MECHANISMS OF HARD TISSUE DESTRUCTION

Based on a symposium presented at the AAAS Philadelphia Meeting, 29 and 30 December 1962. AAAS Symposium Volume #75.

Edited by Reidar F. Sognnaes.

1963. 776 pages, 480 illustrations, color plate, references, indexes. *Price*: \$13.00. Cash Order *Price* to AAAS Members: \$11.00.

Sponsors: AAAS Sections on Dentistry, Medicine, and Zoology; International Association for Dental Research, North American Division; American College of Dentists, American Dental Association.

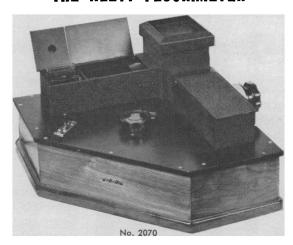
Symposium by 49 outstanding co-outhors on destruction of mineralized structures by organisms and by physical and chemical agents, ranging from rock boring to bone resorption and tooth decay.

British Agents: Bailey Bros. & Swinfen Ltd., Warner House, 48 Upper Thames Street, London E.C.4, England

Order Today from AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

1515 Massachusetts Ave., NW, Washington, D.C. 20005

THE KLETT FLUORIMETER

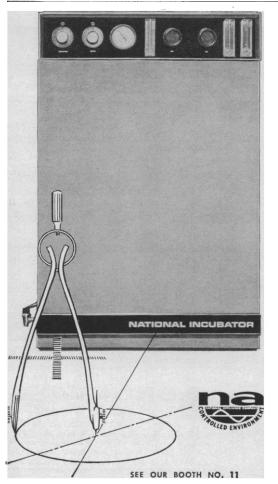


Designed for the rapid and accurate determination of thiamin, riboflavin, and other substances which fluoresce in solution. The sensitivity and stability are such that it has been found particularly useful in determining very small amounts of these substances.

KLETT SCIENTIFIC PRODUCTS

PHOTOELECTRIC COLORIMETERS • BIO-COLORIMETERS GLASS ABSORPTION CELLS • COLORIMETER NEPHELOMETERS • KLETT REAGENTS • COLONY MARKER AND TALLY

Klett Manufacturing Co., Inc. 179 EAST 87TH STREET, NEW YORK, N. Y.



RESEARCH and DEVELOPMENT

produce a better CO₂ Incubator

Long recognized as the leader in the field of CO₂ incubation equipment, National has redesigned its Water-jacketed CO₂ Incubators to provide an even better tool for the exacting, modern study of bacteria, virus and tissue cultures by means of CO₂ technique.

Model Nos. 3221 and 3321 now offer these added improvements:

- Water-jacketed design provides over-all even temperature and protects work in case of temporary power failure
- Built-in CO2 flow meter now standard equipment
- All stainless steel construction
- All-welded liner will not leak
- Latch-free, magnet-free cam-hinged doors
- New mold-free silicone gasket
- Adjustable shelves made of rigid, punched, hard aluminum alloy
- Large, easily-accessible water opening on top of unit.

In addition to these improved features National's reliable instrumentation provides top performance and work protection. Look to National for the best in equipment, whether vacuum or continuous flow type.

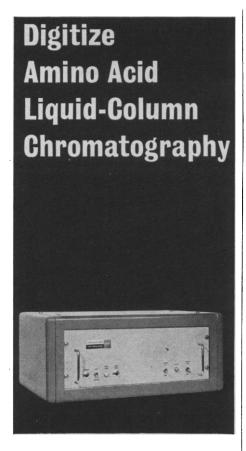
Write now for free Bulletin No. 3764 with complete information.

NATIONAL APPLIANCE COMPANY

Western Office:

P. O. Box 6408 Portland, Oregon 97223 Phone: Area 503, 639-3161 Telex: 036-764 NAPCO PTL Eastern Office:

P. O. Box 3102 Stamford, Conn. 06905 Phone: Area 203, 324-0272 Telex: 096-5921 NAPCO STD



with Perkin-Elmer integrated data reduction and programming systems

Perkin-Elmer digital translation equipment puts the speed and accuracy of computers to work with liquid-column chromatography, by providing a complete and automatic data link. Designed for compatibility with the Honeywell and Bristol multi-channel and single-channel recorders, typically used in Phoenix-Precision and Technicon colorimeters, Perkin-Elmer systems provide exceptional accuracy and reliability.

