

times, such as Brongniart and Sternberg, or to geographic regions, such as Central Europe or Scandinavia and the Arctic, or to topics, such as seeds and fruits.

The chapter on Brongniart and Sternberg, often called the "fathers of scientific paleobotany," typifies the approach of the book. Andrews discusses the state of paleobotany when these men's great works were being published, 1820-1838. He includes the critical work of William Smith, the British geologist, who wrote *Strata Identified by Organized Fossils* (1816-1819). He compares Brongniart's excellent classification of plants with Sternberg's more comprehensive, better-illustrated work that is the official starting point for nomenclature. He emphasizes the importance of Schlotheim's *Die Petrefaktenkunde* (1820) and the possibility that it, rather than Sternberg's work, might have been selected as the starting point. He writes of the men's travels, of the colleagues they knew, and of the political climate in which they lived.

Here one will find tributes to great anatomists, such as Williamson and Scott; to compilers, Seward, Berry, Krystofovich; to many women in paleobotany, Maria Neuberg, Marie Stopes, Eleanor Reid, Marjorie Chandler, Hanna Czecott, Suzanne Leclercq; to splendid lecturer-teachers, Solms-Laubach and Buckland; to the physically handicapped Nathorst and Lesquereux, who were deaf; to some who were outstanding in their manipulating of techniques, Witham, Nathorst, Halle, Florin, Leclercq; to those whose work was done under unfavorable conditions, Renault and Long; to outstanding collectors such as James Hutton; to self-made men such as E. W. Binney; to great intellects, Robert Hooke and Nicolaus Steno.

There are innumerable stories of interest: Solms-Laubach and the parrot who ate with him at the table; D. H. Scott, who allowed women to attend his lectures; L. F. Ward, who first used the term "paleobotany" and who left the field for a career in sociology; Jongmans, whose lectures drove students away; Gardner, who (1844) admonished workers to "collect while the collecting is possible"; Bowerbank, who founded the "London Clay Club"; Zalesky, from interior Russia, who reveled in the seaweeds along the British seacoast; Brongniart and Williamson, who disputed the significance of the cambium in arborescent lycopods; Bertrand and Renault, who supported the algal origin of boghead coal against the interpretation of Jeffrey and Thiessen that spores were the primary contributors to

its formation; Carruthers and Dawson, who disputed the nature of *Prototaxites*.

It should be obvious that this book will appeal to a far broader audience than paleobotanists. Historians of science, botanists in general, and many geologists will find much of value here.

HARLAN P. BANKS

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Hybridoma Technology

Monoclonal Antibodies. Hybridomas: A New Dimension in Biological Analyses. ROGER H. KENNETT, THOMAS J. MCKEARN, and KATHLEEN B. BECHTOL, Eds. Plenum, New York, 1980. xxii, 424 pp., illus. \$29.50.

The discovery in 1975 by Köhler and Milstein of means of producing monoclonal antibodies in continuously proliferating cells (hybridomas) is a landmark in biology. The availability of unlimited quantities of pure monospecific antibodies directed against virtually any antigenic substance has already begun to revolutionize the treatment and analysis of biological materials studied in such diverse fields as immunology, developmental biology, histology, toxicology, oncology, and pharmacology. *Monoclonal Antibodies* is an account of the first generation of the production and analysis of these reagents and specialized uses to which they have been put.

The volume is a compendium of anecdotal accounts of scientists' experiences with this technology, and it covers virtually all that has been published in the scientific literature. A section on the analysis of immunoglobulin structure describes the uses of hybridoma technology for studying the chemical basis of idiotype determinants and analyzing the antibody repertoire. There are several papers employing the hybridoma products for genetic analysis of the antigens they recognize.

The most interesting and informative sections of the book deal with materials for which monoclonal antibodies have been the only viable means of study. These sections include analyses of viruses and their genetic variants and descriptions of newly discovered surface antigens on normal and neoplastic cells. A paper reporting early studies of the use of monoclonal antibodies for immunotherapy of leukemia in mice is perhaps the most novel contribution. The results reported for this and other systems would suggest that some optimism is

warranted at this stage. Each contribution contains information or references to the literature on the methodology for the production and analysis of the hybridoma products used.

The quality of the papers is variable. Some papers are little more than synopses of previously published work, and others are full of new information that gives the reader new insights into the use of these reagents. Though there is little or no critical appraisal of the papers and readers are left to ferret out the important information for themselves, this is an impressive collection. It has the freshness and enthusiasm of original work presented by scientists at the bench.

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Books Received

Advances in Atomic and Molecular Physics. Vol. 15. David R. Bates and Benjamin Bederson, Eds. Academic Press, New York, 1979. xx, 544 pp., illus. \$52.

Advances in Catalysis. Vol. 28. D. D. Eley, Herman Pines, and Paul B. Weisz, Eds. Academic Press, New York, 1979. xii, 404 pp., illus. \$42.50.

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Advances in Electronics and Electron Physics. Vol. 49. L. Marton and C. Marton, Eds. Academic Press, New York, 1979. xii, 378 pp., illus. \$42.

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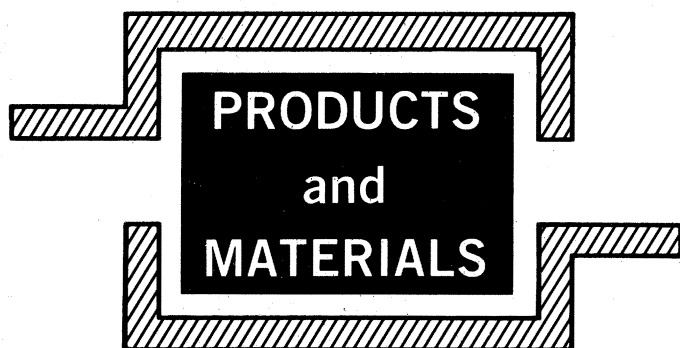
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(Continued on page 346)



Electronic Balances

Models 1500 and 1500D are capable of interfacing with computers through a binary-coded decimal modem. The easily installed interface is available as an option. Output signals consist of weight in addition to polarity, stability and overflow indications, decimal point, and power supply voltages. Model 1500 accommodates up to 1500 grams readable to within 0.1 gram. Model 1500D offers the same capacity and a second range to 150 grams, readable to within 0.01 gram. Ohaus Scale. Circle 774.

Carbon Dioxide Incubator

Model 6100-R is refrigerated and is designed to operate between 10° and 55°C with uniformity to within 0.25°C of the desired temperature. Controls are solid-state and chamber parameters are readily observed on a display. Integrity of the inner chamber of this water-jacketed incubator is ensured by its door closure system. Interior shelves and supports may be readily removed for cleaning. National Appliance. Circle 756.

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Custom visual materials for seminars and for publication are available with rapid turnaround. Slide (35 millimeters) styles include choice of background color and mounting medium. Storage containers are provided. Glossy photographic prints may be obtained in styles to meet journal requirements. Negatives are retained in case duplicates are needed. PhotoTechnics. Circle 757.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 260A and 332A) and placing it in the mailbox. Postage is free.

—RICHARD G. SOMMER

Gas Chromatograph—Mass Spectrometer

The SpectrEL combines a mass spectrometer that operates with materials from 3 to 1200 atomic mass units and a gas chromatograph that has a dual-column oven and flame ionization detector and an electron impact analyzer. The spectrometer operator selects mass range, resolution, sensitivity, scan speed, ion polarity, and routing of mass range command and signal processing for external or internal computation. The spectrometer-chromatograph interface combines a direct connection (glass-lined stainless steel tubing) and a jet separator (single-stage, all-glass) that is valved to allow independent function. The chromatograph has a microprocessor to control isothermal and temperature-programmed routines. Extra-nuclear Laboratories. Circle 777.

Portable Gas Analyzer

Snoopy is a gas chromatograph used to measure traces of oxidizable gases in air. It is suitable for detection of carbon monoxide, methane, ethyl alcohol, ethylene, and halogenated hydrocarbons among others. Air is the carrier gas. The device can detect 50 parts of ethylene per billion in a 1-milliliter gas sample in less than 2 minutes. The instrument can be run on line current or with a 12-volt battery in the field. Bio-Gas Detector. Circle 779.

Anaerobic Chamber

Model XPL-855-AC has two integral pumps; one for the filtration-dehydration system and one for the evacuation system for the transfer chamber. The device features a fluorescent light and an illuminated control panel. The doors of the transfer chamber open automatically upon equalization of pressure. A heated catalyst removes oxygen and impurities such as hydrogen sulfide. Plas-Labs. Circle 773.

Centrifugal Thin-Layer Chromatograph

The Chromatotron offers an alternative to thin-layer plates and to high-pressure liquid chromatography. Solutions are applied near the center of a rotor that is coated with absorbent. Elution with a solvent forms bands of materials which are spun off and collected. Resolution may be enhanced by recycling the collected materials. Separations are performed in 5 to 20 minutes with 125 to 250 milliliters of solvent. Bands that absorb ultraviolet light may be detected through a quartz cover during centrifugation. Harrison Research. Circle 753.

Aerosol Exposure Chamber

This environmental simulator features horizontal laminar flow. It may be used to measure effects of airborne contaminants upon experimental organisms. Its inlet and outlet baffle-plenum configuration is designed for reproducibility of conditions and to minimize unwanted variables. The stainless steel chamber is accessible through a large front door and features adjustable, removable shelves. The interior measures 2 by 3 feet and is 4 feet high. Baker. Circle 778.

Literature

Refrigeration Systems describes series of apparatus for cooling lasers, diffusion pumps, spectrometers, and electron microscopes. Neslab Instruments. Circle 759.

Physiology Instruments lists electrometers, microelectrode amplifiers, digital and analog stimulators, stimulus isolators, microtitrators, and many others. W-P Instruments. Circle 762.

HPLC Accessories offers a complete line of fittings, filters, valves, tubing, column heaters, and sample injectors. Scientific Systems. Circle 763.

Liquid Handling Apparatus describes diluters, dispensers, pipettors, and their accessories. Rainin Instrument. Circle 764.

Glass Electrodes catalogs temperature and pH ranges, nominal membrane resistances, dimensions, and applications notes. Orion Research. Circle 765.

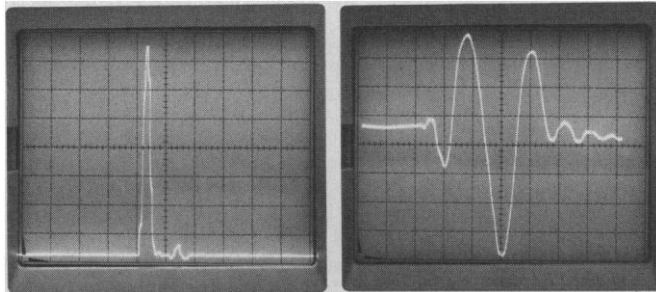
Electronic Balances describes the Super-Range line with ranges from 400 to 4000 grams and sensitivities from 0.001 to 0.01 gram. Brinkmann Instruments. Circle 780.

Protein Assay is devoted to a kit that features the Bradford dye-binding technique. Bio-Rad Laboratories. Circle 781.

For signal measurement and analysis . . .

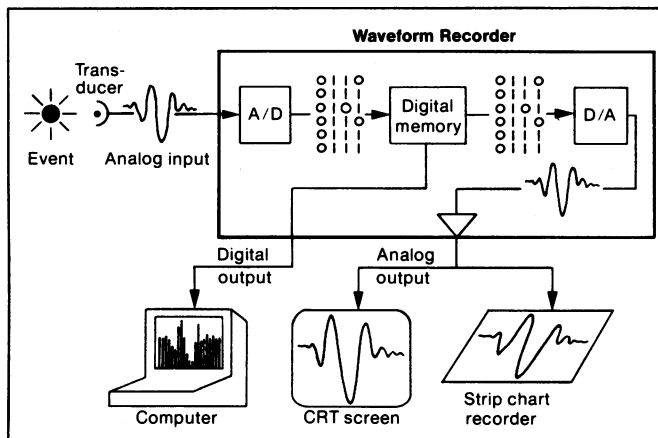
How to capture transient pulses from 10 milliseconds to 10 nanoseconds with Biomation digital waveform recorders

No other instrument on the market gives you transient capture with the kind of convenience, speed and resolution you get with a Biomation waveform recorder. You can stop a fast one-time or low-rep-rate signal, store it in digital form in semiconductor memory, and retrieve it undistorted for precise measurement and analysis. You even get the critical "leading edge" information missed by storage scopes, so you can study conditions leading up to your event. Feed the stored digital data into your computer system for automated analysis. Or convert it back to analog for display on a CRT screen or strip chart recorder.



At left, the 12-ns pulse and leading edge information were captured with a Biomation Model 6500, sampling at 2-ns intervals. Each scope division represents 20 ns. Signal at right was captured by the precision Model 1010. Each division is 20 μ s wide.

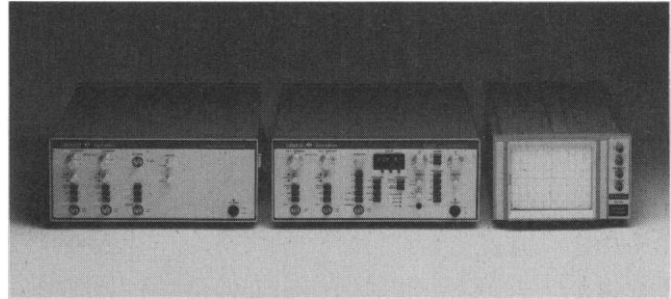
Here's how the waveform recorder fits into your data acquisition system:



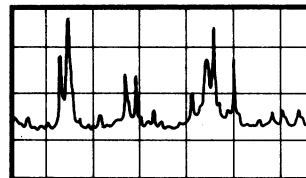
Choose the features you need.

The broad line of Biomation waveform recorders offers you exclusive features like simultaneous recording on 2, 4, 6 or 8 channels. Super-fine resolution, with data sampling as fast as 2 nanoseconds, to let you see the details of fast-changing signals. High-capacity memory for storing up to 4100 data samples. Full programmability so your computer can remotely control signal capture and output for automated testing and experimentation.

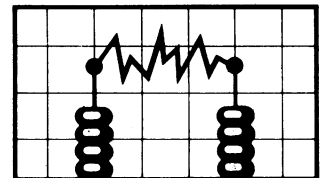
New Biomation Model 2805 is expandable for processing up to 8 signals at one time. Also available are the fully-programmable Model 8100, the high-speed Model 6500 with 2-nanosecond sample interval, and the precision Model 1010.



