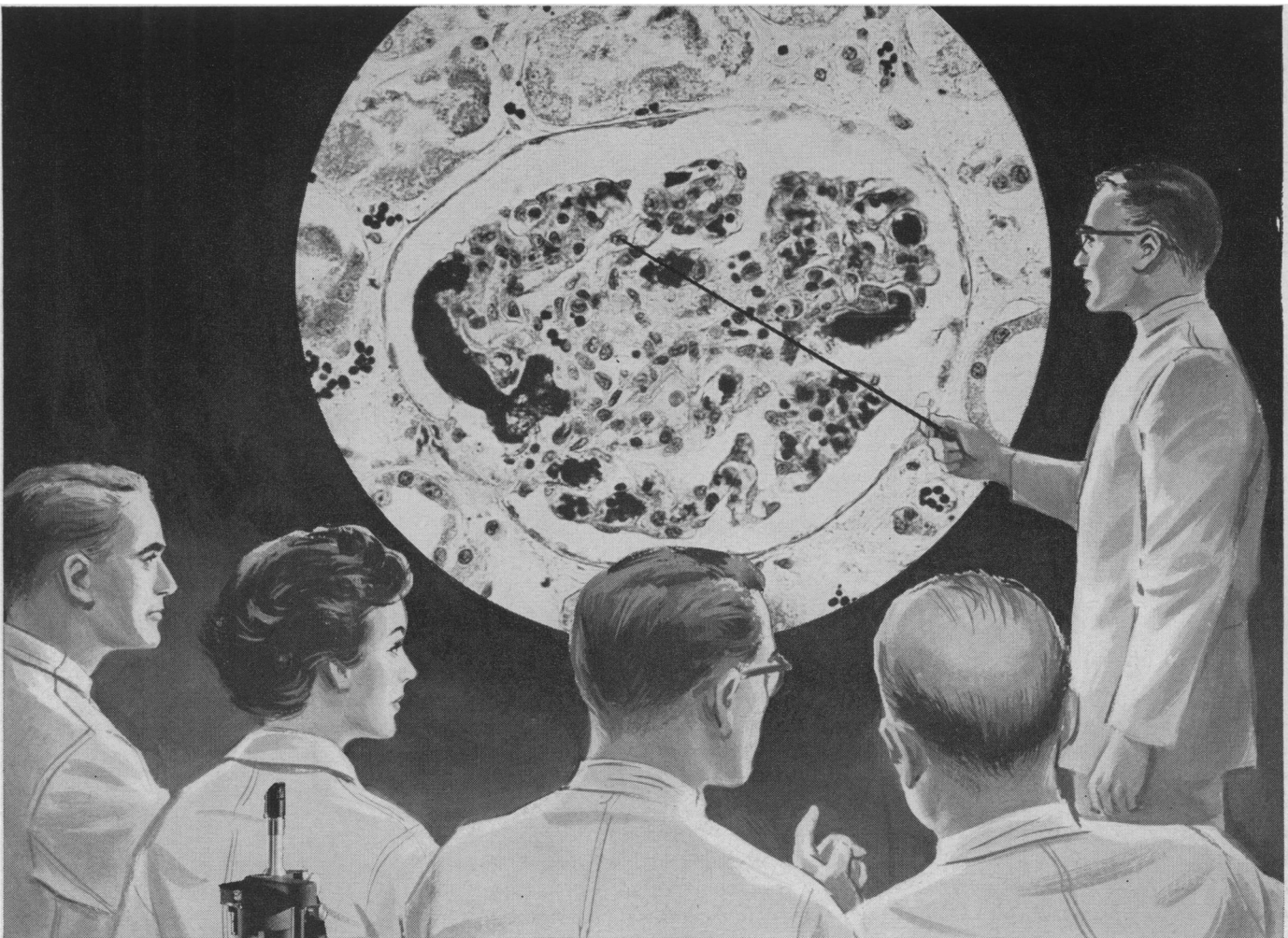
One of the tasks of the Federal Trade Commission, according to the Encyclopaedia Britannica, is to order business organizations to stop using deceptive advertising when such organizations are found to be so engaged. A few weeks ago Encyclopaedia Britannica, Inc., was ordered by the Federal Trade Commission to stop using advertising that misrepresents its regular prices as reduced prices available for a limited time only. Besides the familiar 24-volume Encyclopaedia, the company sells such things as a book case, an atlas, a reference service, and the Britannica book of the year. Sales are made directly to the public through the publisher's 2500 or so salesmen, with advertising in national magazines backing up the sales force.

