

addition, a number of papers address the role of the autonomic nervous system in the control of food intake and particularly the interaction of the system with peripheral metabolic events.

The catecholamine pathways have been repeatedly implicated in both feeding and reward mechanisms and are the subject of the next section of the volume. Several authors attempt to relate the motivating properties of the sense of taste to these neural substrates. The importance of the mesolimbic dopamine system, arising in the ventral tegmental area and projecting to the nucleus accumbens, to reinforcement is addressed in some detail in this section and also in later sections.

The contributions of electrophysiology to the study of these issues are apparent in the next two sections. In the first, on electrophysiology, the activity of hypothalamic cells during feeding is shown to be modulated by the sight and taste of food and by the state of deprivation of the animal. Cells in the lateral hypothalamus of the monkey that responded during feeding could be modulated by intravascular infusions of glucose, morphine, and naloxone. The firing of dopaminergic neurons in the substantia nigra was shown to change very little with changes in arousal, with feeding, or with blood glucose levels, suggesting that these cells may be providing a tonic, rather than a direct, influence on behavior. The second of these sections, on the neurophysiology of reward, reports the use of electrophysiological techniques to demonstrate that the important fibers in medial forebrain bundle self-stimulation appear to be descending rather than ascending. This suggests that the site of action of electrical stimulation of the medial forebrain bundle is on descending fibers that synapse in the ventral tegmental area upon dopamine-containing neurons that then ascend in the mesolimbic pathway.

The neuropharmacology of reward and the neuropharmacology of feeding are treated in the next two sections. Papers in the first of these sections present evidence that the rewarding effects of psychomotor stimulants (cocaine and amphetamine) and opiates are also mediated through the mesolimbic dopamine pathway. The psychomotor stimulants appear to have their effects on the reuptake mechanisms at the terminals of these neurons, whereas the opiates act on the afferent input to cells in the ventral tegmental area. The use of operant response rates to measure the reinforcing properties of drugs receives a good deal of attention in this section, and the

use of conditioned place preference as a measure of secondary reinforcement is introduced as a way of overcoming the problem of motor impairment that can interact with reward in a complex operant response. Through the use of this procedure, it is shown that endogenous opiates and neurotensin may interact with the mesolimbic reward substrate. A new approach to determine the reinforcing properties of drugs and the neural substrates involved is to train animals to self-inject substances directly into brain tissue. Papers in the second of these sections report the effects of pharmacological manipulations on feeding behavior, particularly the involvement of opiates in increasing or decreasing food intake and in altering the palatability of food substances. The interplay between the initiation or termination of feeding and the palatability or rewarding properties of food may best be understood in light of a common neuropharmacological substrate.

The papers in this collection constitute a thorough and current examination of the complex mechanisms of feeding and reward and of the important methodological and theoretical issues in this field. The volume would be a valuable resource to anyone working on these or related subjects.

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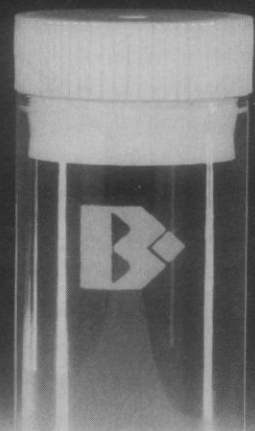
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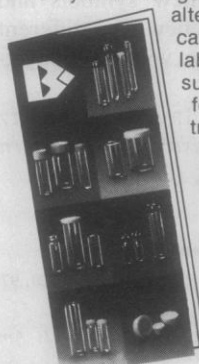


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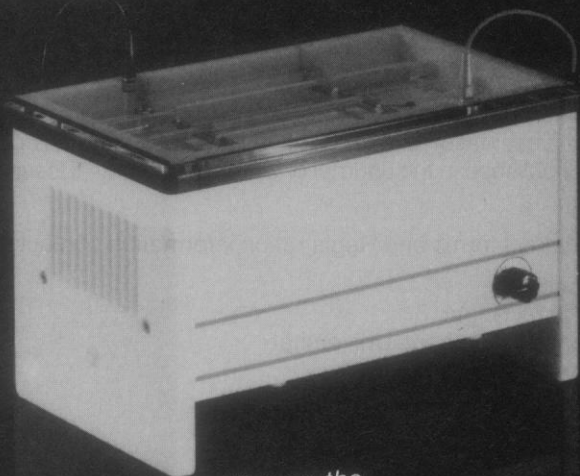
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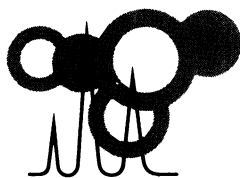
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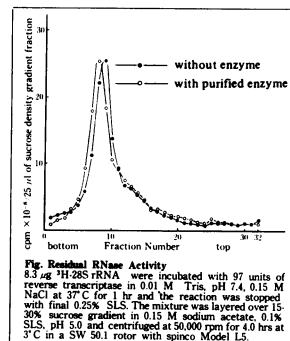
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POSITIONS WANTED

Analytical Chemist. B.S. Knowledge of AA, DCP, GC, IR, ISE, wet methods, and programming in BASIC. Experienced with coatings analysis. No agencies. Box 126, SCIENCE. 5/27; 6/3, 10