Perkin-Elmer undertakes complete equipment responsibility between transmittance and wavelength sources and a terminal tape punch. Standard systems are supplied with a FORTRAN program, providing automatic base line correction and concentration calculations.

Complete systems include transducers for the sensing sources, solid-state translation equipment and a paper tape punch. Optional versions provide for time-sharing in a common translator for multiple-recording stations, and common or multiple-tape punches.

For complete descriptive information and specifications, write to the Electronic Products Division, Perkin-Elmer Corporation, 784Main Ayenue, Norwalk, Connecticut.

PERKIN-ELMER

INDEX TO ADVERTISERS

28 August 1964

Ainsworth, Wm., & Sons, Inc	965
Aloe Scientific, Div. of Brunswick	871
American Optical Co	982
American Sterilizer Co	877
Applied Physics Corp	959
Baird-Atomic, Inc.	863
Bausch & Lomb, Inc 867, Beckman Instruments, Inc., Scientific	868
and Process Instruments Div. 874,	875
Beckman Instruments, Inc., Spinco	
Div	854
Bellco Glass, Inc.	979
Bronwill Scientific	978
Buchler Instruments, Inc.	972
Coleman Instruments, Inc.	981
Difco Laboratories E & M Instrument Co., Inc.	961 963
Folcon Plactice Div of R.D.	700
Laboratories, Inc.	976
Hacker, William J., & Co., Inc	974
Harford Metal Products, Inc.	964
Honeywell Photographic Products,	
Denver Div.	966
Instrumentation Specialties Co	961
International Equipment Co	858
Keystone Plastics Co	969
Kirschner Manufacturing Co	961
Klett Manufacturing Co., Inc	977
Leitz, E., Inc.	878
London Co	866
Nalge Co.	958
National Appliance Co	977
National Chemical Exposition	974
Nikon Inc., Instrument Div.	862
Nutritional Biochemicals Corp	855
Ohio Chemical	969
Parr Instrument Co	964
Percival Refrigeration and	957
Manfacturing Co. Perkin-Elmer Corp.	978
Phipps & Bird, Inc.	963
Phoenix Precision Instrument Co.	969
Photovolt Corp.	876
Professional Tape Co., Inc.	960
Radiation Instrument Development	
Laboratory Sage Instruments, Inc.	880 964
Schwarz BioResearch, Inc.	971
Sigma Chemical Co.	957
Standard Scientific Supply Corp.	960
Stanford University Press	972
Unitron Instrument Co.	865
Vanguard Instrument Corp.	872
Varian Associates	859
VirTis Co., Inc.	962
Wild Heerbrugg Instruments, Inc.	973
Will Scientific, Inc.	975
Williams & Wilkins Co.	958
Worthington Biochemical Corp.	963



Here is just the right laboratory temperature control unit. Lightest weight (only 5 lbs.), compact and portable . . . so that any container can be converted quickly and easily to an efficient constant temperature bath. Extremely accurate (to ±0.01°C). Wide range (0°-100°C). Operates safely even in a very shallow immersion depth (3½"). Direct and simple setting of precise temperature (utilizes very sensitive Mercury contact controls-not bi-metal). Adjustable rate of flow from a few drops per minute to a remarkable 12L/minute . . . And priced sensibly . . . compare features with less expensive units which are much less rugged, less accurate, less dependable. Just drop us a note and we'll send complete details.



A DIVISION OF WILL SCIENTIFIC, INC.
132 N. Goodman St., Rochester 1, N.Y.



Interested? Contact us!



VINELAND, NEW JERSEY

We'll custom mark your pipettes to the identification that you designate. Markings are the same perma-brown material as description and graduations. Identification for the life of the pipette is ensured. Here's the deal . . . you order a minimum of 5 full cases of any graduated V.I.P. Pipette, regardless of size or stock number, and we will personalize them for you at no charge. Any combination of letters or numbers up to 12 spaces can be used. It's that simple!

Personnel Placement

Replies to blind ads should be addressed as follows:

Box (give number) SCIENCE 1515 Massachusetts Ave., NW Washington, D.C. 20005

POSITIONS WANTED

Biochemist, Nutritionist MSc., Cornell University. Strong chemical background, 8 years of laboratory experience, problem research, enzymes, chromatography, spectroscopy. Supervisory experience. Publications. Knowledge German, Dutch. Employment in U.S. F. Yap, Weingartenstrasse 30, Würzburg 87, West Germany.