Some of the company's sales practices are ingenious. The FTC shows, for example, how the prospective customer, once he has gained the impression that he is being offered the Encyclopaedia and accessories at reduced prices, is led to believe that the purported reduced prices are good only for a limited time. This is done by two kinds of statements, each being true enough if regarded separately.

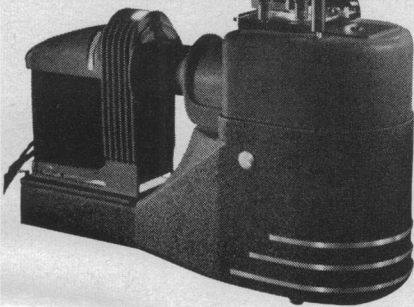
The first kind of statement, which appears in written material, says such things as "This offer is necessarily subject to withdrawal without notice." Such a statement, as the company pointed out at the hearings, is not untrue. The offer certainly *could* be withdrawn, although, as a matter of fact, with the exception of a version of the Encyclopaedia bound in something called "Blue Levantex," there has been no change in prices since 1949. The second kind of statement is made orally by the salesmen. Upon conclusion of the sales presentation, if the prospective customer wants to think things over, the salesman will say that the prospect had better make his mind up right away, for the salesman will not return. And again, as the company also argued, the statement is true enough. The threat is not empty, for, in fact, salesmen generally do not call again.

But the two kinds of statements taken together, according to the FTC, create an illusion. The refusal of the salesman to return, viewed against the warning that the offer is subject to withdrawal—and also viewed against the impression, created by other means, that a reduced price is being offered—leads the prospect to believe that the salesman's refusal means the withdrawal of an opportunity to obtain reduced prices. Interestingly enough, although the threat not to return is not empty, carrying it out involves no loss to the company. Experience has shown that when a sale is not completed on the first call, the salesman will do better trying his luck on a new prospect rather than going back to the old one.

In volume I of the Britannica, after the dedications to John Fitzgerald Kennedy and Queen Elizabeth II, there are acknowledgements to the many persons whose "cordial cooperation," as the editors put it, makes this enterprise possible. These many persons are the professors of the Universities of Chicago, Oxford, Cambridge, and London who provided editorial advice, and the thousands of authorities in different fields who wrote the actual articles. Perhaps, then, the FTC should not be the only group reviewing the business practices of Encyclopaedia Britannica, Inc. A committee of these authorities might also have some thoughts on the methods by which their efforts are being sold. Should these methods not earn the committee's approval, it might advise contributors to make their cooperation a bit less cordial.—J.T.



Kidney, 300X (Rochester General Hospital)



Consultation needs this BETTER, BRIGHTER VIEW

This Bausch & Lomb SpeedMatic Microprojector fills the screen with the sharpest consultation-size images you've ever seen of microscope slide detail. You can fit the magnification to the specimen—from 75X to 3000X at a projection distance of only 12 feet. Superior optics plus a color-free glass heat-absorbing filter project the specimen image in its true colors. Only with extremely heat-sensitive materials is additional absorption required.

You get today's most vivid views, for consultation, group discussion, instruction—with the easiest-to-use projector on the market! So much of it

is automatic—like the synchronization of the *right* condenser with the objective you select; and like the self-adjusting carbons that burn evenly for an hour or more without attention from you. See for yourself!

Made in America, to the world's highest standards.

BAUSCH & LOMB

SINCE  1853

BAUSCH & LOMB INCORPORATED
85619 Bausch Street, Rochester 2, N. Y.

- ☐ Please demonstrate SpeedMatic.
☐ Please send Catalog E-246.

Name

Title

Professional Address

DISC ELECTROPHORESIS

For Research • Clinic • Classroom

TRIAL KITS AVAILABLE FOR JULY SHIPMENT

Revolutionary breakthrough in protein separation, using new, specially processed polyacrylamide gel. Routinely separates 20-30 proteins in human serum. 100 times more sensitive than starch gel.

Reproducible • Fast • Easy to Use

Thoroughly proven in blood serum, plasma, plant and animal tissue (protein and enzymes) body fluids and egg white. Try this remarkable new technique now on your own samples.