Bioanalytical Chemist. Ph.D. Experienced in isolation and structural analysis of carbohydrates (glycoproteins). Postdoctoral experience in membrane analysis using biophysical methods. Seeking academic, institute, industrial research position. Box 123, SCIENCE. X

U.K. Biochemist/Pharmacologist. Ph.D., considerable experience of drug delivery systems for antitumor, antiparasitic chemotherapy. Interests include host/parasite interaction, uptake and survival; immunotherapy and diagnostics. Seeks immediate academic, research, industrial position worldwide. Box 127, SCIENCE. 5/27; 6/3

Biostatistician. M.D. biostatistics; M.S. natural resources. Seeking position in biological or health-related fields. Diverse work experience includes approximately 1 year with environmental consulting firm and 1 year on corporate medical staff of large American auto company. Background in mathematical modeling, parametric and nonparametric methods, computer software, and report writing. Box 128, SCIENCE. X

Gross Anatomy—Embryology—Biology. Doctorate, teaching experience. Research possible in reproduction, teratology, toxicology, growth, epidemiology. Box 125, SCIENCE. X

Molecular Biologist seeks industrial position in R & D utilizing recombinant DNA techniques. Broad experience in recombinant DNA technology. Experience in clinical, industrial, and government laboratories. Experience includes biochemical/genetic manipulation of yeasts and fungi (*Escherichia coli*). Box 112, SCIENCE. X

POSITIONS WANTED

Ph.D. (human anatomy), D.V.M., M.S., desires position as **Human Anatomist** and concurrent employment as **Director of Animal Care Center** in school of medicine and/or health sciences university. Experience includes: teaching human anatomy, member of Animal Care Committee, experienced veterinarian with licenses, E.C.F.V.G. certification. Additional experience in electron microscopy and ultrastructure. For details, write to: Box 121, SCIENCE. 5/27; 6/3

Molecular Biologist/Biochemist; Ph.D. 1978. Experienced in nucleic acid biochemistry, recombinant DNA techniques, DNA and RNA sequencing, protein purification and characterization. Eleven publications. Seeks academic/industrial position. Box 129, SCIENCE. X

POSITIONS OPEN

ACADEMIC POSITIONS IN CLINICAL AND INVESTIGATIONAL CARDIOLOGY, University of Michigan, Ann Arbor. Two positions as assistant or associate professor of internal medicine are available in the Adult Cardiology Division at the University of Michigan Hospitals. The candidate should have experience in clinical electrophysiology, antiarrhythmic studies, and pacemaker implantation as well as evidence of success in clinical and/or basic investigations related to these techniques. Send curriculum vitae to: **Bertram Pitt, M.D., Director, Cardiology Division, University of Michigan Hospitals, W11611 Main, Box 55, 1405 East Ann Street, Ann Arbor, Mich. 48109.** The University of Michigan is an Equal Opportunity/Affirmative Action Employer. 340, 341.

The University of Michigan, Department of Internal Medicine, is offering full-time **ACADEMIC POSITIONS** in the Section of Gastroenterology. These positions are based at the University Hospital. The section has a large consultative service, nine full-time faculty members, six full-time fellows (50 percent full-time research), and a fully equipped laboratory space at the University and Veterans Administration Hospital. Requirements for the position include Board-certification in internal medicine, research experience in gastroenterology, and Board-eligibility in gastroenterology (certification eventually required). Academic rank and salary are commensurate with experience and academic credentials. The positions will carry with them a minimum of 50 percent of time for full-time research. Applicants with research training (3- or 4-year fellowship programs) preferred. Address applications to: **Timothy T. Nostrant, M.D., Acting Division Chief, D3105 SACB, University of Michigan Medical Center, Ann Arbor, Mich. 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 342, 343, 344.

ACADEMIC STAFF POSITION available in the Nuclear Medicine Division of the Department of Internal Medicine at the University of Michigan, Ann Arbor. Certification (or Board-eligibility) in nuclear medicine and, preferably in internal medicine, radiology, or pathology desired with a special interest in cardiology, gastroenterology, or neurology. Applicant should have interest and a performance record in clinical or basic nuclear medicine research. Please send curriculum vitae to: **William H. Beierwaltes, M.D., Physician-In-Charge, Division of Nuclear Medicine, Box 21, W5630, University Hospital, Ann Arbor, Mich. 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 346.

ASSISTANT PROFESSOR OF BIOLOGY, full-time, tenure-track, teaching appointment. Must teach plant pathology once a year plus cell biology and share introductory biology. Desire someone able to start introductory course in virology. Position available 1 September 1983. Teaching load average: 12 student credit hours per quarter. University responsibilities include advising and committee assignments. Ph.D. required with emphasis in cell biology or microbiology. Research and other professional activities desirable; \$18,000 to \$20,000, depending upon training and experience. *University of Wisconsin, River Falls, is an Equal Opportunity/Affirmative Action Employer.* Submit letter of application, curriculum vitae, graduate transcripts, and three reference letters to: **Robert L. Calentine, Department of Biology, University of Wisconsin, River Falls, Wis. 54022.**

POSITIONS OPEN

ANALYTICAL CHEMISTRY/ENVIRONMENTAL SCIENCE OR GEOLOGY. Assistant professor, anticipated opening beginning August 1983. Ph.D. preferred. Nine months, renewable. Four-year liberal arts college with degree program in chemistry and environmental science. Send résumé, transcripts, and three references to: **J. Rex Baird, Clinch Valley College of the University of Virginia, Box 16, Wise, Va. 24293.** An Equal Opportunity/Affirmative Action Employer.