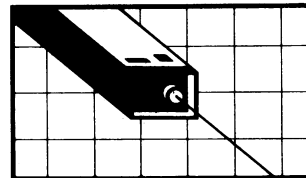
Typical research applications:



KINETIC CHEMISTRY—Mass spectroscopy/Fluorescence/Pulse radiolysis/Flash Photolysis/NMR/Stopped flow/T-jump



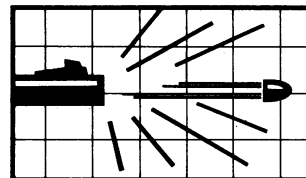
ELECTRICAL/ELECTRONICS—HV design & testing/Analog circuit design/Automated test systems/Energy conversion/Telecommunications



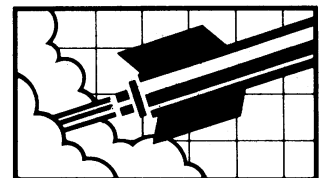
LASERS—Pulsed lasers/Laser fusion/Luminescence/Laser-plasma interactions/Laser communications/LIDAR



ULTRASONICS—Sonar/Acoustic emission/Body-scanners/UNDT



BALLISTICS—Weapons research/Explosives testing/Shock tube physics



AEROSPACE—Ordnance testing/Electrical subsystem simulation and test

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BOOKS RECEIVED

(Continued from page 318)

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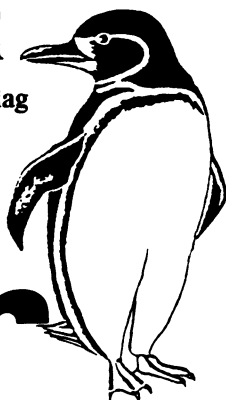
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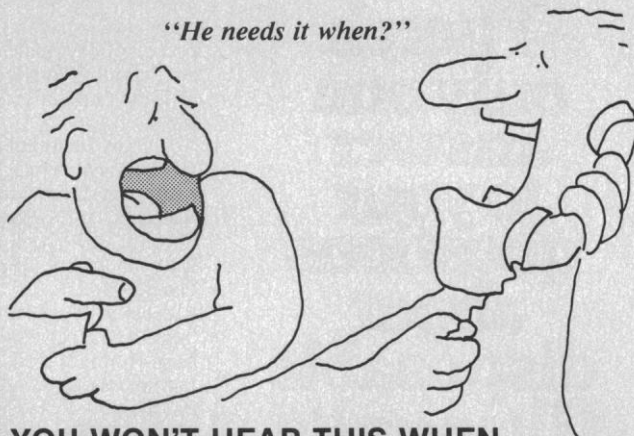
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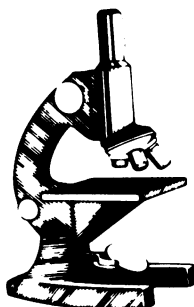
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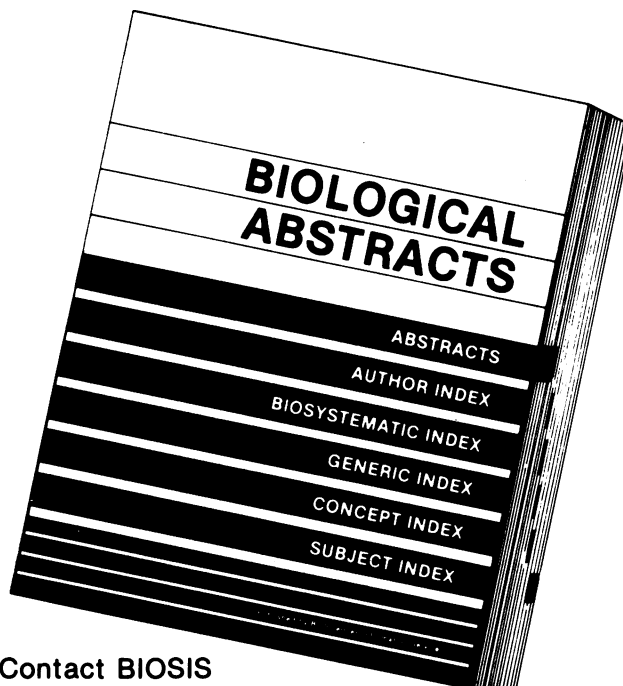
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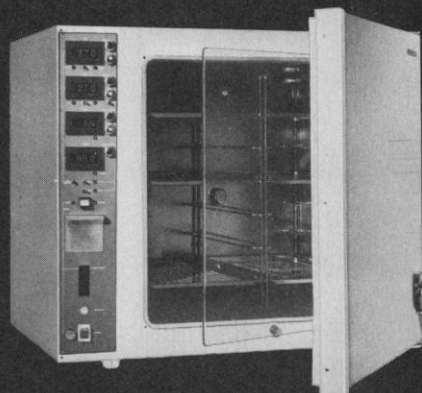
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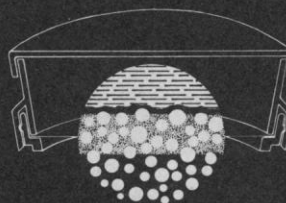
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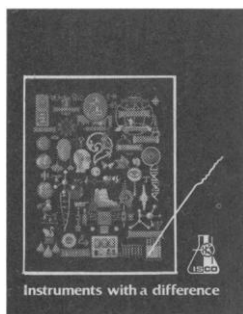
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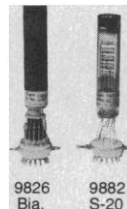
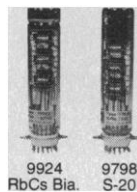
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Zooplankton Community Analysis. Studies on a Tropical System. William M. Lewis, Jr. Springer-Verlag, New York, 1979. x, 164 pp., illus. \$24.80.

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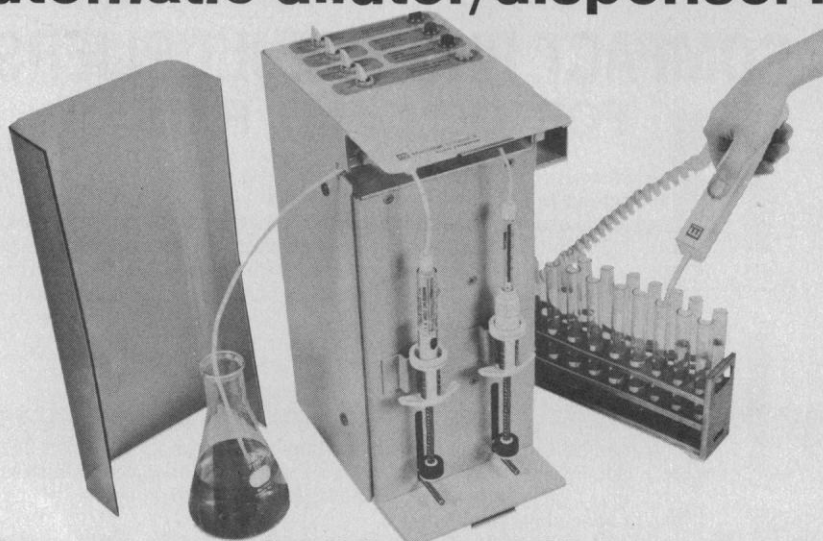


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POSITIONS WANTED

Chemist. B.A. 1968. Water scale inhibitor synthesis and development. Oil field sales technical service; oil field deposit analysis. Inorganic and organic synthesis; phosphorus chemistry a specialty. Box 245, SCIENCE. X

Comparative Anatomist/Behaviorist/Ichthyologist. B.S., honors, Duke University; Ph.D., University of Hawaii. Extensive marine experience in Jamaica, North Carolina, Hawaii, and Enewetak Atoll, including marine laboratory managerial experience. Four years of graduate teaching. Interested in the anatomical basis of behavior of marine and terrestrial organisms. Publications and excellent references. All inquiries welcome. Box 246, SCIENCE. 10/17, 31

Microbiologist, M.S., desires position of research associate and laboratory manager. Independent research. Strong interest and experience in microbial ecology. Broad background in microbiology and science. Also has editing and writing experience. L. Loudon (formerly M. L. Brock), 26 Fairway Court, Appleton, Wis. 54911. Telephone: 414-734-9251, extension 368. X

Physical Oceanographer/Limnologist. Ph.D. with 10 years of experience in ocean/Great Lakes, government, university, private industry. Interests and past experience cover ocean energy, air/sea interaction, circulation, environmental, satellite usage, warm-water area, coastal, deep sea. Seeking responsible and stimulating position using scientific and/or management skills. Box 244, SCIENCE. 10/17, 24, 31

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGY. Ph.D., animal or comparative physiology, for undergraduate instruction, research, and advising. Facilities include electron microscopes, other routine equipment. Salary competitive. Date wanted is earliest possible: 1 December 1980, 4 March, or 1 September 1981. Apply: Donald T. Hartman, Academic Dean, Juniata College, Huntingdon, Pa. 16652. Affirmative Action/Equal Opportunity Employer.

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POSITIONS OPEN

UNIVERSITY OF NEBRASKA-LINCOLN ANALYTICAL CHEMISTRY

Assistant professor sought for tenure-track post beginning 1 August 1981. Primary requirements are a Ph.D. in analytical chemistry and excellence in research and teaching. Curriculum vitae, summary of research program, and three letters of reference should be sent by 15 November to: **Professor C. L. Wilkins, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Nebraska 68588.** Exceptionally meritorious applications will be considered after this date and until the position is filled. *Applications from women and minority candidates are particularly welcome. Affirmative Action/Equal Opportunity Employer.*

ANATOMISTS

Two positions are available at the assistant professor level in the Department of Anatomy, University of Virginia. Teaching responsibilities include gross anatomy for first-year medical students, and candidates should have training in this activity. The department stresses research and candidates are expected to maintain an independent program of investigation. The area of research is open; opportunities are available for interaction with colleagues in developmental biology, cell biology, and neuroanatomy. Candidates should have postdoctoral experience. Interested persons should send their curriculum vitae and the names of three references to: **Chairman, Department of Anatomy, Box 439, University of Virginia Medical Center, Charlottesville, Virginia 22908.**

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ANIMAL SCIENTIST—NUTRITION. Career federal service. Incumbent to develop independent research program to study mineral metabolism in lactating and nonlactating cattle when forages are a major component of the diet. Position located at University of Missouri Campus, Columbia, Mo. GS-13/14/15; salary based on qualifications and experience. For applications: **J. Brooks, USDA-SEA-AR-B19, 2000 West Pioneer Parkway, Peoria, Ill. 61615.** Telephone: 309-671-7319. *Equal Opportunity Employer.*

The Department of Biochemistry and Molecular Biology University of Florida College of Medicine

We are seeking applicants for tenure-track position at the ASSISTANT PROFESSOR AND/OR ASSOCIATE PROFESSOR levels. The applicants must have a Ph.D. or M.D. degree and postdoctoral training. The successful applicant will be expected to maintain an excellent research program as well as to participate in teaching. Prior to 18 November 1980, curriculum vitae, a description of proposed research, and the names of four references should be sent to: **Dr. Gary S. Stein, Chairman, Department of Biochemistry and Molecular Biology Search Committee, College of Medicine, University of Florida, Box J-245 JHMHC, Gainesville, Florida 32610.** *Equal Opportunity/Affirmative Action Employer.* Anticipated starting date: 1 September 1981.

ASSISTANT PROFESSOR-IN-RESIDENCE. Position available immediately for person with Ph.D. to investigate immunochemical properties of cartilage proteoglycans. Laboratory experience with proteoglycans, immunochemistry, radioimmunoassay, carbohydrate chemistry, embryology, and cell culture desirable. Salary range: \$16,000 to \$19,000. Send résumé and three letters of evaluation to: **Dr. Paul Goetinck, Department of Animal Genetics, University of Connecticut, Storrs, Connecticut 06268.** *Equal Opportunity Employer.*

ASSISTANT PROFESSOR AND MEDICAL DIRECTOR OF BLOOD BANK—The Department of Pathology has an opening for an M.D., Board-certified or -eligible in clinical pathology or appropriate subspecialty boards, and eligible for licensure in Florida. Major responsibilities include supervising the immunohematology, hemotherapy, and paternity testing services at the 450-bed teaching hospital; teaching residents and medical students; and developing independent research. A major goal is development of a comprehensive automated information system for the Blood Bank and experience in laboratory management and data systems is desirable. Salary is negotiable with a starting date of 1 July 1981. Forward applications by deadline of 1 January 1981 to: **Juan C. Scornik, M.D., Assistant Professor, Department of Pathology, Box J-275 JHMHC, University of Florida, Gainesville, Florida 32610.**

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POSITIONS OPEN

ASSISTANT PROFESSOR—INORGANIC CHEMISTRY, UNIVERSITY OF NEBRASKA-LINCOLN. Applicants with Ph.D. and training and accomplishments in bioinorganic, inorganic, and/or organometallic chemistry are encouraged to apply for this tenure-track position available August 1981 or later. Successful candidate is expected to develop a high-quality research program and teach effectively at the undergraduate/graduate levels. Send detailed résumé, undergraduate and graduate transcripts, a detailed description of research interests, and three or more professional letters of recommendation by 21 November to: **Professor T. Adrian George, Department of Chemistry, The University of Nebraska-Lincoln, Lincoln, Nebraska 68588.** Exceptionally meritorious applications will be considered after this date and until this position is filled. *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSORSHIP DEPARTMENT OF BIOLOGICAL SCIENCE FLORIDA STATE UNIVERSITY

The Psychobiology and Physiology Group of the department seeks applicants for two tenure-track positions at the beginning assistant professor level. Research expertise should be in one of two areas: (i) **integrative neurobiology**, with emphasis on the role of specified cells or cell groups in integrative organismal responses such as sensory processing, behavior, development or aging, or (ii) **comparative physiology of marine organisms.**

Applicants for either position may use any of a variety of experimental approaches including electrophysiological, biochemical, pharmacological, endocrinological, or genetic. Applicants working on either vertebrates or invertebrates are welcome.

Applicants should expect to interact with members of the present group whose general interests are in neurobiology and endocrinology as well as participate in some aspects of the teaching of cellular, neuro-, mammalian, and comparative physiology at both the graduate and undergraduate level.

Applicants should send curriculum vitae, reprints, support letters, and a brief statement of future research goals to: **Dr. John Elam, Department of Biological Science, The Florida State University, Tallahassee, Florida 32306.** Respondents to a 8 February 1980 department advertisement need not reapply; however, a significantly updated curriculum vitae will be accepted. *We are an Affirmative Action/Equal Opportunity Employer and welcome applications from women and minority group members.*

ASSISTANT PROFESSOR

The Department of Physiology, with active programs in cell and membrane biology and biophysics, has an opening for an individual committed to excellence in research and teaching. This is a tenure-track position.