TRIAL KIT:

complete set of chemicals for 100 experiments, equipment, accessories, without power supply.....

(Optional DC power supply (20ma at 150 V) \$18.
f.o.b. Bethesda, Md.

\$38.

Order Now For Prompt Delivery



CANAL INDUSTRIAL CORP.
Dept. E7, 4935 Cordell Avenue
Bethesda 14, Maryland

DREAMS OF REASON

By *René Dubos*. The relationship of science to modern society, explored in original terms. Dr. Dubos shows how philosophical and social assumptions, more than physical needs, influence the beliefs and activities of scientists. He contends that science remains within general culture by its need to examine constantly the meaning and value of those assumptions. \$5.00

SOVIET MARXISM AND NATURAL SCIENCE, 1917-1932

By *David Joravsky*. Examines Soviet philosophy of natural science in its first phase, pointing up Party policies and dissensions and the changing composition of the scholarly community. \$7.50

SCIENTIFIC RUSSIAN READER

Compiled by *Nina Syniawska*. Original articles in Russian, selected from current Soviet scientific periodicals to provide a transition from Russian scientific textbooks to actual Soviet scientific literature. \$5.00



COLUMBIA UNIVERSITY PRESS
New York 27, N. Y.

AAAS

Symposium Volume

SYSTEMS OF UNITS— NATIONAL AND INTERNATIONAL ASPECTS

Edited by *Carl F. Kayan*

A look at the growing problems in the conflict between international usages and our own national system of units. This volume considers them both subjectively and objectively in order to alert the technologist to the clamor, needs, and proposals to ameliorate the confusion of measurement. \$6.75
AAAS members discount price, \$5.75

Order from

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Room 103

1515 Massachusetts Ave., NW
Washington 5, D.C.

Meetings

Forthcoming Events

August

10-16. International Congr. of Biochemistry, 5th, Moscow, U.S.S.R. (N. M. Sissakian, Leninsky prospekt, 33, Moscow)

10-16. International Union of Biochemistry, 4th general assembly, Moscow, U.S.S.R. (R. H. S. Thompson, IUB, Dept. of Chemical Pathology, Guy's Hospital Medical School, London, S.E.1, England)

12-19. Fast Reactions, summer school, Cambridge, England. (Secretary of the Summer School, Dept. of Physical Chemistry, Lensfield Road, Cambridge)

13-18. Microchemical Techniques, intern. symp., University Park, Pa. (H. J. Francis, Jr., Pennsalt Chemical Corp., P.O. Box 4388, Chestnut Hill Post Office, Philadelphia 18, Pa.)

13-18. Theoretical Aspects of Magneto-hydrodynamics, seminar, University Park, Pa. (Conference Center, Pennsylvania State Univ., University Park)

13-19. International Assoc. of Applied Psychology, 14th congr., Copenhagen, Denmark. (Congress Secretariat, 19 Sankt Pederstraede, Copenhagen K.)

13-19. Training for Research in the Processes of Vision, 1st intern. conf., Rochester, N.Y. (Office of Public Information, River Campus Station, Rochester)

14-17. Calorimetry Conf., intern., Ottawa, Canada. (J. E. Kunzler, Bell Telephone Laboratories, Murray Hill, N.J.)

14-19. International Medical Conf. on Mental Retardation, 2nd, Vienna, Austria. (Miss E. Langer, Div. of Maternal and Child Health, State House, Augusta, Maine)

14-19. Symposium on Radiation, Vienna, Austria. (World Meteorological Organization, 1 Avenue de la Paix, Geneva, Switzerland)

14-25. Israel Medical Assoc., 5th world assembly, Jerusalem, Israel. (Beth-Harofeh, 1 Heffman St., Tel-Aviv, Israel)

14-26. Plant Pathology, conf., Lafayette, Ind. (J. F. Schafer, Dept. of Botany and Plant Pathology, Purdue Univ., Lafayette)

14-26. World Eucalyptus Conf., 2nd, São Paulo, Brazil. (Intern. Agency Liaison Branch, Office of the Director General, Food and Agriculture Organization, Viale delle Terme di Caracalla, Rome, Italy)

15-17. International Assoc. of Milk and Food Sanitarians, Jekyll Island, Ga. (H. L. Thomasson, P.O. Box 437, Shelbyville, Ind.)