A tenure-track **ASSISTANT PROFESSOR** position is available at The University of Southern California (USC) School of Medicine and Childrens Hospital of Los Angeles, Division of Hematology-Oncology. Past experience in cell hybridization, cytogenetics, cell transformation, and transfection of oncogenes is required. Send curriculum vitae and a list of three references to: **Dr. Stuart Siegel, Head, Division of Hematology-Oncology, Childrens Hospital of Los Angeles, 4650 Sunset Boulevard, Los Angeles, Calif. 90027.**

USC and Childrens Hospital are Affirmative Action/Equal Opportunity Employers.

The University of Michigan Medical School, Department of Internal Medicine, Allergy Division, is in need of a full-time **FACULTY MEMBER** who is capable of carrying out significant original research in some aspect(s) of the broad field of allergy and immunology. This includes such possible areas as: studies of the secretion, structure, and function of mediators of immediate and delayed hypersensitivity, cell-mediated immunity, immunopharmacology, immunopathology, immune deficiency diseases, molecular immunology, respiratory physiology, and related areas. The individual should have, or have reasonable expectations of obtaining, grant support for his/her research. He/she should be capable of working independently and also have the fund of knowledge and communication skills to teach effectively at the bedside, clinic, seminar, or lecture hall. Limited clinical responsibilities would be required. Candidate should have an M.D. and be Board-eligible or -certified in internal medicine and in allergy and immunology. Send replies to: **Kenneth P. Mathews, M.D., Chief, Allergy Division, D3259 SACB, University of Michigan Medical School, Ann Arbor, Mich. 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 336.

The University of Michigan Medical School, **DEPARTMENT OF INTERNAL MEDICINE**, has a position available to work in the Division of General Medicine. The individual will have patient care activities in both ambulatory care and inpatient settings. Candidates should be Board-eligible in internal medicine and have an interest in health services and research. Address inquiries, including curriculum vitae, to: **Jeffrey K. Stross, M.D., The University of Michigan Medical School, Department of Internal Medicine, D3211 SACB, Ann Arbor, Michigan 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 345.

The University of Michigan Medical School, **DEPARTMENT OF INTERNAL MEDICINE**, has two positions available in the Division of Geriatrics. Each individual will participate in patient care and educational activities and be expected to carry out an active research program. Candidates should be Board-eligible in internal medicine. Address inquiries, including curriculum vitae, to: **William N. Kelley, M.D., Chairman, Department of Internal Medicine, D3105 SACB, Ann Arbor, Michigan 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 348, 349.

THE PULMONARY AND CRITICAL CARE MEDICINE DIVISION, Department of Internal Medicine, University of Michigan Medical Center, has an available position. Candidates must have an M.D. degree, be Board-certified (or eligible) in internal medicine and pulmonary medicine, and should have proven research potential. The person accepting this position will be actively involved in the care of respiratory and critical care patients, the teaching of students, house staff, and fellows, and extensive research (clinical or basic). Academic rank will be based upon credentials. Please respond to: **John G. Weg, M.D., Professor of Internal Medicine, University of Michigan Hospitals, 1405 East Ann Street, Ann Arbor, Mich. 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. 347.

POSITIONS OPEN

A full-time ASSISTANT PROFESSORSHIP is available in the Department of Anatomy, Rush Medical College. The position requires the Ph.D. or M.D. degree, and preferably postdoctoral experience. The responsibilities of the position include proficiency in teaching human gross anatomy to medical students, and proven research productivity. Please send curriculum vitae and the names of three references to: **Anthony J. Schmidt, Ph.D., Professor and Chairman, Department of Anatomy, Rush Medical College, 600 South Paulina Street, Chicago, Ill. 60612.** Rush Medical College is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR OF BIOCHEMISTRY

The Department of Biological Chemistry, Harvard Medical School, invites applications for a position of assistant professor to be activated as early as 1 July 1984. Candidate should have a strong background in biochemistry and/or molecular biology.

Applications should include curriculum vitae, bibliography, a short summary of research goals, one letter of recommendation, and the names of three professional persons acquainted with the work of the applicant.

Send application, for receipt by 15 October 1983, to:

**Dr. Charles C. Richardson
Chairman, Search Committee
Department of Biological Chemistry
Harvard Medical School
Boston, Massachusetts 02115**

Harvard University is an Equal Opportunity Employer with an Affirmative Action Program, and it encourages applications from women and members of minority groups.

ASSISTANT PROFESSOR/DIRECTOR, NEUROSURGICAL RESEARCH LABORATORIES. Applications are invited for assistant professor position immediately available. Ph.D. in neurosciences with interest in spinal cord trauma and fine-structural development of local neuronal circuits. A funded program or strong potential for development of a funded program is necessary. Duties include scientific and administrative supervision of neurosurgical research laboratories and some teaching of neuroanatomy to residents and medical students. Submit curriculum vitae and names of three references by 15 June 1983 to: **Dr. William F. Collins, Chief, Neurological Surgery, Yale University School of Medicine, 333 Cedar Street, New Haven, Conn. 06510.** Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR OF PHYSIOLOGY

A tenure-track position at the rank of assistant professor is available in the Department of Physiology and Biophysics of the University of Tennessee Center for the Health Sciences. Candidates should have a Ph.D. or M.D. degree, a minimum of 2 years of postdoctoral training, and a strong research background in organ system or whole animal physiology. Demonstrated ability to initiate a strong independent research program and to engage in the teaching activities of the department are expected. Send curriculum vitae, a brief statement of research interests, and the names of three references to: **Dr. Leonard Share, Chairman, Department of Physiology and Biophysics, University of Tennessee Center for the Health Sciences, Memphis, Tennessee 38163.** An Equal Opportunity/Affirmative Action Employer.