Applications should include curriculum vitae, letters, and references addressed to:

**Dr. Richard D. Berlin
Head, Department of Physiology
University of Connecticut Health Center
Farmington, Conn. 06032**

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ASSISTANT PROFESSOR. It is anticipated that a tenure-track position will be available for fall 1981. Ph.D. and at least 1 year of postdoctoral experience required. Candidates with expertise in areas of inorganic, bioinorganic, or analytical chemistry are preferred. Send curriculum vitae and three letters of recommendation to: **Chairman, Search Committee, Department of Chemistry, University of Maryland Baltimore County, Catonsville, Maryland 21228.** *An Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR OF BIOCHEMISTRY WASHINGTON, D.C.

FACULTY POSITION. The Department of Biochemistry of the George Washington University School of Medicine and Health Sciences is seeking candidates for the post of assistant professor of biochemistry, a tenure-track position. Applicants should have a strong background in research and a demonstrated ability to attract independent research funding. The appointee will be expected to conduct an active research program and participate in teaching medical and graduate students in the general area of bioenergetics. Applications and letters from three referees should be sent to: **Chairman, Biochemistry Search Committee, Biochemistry Department, George Washington University School of Medicine and Health Sciences, 2300 Eye Street, NW, Washington, D.C. 20037.**

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGY PHYSIOLOGIST

The Biology Department of Whitman College will make a tenure-track appointment at the assistant professor level for September 1981. The successful applicant will have a Ph.D. (or be in the final stages of completion) and expertise in organismal physiology and developmental biology. Primary responsibilities include teaching an organismal physiology course dealing with both plants and animals and a course in developmental biology. Outlines are invited for other courses the individual would like to teach as part of an undergraduate liberal arts curriculum in biology (such as invertebrate biology, limnology, marine biology, plant physiology, or ecological physiology). Send letter of application (to include a statement of the applicant's philosophy of the role of biology in a liberal arts curriculum), copies of transcripts, course outlines, curriculum vitae, and three letters of reference to: **Dr. Charles M. Drabek, Biology Department, Whitman College, Walla Walla, Wash. 99362.**

Whitman College is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR OF PHARMACOLOGY. The New England College of Osteopathic Medicine (NECOM) seeks an individual with a Ph.D. and at least 2 years of postdoctoral experience to teach pharmacology in an integrated, organ system curriculum and to pursue research in chosen area. Please send curriculum vitae and three letters of recommendation to: **Don W. Shoeman, Chairman, Department of Physiology and Pharmacology, NECOM, 605 Pool Road, Biddeford, Maine 04005.**

YALE UNIVERSITY ASSISTANT PROFESSOR IN THEORETICAL FLUID MECHANICS

Applications are solicited for a junior faculty position in the field of theoretical fluid mechanics to begin in the academic year 1981-1982 in the Department of Engineering and Applied Science or in the Department of Geology and Geophysics.

Yale University is an Equal Opportunity Employer and encourages women and members of minority groups to compete for this position.

Curriculum vitae, publications, and the names of three or more referees should be sent by 15 November 1980 to: **B. T. Chu, Department of Engineering and Applied Science, Box 2159 Yale Station, New Haven, Conn. 06520.**

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Md., is seeking applicants for the following position:

ASSISTANT PROFESSOR OF TROPICAL PUBLIC HEALTH

Qualifications are an M.D. or Ph.D. with experience in teaching tropical medicine and infectious diseases, administration, and research. Expertise should be reflected by a significant number of publications in scientific journals. Physician candidates should be certified by the American Board of Preventive Medicine. Responsibilities will include teaching, research, curriculum development, and supervision of medical students, graduate students, and postdoctoral assistants at the tutorial level. Contact: **Chairman, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014.** Telephone: 202-295-3170.

The Uniformed Services University of the Health Sciences is an Equal Opportunity Employer.

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Md., is seeking applicants for the following position:

TEACHING/RESEARCH ASSOCIATE DIVISION OF TROPICAL PUBLIC HEALTH

Qualifications are an M.D. or Ph.D. with experience in teaching communicable disease epidemiology and laboratory research. Responsibilities will include teaching medical and graduate students and assisting in laboratory and field epidemiologic studies of communicable diseases. Contact: **Chairman, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014.** Telephone: 202-295-3170.

The Uniformed Services University of the Health Sciences is an Equal Opportunity Employer.

POSITIONS OPEN

ASSISTANT PROFESSORS OF BIOLOGY—ECOLOGICAL

The Department of Biology of Lehigh University seeks applicants for TWO tenure-track assistant professorships in ecology beginning fall 1981. One position calls for expertise in **POPULATION DYNAMICS** with experience in modeling ecological systems, the other for an **ENVIRONMENTAL TOXICOLOGIST** working with biological systems. Duties include undergraduate and graduate teaching and especially the development of a strong research program. Thus preference will be given to applicants with postdoctoral and/or additional prior experience.

Send curriculum vitae, a summary of planned research, and three letters of recommendation to: **Sidney S. Herman, Department of Biology, Williams Hall Number 31, Lehigh University, Bethlehem, Pa. 18015.** Applications will be accepted until 31 December 1980.

Lehigh is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR OF ENTOMOLOGY to conduct research on vegetable crop insect pest management and teach agricultural entomology/insect pest management. Ph.D. required. Submit curriculum vitae, transcripts, description of research experience and plans, reprints of publications, dissertation summary, summary of teaching capabilities, names of three referees to: **T. F. Leigh, Chair, Search Committee, Department of Entomology, University of California, Davis, Calif. 95616** by 31 December 1980. *An Equal Opportunity/Affirmative Action Employer.*

BIOLOGY ASSISTANT PROFESSOR. Immunobiologist-virologist. Begin in February or September 1981. Ph.D.; postdoctoral experience desired. Teach courses in immunology and virology; share responsibility for offerings in genetics and cell and molecular biology. Must have strong commitment to undergraduate teaching and to developing a research program that can involve undergraduates. Submit curriculum vitae, transcripts, and three recommendation letters by 15 November 1980 to: **Dr. David Benzing, Biology Department, Oberlin College, Oberlin, Ohio 44074.** *Equal Opportunity Employer.*

CELL BIOLOGIST UNIVERSITY OF ARIZONA

The Department of Anatomy in the College of Medicine invites applications for a tenure-track appointment at the level of assistant professor. Postdoctoral experience, an active research program, and a strong background in cellular and molecular biology are required. Send curriculum vitae and references to: **Dr. Bryant Benson, Head, Department of Anatomy, University of Arizona, Tucson, Ariz. 85724.** *Equal Opportunity/Affirmative Action Employer.*

CELL BIOLOGIST

Department of Cell Biology
Baylor College of Medicine

Applications are invited from qualified individuals with postdoctoral experience to join the department in a tenure-track position. Research areas of particular interest include endocytosis, membrane biogenesis, membrane protein biochemistry, and membrane-cytoskeletal protein interactions, although other related areas will be considered. The applicant should be prepared to establish a productive, independent research program and participate in the cell biology graduate teaching program. Interested individuals should send a letter indicating their qualifications for the position, enclose current curriculum vitae, and list three or more persons who will act as referees, to: **Joseph Bryan, Department of Cell Biology, BAYLOR COLLEGE OF MEDICINE, Houston, Texas 77025.**

Baylor College of Medicine is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL APPOINTMENT to work on **REGULATION OF GONADOTROPIN ACTION IN OVARIAN CELL TYPES:** effects of estrogens, prolactin, and cyclic nucleotides. Strong background in female reproductive physiology and/or tissue culture technique is desired. Stipend: \$12,500 per year. Available: immediately and fall/winter 1980. Send curriculum vitae and references to: **Lutz Birnbaumer, Professor, Department of Cell Biology, BAYLOR COLLEGE OF MEDICINE, Houston, Texas 77030.**

Baylor College of Medicine is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT/ASSOCIATE PROFESSOR OF NUCLEAR MEDICINE DEPARTMENT OF RADIATION MEDICINE

M.D. or M.D./Ph.D. clinical, teaching, and research in academic nuclear medicine for Board-eligible or -certified person. Joint VAH/UK position in tenure track. Research interests and experiences in tumor localization desirable. Active research program ongoing. Send curriculum vitae, bibliography, and names of three references to: **Chairman, Department of Radiation Medicine, University of Kentucky Medical Center, Lexington, Kentucky 40536.** *An Equal Opportunity Employer.*

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Md., is seeking applicants for the following position:

ASSOCIATE PROFESSOR OF BIOSTATISTICS

Qualifications are an M.D. or Ph.D. with experience in teaching biostatistics, administration, and research. Expertise should be reflected by a number of publications in reviewed scientific journals. Experience with ADP of biomedical and demographic data is essential. Responsibilities include teaching, research, consultative assistance in biostatistics, and planning and development of curricula and specific courses of study for the department. Incumbent will supervise medical students, graduate students, and postdoctoral assistants at the tutorial level. Contact: **Chairman, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014.** Telephone: 202-295-3170.

The Uniformed Services University of the Health Sciences is an Equal Opportunity Employer.

BIOCHEMIST—FOOD SCIENTIST. Recent Ph.D. desired for position in area of dietary fiber research related to aspects of foods, metabolism, and nutrition. Individual with strong background in biochemistry and interest in food science and nutrition preferred. American citizenship is required for this federal government position. Successful candidate would start at the GS-11 level, approximately \$22,400 per year. Interested persons should send curriculum vitae to: **Dr. F. R. Dintzis, Cereal Science and Foods Laboratory, Northern Regional Research Center, SEA-AR, USDA, 1815 North University Street, Peoria, Illinois 61604.** *The Northern Laboratory, which employs about 150 scientists, is one of the regional centers of the USDA and is an Equal Opportunity Employer.*

BIOLOGICAL OCEANOGRAPHY— ASSISTANT RESEARCH OCEANOGRAPHER

Research position to study effects of large-scale physical processes on planktonic ecosystems. Applicant should have a background in both biological and physical oceanography. The applicant should also have research experience at sea and be able to organize and conduct oceanographic expeditions. Position supported by present extramural funding. Salary: \$21,600 to \$25,300 per year commensurate with experience. Submit application before 1 November 1980 to: **Director, Marine Life Research Group, A-030, Scripps Institution of Oceanography, La Jolla, Calif. 92093.**

CHAIRPERSON DEPARTMENT OF BIOLOGY EMORY UNIVERSITY

Emory University is seeking a biologist with a record of scholarly achievement and excellence in teaching, and preferably some administrative experience, to chair the Department of Biology. Candidates are expected to have an active research program of national stature and a demonstrated ability to generate research grant support. The position requires a strong commitment to graduate and undergraduate education in biology within the context of a liberal arts education. The new chairperson will help in the planning and design of a new biology building and in developing the direction of the department with new faculty appointments. At present, the Biology Department has 16 faculty and graduate programs at the M.S. and Ph.D. levels.

The appointment is to become effective 1 September 1981. Send curriculum vitae and names and addresses of at least three references to: **William H. Murdy, Chairman, Search Committee, Biology Department, Emory University, Atlanta, Ga. 30322.** Deadline for receipt of applications is 15 December 1980. *Emory University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

BIOLOGIST. University of South Carolina (USC) at Sumter (2-year campus) has an opening for a **visiting instructor/assistant professor of biology** beginning 5 January 1981. Teaching duties will vary but may include human anatomy and physiology for pre-nursing students. Teaching experience desirable. Ph.D. or A.B.D. preferred. Teaching capabilities in chemistry, geology, marine science, or physics desirable. Salary competitive with 2-year institution. Send résumé, three letters of recommendation, and transcripts by 3 November 1980 to: **Dr. R. C. Nerburn, Chairman, Division of Science and Engineering, USC—Sumter, Miller Road, Sumter, S.C. 29150.** *An Affirmative Action/Equal Opportunity Employer.*

BIOPHYSICS—BIOCHEMISTRY postdoctoral position available fall 1981. Research involves resonance Raman studies of visual pigments, bacteriorhodopsin, and other biological chromophores in a well-equipped laboratory. This new probe provides a great deal of rich structural information concerning these chromophores and how these proteins work. Send curriculum vitae and letters of reference to: **Dr. R. Callender, Physics, City College of New York, New York, N.Y. 10031.** *An Affirmative Action Employer.*

CHAIRPERSON, Department of Biochemistry—Candidates must have substantial background in academic medicine evidenced by a record of excellence in teaching, research, and leadership in medical and graduate education. Interested persons are encouraged to submit their credentials and curriculum vitae to: **Dr. Donald E. Hill, Chairman, Biochemistry Search Committee, Slot 512, University of Arkansas College of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham Street, Little Rock, Arkansas 72201.** *Affirmative Action/Equal Opportunity Employer.*

The **DEPARTMENT OF CHEMISTRY** of the University of Chicago invites applications from outstanding individuals for **faculty positions in all branches of chemistry;** specific emphasis will be given to structural inorganic and synthetic organic chemistry. Qualified applicants should submit curriculum vitae, a list of publications, and a succinct outline of research to be undertaken and should arrange for three letters of recommendation to be sent to: **Professor John C. Light, Chairman, Department of Chemistry, The University of Chicago, 5735 South Ellis Avenue, Chicago, Illinois 60637.** *An Equal Opportunity/Affirmative Action Employer.*

CLINICAL PHARMACOLOGIST

The Departments of Pharmacology and Medicine of the Medical College of Georgia are seeking an individual at the associate professor or professorial rank with an M.D. or M.D.-Ph.D. degrees to head the newly established Core Facility in Clinical Pharmacology and the Section of Clinical Pharmacology in the Department of Pharmacology. The facility will carry on a research-oriented program designed by the clinical pharmacologist as well as service and education. The clinical pharmacologist will have a joint appointment and a defined salary as well as participate in clinical and basic pharmacology teaching. The extensive resources of the Departments of Medicine and Pharmacology will be available to the individual. Curriculum vitae and the names of three references should be sent to: **Lowell M. Greenbaum, Ph.D., Chairman, Department of Pharmacology, Medical College of Georgia, Augusta, Ga. 30912.**

The Medical College of Georgia is an Affirmative Action/Equal Opportunity Educational Institution.

FACULTY POSITIONS

Assistant or Associate Professors of Pharmacology

The Department of Pharmacology, Medical College of Georgia, is expanding and recruiting for faculty positions at the assistant or associate professor levels. The Medical College is Georgia's state institution of higher education for training health professionals. The department is seeking individuals with a Ph.D. or M.D. degree who are committed to academic pharmacology with a high priority for cardiac or cardiovascular or related research. Applicants should send résumé, including research interests, publications, previous research support, and names of three references, to: **Dr. Lowell M. Greenbaum, Professor and Chairman, Department of Pharmacology, Medical College of Georgia, Augusta, Georgia 30912.**

The Medical College of Georgia is an Affirmative Action/Equal Opportunity Educational Institution.