15-18. Technical Assoc. of the Pulp and Paper Industry, 12th testing conf., Montreal, Canada. (TAPPI, 155 E. 44 St., New York 16)

15-24. International Astronomical Union, 11th general assembly, Berkeley, Calif. (D. H. Sadler, Royal Greenwich Observatory, Hailsham, Sussex, England)

16-18. Hypersonics Conf., intern., Cambridge, Mass. (J. J. Harford, American Rocket Soc., 500 Fifth Ave., New York, N.Y.)

18-21. Association of American Geographers, East Lansing, Mich. (M. F. Burrill, 1785 Massachusetts Ave., NW, Washington 6)

ANNOUNCING!



UNIFORM ROCKLAND

DIETS NOW IN

NEW SIZE, NEW SHAPE

For more efficient feeding

Easier eating...Less waste

NO CHANGE IN FORMULATION



New 3/16" bite-size pellet now available in Rockland Rabbit and Guinea Pig Diets.

New flat-oval, can't-roll pellet now available in Rockland Mouse and Rat Diets.

Greater ease and convenience of feeding; improved, more uniform feed intake; less waste—these are but three reasons why investigators prefer the new pellet size and shape of Rockland Diets. These new pellets flow easily and efficiently through standard feeders, assuring an adequate feed supply for the animal at all times. And because animals find these pellets easier to eat, less fines and crumbles result. For improved productivity, efficiency and economy, investigate the many advantages of famous Rockland Standard Reference Stock Diets—available in new improved size and shape. See your Rockland Dealer for further information, or write: A. E. Staley Mfg. Co., Decatur, Illinois, manufacturers and distributors of:

ROCKLAND DIETS

19-30. Agricultural Economists, 11th intern. conf., Cuernavaca, Mexico. (J. Ackerman, Farm Foundation, 600 S. Michigan Ave., Chicago, Ill.)

20-23. International Ergonomics Assoc., 1st congr., Stockholm, Sweden. (T. Olson, Dept. of Industrial Physiology, G.C.I. Lidingövägen 1, Stockholm)

20-24. American Veterinary Medical Assoc., Detroit, Mich. (H. E. Kingman, AVMA, 600 S. Michigan Ave., Chicago 5, Ill.)

21-23. International Hypersonics Conf., Cambridge, Mass. (F. Ridell, Avco Research Laboratory, 301 Lowell St., Wilmington, Mass.)

21-24. Biological Photographic Assoc., Chicago, Ill. (Mrs. J. W. Crouch, Box 1668, Grand Central P.O., New York 17)

21-24. International Conf. on Photoconductivity, Ithaca, N.Y. (E. Burstein, Dept. of Physics, Univ. of Pennsylvania, Philadelphia)

21-26. International Congr. of Psychotherapy, 5th, Vienna, Austria. (W. Spiel, Lazarettg. 14, Vienna 9)

21-26. World Traffic Engineering Conf., Washington, D.C. (Intern. Road Federation, 1023 Washington Bldg., Washington 5)

21-27. International Assoc. of Dental Students, congr., London, England. (D. H. Clark, Royal Dental Hospital, Leicester Sq., London, W.C.2)

21-31. United Nations Conf. on New Sources of Energy, Rome, Italy. (United Nations, New York, N.Y.)

21-2. International Congr. of Practical Medicine, Merano, Italy. (Bundesärztekammer, 1 Hädenkampfsstrasse, Cologne, Germany)

21-6. Pacific Science Congr., 10th, Honolulu, Hawaii. (Secretary General, 10th Pacific Science Congr., Bishop Museum, Honolulu)

22-25. International Pharmacological Meeting, 1st, Stockholm, Sweden. (A. Wretling, Karolinska Institutet, Stockholm 60)

22-30. International Conf. on Protozoology, Prague, Czechoslovakia. (N. D. Levine, College of Veterinary Medicine, Univ. of Illinois, Urbana)

23-25. Gas Dynamics, symp., biennial, Evanston, Ill. (J. J. Harford, American Rocket Soc., 500 Fifth Ave., New York, N.Y.)

23-26. Electron Microscope Soc. of America, Pittsburgh, Pa. (Miss M. L. Rollins, Agricultural Research Service, U.S. Department of Agriculture, P.O. Box 19,687, New Orleans 19, La.)