ASSOCIATE DIRECTOR GI RESEARCH LABORATORY

Ph.D., postdoctoral and career experience emphasizing protein chemistry, including separation, identification, isolation and characterization, including physical and immunochemical methodologies. Knowledge of serum apoproteins and protein-lipid interactions important. Must have leadership potential, administrative ability, and a desire to develop career independence. Tenure-track and salary competitive for this responsible position. Send résumé and three references to: **Dr. R. T. Holzbach, GI Research Unit, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106.**

Department of Ophthalmology and Visual Science at Yale. **CELL BIOLOGIST**, interested in teaching and research, who will employ ocular cells and tissues for studies of basic cell mechanisms. Send curriculum vitae and bibliography along with a statement of your research interests to: **Chairman, Search Committee, Department of Ophthalmology and Visual Science, Yale University School of Medicine, Box 3333, New Haven, Conn. 06510.** Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

ASSOCIATE RESEARCH SCIENTIST to investigate: (i) effects of macromolecular charge and hemodynamic factors on endothelial transport in arteries and vasa vasorum (transmission and scanning electron microscopy; animal experimentation), and/or (ii) interactions of endothelium with blood cells in microcirculation in vivo and in cultured endothelium in vitro (endothelial culture; measurements of microvascular pressure, flow, and diameter). Ph.D., physiology or pharmacology; 3 years of postdoctoral experience. Send résumé and three references to: **Division of Circulatory Physiology and Biophysics, Department of Physiology, Columbia Medical Center, 630 West 168 Street, New York, N.Y. 10032.** An Equal Opportunity/Affirmative Action Employer.

BIOLOGY. The Biology Department of the University of the South invites applications from broadly trained zoologists with Ph.D. or equivalent for a tenure-track teaching position. Teaching responsibilities include general zoology, developmental biology, and a field-oriented invertebrate course. Rank and salary according to experience and qualifications. This opening may be filled by August 1983 or January 1984, and must be filled by August 1984. Graduate and undergraduate transcripts, curriculum vitae, and three letters of reference should be sent to: **Charles Foreman, Biology Department, University of the South, Seawee, Tennessee 37375.** This University is an Equal Opportunity/Voluntary Affirmative Action Employer.

CHAIRPERSON DEPARTMENT OF BIOCHEMISTRY THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT DALLAS SOUTHWESTERN MEDICAL SCHOOL

Applications and nominations are invited for the position of professor and chairperson of the Department of Biochemistry. Candidates should have an outstanding record of research accomplishments and be dedicated to the provision of leadership in research and teaching for a department that currently includes more than 25 faculty. Nominations and applications will be received until the position is filled and should be addressed to: **Alfred G. Gilman, Chairman of the Biochemistry Search Committee, Department of Pharmacology, The University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235.** An Equal Opportunity Employer.

CHAIRMAN—DEPARTMENT OF MICROBIOLOGY/IMMUNOLOGY THE BOWMAN GRAY SCHOOL OF MEDICINE

The Bowman Gray School of Medicine of Wake Forest University is searching for a chairman of the Department of Microbiology/Immunology. Candidates should have a proven record of excellence in research in addition to experience in teaching. Bowman Gray seeks to enhance existing programs such as virology and immunology. Applications are encouraged from those whose work impinges on these or related areas of research. Applications or nominations should be sent to:

**Chairman, Search Committee
Dr. Moseley Waite
Department of Biochemistry
Bowman Gray School of Medicine
300 South Hawthorne Road
Winston-Salem, N.C. 27103**

An Equal Opportunity/Affirmative Action Employer

CHAIRMAN, DEPARTMENT OF PATHOLOGY

Texas Tech University Health Sciences Center, School of Medicine, is seeking an academic leader for its Department of Pathology. Candidates should have a record of productive research as well as the capacity to administer the clinical service and teaching programs of the department. The institution is particularly interested in developing a strong research program in pathology that will complement ongoing research projects in both the clinical and basic science departments in the School of Medicine; there are several faculty positions available in the department for future growth. Candidates may be nominated or may apply by sending a letter of intent, curriculum vitae, and the names of three referees before 1 August 1983 to: **Dr. Harry M. Weitlauf, Pathology Search Committee, Texas Tech University Health Sciences Center, School of Medicine, Lubbock, Texas 79430.** An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

Position available immediately for **BUSINESS PROGRAMER**. Minimal requirement is an M.S. in computer science. No experience required.

Salary offer is \$18,000 per year to qualified applicant.