Electron Microscopist, Ph.D. Zoology-anatomy background. Publications, Desires teaching research academic position. Box 490, SCIENCE.

Instructorship and Term Counsellorship for "second-rate" students. Objective: initiate objective reasoning thus motivate individual academic development through classwork in curricular integrated natural science requirement. See previous SCIENCE ad. Hixon.

Science Writer. Employed as technical editor, seeks to write about science. Experienced interpreting science in newspaper articles, editing engineering reports. Laboratory research experience. B.S., M.S., M.A., biological, chemical, physical sciences, journalism. Science writing fellowship. Washington, D.C., or Europe. Available September. Box 489, SCIENCE.

POSITIONS OPEN

Position available for YOUNG PHYSICIST interested in biomedical and accelerator research at midwestern medical school. Strong background in electronics and B.S. degree required.

Box 478, SCIENCE

RESEARCH PHYSICAL --- BIOCHEMIST ---

Recent Ph.D., well trained in Physical Biochemistry. Should have intimate knowledge of instrumentation and be interested in purification and chemistry of viruses. Ability to develop sensitive and precise physical measurement for macromolecules desirable. Interested person write to Mr. Robert O'Connor, Research Personnel.

MERCK & COMPANY, Inc. WEST POINT, PA.

An Equal Opportunity Employer

THE UNIVERSITY OF MANITOBA. PROFESSOR OF ANATOMY AND HEAD OF THE DEPARTMENT. The position of Professor of Anatomy and Head of the Department will become vacant in September, 1965. The University of Manitoba is now prepared to accept applications for this position. Please address inquiries to the Dean: Faculty of Medicine, University of Manitoba, Cor. Bannatyne and Emily Streets, Winnipeg, Manitoba, Canada.

MONASH UNIVERSITY

Victoria, Australia

SENIOR LECTURER

IN THE

DEPARTMENT OF BOTANY

Following the appointment of M. J. Canny, M.A. Ph.D. (Cantab.) to the foundation Chair of Botany at this University applications are invited for appointment to the above position. Applicants who have experience in any field of botanical science will be considered. The successful applicant should be prepared to start a research unit immediately, and for the work and planning associated with the creation of a new department, courses and building. He would be expected to take up duty early in 1965.

- □ Salary range: Senior Lecturer £A2,700— £A3,250 per annum with superannuation provision on the F.S.S.U. basis.
- Benefits: Full traveling expenses for an appointee and family, removal allowance, repatriation after three years' appointment if desired, subsidized housing, study leave provision.

Information regarding application procedure, conditions of appointment etc. is available from the Registrar of the University, P.O. Box 92, Clayton, Victoria, Australia or the Secretary, Association of Commonwealth Universities, Marlborough House, Pall Mall, London, S.W.1.

Enquiries concerning details of research facilities and proposed courses should be addressed to Dr. M. J. Canny at Ermine Rise, Royston, Herts, U.K. up till November 10, and thereafter at Monash University.

Closing date: September 30, 1964.

F. H. Johnson, REGISTRAR

POSITIONS OPEN

BIOLOGIST with bachelor's or master's with Drosophila degree, experience radioautographic techniques, for position as research technician in private non-profit medical center in Los Angeles County, starting Scpt. 1. Write Dr. W. D. Kaplan, Department of Biology, City of Hope Medical Center, Durgte Colif Sept. 1. Write of Biology, C Duarte, Calif.

PHYSICAL CHEMIST

(Fundamental Research)

Ph.D. or equivalent with demonstrated independent research capability and with sufficient knowledge of plant physiology to plan and direct a program of basic studies of the limiting mechanisms of fertilizer-plant nutrition relations.

Salary commensurate with experience, plus liberal leave, retirement, insurance, other employee benefits. Modern facilities, National Fertilizer Development Center at Muscle Shoals, Alabama. Write to:

Tennessee Valley Authority

Employment Branch Knoxville, Tennessee

UNIVERSITY OF NEWCASTLE UPON TYNE READERSHIP IN MICROBIAL GENETICS

APPLICATIONS are invited for the newly created Readership in Microbial Genetics. The successful candidate will be expected to take up his appointment as soon as possible after 1st November 1964. Salary in accordance with the scale for Readers with membership of F.S.S.U.

Further particulars may be obtained from the undersigned with whom applications (15 copies), together with the names of not more than three persons to whom reference may be made, must be lodged not later than 26th September 1964. (Applicants from outside the British Isles may submit one copy only.)