23-26. Institute of Management Sciences, 8th annual intern., Brussels, Belgium. (W. Smith, Inst. of Science and Technology, Univ. of Michigan, Ann Arbor)

23-1. Radioisotopes in the Biological Sciences, conf., Intern. Atomic Energy Agency, Vienna, Austria. (IAEA, 11 Kärtner Ring, Vienna 1)

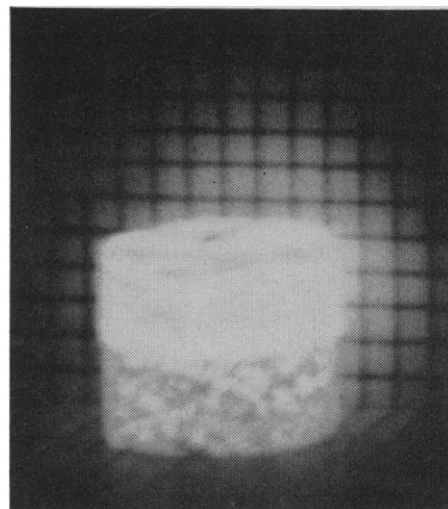
24-26. Physiology of the Hippocampus, intern. colloquium, Montpellier, France. (Mme. Mineur, Centre National de la Recherche Scientifique, 13 Quai Anatole France, Paris 7)

26-1. Radiology, 10th intern. congr., Montreal, Canada. (C. B. Peirce, Suite 204, 1555 Summerhill, Montreal 25)

26-2. History of Science, 5th intern.

ISOTOPES

**for Your
Development Work**



Oak Ridge National Laboratory offers more than 300 radioactive and stable isotope products.

RADIOISOTOPES

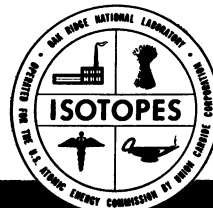
Processed Solutions—90 processed radioisotopes may be obtained, including many carrier-free and high specific activity products.

Now Available—Technetium at \$100 per gram (as element or ammonium pertechnetate); calcium-47, with less than 5% Ca-45, at \$200 per mc; iodine-125 in research quantities; iodine-124 and iodine-126 are available on special request.

STABLE ISOTOPES

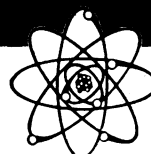
More than 200 stable isotopes available from 50 elements... Chemical processing and target fabrication services also offered... Ultra-high isotopic purity in a number of isotopes.

For information or literature, write to: Isotopes Division, Oak Ridge National Laboratory, P. O. Box X, Oak Ridge, Tennessee.

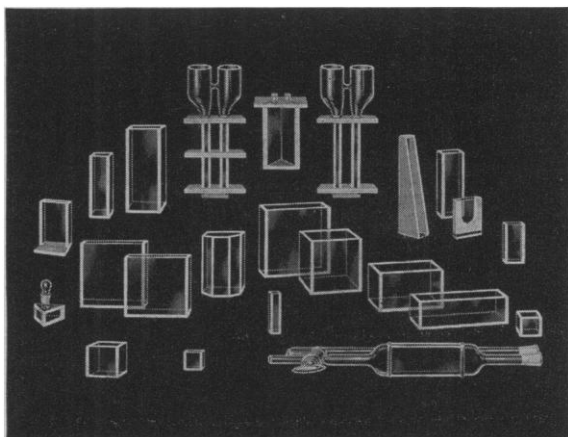


**OAK RIDGE
NATIONAL LABORATORY**

Operated by
UNION CARBIDE CORPORATION
for the
U.S. ATOMIC ENERGY COMMISSION



GLASS ABSORPTION CELLS made by **KLETT**



— SCIENTIFIC APPARATUS —
Klett-Summerson Photoelectric Colorimeters—
Colorimeters — Nephelometers — Fluorimeters—
Bio-Colorimeters — Comparators — Glass Stand-
ards—Klett Reagents.

Klett Manufacturing Co.
179 East 87 Street, New York, New York

PHOTOVOLT LINE-OPERATED MULTIPLIER FLUORESCENCE METER

model
540



- High sensitivity . . . full scale for 0.001 microgram quinine sulphate
- Micro-fluorimetry . . . liquid volumes down to 1 ml
- Low blank readings . . . linear instrument response
- High sensitivity nephelometry . . . minute turbidities
- Fluorescence evaluation of powders, pastes, and solids; also for spot-tests on filter paper without elution
- Selection of filters, interference filters, and sample holders

Write for Bulletin No. 392 to:

PHOTOVOLT CORP.
1115 Broadway • New York 10, N. Y.