Duties are as follows: Converts symbolic statements to detailed logical flow charts for coding into computer language. Analyzes charts or diagrams by applying knowledge of computer capabilities, subject matter, algebra and symbolic logic to develop program sequence. Confers with concerned departments to resolve questions of program intent, output requirements, input data acquisition, extent of automatic programming and coding use and modification, including internal checks and controls. Writes detailed logical flow chart in symbolic form to be processed by system, and to describe input, output, and arithmetic and logical operations involved. Converts flow charts to computer language. Devises samples to test program. Prepares block diagrams to specify equipment configuration. Tests coded program, using actual or sample input data. Corrects programs. Prepares operation guides for program personnel. Analyzes, reviews, and rewrites programs to increase operating efficiency or adapt to new requirements. Documents program development and revisions. Specializes in writing programs using Pascal Program Language for the T.I. 990/10 Computer.

Employer is an Equal Opportunity Employer and in compliance with Title IX of the Civil Rights Act and Section 504 of the Rehabilitation Act of 1973.

Persons interested contact: **The Louisiana Department of Employment Security, 706 East Vermilion Street, Lafayette, Louisiana 70501.**

CHAIRMAN, BEHAVIORAL SCIENCES DEPARTMENT

The Armed Forces Radiobiology Research Institute is seeking an individual to serve as chairman, Behavioral Sciences Department. This Institute, a command of the Defense Nuclear Agency, is the principal radiobiology research laboratory for the Department of Defense. The Behavioral Sciences Department is responsible for research on the effects of ionizing radiation on behavior, and on the interaction between chemical or pharmacological factors and the psychobiological response to radiation. Chairman is responsible for a multidisciplinary research program in experimental animal models ranging from operant conditioning techniques to methods in physiological psychology, neurochemistry, and neurophysiology. Candidate will be expected to plan, initiate, and direct a multidisciplinary research program, supervise a scientific and technical staff comprised of military and civilian personnel, and conduct personal research in an area of radiobiology. Desirable qualifications include a Ph.D. in psychology or a related biological science, a strong publication record, and management experience. This Civil Service position is available immediately. Salary ranges from \$41,277 to \$63,115. Direct inquiries to: **Vince Ackermann, telephone: 202-295-1426.** Submit application, including SF-171 and curriculum vitae, by 15 July 1983 to: **The Armed Forces Radiobiology Research Institute, Civilian Personnel Office, Bethesda, Md. 20814.** Reference announcement number 27/83. *Equal Opportunity Employer.*

FACULTY POSITION IN SEDIMENTOLOGY

The Department of Geological Sciences at Case Western Reserve University in Cleveland, Ohio, is seeking candidates to fill an anticipated tenure-track faculty position in sedimentology, to begin in August 1983. Areas of expertise sought include, but are not limited to, comparative sedimentology, depositional environments, sedimentary petrography, and rock properties, particularly in relation to siliciclastic deposits. A capacity to interact productively with ongoing research in diagenesis and the geochemistry of petroleum source and reservoir rocks is especially desirable. The successful candidate will be expected to carry out a vigorous research program and to teach undergraduate and graduate courses in sedimentology, stratigraphy, and historical geology.

Ph.D. or equivalent is required. Please submit applications, consisting of résumé, names of three references, and a statement of research and teaching interests, to:

**Chairman
Department of Geological Sciences
Case Western Reserve University
Cleveland, Ohio 44106**

Case Western Reserve University is an Equal Opportunity/Affirmative Action Employer.

DIRECTOR of TEXAS WATER RESOURCES INSTITUTE (part of The Texas A&M University System) located at College Station, Texas. Qualifications: Ph.D. in discipline related to water research and established record of research in one or more water-related fields; experience in research administration is desirable.

The director plans and manages statewide water resources research and information programs. The Institute serves as a focal point for water research at Texas A&M University and sponsors research at several universities across the state. The director manages the Title I program of the Office of Research and Technology in the Department of the Interior; an information and technology transfer program which communicates research results to potential users is a significant component of the Institute's program. Interaction with water agency officials throughout the state and nation is an important aspect of the director's responsibilities. The director serves as coordinator of the water research program in the Texas Agricultural Experiment Station and for water-related, educational programs in the Texas Agricultural Extension Service. Close association with Texas A&M University provides the opportunity to participate in graduate programs of academic departments with significant activities in water research. Academic appointment in the appropriate department is available. The Institute is administratively assigned to the Texas Agricultural Experiment Station with the director reporting to the director of the Texas Agricultural Experiment Station. For matters related to the technology transfer program, the director is responsible to the director of the Texas Agricultural Extension Service.

Position available: July 1983. Applicants should send curriculum vitae and names of three references to: **Edward A. Hiler, Chairman, Search Committee, Department of Agricultural Engineering, Texas A&M University, College Station, Texas 77843.**

The Texas Agricultural Experiment Station is an Equal Opportunity/Affirmative Action Employer.

NATIONAL INSTITUTES OF HEALTH

*National Institute of Arthritis,
Diabetes,
and Digestive and Kidney Diseases
Division of Intramural Research*

POSTDOCTORAL POSITION:

Research is being conducted on the membrane functions of macrophages, with emphasis on phagocytosis. Projects may involve manipulating membrane functions in macrophage cell lines by mutation and/or induction and studying the biochemical mechanisms of the changes [see, e.g., *Proc. Natl. Acad. Sci. U.S.A.* 79, 4980 (1982)]. Background in cell biology, biochemistry, or mammalian cell genetics desirable. Initial appointment is for two (2) years, with additional extensions possible for talented researchers. U.S. citizenship required. Salary \$17,800 for the 1st year, or commensurate with candidate's qualifications and experience. Send *curriculum vitae* and names of references to: Dr. Loretta Leive, National Institutes of Health, 9000 Rockville Pike, Building 4, Room 116, Bethesda, Maryland 20205. NIH is an equal opportunity employer; women and minorities are encouraged to apply.