POSITIONS OPEN

CELL AND TISSUE SCIENTISTS. Growing Department of Anatomy with modern research facilities at a new state medical school campus seeks candidates for new faculty positions as **ASSISTANT** or **ASSOCIATE PROFESSOR**. Candidates must have advanced postdoctoral training and the capability to successfully compete for research support. We are especially interested in experimental scientists who utilize molecular approaches to investigate sub-cellular and cellular structure and function (for example, cell surface, biomembranes, cytoskeleton, and so forth). The appointments must emphasize research; teaching responsibilities will involve participation in team-taught courses and in advanced seminar courses. Salary level is very competitive and depends upon experience. Candidates should respond by 31 December 1980 with curriculum vitae and a statement of past and planned research activity to: **Dr. A. V. Boccabella, Chairperson, Department of Anatomy, College of Medicine and Dentistry of New Jersey-New Jersey Medical School, 100 Bergen Street, Newark, N.J. 07103.** *Applications from women and minority candidates are encouraged. Equal Opportunity/Affirmative Action Employer, M/F.*

STATE UNIVERSITY OF NEW YORK AT BUFFALO announces the search for the **CHAIRMAN** of the Department of Physiology. The department has 21 faculty lines and occupies space of 51,000 square feet. The department gives courses in physiology for students of medicine and dentistry as well as for graduate and undergraduate students. The research areas in which the department has excelled are respiratory physiology, neurophysiology, and cell physiology. The chairman should have an outstanding international reputation as an investigator in physiology and he (or she) should be experienced in teaching and administration. Persons interested in this position may send their personal data to: **Dr. Felix Milgrom, Chairman of the Search Committee, School of Medicine, State University of New York at Buffalo, 203 Sherman Hall, Buffalo, N.Y. 14214.** *State University of New York is an Equal Opportunity/Affirmative Action Employer and no one will be subject to discrimination on the basis of age, color, national origin, race, religion, or sex.*

THE UNIVERSITY OF CHICAGO DEVELOPMENTAL BIOLOGIST

We are looking for a developmental biologist with strong research interests in the general area of experimental morphogenesis. Academic rank is open and postdoctoral or equivalent experience is desirable. Position involves participation in teaching first-year medical school morphology. Applications, including curriculum vitae, statement of research interests, and three letters of recommendation, should be sent to: **Dr. F. J. Manasek, Developmental Search Committee, Anatomy Department, The University of Chicago, 1025 East 57 Street, Chicago, Ill. 60637** by 30 November 1980.

The University of Chicago is an Equal Opportunity Employer; women and members of minority groups are specifically encouraged to apply.

The University of Jordan seeks to appoint a **DIRECTOR** for the Marine Science Station in Aqaba with a good background in biological, chemical, physical, and geological aspects of marine sciences. The candidate should have experience in research, teaching, and administration.

Interested candidates please send copies of credentials to:

**The President
University of Jordan
Amman, Jordan**

ELECTRON MICROSCOPIST. Operate and maintain a new scanning electron microscope facility for use in teaching, research, and diagnostic determinations. Specific duties include operation and maintenance of SEM and x-ray probe, preparing samples, and performing photographic darkroom work. Requires a bachelor's degree in physical or biological science with course work in electron microscope and auxiliary equipment operation plus 2 to 3 years of practical experience or the equivalent combination of education and experience. Salary range: \$12,391 to \$14,858. Excellent fringe benefits, including six credit hours per semester.

**University of Louisville
Health Sciences Personnel
525 East Madison
Louisville, Ky. 40202
Telephone: 502-588-5821**

An Equal Opportunity/Affirmative Action Employer

UNIVERSITE DE GENEVE, SWITZERLAND

EXTRAORDINARY (ASSOCIATE) PROFESSOR OF EXPERIMENTAL PHYSICAL CHEMISTRY

The person appointed to this post will be expected to collaborate in the general teaching of physical chemistry to the students of the various chemistry and biochemistry degrees. Lectures are given in French.

His/her research should be firmly based in the field of spectroscopy and he/she should have an interest in the application of spectroscopic methods to problems of biology and biochemistry.

A more detailed description of the post may be obtained from: **Secrétariat de la Faculté des Sciences, Quai Ernest-Ansermet 20, 1211 Genève 4, Switzerland.**

Expanding business has resulted in continuing requirements to fill both staff and senior level technical managerial positions in the following disciplines:

**Environmental Chemistry
Terrestrial Biology
Fisheries Biology
Marine Biology
Physical Oceanography**

Applicants for senior-level positions should have Ph.D. and 2 to 3 years of experience or equivalent in environmental consulting. We offer a competitive salary and fringe benefits, in an excellent work environment, an hour from New Hampshire's lakes, mountains, and seacoast and from metropolitan Boston. Send résumé and salary history to: **Personnel Manager.**



**NORMANDEAU
ASSOCIATES, INC.**

**25 Nashua Road
Bedford, N.H. 03102**

An Equal Opportunity Employer, M/F

MICROBIOLOGIST

Rohm and Haas, a leading multinational chemical company, is seeking a research-oriented Microbiologist to help discover and develop new microbiocide products. The position is located at our Research Center in Spring House, PA — a suburban community 20 miles north of Philadelphia.

Your responsibilities will include microbiological screening and applications testing, plus close cooperation with organic synthesis chemists in developing chemical structure/activity profiles on chemical classes. The position requires that you help provide direction to the research programs, and offer new research suggestions.

You should have 3 to 5 years of industrial research background plus a PhD in Microbiology.

Rohm and Haas is noted for its professional environment, excellent salaries and benefits program. All inquiries will be treated in confidence and should include academic record, experience and scientific interests. Please address:

Recruiting and Placement #9180

**ROHM
AND
HAAS** 
PHILADELPHIA, PA. 19105

An equal opportunity employer M/F.

POSITIONS OPEN

DIRECTOR BIOLOGICAL LABORATORIES COLUMBIA UNIVERSITY

The Director of Laboratories serves as financial and research administrator of the department and assists the faculty in matters relating to funding and financial management of research and teaching laboratories, including the financial aspects of grant and contract preparation and award management, equipment control and maintenance, laboratory safety, and personnel management. The director supervises the department business office with four employees, and with an associate director is responsible for the operation of undergraduate teaching laboratories and department supporting services which include glass washing and sterilization, animal facilities, electron microscope facility, and computer facility. Graduate degree in either business administration or science preferred but not essential if an individual has sufficient experience in scientific administration or academic research. Send résumé with cover letter and salary requirements to: **Chairman, Department of Biological Sciences, Columbia University, 600 Fairchild, New York, N.Y. 10027. Affirmative Action/Equal Opportunity Employer.**

DIRECTOR NATIONAL ASTRONOMY AND IONOSPHERE CENTER

Nominations and applications are invited for the position of director of the National Astronomy and Ionosphere Center (NAIC) which is managed by Cornell University for the National Science Foundation.

NAIC, headquartered in Ithaca, New York, has observing facilities in Arecibo, Puerto Rico. The director, who reports to the president of Cornell University, is the chief operating officer for NAIC and has primary responsibility for its program and its representation to NSF. The program includes research in radar and radio astronomy and atmospheric sciences.

Candidates should be scientists of stature and be eligible for an appointment in a science department at Cornell University. They should have demonstrated ability in leadership and management and familiarity with types of research carried out at the Arecibo Observatory. Applications and nominations are requested by 1 December but later inquiries may be considered.

Inquiries, nominations, or applications with résumés should be directed to: **W. D. Cooke, Chairman of the Search Committee, Vice President for Research, 309 Day Hall, Cornell University, Ithaca, New York 14853.**

Cornell University is an Equal Opportunity/Affirmative Action Employer.

ENVIRONMENTAL ENGINEERS FOR ISRAEL

The Environmental Protection Service, Ministry of the Interior, Jerusalem, Israel, is the government agency charged with the responsibility for protection of the environment in the State of Israel. It is a small interdisciplinary group that establishes environmental policies, develops new legislation and standards, reviews impact statements of large development projects, enforces environmental laws, and consults with land-use planning authorities.

We have immediate positions for qualified chemical and/or process engineers. Successful candidates will be involved with a wide range of environmental problems related to industrial, transportation, and agricultural development. Experience should include a M.S./Ph.D. and a minimum of 3 years of experience in related fields. Positions will be offered to candidates who consider immigrating to Israel. Please contact or send résumé in complete confidence to: **Dr. Uri Marinov, Director, Environmental Protection Service, c/o Tennessee Valley Authority, Norris, Tennessee 37828. Work telephone: 615-494-9800; home telephone: 615-691-1088.**

ENVIRONMENTAL SCIENTIST

A broad background in applied environmental science is required with emphasis in hydrology, soils, and economics. The position consists of providing the environmental impact analysis necessary for the development of alternate energy sources—geothermal, hydropower, alcohol fuels, and solar. Research experience necessary. M.S. preferred. Position includes some field investigation.

Send résumé in confidence to: **Technical Employment (S-LD), EG&G Idaho, Inc., P.O. Box 1625, Idaho Falls, Idaho 83415. Equal Opportunity Employer, M/F/H.**

POSITIONS OPEN

ENDOCRINE/REPRODUCTIVE BIOLOGY

The Worcester Foundation has initiated a major recruitment drive to attract talented investigators of all ranks in the field of endocrine/reproductive biology. Special considerations will be given to those using molecular, cellular, and genetic approaches which could complement and expand current areas of research at the Worcester Foundation.

These areas include:

- 1) Prostaglandins,
- 2) Biology of fertilization and early embryogenesis,
- 3) Hormone receptors and mechanism of hormone action,
- 4) Hormones and cancer, and
- 5) Neuroendocrinology.

Researchers pursuing vigorous independent programs in these and related areas are encouraged to apply. Candidates appointed in endocrine/reproductive biology will have the opportunity to interact with other programs in cell biology and neurobiology.

Applicants should send, in duplicate, their curriculum vitae, a summary of research interests, and at least three references to:

**Chairman, Endocrine/Reproductive
Search Committee
c/o Personnel Office
Worcester Foundation for Experimental Biology
222 Maple Avenue
Shrewsbury, Mass. 01545**

An Equal Opportunity/Affirmative Action Employer

ENVIRONMENTAL HEALTH TENURE-TRACK

POSITION for person with doctoral degree in a health related field. Microbiology Department requires individual to assume responsibility for ongoing accredited undergraduate option in environmental health and to develop a graduate program. Field experience in environmental health desirable. Some microbiology teaching required. Other duties will be to develop a strong, independent research program and to maintain effective relations with local, regional, and national agencies in the health field. Applicant should present evidence of effective teaching and ability to communicate with persons in non-academic areas. Present departmental programs include undergraduate options in microbiology, medical technology, and environmental health, M.S. and Ph.D. programs in microbiology. Send résumé and names of three references by 15 January 1981 to: **Dr. Kenneth L. Temple, Microbiology Department, Montana State University, Bozeman, Montana 59717. Montana State University is an Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITIONS IN BIOMEDICAL ENGINEERING

The University of Southern California invites applications for faculty positions in biomedical engineering available immediately. Applicants must have a Ph.D. in engineering, physiology-biophysics, or an M.D. with "hybrid training" or experience in both mathematics-engineering and systems physiology. Duties include both teaching and research, and successful candidates will be expected to establish their own grant supported research program. Interest and experience in neurobiology with special reference to cardiopulmonary control preferred. Rank and salary dependent on qualifications and experience. Send résumé and three letters of recommendation to: **Fred S. Grodins, Ph.D., M.D., Chairman, Biomedical Engineering, University of Southern California, University Park, Los Angeles, California 90007. An Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITION—The Department of Physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa., invites applications for the position of assistant professor. Candidates should have experience with modern biochemical and biophysical techniques in cellular active transport, including chemical synthesis. Teaching responsibilities include medical and graduate courses in physiology. Research experience sufficient to seek grant support as an independent investigator desirable. Send curriculum vitae and names of three references to:

**Dr. Robert Forster, Professor and Chairman
Department of Physiology
School of Medicine
University of Pennsylvania
Philadelphia, Pennsylvania 19104**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

DIRECTOR, DIVISION OF CLINICAL PATHOLOGY

The Department of Pathology is seeking an unusual individual at the associate professor or professorial level to head the Division of Clinical Pathology (chemistry, immunology, blood bank, histocompatibility, toxicology, microbiology, and hematology sections) in a totally computerized ultra-modern university hospital consisting of 540 beds. Independence, strong academic interest, desire for medical student and resident interaction, and a proven record are sought. Both Boards. Outstanding opportunity in superb location. Address correspondence to: **Dr. Bernard Lane, Chairperson, Recruitment Committee, Department of Pathology, Health Sciences Center, State University of New York at Stony Brook, Long Island, N.Y. 11794. An Equal Opportunity/Affirmative Action Employer.**

EXERCISE/RESPIRATORY PHYSIOLOGY. Applications are invited for a position as assistant or associate professor at Ohio University in the College of Osteopathic Medicine and the Department of Zoology/Microbiology. Teaching responsibilities involve the instruction of osteopathic medical students in exercise/respiratory physiology, exercise physiology for graduate students at the M.S. and Ph.D. levels, and some aspects of general physiology for undergraduate students. The successful candidate will be expected to develop a strong independent research program, including the advising of graduate students and direction of theses and dissertations. Minimum qualifications include a Ph.D. degree in the area of exercise/respiratory physiology; prior medical or dental school teaching is highly desirable.

Interested individuals should submit curriculum vitae and a summary of research plans by 1 January 1981 to:

**Dr. Frederick C. Hagerman, Chairman
Biomedical Sciences Search Committee
Ohio University
Department of Zoology/Microbiology
Irvine Hall
Athens, Ohio 45701**

Ohio University is an Affirmative Action/Equal Opportunity Employer.

MICROANATOMY/HISTOLOGY. Applications are invited from individuals interested in a position as assistant or associate professor at Ohio University in the College of Osteopathic Medicine and the Department of Zoology and Microbiology. This teaching-research position involves the instruction of osteopathic medical students in microanatomy/histology and graduate students at the M.S. and Ph.D. levels in the area of the candidate's speciality. Interest in neuroanatomy would be desirable. The successful candidate will be expected to develop a strong independent research program. Research area is open. Minimum qualifications include a Ph.D. degree or equivalent; prior medical or dental school teaching is highly desirable.