Also: pH Meters, Colorimeters, Densitometers

H³ **C¹⁴**

HMG—C¹⁴
(3-Hydroxy-3 methylglutaric-3-C¹⁴ Acid)

\$45 per 50 μ c
\$70 per 100 μ c

CATALOG ON REQUEST

new england nuclear corp.
575 ALBANY STREET, BOSTON 18, MASS. HANcock 6-7311

ZOOGEOGRAPHY

Editor **CARL L. HUBBS**

To the Memory of Charles Darwin
and Alfred Russel Wallace

AAAS Symposium Volume No. 51
510+x pp., 115 illus., 13 tables, 6x9, author index
of scientific names, references, cloth

AAAS members' cash orders \$10.50, Retail \$12.00

August 1957 Stanford Symposium:
The Origins and Affinities of the
Land and Freshwater Fauna
of Western North America

December 1957 Indianapolis Symposium:
Some Unsolved Problems in Biology, 1957:
Geographic Distribution of
Contemporary Organisms

- . . . a vast storehouse of information
- . . . a kinetic approach, concerned with processes and explanations
- . . . great diversity in: groups of organisms—areas covered—topics stressed—angle of approach

English Agents: Bailey Bros. & Swinfen, Ltd.
Hyde House, West Central Street, London W.C.1

**American Association for the Advancement
of Science**

1515 Massachusetts Avenue, NW, Washington 5, D.C.

congr., Ithaca, N.Y., and Philadelphia, Pa. (Secretary, 5th Intern. Congr. of the History of Science, Cornell Univ., Ithaca)

27-29. International Congr. of Group Psychotherapy, 3rd, Paris, France. (W. Warner, P.O. Box 819, Grand Central Station, New York 17)

27-29. Psychosomatic Aspects of Neoplastic Disease, 2nd annual conv., Paris, France. (L. L. LeShan, Intern. Psychosomatic Cancer Study Group, 144 E. 90 St., New York 28)

27-31. American Soc. of Plant Physiologists, Lafayette, Ind. (C. O. Miller, Indiana Univ., Bloomington)

27-1. American Congr. of Physical Medicine and Rehabilitation, Cleveland, Ohio. (D. C. Augustin, 30 N. Michigan Ave., Chicago 2, Ill.)

27-1. American Inst. of Biological Sciences, annual, Lafayette, Ind. (J. R. Olive, AIBS, 2000 P St., NW, Washington 6)

The following 26 societies are holding meetings in conjunction with the AIBS meeting at Purdue University.

Alpha Epsilon Delta (J. E. Wiebers, Dept. of Biological Sciences, Purdue Univ.)

American Bryological Soc. (S. N. Postlethwait, Dept. of Biological Sciences, Purdue Univ.)

American Fern Soc. (C. B. Heiser, Jr., Dept. of Botany, Indiana Univ., Bloomington)

American Fisheries Soc. (Miss S. Gerking, Dept. of Zoology, Indiana Univ., Bloomington)

American Microscopical Soc. (C. J. Goodnight, Dept. of Biological Sciences, Purdue Univ.)

American Soc. for Horticultural Science (R. G. Langston, Dept. of Horticulture, Purdue Univ.)

American Soc. of Limnology and Oceanography (C. J. Goodnight, Dept. of Biological Sciences, Purdue Univ.)

American Soc. of Parasitologists (S. M. Gaafar, Dept. of Veterinary Microbiology, Pathology and Public Health, Purdue Univ.)

American Soc. of Plant Physiologists (H. Beevers, Dept. of Biological Sciences, Purdue Univ.)

American Soc. of Plant Taxonomists (G. L. Webster, Dept. of Biological Sciences, Purdue Univ.)

American Soc. of Zoologists (M. X. Zarrow, Dept. of Biological Sciences, Purdue Univ.)

Association of Midwest College Biology Teachers (J. D. Novak, Dept. of Biological Sciences, Purdue Univ.)

Biometric Society (ENAR) (H. E. McKean, Statistical and Computing Laboratory, Purdue Univ.)

Botanical Soc. of America (A. C. Leopold, Dept. of Horticulture, Purdue Univ.)