NATIONAL RESEARCH COUNCIL

National Academy of Sciences National Academy of Engineering Institute of Medicine

RESIDENT RESEARCH ASSOCIATESHIPS



1983

TENABLE AT THE

**Fire Control and Small Caliber Weapon
Systems Laboratory**

Large Caliber Weapon Systems Laboratory

LOCATED AT DOVER, NEW JERSEY

AND THE

Ballistic Research Laboratory

Chemical Systems Laboratory

**LOCATED AT ABERDEEN PROVING GROUND,
MARYLAND**

These NRC-ARRADCOM Research Associateships are awards which provide opportunities for research on problems of individual choice to scientists and engineers of unusual ability and promise. Programs are open to U.S. citizens only; awards are on a competitive basis. Initial awards are for one year with the possibility of renewal.

The National Research Council is accepting applications for its 1984 Resident Research Associateships that will provide opportunities for postdoctoral and senior scientists to conduct experimental and theoretical research in the areas of:

- APPLIED MATHEMATICS
- PROBABILITY THEORY
- STOCHASTIC PROCESSES
- ATMOSPHERIC PHYSICS
- COMBUSTION RESEARCH
- FLUID MECHANICS
- MATERIALS SCIENCES
- NUCLEAR & RADIATION PHYSICS
- ORGANIC CHEMISTRY
- PHYSICAL CHEMISTRY
- SURFACE CHEMISTRY
- KINETICS
- COMPUTER SIMULATION
- ELASTIC-PLASTIC STRAIN & INTERNAL STRESS
- GUIDED WAVE TECHNOLOGY
- MECHANISMS OF HIGH STRENGTH ALLOYS
- ENZYMATIC DETERRENTS

DEADLINES:

Applications must be postmarked on or before **August 15, 1983**. Supporting documents must be received by **September 1, 1983**. Awards will be announced in early **October 1983**.

FOR INFORMATION, WRITE TO:

ASSOCIATESHIP PROGRAMS (JR610-E1)

NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, N.W. Washington, DC 20418

POSITIONS OPEN

DIRECTOR, GEOPHYSICAL FLUID DYNAMICS LABORATORY. The Environmental Research Laboratories (ERL), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, in Princeton, New Jersey, is seeking applicants for a scientific manager to serve as director, Geophysical Fluid Dynamics Laboratory. The director conceives, implements, and evaluates research programs to expand the scientific understanding of those physical processes which govern the behavior of the atmosphere and the oceans as complex fluid systems. This involves extensive inter- and intra-agency coordination as well as the direction of a 100-member staff engaged in research activities. Position is Career Reserved in the Senior Executive Service. Salary range: \$56,945 to \$67,200 per annum, negotiable based on experience, scientific achievement, and technical/managerial qualifications. **QUALIFICATIONS:** Knowledge of theory and state-of-the-art in a combination of disciplines (meteorology, oceanography, hydrology, classical physics, fluid dynamics, chemistry, and applied mathematics) to design, direct, and evaluate interdisciplinary research programs. Competence in the scientific management of theoretical and experimental research studies of a large-scale nature. Personal research in meteorology or oceanography. Executive competence in broad areas of administration such as program planning and evaluation, multi-group coordination, resource acquisition and administration, organizational representation, and human resource utilization including Equal Employment Opportunity. **TO APPLY:** Interested persons should contact: **Barbara J. Peterson, NOAA/ERL, Personnel Services Division (R/E562), 325 Broadway, Boulder, Colo. 80303; telephone: 303-497-5780 or FTS 320-5780, for application forms. Reference vacancy number NOAA/ERL 82-269. Position announcement closes 8 July 1983. An Equal Opportunity Employer.**

SECTION DIRECTOR DIVISION OF INFECTIOUS DISEASE

The University of Minnesota Medical School is seeking qualified applicants for the position of director of the Infectious Disease Section in the Department of Medicine. The appointment requires an internist recognized as an authority in this area who has demonstrated ability as a clinician and teacher, and who has a proven record of productive research. Administrative skills to direct a university-wide section and provide fellowship training are necessary, in addition to demonstrated capability in competing nationally for research and fellowship training grants.