Interested individuals should submit curriculum vitae and a summary of research plans by 1 January 1981 to:

**Biomedical Science Search Committee
Ohio University
College of Osteopathic Medicine
Irvine Hall
Athens, Ohio 45701**

Ohio University is an Affirmative Action/Equal Opportunity Employer.

PHARMACOLOGY. Applications are invited from individuals interested in a position as assistant or associate professor at Ohio University in the College of Osteopathic Medicine and the Department of Zoology and Microbiology. This teaching-research position involves the instruction of osteopathic medical students in pharmacology and graduate students at the M.S. and Ph.D. levels in the area of the candidate's speciality. The successful candidate will be expected to develop a strong independent research program. Research area is open. Minimum qualifications include a Ph.D. degree or equivalent; prior medical or dental school teaching is highly desirable.

Interested individuals should submit curriculum vitae and a summary of research plans by 1 January 1981 to:

**Biomedical Science Search Committee
Ohio University
College of Osteopathic Medicine
Irvine Hall
Athens, Ohio 45701**

Ohio University is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

FACULTY POSITION IN BIOCHEMISTRY—Outstanding individuals with postdoctoral experience and potential for developing a strong research program in a biologically significant problem will be considered for this tenure-track assistant professor position. Special consideration will be given to candidates with interests in the use of innovative techniques (such as NMR, EM, and recombinant DNA) and/or in the molecular basis of disease processes. Send curriculum vitae and a description of research interests to: **James N. BeMiller, Chairman, Medical Biochemistry, School of Medicine, Southern Illinois University at Carbondale, Carbondale, Illinois 62901.** Three letters of recommendation are also needed. Applications must be postmarked by 15 November 1980. *Southern Illinois University is an Equal Opportunity/Affirmative Action Employer.*

FACULTY VACANCY IN THE DEPARTMENT OF ANATOMY AT THE GEORGE WASHINGTON UNIVERSITY MEDICAL CENTER

On 1 July 1981 there will be a vacancy in the Department of Anatomy for an assistant professor. The teaching responsibilities will be in the fields of neuroanatomy and histology. Evaluation will be largely based on demonstrated excellence in research, potential for obtaining external funding, and ability to effectively teach students. All applicants should have the M.D. degree or Ph.D. degree in anatomy and should have completed at least 2 years of post-doctoral training.

Candidates should submit their curriculum vitae and bibliography to: **Dr. Richard S. Snell, Professor and Chairman, Department of Anatomy, 2300 Eye Street, NW, Washington, D.C. 20037.**

The George Washington University is an Equal Opportunity/Affirmative Action Employer.

HEAD OF PATHOLOGICAL ANATOMY

The Department of Pathology and Laboratory Medicine at the University of Pennsylvania School of Medicine is seeking an individual with strong research experience and a commitment to excellence in service and teaching to be head of the Division of Pathological Anatomy. The individual should be trained in pathological anatomy and have expertise in a subspecialty area. This person will be responsible for the sections of autopsy pathology, surgical pathology, and cytology, each of which will have its own director. The individual is expected to have an established research program and an awareness of the new frontiers that should be brought into the service arena in order to advance the field of pathological anatomy into a molecular era. The position as defined will have ample time and space for basic research activities but will require administrative talents and responsibilities. This person will be partly responsible for the direction and coordination of training of house officers and medical students, and for developing an integrative approach to teaching pathological anatomy and laboratory medicine to both groups of trainees. Academic rank and salary will be commensurate with research and clinical expertise. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.*

Send curriculum vitae and list of three references to:

**Dr. Leonard Jarett, Professor and Chairman
Department of Pathology and Laboratory Medicine
Hospital for the University of Pennsylvania
3400 Spruce Street/G1/Box 671
Philadelphia, Pennsylvania 19104**

LABORATORY MEDICINE UNIVERSITY OF PENNSYLVANIA MEDICAL SCHOOL DEPARTMENT OF PATHOLOGY AND LABORATORY MEDICINE

Applicants are solicited for **FACULTY POSITIONS** in the chemistry, blood bank, hematology-coagulation, immunology, microbiology, and data processing sections. Individuals with strong research interests and backgrounds, as well as a commitment to excellence in patient care, are sought. Academic appointment and salary will be commensurate with previous experience and service responsibility. Send curriculum vitae, list of at least three references, and a statement about research goals and areas of service interest to:

**David B. P. Goodman, M.D., Ph.D.
Director, William Pepper Laboratory
Hospital of the University of Pennsylvania
3400 Spruce Street
Philadelphia, Pennsylvania 19104**

The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.

**National Institute of Child Health and
Human Development
National Institutes of Health
Public Health Service
Department of Health and Human Services**

OPENING DATE: October 1, 1980

CLOSING DATE: October 31, 1980

All applications must be postmarked by closing date

Director, Center for Research for Mothers and Children

The National Institute of Child Health and Human Development expects to appoint a permanent Director of the Center for Research for Mothers and Children. This Director is responsible for the development and operation of extramural programs (grants and contracts) related to the special health problems of mothers, children, adolescents and adults in the biomedical, social and behavioral sciences with special emphasis on pregnancy and perinatal biology, infancy, mental retardation, and human biological and behavioral development from conception to adulthood.

This is a Civil Service position in the Senior Executive Service (SES) with salary from \$47,889 to \$50,112.50 per year depending on qualifications. Candidates may be eligible for Physicians Comparability Pay. (Alternatively, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service). The SES individual selected, if not presently in the SES, must serve a one-year probationary period. Mandatory professional/technical qualifications are: a Doctor of Medicine with board certification in pediatrics or obstetrics with emphasis in nutrition, child development, physiology, neonatology, mental retardation, teratology, genetics or related fields together with research experience in one or more of the speciality areas of pediatrics, obstetrics or neonatology/fetal medicine.

In addition, candidates must meet the minimally qualified level of the following mandatory managerial/executive qualifications; experience in the management of a basic or clinical research program, demonstrating competence to assume leadership responsibilities in assuring that national and agency goals and priorities are considered in carrying out the functions and responsibilities of the organization; establishing and maintaining relationships with key individuals and groups outside the organization; directing and guiding programs and projects, including long-term and short-term planning, and establishing objectives and priorities; establishing procedures for the development and defense of the organization's budget, and allocating fiscal and personnel resources to support program implementation; developing processes and overseeing activities to assure the fair and equitable employment of qualified persons, and implementing EEO objectives; and developing and implementing procedures for monitoring program performance, including periodic analysis and evaluation.

Candidates who meet the mandatory qualifications will be further evaluated by the Search Committee on the following factors: scientific peer recognition, scientific training and education, honors and awards and the degree to which they exceed the minimally qualified level of the mandatory managerial/executive qualifications. Additional information may be obtained from Mary Jane Meyers, Personnel Officer, NICHD, (301) 496-3365.

Applications (Personal Statement of Qualifications SF-171) are to be sent to the above individual at this address: National Institute of Child Health and Human Development, National Institutes of Health, Building 31, Room 2A25, Bethesda, Maryland 20205. A current curriculum vitae, bibliography and references and/or appraisals of performance must accompany all applications.

Applications of women and/or minority group members are especially solicited.

**The National Institutes of Health is an equal
opportunity employer.**

NATIONAL INSTITUTES OF HEALTH

POSITIONS OPEN

FACULTY POSITIONS available after 1 January 1981, at associate, assistant professor, associate professor, or full professor levels; rank and salary to be determined. M.D. or Ph.D. in anatomical or biological sciences required; experience in anatomy expected for assistant professor and above. Teaching duties in one or more of the anatomical sciences (gross, neuro, histo). Excellent research facilities; current faculty research programs include reproductive, nervous, and cardiovascular systems. Successful candidate must demonstrate research productivity and funding potential. Qualified applicants send: letter referring to this announcement AND SPECIFYING rank at which consideration is requested; curriculum vitae including list of publications; brief description of research program; AND three letters of recommendation to:

Dr. Terence H. Williams, Department Head
Department of Anatomy
1-474 BSB
University of Iowa College of Medicine
Iowa City, Iowa 52242

The University of Iowa is an Equal Opportunity/Affirmative Action Employer; women and minority candidates are encouraged to apply.

Simon Fraser University
Burnaby, British Columbia, Canada
FORESTRY/WILDLIFE MANAGEMENT

The Natural Resources Management Program and the Department of Biological Sciences at Simon Fraser University expect to make a tenure-track joint appointment at the assistant professor rank for September 1981. The position is for a person qualified to register as a professional forester with experience in multiple-use management and with a degree in wildlife biology. The successful applicant will work in an interdisciplinary setting teaching graduate and undergraduate courses and directing research related to forestry and wildlife biology and management. Canadian experience and postdoctoral training are desirable. The 1980-1981 salary range is \$22,017 to \$34,202. Closing date for the competition is 15 December 1980 or until position is filled.

Applicants should send complete curriculum vitae, transcripts, samples of relevant publications, and request three referees to send confidential letters of reference directly to:

Director, Natural Resources Management Program
Simon Fraser University
Burnaby, British Columbia, Canada V5A 1S6

The appointment will be made subject to availability of funds.

GENETICIST

The Department of Zoology, University of Wisconsin-Milwaukee, anticipates an opening for a tenure-track position at the **ASSISTANT PROFESSOR** level, effective 31 August 1981. The candidate must have demonstrated potential to develop and maintain an active research program in developmental or molecular genetics. Preference will be given to applicants with postdoctoral research experience. Responsibilities include teaching undergraduate and graduate courses in genetics and the supervision of M.S. and Ph.D. students. Applications, including curriculum vitae, transcripts, a summary of research goals, and three letters of professional recommendation, should be sent to: **Professor Ethel Sloane, Chairperson, Personnel Committee, Department of Zoology, P.O. Box 413, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin 53201.** Closing date is 15 December 1980.

The University of Wisconsin-Milwaukee is an Equal Opportunity/Affirmative Action Employer. Qualified women and members of minority groups are strongly urged to apply.

DARTMOUTH-HITCHCOCK MEDICAL CENTER. Department of Pathology, has a position available for a Board-eligible or -certified **NEUROPATHOLOGIST**. This individual will be expected to provide the service needs in neuropathology and to interact with neurologists and neurosurgeons in the clinical setting. Applicants should be prepared to meet the neuropathology teaching responsibilities related to the Residency Training Program and the Medical School Teaching Program. This individual will also be encouraged to develop and/or participate in a research program in his/her area of interest. The level of appointment of this position will be based upon the credentials of the chosen candidate. Interested individuals should contact: **James D. Yager, Jr., Ph.D., Department of Pathology, Dartmouth-Hitchcock Medical Center, Hanover, N.H. 03755.**

Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

HEAD OF TUMOR VIROLOGY. The University of Texas System Cancer M.D. Anderson Hospital and Tumor Institute invites applications for head of the Department of Tumor Virology. This person is expected to provide leadership in the development of research programs in the fundamental aspects of tumor virology. Please send curriculum vitae and list of publications by 1 December 1980 to: **Dr. Stuart Zimmerman, Department of Biomathematics, The University of Texas System Cancer Center M.D. Anderson Hospital and Tumor Institute, 6723 Bertner Avenue, Houston, Texas 77030.**

IMMUNOLOGIST. Second semester position 15 January 1981 to 27 May 1981 at assistant professor level. Qualified to teach immunology at advanced undergraduate level and microbiology at intermediate undergraduate level; both courses include lectures and laboratory. Ph.D. required. Submit curriculum vitae and summary of research interests and have three letters of reference sent to: **Dr. Elbert Tokay, Chairman, Biology Department, Vassar College, Box 251, Poughkeepsie, N.Y. 12601.** Application deadline: 3 November 1980. *An Equal Opportunity/Affirmative Action Employer.*

BOSTON UNIVERSITY—INORGANIC/PHYSICAL CHEMISTRY. Tenure-track faculty position to begin September 1981. Appointee will be expected to carry out a vigorous program of research and Ph.D. training in experimental inorganic or physical chemistry and to teach at the undergraduate and graduate levels, including advanced inorganic chemistry. Send résumé and brief research plan and have three letters of recommendation sent to: **Dr. Dan Dill, Chemistry Department, Boston University, Boston, Mass. 02215.** *Boston University is an Equal Opportunity/Affirmative Action Employer.*

VISITING LECTURER

Temporary position for lecturer to present introductory microbiology course to nonscience majors, for winter and spring quarters only—January to June 1981. Requires Ph.D. and teaching experience and provides an opportunity to participate in faculty research program(s) of mutual interest.

Send résumé, references, and so forth, to: **C. Fred Fox, Chairman, Department of Microbiology, University of California, 405 Hilgard Avenue, Los Angeles, Calif. 90024.**

An Equal Opportunity/Affirmative Action Employer

The University of Manitoba, Faculty of Medicine, has positions available for **LECTURER THROUGH PROFESSOR**. These positions are available in response to the development of a multidisciplinary program in the area of recombinant DNA technology, molecular genetics, nucleic acids, and molecular endocrinology. The successful applicant(s) will be expected to develop an independent research program with areas of preference in mechanism of hormone action, neuroendocrinology, developmental biochemistry of mammalian systems, or gene mapping. Send curriculum vitae including a brief outline of future research interest to: **Dr. Henry G. Friesen, Professor and Head, Department of Physiology, University of Manitoba, 770 Bannatyne Avenue, Winnipeg, Manitoba, Canada R3E 0W3.** Canadian citizens, permanent residents, and others eligible for employment in Canada are encouraged to apply.

POSTDOCTORAL FELLOWS available immediately to investigate: (i) mechanism of action of growth hormone and/or prolactin (Dr. H. G. Friesen), and (ii) hormonal regulation of gene expression in the prostate (Dr. R. J. Matusik). Training in membrane biochemistry and/or recombinant DNA technology/molecular endocrinology desirable. Stipends will be competitive. All applicants are requested to send their curriculum vitae, listing three references, to: **Dr. Robert J. Matusik, Department of Physiology, University of Manitoba, 770 Bannatyne Avenue, Winnipeg, Manitoba, Canada R3E 0W3.** Canadian citizens, permanent residents, and others eligible for employment in Canada are encouraged to apply.

RESEARCH ASSOCIATE. A research associate position is available immediately for a Ph.D. to study intestinal electrolyte transport in isolated and reconstituted intestinal brush border and basolateral membranes. Experience in membrane isolation techniques is necessary. Knowledge of membrane transport is desirable. Salary: \$14,100 per annum. Send curriculum vitae, two references, and supporting material to: **Don W. Powell, Department of Medicine, University of North Carolina School of Medicine, Chapel Hill, N.C. 27514.** This position will be filled by 15 November 1980. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

MICROBIOLOGY/IMMUNOLOGY FACULTY POSITIONS

The Department of Microbiology, University of Texas Health Science Center at San Antonio, is undertaking a major commitment to excellence in research and teaching. We seek individuals who wish to establish strong and independent programs in humoral or cellular immunology, molecular and developmental biology-genetics, and microbial disease (viral, prokaryote, protozoal) pathogenesis. Each is a tenure-track, 12-month appointment with negotiable starting date. Candidates must possess relevant postdoctoral training and outstanding credentials.