Entomological Soc. of America (Section A) (L. Chandler, Dept. of Entomology, Purdue Univ.)

Genetics Soc. of America (A. B. Burdick, Dept. of Biological Sciences, Purdue Univ.)

Mycological Soc. of America (J. S. Lovett, Dept. of Biological Sciences, Purdue Univ.)

National Assoc. of Biology Teachers (J. D. Novak, Dept. of Biological Sciences, Purdue Univ.)

Nature Conservancy (A. A. Lindsey, Dept. of Biological Sciences, Purdue Univ.)

Phycological Soc. of America (A. T. Guard, Dept. of Biological Sciences, Purdue Univ.)

Sigma Delta Epsilon (Miss V. B. White, Dept. of Foods and Nutrition, Purdue Univ.)

Society for Industrial Microbiology (W. N. Cannon, Lilly Research Labs., Eli Lilly and Co., Indianapolis, Ind.)

Society for the Study of Development and Growth (F. H. Wilt, Dept. of Biological Sciences, Purdue Univ.)

Society for the Study of Evolution (L. Chandler, Dept. of Entomology, Purdue Univ.)

Tomato Genetics Cooperative (A. B. Burdick, Dept. of Biological Sciences, Purdue Univ.)

Wildlife Disease Assoc. (S. M. Gaafar, Dept. of Veterinary Microbiology, Pathology and Public Health, Purdue Univ.)

27-1. Coordination Chemistry, 6th intern. conf., Detroit, Mich. (S. Kirschner, Dept. of Chemistry, Wayne State Univ., Detroit 2)

28-30. Mathematical Assoc. of America, Stillwater, Okla. (H. L. Alder, MAA, Univ. of California, Davis)

(See issue of 16 June for comprehensive list)

Need Laboratory Supplies or Equipment?

FOR *Instant Service* CONTACT

HARSHAW

PYREX COORS KIMAX BARNSTEAD	BECKMAN COLEMAN INT. EQ. CO. LECO	AINSWORTH BECKER SARTORIUS OMAU	B & L OPTICAL AMER. OPTICAL ZEISS • LEITZ BUEHLER	E & D WHATMAN FILTER PAPER S & S	MC & B J. T. BAKER MALLINCKRODT GLAS-COL	PRECISION SC. CO. LAB. FURN. CO. LABLINE BLUE M
Cleveland	Cincinnati	Detroit	Houston	Los Angeles	Oakland	Philadelphia

We invite your consideration of the following items:

DYNAZOOM® MICROSCOPES

Zoom up, zoom down at the twist of a dial with the new Bausch & Lomb DynaZoom® Laboratory Microscopes. The revolutionary MicroZoom® optical system makes "step magnification" obsolete. You can study and photograph specimens at any power from 17.5X to 1940X!

Price range: same as before. Flexible: choice of six microscope bodies which are interchangeable on basic stand. Ask us for Bulletin D-185 and price list.

Each Prices start at **\$229.00**



LABORATORY CARTS

Save time, cut down on breakage and move things the sensible way—on lab carts (all stainless steel).

H-7915 Heavy Duty Cart (illustrated). Carrying capacity is 400 pounds. Overall: 17 3/4" x 30" x 32 1/2" high. With guard rails.

Each **\$67.00**

H-7916 Utility Cart. Carrying capacity is 200 pounds. Overall: 15 1/2" x 27" x 31 1/2" high. Without guard rails.

Each **\$35.75**

(Note: on West Coast \$71.00 and \$37.95 respectively)



HARSHAW SCIENTIFIC

Division of The Harshaw Chemical Co. • Cleveland 6, Ohio

SUPPLYING THE NATION'S LABORATORIES FROM COAST TO COAST



SALES BRANCHES AND WAREHOUSES	CINCINNATI 13, OHIO 6265 Wiehe Road	HOUSTON 11, TEXAS 6622 Supply Row	OAKLAND 1, CAL. 5321 East 8th Street
CLEVELAND 6, OHIO 1945 East 97th Street	DETROIT 28, MICH. 9240 Hubbell Ave.	LOS ANGELES 32, CAL. 3237 So. Garfield Ave.	PHILADELPHIA 48, PA. Jackson & Swanson Sts.
SALES OFFICES • Baton Rouge 6, La. • Buffalo 2, N. Y. • Hastings-On-Hudson 6, N. Y. • Pittsburgh 22, Pa.			