The University is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

Please send curriculum vitae and references to:

Charles F. Moldow, M.D.
Chairman, Infectious Disease Search Committee
Minneapolis VA Medical Center
Minneapolis, Minn. 55417

The University of Michigan Medical School, Department of Internal Medicine, Allergy Division, is in need of full-time **FACULTY MEMBERS**. Candidates should be able to effectively aid students in acquiring both clinical skills and basic knowledge. Candidate should maintain skills to provide exemplary clinical care to patients afflicted with illnesses encompassed by the field of internal medicine and especially patients with allergic or immunologic diseases. Some research activity would be expected. He/she should have an M.D. and be Board-eligible or -certified in internal medicine and in allergy and immunology. Send replies to: **Kenneth P. Mathews, M.D., Chief, Allergy Division, D3259 SAGB, University of Michigan Medical School, Ann Arbor, Mich. 48109. The University of Michigan is an nondiscriminatory, Affirmative Action Employer. 337, 338, 339.**

NEUROBIOLOGIST CARLETON COLLEGE

Carleton College has an opening for a neurobiologist for a 1-year appointment beginning 1 September 1983. Responsibilities include an upper-division neurobiology course, participation in a team-taught introductory course for the major, and an intermediate-level course in an area of interest to the candidate and the department. Applications, including curriculum vitae, undergraduate and graduate transcripts, and three letters of professional recommendation should be sent to: **Dr. John L. Tymoczko, Department of Biology, Carleton College, Northfield, Minn. 55057. Closing date is 1 July 1983. Carleton College is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

DIRECTOR, CENTER FOR ELECTRON MICROSCOPY. Broad experience in TEM, SEM, and x-ray analysis with expertise in area of biological EM research and experience in EM facility operation. Responsibilities include operation of large multi-discipline central EM facility, teaching courses in TEM and SEM, and working with and advising faculty from all departments. Time allotted for research. Ph.D. or equivalent experience in electron microscopy, 12-month appointment; salary negotiable. Application deadline: 15 June 1983. Send curriculum vitae and three letters of reference to: **Dr. Michael Dingerson, Research Development and Administration, Southern Illinois University, Carbondale, Ill. 62901. An Equal Opportunity Employer.**

ENTOMOLOGIST/INVERTEBRATE ZOOLOGIST

Idaho State University (ISU)
Temporary position: 15 August 1983 to 15 May 1984

VISITING ASSISTANT/ASSOCIATE PROFESSOR. The Department of Biology at ISU is accepting applications for position of visiting assistant/associate professor for the academic year 1983-1984 to begin 15 August 1983. Duties include general zoology, general entomology, and invertebrate zoology with additional duties to be assigned by the chairman. A doctoral degree is required. Salary: \$16,000 to \$20,000, commensurate with rank and experience. Send application, official transcripts, and three letters of recommendation to: **Chairman, Department of Biology, Idaho State University, Pocatello, Idaho 83209. Closing date: 17 June. ISU is an Affirmative Action/Equal Opportunity Employer.**

FACULTY POSITION—ORAL BIOLOGY. The Oral Biology Department is seeking to fill an entry level faculty position for a person interested in some basic aspect of connective tissue research. Areas of special interest are: proteoglycan structure and function; enzymology of connective tissues; molecular biology of connective tissue components. Ideal for one just completing postdoctoral work. Available now; 1 November 1983 latest. Send curriculum vitae, including reference names, to: **Dr. Arthur Veis, Chairman, Department of Oral Biology, Northwestern University Dental School, 303 East Chicago Avenue, Chicago, Ill. 60611.**

FACULTY POSITION IN SEDIMENTARY GEOLOGY AT THE UNIVERSITY OF SOUTH CAROLINA

Applications are invited for a tenure-track faculty position in the Department of Geology with a specialization in sedimentology starting as early as August 1983. Ph.D. required. Rank and salary are open, depending on qualifications and experience.

We seek a candidate whose research interests are in one or more of the following fields: carbonate depositional systems, basin analysis, global sediment cycling, stratigraphy, and sedimentary geochemistry. The successful candidate is expected to develop a strong research program with external funding, supervise graduate students, and teach graduate and undergraduate courses.

Send letter of application, curriculum vitae, statement of research interests, and names of three references to:

Dr. Robert C. Thunell
Department of Geology
University of South Carolina
Columbia, South Carolina 29208
Telephone: 803-777-7593

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

HOST-PARASITE GENETICIST (plant pathology). A professor-level position is available for an established scientist to pursue a program related to the genetic/molecular bases of plant pathogen resistance. Candidates should have a Ph.D. in plant pathology, genetics, or related discipline, with documented evidence of accomplishment in the field of host-parasite genetics, and interest in the application of molecular technologies for the isolation and manipulation of genetic elements. Training teaching responsibilities include the development of a strong graduate training program and participation in teaching related to genetics of host resistance. Applicants should submit a biographical résumé, list of publications, names of three professional references, and a statement of interests and career accomplishments to: **Dr. D. R. Pring, Search Committee Chairman, Department of Plant Pathology, University of Florida, Gainesville, Fla. 32611. Closing date is 1 July 1983. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

DIRECTOR, DEPARTMENT OF PSYCHIATRY

Case Western Reserve University (CWRU) Medical School and Cleveland Metropolitan General Hospital are inviting applications for a senior level faculty position at CWRU Medical School and director, Department of Psychiatry, Cleveland Metropolitan General Hospital. This position requires an M.D. or M.D./Ph.D. Candidates should have a background in academic psychiatry with administrative experience and a record of accomplishment in research.

Qualified candidates should send curriculum vitae to:

Louis Rakita, M.D.
Professor of Medicine
Case Western Reserve University
Director, Division of Cardiology
Cleveland Metropolitan General Hospital
3395 Scranton Road
Cleveland, Ohio 44109

Case Western Reserve University and Cleveland Metropolitan General Hospital are Affirmative Action/Equal Opportunity Employers.