Applicants are requested to send curriculum vitae, a brief statement describing research interests, and three letters of reference by 1 February 1981 to: **Joel B. Baseman, Chairman, Department of Microbiology, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, Texas 78284.** *An Equal Opportunity/Affirmative Action Employer.*

MICROBIOLOGY FACULTY POSITION—MICROBIAL PATHOGENESIS. Microbiology Department with emphasis on molecular and immunologic aspects of microbial pathogenesis seeks candidates for a tenure-track or tenured faculty appointment. Candidates with expertise in molecular basis of pathogenesis of bacterial, viral, or fungal infections are encouraged to apply. Responsibilities include teaching in medical and graduate courses and development of an independent research program. Level of appointment and salary commensurate with training and experience. Applications for appointment beginning on or before 1 September 1981 should be submitted by 15 November 1980. Ph.D. or equivalent professional degree plus postdoctoral research experience required. Submit curriculum vitae and bibliography, names of three professional references, and major publications to: **Dr. Randall K. Holmes, Professor and Chairman, Department of Microbiology, c/o Personnel/Manpower Division, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014.** *Equal Opportunity/Affirmative Action Employer.*

MICROBIOLOGY FACULTY POSITION—MOLECULAR GENETICS. Microbiology Department with emphasis on molecular and immunologic aspects of microbial pathogenesis seeks candidates for a tenure-track or tenured faculty appointment. Candidates with expertise in gene cloning, physical mapping, nucleic acid sequencing, or related areas of microbiology are encouraged to apply. Responsibilities include teaching in medical and graduate courses and development of an independent research program. Level of appointment and salary commensurate with training and experience. Applications for appointment beginning on or before 1 September 1981 should be submitted by 15 November 1980. Ph.D. or equivalent professional degree plus postdoctoral research experience required. Submit curriculum vitae and bibliography, names of three professional references, and major publications to: **Dr. Randall K. Holmes, Professor and Chairman, Department of Microbiology, c/o Personnel/Manpower Division, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014.** *Equal Opportunity/Affirmative Action Employer.*

MICROBIOLOGIST. Assistant professor, tenure-track. September 1981 appointment. Ph.D. required. Responsibilities include bacteriology, medical microbiology, immunology, and introductory biology. Preference will be given candidates with teaching experience in microbiology. Send résumé and three letters of reference to: **Dr. Ronald D. Ballard, Dean, School of Science and Humanities, Texas Wesleyan College, Fort Worth, Texas 76105.** Closing date: 15 December 1980. *An Equal Opportunity/Affirmative Action Employer.*

PHYSIOLOGIST

Adjunct assistant/associate/full professor of Physiology with interest in microcirculation and/or peripheral circulation to participate in development of microcirculatory research unit at Veterans Administration Hospital. Applicants are expected to have strong background and active research program. Opportunities available for teaching at undergraduate and graduate levels. Interested persons should apply to: **Dr. Paul Johnson, Department of Physiology, University of Arizona, College of Medicine, Tucson, Ariz. 85724,** detailing background and current research activities. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

HEALTH SCIENTIST ADMINISTRATOR

Pharmacological Sciences Program

Applications and nominations are invited for the Career Civil Service position of Program Administrator, Pharmacological Sciences Program, National Institute of General Medical Sciences, National Institutes of Health, Public Health Service. This program is responsible for the support of research project grants, research training grants, and research fellowship awards in the broad area of pharmacological sciences including molecular pharmacology, pharmacology of receptors, drug metabolism and disposition, pharmacokinetics, clinical pharmacology, and biorelated and synthetic organic chemistry.

The incumbent will be responsible for performing a variety of functions related to extramural grant and fellowship administration. In addition, he/she will have responsibility for providing program assessment and evaluation activities related to significant policy decisions by the Director, Pharmacological Sciences Program.

Qualifications: *Required:* Ph.D. or M.D. degree, equivalent training, or equivalent combination of education and experience in the pharmacological or related biomedical sciences *plus* experience at the postdoctoral level demonstrating independent work in planning, organizing, and conducting research in the pharmacological sciences. Evidence of a broad knowledge of modern pharmacology, biochemistry and related fields is desired. Candidates must have a Health Scientist Administrator notice of rating or have applied for a rating from the Office of the Special Examiner (OSE), National Institutes of Health, Building 31, Room B3C21, Bethesda, MD 20205.

The position will be filled at the Career Civil Service levels of GS-12 or GS-13 with a salary range of \$26,951 to \$41,660, or within the Commissioned Corps of the U.S. Public Health Service, depending on qualifications. Interested candidates should submit a Personal Qualifications Statement (SF-171), a curriculum vitae, and bibliography by December 12, 1980, to: Sharon Posey, NIGMS Personnel Office, 5333 Westbard Avenue, Room 436, Bethesda, Maryland 20205, (301) 496-7161. An Equal Opportunity Employer.

NATIONAL INSTITUTES
OF HEALTH

OPPORTUNITIES
CREATED BY
A STRONG
COMMITMENT TO
RESEARCH AND
DEVELOPMENT



International Minerals & Chemical Corporation is expanding its Corporate Research & Development Division. If you are interested in a challenging career with high visibility and can meet the requirements set forth below, we are your future.

RESEARCH MICROBIOLOGISTS

The successful candidates will have a Ph.D. in microbiology with zero to 3 years of industrial R & D experience. Must have the ability to work with a team of scientists to provide input into future research programs as well as to conduct independent research on applied projects.

A strong background in microbial biochemistry or genetics is required. Knowledge of fermentation technology would be a plus. Must be willing to relocate to the Midwest. Only U.S. citizens and those with permanent resident visas (green card) will be considered.

We offer a competitive salary, comprehensive benefit package, and relocation allowance.

To explore this outstanding opportunity, please send curriculum vitae in confidence to:

Roger B. Prophet
International Minerals
& Chemical Corporation
P.O. Box 207
Terre Haute, Indiana 47808

An Equal Opportunity/Affirmative Action
Employer

ASTRONOMER/PHYSICIST

now vacant in the Scientific Group of the Headquarters of ESO in Garching bei München, Federal Republic of Germany.

Education: University degree in astronomy or physics, preferably a doctorate.

Experience and knowledge: At least 3 years experience of scientific research related to astronomical observations and/or of development of instrumentation for telescopes.

Assignment: Tasks include one or more of the following:

1. To contribute to the development of instrumentation for the telescopes at La Silla.
2. To assist visiting astronomers who come to use the ESO facilities for data and image processing in Europe.
To participate in activities directed towards increasing European cooperation in astronomy, and towards ensuring that the observing programmes conducted with the ESO telescopes will be optimal.
3. To execute observing programmes at the La Silla Observatory (Chile), and to contribute to the functioning of the Observatory.

Duty Station: Garching bei München, Federal Republic of Germany where all ESO European activities have been concentrated since September 1980.

Remuneration: The remuneration will depend on the background and the family status, e.g. for a non-resident member of the personnel, with two dependent children, the net tax-free remuneration will not be less than Deutsche Mark 4,900,—monthly.

Applications should be submitted before 13 October 1980 to

European Southern Observatory
Personnel Services
Karl-Schwarzschild-Strasse 2
8046 Garching bei München,
Federal Republic of Germany

Although preference will be given to nationals of the member states of ESO: Belgium, Denmark, Fed. Rep. of Germany, France, Netherlands and Sweden, no nationality is a priori excluded."

Abbott Laboratories, a \$1.6 billion leader in the international health care field, stands at the leading edge of sophisticated product development in a number of areas. If you are looking for a results-oriented, highly professional environment, consider the following:

SR. TOXICOLOGIST

Responsibilities include preparing toxicology protocols, supervising studies, writing reports, and coordinating activities with Pathology and Drug Metabolism as well as serving as a liaison to various divisions. A Ph.D. or equivalent in Toxicology or Pharmacology plus at least 1-5 years of industrial or relevant research experience will be essential. Post-doctoral training may qualify in lieu of experience.

BIOCHEMIST

An exceptional opportunity to participate in the development of a new diagnostic product for cancer screening already in an advanced stage. Responsibilities will include purification of antigens and antibodies for production scale-up and maintenance of product within quality assurance guidelines. An MS or Ph.D. in Biochemistry or a related field coupled with up to 5 years experience in biochemical research required. Knowledge of diagnostic test systems, immunology, enzymology and protein chemistry preferred.

ASST. PHARMACOLOGIST

An opportunity to join an ongoing Cardiovascular Research Project involving hemodynamic experiments with animals and studies of isolated organ tissues. An MS or BS in Pharmacology or related background is required. Strong communications skills and familiarity with computer applications necessary.

Abbott offers an outstanding compensation package including excellent salary and full benefits such as profit sharing, stock retirement plan, comprehensive insurance and relocation assistance. For consideration, send a resume in confidence to:

Chris Gude
Corporate Placement

ABBOTT
NORTH CHICAGO, ILL. 60064

Abbott is an Affirmative Action Employer

POSITIONS OPEN

LIFE SCIENCE RESEARCH POSITIONS

Career positions in areas of: (i) animal production and protection; (ii) plant production and protection; (iii) use and improvement of soil, air, and water; (iv) processing, storage, distribution, food safety, and consumer service; and (v) human nutritional requirements and the composition and nutritive value of food. A monthly Listing of Positions in Life Science Research with the U.S. Department of Agriculture, listing current vacancies, is issued by:

Special Examining Unit 421/408
Science and Education Administration
U.S. Department of Agriculture
6505 Belcrest Road, Room 555
Hyattsville, Maryland 20782

An Affirmative Action/Equal Opportunity Employer

UNIVERSITY OF UMEÅ THE MEDICAL FACULTY Molecular Cell Biologist

Applicants are invited for a 2-year appointment as visiting professor.

We are looking for an imaginative scientist with an active interest in molecular cell biology. Experience in one or more of the following fields is desirable:

- 1) Control and expression of mammalian genes including recombinant DNA technology,
- 2) Structure and function of the plasma membrane including receptor structure within areas such as endocrinology and immunology, and
- 3) Cell differentiation and tumor biology.

The appointed person will work in association with molecular biologists, cellular immunologists, and cell biologists engaged in interferon research.

The laboratory facilities are excellent and include the technical equipment required for DNA and cell culture work.

A salary of about 120,000 Swedish Crowns (about U.S. \$26,000) will be paid per annum. In addition the sum of 100,000 Swedish Crowns will be available for research assistance and/or the purchase of special equipment.

Applications with curriculum vitae and the names and addresses of two referees should be sent to:

The Medical Faculty
University of Umeå
S-901 87 UMEÅ
Sweden

Expiration date for applications is 1 December 1980.

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applicants are solicited for laboratory position in PEDIATRICS DEPARTMENT:

ANALYTICAL/BIOCHEMIST M.S. or B.S. with experience in instrumental analysis of amino acids, peptides and proteins, enzyme purification, and kinetics to work in large research laboratory.

Applicants should send curriculum vitae to: Jack Metcalf, M.D., College of Medicine, Department of Pediatrics, University of Oklahoma Health Sciences Center, P.O. Box 26901, 618 Northeast 15, Oklahoma City, Okla. 73190. We are an Equal Opportunity Employer. Telephone: 405-271-2166; ask for Dr. S. Dutta.

POSTDOCTORAL POSITIONS IN NEUROBIOLOGY

Take part in a program of research and studies on the fundamental properties of neurons. Stipends are available from an NIH training grant. Faculty and research areas include: Ellen Barrett, mechanisms of synaptic transmission; John Barrett, neuromembrane properties, neuronal development; David Landowne, optical studies of the mechanism of the nerve impulse; Werner Loewenstein, biophysics of cell membranes, cell-to-cell communication; Karl Magleby, biophysics of synaptic and neuromuscular transmission; David Wilson, protein synthesis and axonal transport in neurons.

Seminars, lunch talks, lectures, and a neurobiology journal club enhance opportunities for learning and collaborative interactions. Write the individual investigator(s) whose research interests you at: The Department of Physiology and Biophysics, University of Miami School of Medicine, P.O. Box 016430, Miami, Florida 33101. Enclose curriculum vitae and names of three references.

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

PLANT GENETICIST. Career federal service. Develop research program involving genetic and breeding studies pertaining to introduction, classification evaluation, use, selection of corn germplasm, and development of underlying theory to enhance practical objectives. Located at Iowa State University Campus, Ames, Iowa. GS-11/12/13; salary based on qualifications and experience. For applications: J. Brooks, USDA-SEA-AR-B15, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7319. Equal Opportunity Employer.

PLANT PHYSIOLOGIST. Career federal service. Incumbent will develop independent research program to study biochemical and ecological factors that affect or control yield and quality of forages utilized by high-producing dairy cattle. Position located at Iowa State University Campus, Ames, Iowa. GS-12/13/14; salary based on qualifications and experience. For applications: J. Brooks, USDA-SEA-AR-B12, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7319. An Equal Opportunity Employer.

POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE. A position as a postdoctoral fellow or research associate is available immediately in a grant supported project on the fetal alcohol syndrome in subhuman primates. A Ph.D. in pharmacology, reproductive biology, or developmental biology or equivalent is required. Experience with subhuman primates is desirable but not required. This position offers a qualified and motivated individual the opportunity to participate in a broadly based research program dealing with alcoholism and drug abuse in the environment of the Texas Medical Center. Send curriculum vitae and three letters of recommendation to: Dr. H. L. Altshuler, Chief, Neuropsychopharmacology, Texas Research Institute of Mental Sciences, Texas Medical Center, 1300 Moursund Avenue, Houston, Texas 77030. Telephone: 713-797-1976, extension 384. Equal Opportunity Employer.

POSTDOCTORAL FELLOW—DIATOMIST

Immediate opening to work on sedimentary diatom assemblages in lakes in relation to pH reduction caused by acidic precipitation. Experience in diatom taxonomy and ecology and multivariate statistics required. Salary: \$15,000 per annum. Send curriculum vitae and three names and addresses of references to: Professor R. B. Davis, Deering Hall, University of Maine, Orono, Maine 04469. Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS IN FETAL AND NEONATAL BIOLOGY. Fields of investigation include the physiology, biochemistry, and pharmacology of the cardiovascular, respiratory, renal, and central nervous systems. Emphasis is on theoretical (mathematical modeling) and experimental studies. Fellowships commence 1 July 1981, and are available for 2 years. Please send curriculum vitae and bibliography to: Dr. Lawrence D. Longo, Division of Perinatal Biology, School of Medicine, Loma Linda University, Loma Linda, Calif. 92350.