E. M. Bettenson Registrar University of Newcastle upon Tyne 6 Kensington Terrace Newcastle upon Tyne 2.

POSITIONS OPEN

CHEMIST CHIEF

Clinical Chemistry supervisor, Ph.D., M.S. or equivalent to supervise and organize 400 bed teaching hospital Chemistry Division in New York City, Future research opportunity, Send résumé and salary requiremens to Box 492, SCIENCE.

PUBLICATIONS MANAGER

Monthly scientific journal; planning, editing, production and programming publication activities, staff management. Salary commensurate with qualifications. Résumé to Executive Director, Box #979, Tulsa, Oklahoma.

RESEARCH TECHNICIAN

For the Environmental Research Branch, Biology and Health Physics Division to assist with micrometeorological studies of deposition and evaporation using radioactive tracers and with the compilation and interpretation of meteorological data. Preference to applicant with educational background in physics, or mathematics and physics, or with previous experience in a related field. Duties will include both field and laboratory

Please quote file number, and include full details of education and experience in first letter

File T 6 B

ATOMIC ENERGY OF CANADA LIMITED

Chalk River, Ontario

BIOCHEMISTRY RESEARCH **POSITIONS**

THREE new senior openings requiring Ph.D.'s are available in our Research & De-Division. Each velopment offers laboratory research opportunities in various areas of biochemistry.

Please send curriculum vitae, including salary requirements

Cyrus M. Greenberg, PhD Director of Scientific Employment This opening is for someone with 0 to 3 years postgraduate experience, with a broad biochemical background. The job: to aid in developing a basic research program directed toward elucidating mechanisms of neurobiochemical agents in the fields of psychopharmacology, neuropharmacology and cardiovascular pharmacology.

A strong background in enzymology with experience in a related biological science is an essential requirement in this opening which covers the investigative responsibilities in a biochemical-physiological program as well as some work in the planning and development of new areas of basic biochemical research of potential pharmaceutical application.

The assignment here is to help plan, conduct, supervise and evaluate investigations in various aspects of degenerative diseases. In addition, will pursue studies involving the action of pharmacological agents on enzyme systems at sub-cellular level. Prefer 1 or 2 years postdoctoral experience and some knowledge of physiology.

SMITH KLINE & FRENCH LABORATORIES

1554 Spring Garden Street

Philadelphia, Pa. 19101

An Equal Opportunity Employer



POSITIONS OPEN

Applications are invited for the position of Head of Electronics Shop in the New York Medical College, to be responsible for design and maintenance of research and teaching equipment. Starting salary \$10,000 to \$15,000 per annum depending on qualifications and experience. Send résumé to Dr. D. B. Brooks, Professor of Physiology, New York Medical College, Fifth Avenue at 106th Street, New York, New York 10029.

UNIVERSITY OF CAPE TOWN PROFESSOR OF OCEANOGRAPHY

UNIVERSITY OF CAPE TOWN
PROFESSOR OF OCEANOGRAPHY

Applications are invited for the vacant post of Professor of Oceanography. The salary scale is R5500 to R6150 (\$7700 to \$8610) per annum and appointment will be made within this range according to qualifications and experience. A special traveling allowance will be paid in terms of the memorandum and Conditions of Service available from the Secretary, Association of Commonwealth Universities. Should a candidate prefer to take up the post as Visiting Professor this may be arranged by negotiation.

Two copies of the application (with a recent photograph) stating research experience, list of publications, and the names of two referees should reach the Secretary, Association of Commonwealth Universities (Branch Office), Marlborough House, Pall Mall, London, S.W.1, not later than 24 October 1964. A third copy of the application must be sent direct to the Registrar, University of Cape Town, Private Bag, Rondebosch, Cape Town, South Africa, by the same date. It is essential that the program of research that the applicant proposes to undertake while at Cape Town should accompany the application. Details of the facilities for marine research in Cape Town and the duties of the Professor of Oceanography are set out in a memorandum which is obtainable on application to the Secretary of the above Association.

The University reserves the right to appoint a person other than one of the applicants or to make no appointment.

The Market Place

BOOKS AND MAGAZINES

Your book can be published, promoted, distributed by a reliable company on a subsidized basis. Fiction, non-fiction, poetry, scholarly, religious and even controversial manuscripts welcomed. Free Editorial Report. For Free Booklet write Vantage Press, Dept. SC, 120 W. 31 St., New York 1, New York.