CLINICAL CHEMISTRY POSTDOCTORAL TRAINING PROGRAM. The Department of Laboratory Medicine and Pathology, University of Minnesota, has a POSTDOCTORAL POSITION available to begin July 1981. It will involve training in all aspects of clinical chemistry service and research, leading to American Board of Clinical Chemistry certification. Applicants should submit curriculum vitae, transcripts, three letters of recommendation, and a short statement of career goals to: Dr. Larry D. Bowers, Department of Laboratory Medicine and Pathology, University of Minnesota, 420 Delaware Street, SE, Minneapolis, Minn. 55455. Applications should be received prior to 31 December 1980. The University of Minnesota is an Equal Opportunity Educator and Employer.

POSTDOCTORAL RESEARCH POSITION IN MAMMALIAN CELL GENETICS

A position is available for training in mammalian cell genetics with particular emphasis on biochemistry of DNA replication. Persons with graduate training in mammalian cell genetics, biochemistry, or enzymology should write to: Dr. N. C. Mishra, Department of Biology, University of South Carolina, Columbia, South Carolina 29208. Please send your curriculum vitae along with three reference letters immediately.

An additional postdoctoral position in molecular biology of *Neurospora crassa* will soon be available. Interested persons should write or telephone: Dr. Mishra at 803-777-5938 or 803-777-4141.

POSITIONS OPEN

POSTDOCTORAL POSITION available for studies, in the sea urchin embryo, of the expression and localization of maternal mRNA, mRNP structure, and translational control. Send inquiries and curriculum vitae to: Dr. Rudolf A. Raff, Department of Biology, Indiana University, Bloomington, Indiana 47405. An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available immediately to participate in interdisciplinary study of the mechanism of action of opiates and the physiological importance of endorphin-containing systems. Candidate with strong background in radioreceptor assays and measurement of neurotransmitter levels preferred. Salary negotiable. Send curriculum vitae to: Dr. Alan Gintzler, Department of Biochemistry, State University of New York/DOWNSTATE MEDICAL CENTER, 450 Clarkson Avenue, Brooklyn, N.Y. 11203. Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL RESEARCH ASSOCIATE—For ongoing cellular and molecular research on insulin receptor, degradation and action (enzymological, metabolic, immunocytochemical, tissue culture; isolated hepatocyte, adipocyte and islet studies). Selection of a project commensurate with past experience and future interests and development of independently funded program encouraged. Send résumé and three letters of recommendation to: Dr. P. T. Varadani, Fels Research Institute, Wright State University, Yellow Springs, Ohio 45387.

POSTDOCTORAL RESEARCH ASSOCIATE

To complete and extend a numerical simulation of plasma sheaths associated with spacecraft charging phenomena at geosynchronous altitude. Required: a strong background in scientific computing and applied mathematics, together with expertise in collisionless plasma theory and/or magnetospheric physics. Salary and benefits appropriate to qualifications and experience. Send résumé, publications list, and names of three referees to: Dr. J. G. Laframboise, Physics Department, York University, Toronto, Ontario, Canada M3J 1P3.

POSTDOCTORAL/RESEARCH ASSOCIATE POSITION available immediately for research on antigen of spermatozoa in primates. Experience in protein purification and characterization and in immunological techniques is desirable. Salary: \$14,000 to \$18,000 (plus fringe benefits) commensurate with experience. Please send application and the names of three references to: Dr. G. F. B. Schumacher, Department of Obstetrics and Gynecology and Committee on Immunology, Section of Reproductive Biology, The University of Chicago Pritzker School of Medicine, 5841 Maryland Avenue, Chicago, Illinois 60637.

POSTDOCTORAL RESEARCH BIOCHEMIST.

Fellowship available immediately for studies on the role of thyroid hormones in metabolic regulation—cyclic nucleotides—purine nucleotide metabolism—membrane transport—bioenergetics. ³¹P NMR experience helpful, recent Ph.D. preferred. Send a résumé of research interests, curriculum vitae, and the names of three references to: Dr. John E. Stouffer, Department of Biochemistry, Baylor College of Medicine, Houston, Texas 77030. An Affirmative Action/Equal Opportunity Employer.

TRUDEAU INSTITUTE, INC.

A POSTDOCTORAL RESEARCH POSITION IN MICROBIOLOGY is available immediately to study the cellular mechanisms involved in the expression of acquired antimicrobial immunity and the role of suppressor cells in the modulation of this response. A Ph.D. in microbiology or immunology is required. Salary is \$13,500 per annum plus fringe benefits and on-campus housing is available. Send résumé and names of references to: Dr. Frank M. Collins, Trudeau Institute, Inc., Box 59, Saranac Lake, N.Y. 12983.

RESEARCH ASSOCIATE—Postdoctoral fellowship to study structural and immunochemical aspects of cell membranes of human malignant lymphomas. Ph.D. or M.D. with training and experience in membrane biochemistry preferred. Research program will integrate current activities in membrane structure and function and cellular immunology in the context of human lymphoproliferative disorders. Position available 1 January 1981. Reply to: Dr. R. E. Cone, Department of Pathology, Yale University School of Medicine, 310 Cedar Street, New Haven, Conn. 06510.

An Equal Opportunity/Affirmative Action Employer

Director, Division of Resources, Centers, and Community Activities

The National Cancer Institute (NCI) expects to appoint a Director for the Division of Resources, Centers, and Community Activities (DRCCA). The DRCCA has been recently established as a fifth Division in the NCI. The incumbent will have primary responsibility for strengthening and reorienting NCI programs to make them more responsive to needs in the areas of prevention and transfer of research findings to the health care delivery system. The Division encompasses programs for training, education, and cancer centers which will facilitate the transfer of research findings into the health care delivery system. Specifically, the incumbent will provide program leadership and direction for the planning, developing, and coordinating of these activities with the goal of identifying, testing, evaluating, communicating, and promoting the widespread application of available and new methods for reducing the incidence, morbidity, and mortality from cancer. Additionally, the incumbent will serve as the focal point for the coordinated national effort to control cancer, and maintain liaison with other federal components and multinational elements of the private health community in the areas of prevention and transfer of research findings to the health care delivery system. The incumbent will serve as the principal advisor to the Director, NCI, the President's Cancer Panel, the National Cancer Advisory Board, and the DRCCA Board of Scientific Counselors on overall program progress.

This is a Civil Service position in the Senior Executive Service (SES) with a salary range from \$47,889 to \$50,112.50 per annum depending on qualifications. Candidates may be eligible for Physicians Comparability Pay. Alternately, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service. The SES individual selected, if not presently in the SES, must serve a one-year probationary period. Mandatory professional/technical qualifications are: a Doctor of Medicine or a Health Scientist, together with experience in the direction of a cancer research program. In addition,

candidates must meet the minimally qualified level of the mandatory managerial/executive qualifications which are: experience in the management of a cancer research program, demonstrating competence to assume leadership responsibilities in assuring that national and agency goals and priorities are considered in carrying out the functions and responsibilities of the organization; establishing and maintaining relationships with key individuals and groups outside the organization; directing and guiding programs and projects, including long-term and short-term planning, and establishing procedures for the development and defense of the organization's budget, and allocating fiscal and personnel resources to support program implementation; developing processes and overseeing activities to assure the fair and equitable employment of qualified persons, and implementing EEO objectives; and developing and implementing procedures for monitoring program performance, including periodic analysis and evaluation. Candidates who meet the mandatory requirements will be further evaluated by the Search Committee on the following factors: scientific reputation/peer recognition, training and education, honors and awards, and the degree to which they exceed the minimally qualified level of the mandatory managerial/executive qualifications. Additional information may be obtained from Ms. Jan Maltbie, Supervisory Personnel Management Specialist, NCI, (301) 496-6864. Applications (Personal Qualifications Statement, SF-171) are to be sent to the above individual at this address: National Cancer Institute, National Institutes of Health, Building 31, Room 3A27, 9000 Rockville Pike, Bethesda, MD 20205.

A current curriculum vitae, bibliography and references and/or appraisals of performance must accompany all applications. Applications of women and/or minority group members are especially solicited. The National Institutes of Health is an equal opportunity employer.

NATIONAL INSTITUTES OF HEALTH

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE to work under an NIH grant entitled "DNA Precursor Dynamics in Animal Cells." Current projects include analysis of cellular actions of antineoplastic and antiviral agents, control of deoxyribonucleotide biosynthesis, and subcellular compartmentation of DNA precursor pools. Salary range is competitive with NIH fellowship levels. Send inquiry and curriculum vitae, and arrange to have three recommendations sent before 1 November 1980 to: **Dr. Christopher K. Mathews, Department of Biochemistry and Biophysics, Oregon State University, Corvallis, Oregon 97331. Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973.**

LUDWIG INSTITUTE FOR CANCER RESEARCH POSTDOCTORAL RESEARCH FELLOW

Applications are invited for this new position on the scientific staff of the Sydney branch of the Ludwig Institute for Cancer Research, situated in the Medical School, University of Sydney.

The position has been created to develop new human tumour cell models which can be cloned in vitro and grown in nude mice. Applicants should have a broad biological training and be familiar with cell culture techniques and have worked with tumour-bearing animal models.

The appointment will be for 3 years with the first year being probationary.

Salary in the range of A\$14,600 to A\$22,000, according to experience.

Applications to:

**Professor M. H. N. Tattersall, Director
Ludwig Institute for Cancer Research
Blackburn Building
University of Sydney, N.S.W. 2006, Australia**

PROGRAMMER/DATA ANALYST

A position is available immediately for a qualified computer programmer/data analyst. Duties of this position involve the processing and analysis of various types of oceanographic and meteorological data and the development of procedures to handle these data. Applicants should have an M.S. in mathematics, physics, computer science or marine science, a knowledge of Fortran, and a knowledge of small computers (specifically DEC PDP 11 system). Send résumés to: **Dr. K. Leaman, Division of Meteorology and Physical Oceanography, Rosenstiel School of Marine and Atmospheric Science, 4600 Rickenbacker Causeway, Miami, Fla. 33149. The University of Miami is an Affirmative Action/Equal Opportunity Employer.**

PSYCHOBIOLOGIST. Research associate position available immediately. To participate in research program integrating behavioral and biochemical approaches in studies of sex differences in brain organization and modulatory effects of gonadal steroids on neural activity. Position for one, possibly for 3 years. Curriculum vitae and three letters of reference to: **Dr. T. E. Robinson, Neuroscience Building, University of Michigan, 1103 East Huron, Ann Arbor, Mich. 48109. A nondiscriminatory, Affirmative Action Employer.**

RESEARCH ASSISTANT PROFESSOR. Full-time, nontenure-track research position available for Ph.D. with 5 years of postdoctoral experience in polycyclic hydrocarbon metabolism. Some background in organic chemistry necessary. Salary: \$18,000 per annum contingent upon continued grant support; 40 to 50 hour week. Interested persons should submit curriculum vitae and names of three references to: **Vermont Job Service, 59 Pearl Street, Burlington, Vt. 05401.**

RESEARCH ASSOCIATE. Earth and Planetary Sciences Department, in aqueous trace element geochemistry. Individual will work on the analysis of trace elements in natural waters by electron capture gas chromatography of volatile organic chelates. Will be required to go to sea. Candidates should have at least 4 years of experience in using the above-mentioned techniques. A Ph.D. in chemical oceanography or analytical chemistry is required. Individuals must demonstrate proven capability in the development and implementation of new methods and in the analysis and publication of the resulting data. Extensive seagoing experience using such techniques is necessary. Annual salary is \$21,000. Please submit résumé to: **Professor John Edmond, 54-1326, Massachusetts Institute of Technology, Cambridge, Mass. 02139. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

PUBLIC AFFAIRS OFFICER for the Maryland-Virginia Regional College of Veterinary Medicine at Virginia Tech. Responsibilities include serving as the information/public affairs source for the College of Veterinary Medicine, handling media contacts, and the general internal and external public communications of the college. Qualifications include completion of a standard college or university course and considerable experience in journalism and public relations work. Additional related experience may be substituted for education on an equivalent time basis. A degree or experience in related media/medical field is highly desirable. In addition, the ability to write and edit, familiarity with medical terminology, and experience with publications and other public relations media are desirable. Individual will work through the central University Public Affairs office. Salary begins at \$14,670, but can go higher depending on experience. To apply, submit a state application by 1 November 1980 to: **Linda Woodard, Employee Relations, Virginia Tech, Blacksburg, Va. 24061. Virginia Tech is an Equal Opportunity/Affirmative Action Employer.**

SEVERAL POSITIONS are available at the level of **RESEARCH ASSISTANT PROFESSOR** in the Department of Pharmacology at the University of North Carolina School of Medicine. Qualified applicants will bring to the department a defined research program complementary to that of one or more of the present faculty. The research will normally be conducted in the laboratory of an appropriate senior faculty member. These are not tenure-track positions and continuation of the appointment will be contingent upon the availability of research funds. Applicants should have a doctorate degree (Ph.D. or M.D.) and at least 2 years of relevant postdoctoral research experience. Send curriculum vitae, statement of research plans, and names of three references to: **Dr. John Perkins, Department of Pharmacology, University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, N.C. 27514. The University of North Carolina is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE position available from 1 November 1980, in isolation and characterization of mitochondrial membrane proteins and their interaction with spin or photoaffinity labeled ubiquinone and phospholipids. Recent Ph.D. in biochemistry with background in physical or organic chemistry desirable. Salary: \$13,000 plus 23 percent fringe benefits. Respond with curriculum vitae and names of three references to: **C. A. Yu, Department of Chemistry, State University of New York, Albany, N.Y. 12222.**

RESEARCH PHYSICIST

The Department of Physics of the University of California, Irvine, offers a position for an experimental research physicist with at least 5 years of experience in pulse power/plasma physics to work on new accelerator concepts: 1-year appointment can be extended if funds available. Position available immediately. Send résumé, bibliography, and names of three professional references to: **Professor Norman Rostoker, Department of Physics, University of California, Irvine, Calif. 92717. An Affirmative Action/Equal Opportunity Employer.**