SUPPLIES AND EQUIPMENT

HYPOPHYSECTOMIZED RATS

Shipped to all points via Air Express For further information write

HORMONE ASSAY LABORATORIES, Inc. 8159 South Spaulding Ave., Chicago 29, Ill.

1919 - 1964

LaMotte Chemical

Chestertown, Maryland, U.S.A.

Specialists in

Colorimetric Techniques

 $Reagents\hbox{-} Standards\hbox{-} Comparators$

Send for illustrated Controls Handbook

VLON CAGE SIGNS

EASY TO INSTALL—WON'T RUST OR SHATTER Removable cards show special instructions-group

numbers-type of feeding or care required COLOR SELECTION FOR EASY IDENTIFICATION

Write for your free

LINE-O-VISION™

HOLLISTER

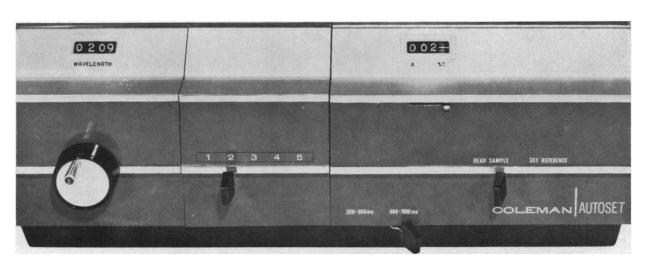
B35 N. Orleans St., Chicago 10, III.

sign





S P E C T R O P H O T O M E T E R



SIMPLE CONTROLS...NUMERICAL READOUT

This is the control panel of the AUTOSET Spectrophotometer, a new UV-Visible instrument featuring automatic reference setting, digital readout and simplified controls.

These are all the controls you need to perform fast, accurate spectrochemical analyses throughout the 200-1000 m μ spectrum.

SPEED and CONVENIENCE

Automated reference setting, the AUTOSET feature, ends the need for the multiple manipulations ordinarily required for making a spectrophotometer reference setting.

With AUTOSET, you can achieve the reference value in seconds by positioning a single control. Select the sample, place the control in "Read" position, and the sample value appears quickly in the readout window.

ERROR ELIMINATION

Reading analytical data from the AUTOSET's digital readout is twice as fast and three times as accurate as reading from a conventional dial.

In the AUTOSET Spectrophotometer, all data—wavelength, analytical results and sample identificationare presented in unmistakable numerical form.

SAMPLE VERSATILITY

The instrument's cuvette compartment is designed to accept a full range of cuvettes-ultramicro, long light path, test tube type and the highly-accurate 1-cm square cells.

The sample compartment has adequate room for such special equipment as mixers, thermostated components and 100-mm light path cells.

For additional information write for Bulletin SB-286.

CONDENSED SPECIFICATIONS

Monochromator

Bipartite reflection diffraction grating. 2 millimicron standard bandwidth; 1 and millimicron bandwidths also available for special work.
Wavelength range 200-1000 millimicrons.

Photometer

Self-balancing null system. Photometric accuracy: ±0.5% T, $\pm 0.005A$ at 0.4A.

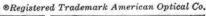
Sample Range

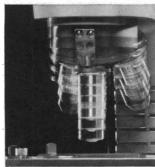
120 microliters to 25 milliliters. 1 to 100 millimeter light path.

COLEMAN INSTRUMENTS, INC., 42 MADISON ST., MAYWOOD, ILL.

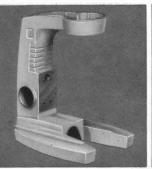


The AO Microstar® features flat-field, infinity-corrected optics and a revolutionary focusing concept... the most significant developments in microscope design in this century.





Exclusive focusable objective...body and stage remain fixed.



Arm, base and body... one single casting for increased rigidity.



Infinity-corrected objectives...best performance you have ever seen.



Dual coaxial course and fine Focusing knobs...low-positioned for comfort.

The completely new optical system provides flatness of field and image quality never before obtainable. Revolutionary focusing concept...only the objective moves when you focus...body and stage remain motionless and rigid. The only force exerted in

focusing is the weight of the nosepiece assembly . . . prevents broken slides and coverslips. Focusing mechanism is enclosed in the arm, lubricated for life, and sealed against dirt. Ask your AO Sales Representative for a demonstration.