RESEARCH POSITION in immunochemical and ultrastructural studies of pathogenesis of rheumatoid arthritis. Qualifications: Ph.D. or advanced degree standing in one or other of biochemistry, immunology, microbiology, or pathology. Salary negotiable, commensurate with experience. Position available immediately. Address inquiries with curriculum vitae and names of two referees to: **Dr. T. D. V. Cooke, Department of Surgery, Division of Orthopaedics, Queen's University, Kingston, Ontario, Canada K7L 3N6.**

RESEARCH PROTEIN CHEMIST

The Plum Island Animal Disease Center, U.S. Department of Agriculture, is accepting applications for a **RESEARCH PROTEIN CHEMIST**. The position is open for a Ph.D. chemist for the purification and sequencing of proteins and the synthesis of short peptides in a group studying viral immunogens. Prior experience is necessary at postdoctoral or more advanced levels. This is a permanent position subject to Office of Personnel Management requirements. The salary is allocated at GS-13 (\$29,375 to \$38,186 per annum). Send transcripts, curriculum vitae, and résumé to: **Salvatore Citino, Personnel Officer, SC-1, Plum Island Animal Disease Center, P.O. Box 848, Greenport, New York 11944. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

RESEARCH ASSOCIATE, February 1981, experience related to conservation of animals, plants, and microorganisms. Expertise in areas such as population/quantitative genetics, economics, policy/program analysis, resource management. Advanced degree and communication skills preferred. Send résumé to: **Dr. David Kafton, Gene Resource Conservation Program, 1583A Arch Street, Berkeley, Calif. 94708. An Equal Opportunity Employer.**

RESEARCH ASSOCIATE for funded research on environment and blood pressure. M.S. in health field, laboratory instruction skills, report writing, and supervisory experience. Salary negotiable. Reply to:

**Robert W. Tuthill, Ph.D.
Arnold House
University of Massachusetts
Amherst, Mass. 01003**

An Equal Opportunity/Affirmative Action Employer

SCIENTIFIC RESEARCH COORDINATOR—Doctoral level scientist to assist in providing research guidance to a \$5-million, 5-year contract program involved in research into the possible health effects from high voltage overhead transmission lines. Candidate will evaluate existing data and advise on potentially productive research studies; make on-site visits to contract laboratories; evaluate progress of projects and provide consultation. Candidates should possess a doctorate degree (preferably but not necessarily in physics) with research experience in the biological responses to magnetic and electrical fields. Salary commensurate with relevant training and experience. Send curriculum vitae to: **Felix H. Hellpner, Administrative Officer, Division of Laboratories and Research, New York State Department of Health, Albany, N.Y. 12201. An Affirmative Action Employer.**

SOCIOLOGIST with an interest in health care and medicine—University of California, Berkeley. Assistant professor position to be held jointly with Health and Medical Sciences Program and Department of Sociology. Individuals with exceptional qualifications who currently hold nontenured positions may be considered for an associate professorship with tenure. Position open up to 100 percent time, with salary and level of appointment commensurate with education and experience. Ph.D. or M.D./Ph.D. is sought with major research effort in social sciences related to health and medicine, and strong clinical interests and experience in clinical settings. Send résumé and names of five references to: **Personnel Office, Health and Medical Sciences Program, Room 106, Building T-7, University of California, Berkeley, Calif. 94720 by 31 December 1980. A detailed job description is available upon request. The University of California is an Affirmative Action Employer.**

CONFERENCE

BIOMEDICAL ASPECTS OF BOTULISM 16 to 18 March 1981

An international conference on the characterization, structure, kinetics, and neurophysiology of botulinum toxins; genetics of toxin production; and the epidemiology, chemotherapy, and immunotherapy of botulism. Limited to 150 participants. Contact: **Major George E. Lewis, Jr., USAMRIID, Frederick, Md. 21701.**

COURSE

MOLECULAR ENDOCRINOLOGY AND TECHNIQUES FOR HORMONE ACTION 1 March to 6 March 1981

Course will consist of lectures in methodology, with comprehensive syllabus covering receptors, gene transcription, mRNA and protein synthesis, recombinant DNA, protein hormones, and cyclic nucleotides. Optional DNA sequencing laboratory course for additional fee.

Co-directors: **W. T. Schrader and B. W. O'Malley.** Fee: \$195/\$145 (fellows). For further information, contact: **Barbara Gordin, Department of Cell Biology, Baylor College of Medicine, Houston, Texas 77030.**

Deadline: 1 January 1981.

Baylor College of Medicine is an Equal Opportunity/Affirmative Action Employer.

SENIOR PROJECT SCIENTIST

Lawler, Matusky & Skelly Engineers is an environmental science and engineering consulting firm. We are looking for an individual with experience in one or more of the following:

Aquatic Toxicology, Fisheries, Biology, and Ecology

Essential elements are: design of projects, technical direction of aquatic environmental studies for both laboratory and field program, the direction of scientific support staff, and representation of the firm at scientific and regulatory meetings. Ph.D. level applicants are preferred. Qualified individuals are encouraged to reply to:

**Personnel Department
Lawler, Matusky &
Skelly Engineers
1 Blue Hill Plaza,
Pearl River, N.Y. 10965**

*We are an Equal Opportunity Employer,
M/F*

RESEARCH FELLOWSHIP IN MYCOTOXIC DISEASE

There is a vacancy for a scientist to join a multidisciplinary team researching into facial eczema (*Pithomyces chartarum*).

This mycotoxic disease occurs in grazing sheep and cattle during seasons in which pastures are heavily contaminated with spores of *Pithomyces chartarum* which contain the fungal toxin sporidesmin. Hepatobiliary injury produced by sporidesmin results in loss of production, clinical disease, and deaths.

Current research, aimed at prevention and control of field outbreaks, suggests that augmented investigation in the following fields may prove rewarding:

- 1) The identification and evaluation of synthetic and naturally occurring anutrient stimulators of liver mixed-function oxidase activities and their influence on the metabolism and toxicity of sporidesmin,
- 2) Studies into the mechanisms of the protection which results when zinc is administered during the period of natural or experimental intake of sporidesmin,
- 3) Pharmacobiochemical studies into mechanisms of the sporidesmin-initiated severe inflammatory response and its relationship to the pathogenesis of the disease,
- 4) The biochemical-genetic control of differences in animal susceptibility to sporidesmin toxicity which is known to occur, for example both between and within breeds of sheep.

Applications are invited from scientists with genuine interest and experience in one or other of these challenging fields of scientific investigation.

The fellow will work at Ruakura Animal Research Station where adequate numbers of farm animals and good field and laboratory facilities are available for experimental pathology, animal genetics, biochemistry, and organic chemistry.

Fellowships are normally for 2 years with the possibility of extension for an additional 2 years.

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Application forms are available from: New Zealand Embassy, 37 Observatory Circle, NW, Washington, D.C. 20008.

Completed application forms are to be sent direct Air Mail to: The Director, Agricultural Research Division, Ministry of Agriculture and Fisheries, P.O. Box 2298, Wellington, New Zealand.

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PROGRAMS

RESPIRATORY PHYSIOLOGY TRAINING PROGRAM funded by NHLBI. Postdoctoral traineeships available for 1 to 3 years. Areas of research include gas transport, red blood cells, neonatal physiology, aortic body and carotid body chemoreceptors, lung metabolism, lung cells (type II), smooth muscle, lung innervation, tissue oxygenation, mitochondrial function, and control of respiration. Write to: **Education Officer, Respiratory Physiology Group, Department of Physiology, University of Pennsylvania School of Medicine, Philadelphia, Pa. 19104.**

DOCTORAL PROGRAM—PHARMACOLOGY Medical University of South Carolina, Department of Pharmacology, seeks qualified candidates for Ph.D. program. Interdisciplinary environment with research capabilities ranging from gas chromatography-mass spectrometry through cell cultures and animal studies to clinical studies of patients with disease. Research training is available in biochemical pharmacology, cardiovascular pharmacology, drug metabolism, toxicology, analytical chemistry, clinical pharmacology. Stipends available. Contact: **Graduate Training Director, Department of Pharmacology, Medical University of South Carolina, Charleston, S.C. 29403.**

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Predoctoral and postdoctoral fellowships are available for research training in reproductive biology. A diverse but cohesive program offers research in the biochemical, cellular, physiological, and behavioral aspects of reproduction. Support is available through an NIH training grant. Send curriculum vitae and names of three references to: **Dr. Neena Schwartz, Department of Biological Sciences, Northwestern University, Evanston, Illinois 60201.**

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HYPERTENSION RESEARCH TRAINING PROGRAM funded by NHLBI. Post- and predoctoral research traineeships available July 1981 for 1 or 2 years in the following areas: salt-dependent hypertension, membrane sodium transport, neural mechanisms, nephron function, cardiac hypertrophy, membrane ion channels, vascular wall molecular pathology, vascular connective tissue, exercise training in borderline hypertensives, renin-angiotensin-aldosterone and hemodynamics. Must be U.S. citizen or hold immigrant's visa. Send curriculum vitae and three letters of recommendation to: **Harriet P. Dustan, M.D., Director, Cardiovascular Research and Training Center, University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294. An Affirmative Action/Equal Opportunity Employer.**

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Interdisciplinary training for **IMMUNOLOGY, MICROBIOLOGY AND PATHOLOGY IN PERIODONTICS** for predoctoral and postdoctoral fellows is available at the University of Pennsylvania, School of Dental Medicine. The program is sponsored by the USPHS-NIDR. For information, contact: **Professor A. Nowotny, Program Director, 4010 Locust Street, Philadelphia, Pa. 19104. Telephone: 215-243-4669.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS FOR RESEARCH TRAINING IN HYPERTENSION AND CARDIOVASCULAR DISEASE

Two-year postdoctoral fellowships starting in 1981 are available for qualified applicants with the M.D. or Ph.D. degree as part of a multidisciplinary training program. Possible areas for intensive research experience include biochemical, physiological, pathological, and epidemiological studies on the cardiac, renal, adrenal, and neural components of vascular regulation. For further information, write to: **Dr. R. L. Soffer, Departments of Biochemistry and Medicine, Cornell University Medical College, 1300 York Avenue, New York, N.Y. 10021.**

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POSTDOCTORAL FELLOWSHIPS

Radiation oncology, medical radiation dosimetry, and radiobiology available 1 July 1981 at Radiation Oncology Center, University of Kentucky Medical Center. Supported by NIH training grant for qualified M.D. or Ph.D. applicants. Must be U.S. citizens or permanent residents. Candidates must be interested in research and academic career. Submit curriculum vitae, bibliography, and names of three references to: **Chairman, Radiation Oncology Center, University of Kentucky Medical Center, Lexington, Kentucky 40536. An Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH FELLOWSHIPS available for biochemical studies of drug resistance in malaria and of the interrelationship between vitamin E and iron in human nutrition. Applicants with recent Ph.D. in biochemistry preferred. Send résumé and names of three references to: **Dr. Coy D. Fitch, Director, Division of Endocrinology, St. Louis University School of Medicine, St. Louis University Medical Center, 1402 South Grand, St. Louis, Missouri 63104. An Equal Opportunity/Affirmative Action Employer, M/F/H.**

POSTDOCTORAL FELLOWSHIP

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POSTDOCTORAL FELLOWSHIPS IN CARDIOPULMONARY BIOMEDICAL ENGINEERING

Multidisciplinary research training in basic quantitative physiological and engineering aspects of cardiopulmonary systems available 1 December 1980. Appropriate for fellows with Ph.D. degrees in engineering, physiology, or biophysics or a medical degree (M.D.). Send résumé and three letters of recommendation to: **Fred S. Grodins, Ph.D., M.D., Chairman, Department of Biomedical Engineering, University of Southern California, Los Angeles, California 90007. An Equal Opportunity/Affirmative Action Employer.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP IN ENDOCRINOLOGY AND METABOLISM. NIH supported positions available July 1981. One to 3 years of training in basic or clinical research in areas of secretion and action of pancreatic and gut hormones, diabetes mellitus, hypothalamic-pituitary-gonadal system, adrenal cortex, renin-angiotensin-aldosterone system; growth hormone structure-function relationship; collaboration with Departments of Physiology and Biochemistry available. Applicants should have M.D. or Ph.D. and must have U.S. citizenship or immigration visa. For M.D.'s, includes training in clinical endocrinology and metabolism. Also, one institutionally funded position at Wayne County General Hospital (WCGH), a major teaching hospital of the University of Michigan. WCGH provides clinical training and research opportunities in thyroid, diabetes, and catecholamine areas (U.S. citizenship not required). Contact with curriculum vitae: **S. S. Fajans, M.D., Division of Endocrinology and Metabolism, University Hospital, Ann Arbor, Mich. 48109. Telephone: 313-764-4165. An Equal Opportunity/Affirmative Action Institution.**

REQUESTS FOR PROPOSALS

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Inquiries concerning the USAMRDC Blood Substitute Program should be addressed to: **Commander, Letterman Army Institute of Research, ATTN: SGRD-ULZ-RCM, Presidio of San Francisco, Calif. 94129.**

MARKETPLACE

RESEARCH GRANTS

Research Funding Journal (RFJ) is published monthly. RFJ is an ongoing source of information on both governmental and foundation funding sources for the biological, medical, and physical sciences. Funding sources along with their eligibility, deadlines, and application procedures are described in each issue. Price: \$39 per year. **Warren Research, Department 109, Box 1771, Decatur, Illinois 62525.**

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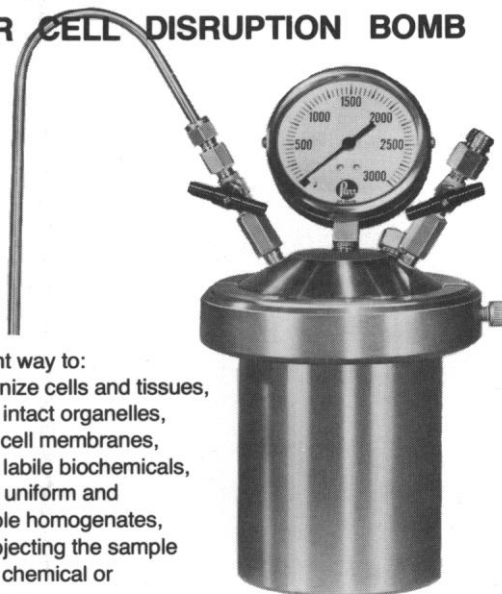
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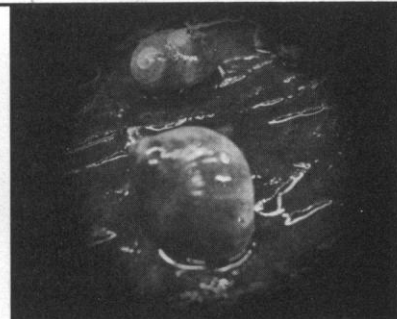
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