FACULTY POSITION

Tenure-track position at the assistant professor level at the University of California, Berkeley, School of Optometry, is available for 1984-1985 academic year or earlier. Doctoral degree with postdoctoral research experience or equivalent is required. Research interests should include basic and applied problems in corneal physiology. An interest in physiological properties associated with contact lens use is desirable. Preference will be given to candidates with training in biophysics, physiology, bioengineering, or related fields. A strong commitment to excellence in teaching, both at the professional and graduate levels, is required.

Curriculum vitae, statement of research and teaching interests (and background in each), graduate and undergraduate transcripts, lists and reprints of published works, and names and addresses of at least three references should be sent to:

Dr. Irving Fatt
Chairman, Search Committee
School of Optometry
University of California
Berkeley, California 94720

Applications will be accepted until 15 June 1983 or until the position is filled.

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

FACULTY POSITION IN PHYSIOLOGY. The Department of Physiology at the University of Massachusetts Medical School has an opening for an assistant professor on the tenure-track. We seek applicants with a background and research interests which emphasize the cellular and molecular basis of physiology. Successful applicants will be expected to conduct an active independent research program and participate in teaching medical and graduate students. Candidates should submit curriculum vitae, a complete list of publications, and a brief statement summarizing present and future research interests and objectives, and have three letters of reference sent to: **H. Maurice Goodman, Ph.D., Professor and Chairman, Department of Physiology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, Mass. 01605. The University of Massachusetts Medical School is an Affirmative Action/Equal Opportunity Employer. Applications from women, minorities, and handicapped persons are especially encouraged.**

FOOD AND DRUG RESEARCH LABORATORIES, INC., with toxicology laboratories located in Waverly, New York, and sales offices in northern New Jersey, is pleased to announce the following positions:

LABORATORY ANIMAL PATHOLOGIST: Responsibilities include supervision of necropsy and histology services, gross and microscopic examination of tissues and report preparation. D.V.M. and/or Ph.D. in pathology required.

MARKETING DIRECTOR: Responsibilities include coordination of marketing and sales activities with emphasis upon personal client contact. Extensive experience and a record of achievements in marketing toxicology in the chemical or pharmaceutical industry required.

Please call or write, in confidence, to: **Peter J. Becci, Ph.D., FDRL, Inc., P.O. Box 107, Waverly, New York 14892, telephone: 607-565-8131.**

Manager of Neurosciences

The 3M Biosciences Laboratory has an opening for a PhD or equivalent with at least 5 years of research experience in sensory physiology. The use of computers in research and previous management experience supervising senior research personnel are required.

Duties include development and implementation of research programs.

Please send your resume in confidence to James S. Egan.

**Staffing and Employee
Resources/3M
224-1W 3M Center
St. Paul, Minnesota 55144**

We Are An Equal Opportunity Employer M/F/H/V

3M

Assistant/Associate Professors in Anatomy

The Department of Anatomy at The University of Calgary has set as one of its high priority objectives the development of a computer image analysis laboratory. As a first step towards this objective the Department is seeking to recruit one or more Assistant or Associate level Professors who can serve as a nucleus around which such a laboratory can be built. Although our first preference will be given to someone with a research interest in the Neurosciences, this is not an absolute requirement. The successful applicant will be eligible to apply for scholarship funding from the Alberta Heritage Foundation for Medical Research. An establishment grant is available on a competitive basis to set up an image analysis laboratory. The University of Calgary has a growing and dynamic research community which offers a stimulating and supportive environment for innovative research and career development.

If you qualify for the position please forward a curriculum vitae, names of three referees, and summary of your research interests to the Search Committee before July 31, 1983. In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents, however, others are encouraged to apply. Send all correspondence to:



**R.S. Hannah, Ph.D.
Search Committee
Chairman
Department of Anatomy
Faculty of Medicine
The University of Calgary
3330 Hospital Drive N.W.
Calgary, Alberta T2N 4N1**

THE NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM, INTRAMURAL PROGRAM at the NIH CLINICAL CENTER invites applications from highly qualified individuals with an M.D. or M.D., Ph.D., who are seriously interested in pursuing careers in academic medicine and research. Studies will focus on investigations of diagnosis, consequences and treatments of alcohol abuse and alcoholism. Clinical and laboratory research training opportunities are available in clinical pharmacology, genetic studies, neuroscience, neuropsychiatry and medical biochemistry.

Appointments are available for 2 to 3 years beginning July 1, 1983 with an initial salary of \$30,000 up to a maximum of \$34,000 for the third year. Applicants should call collect for applications.

NATIONAL INSTITUTES OF HEALTH

**Medical Staff Fellowship Program
Bldg. 10, Room 2N220
9000 Rockville Pike
Bethesda, MD 20205
(301) 496-2427**

AN EQUAL OPPORTUNITY EMPLOYER

LABORATORY GENETICIST

The Epidemiology Branch, National Institute of Environmental Health Sciences, National Institutes of Health, seeks a geneticist to develop laboratory capacity for detecting human genetic damage. M.D. or Ph.D. required, plus familiarity with cytogenetic and other means for identifying human DNA damage or mutation that can be applied to clinical studies. Permanent position in the U.S. Civil Service. (Salary range \$34,930 to \$53,661 depending on qualifications; physicians may be eligible for Comparability Pay of \$10,000 a year.) Send current curriculum vitae and list of publications plus names of three persons who can be contacted as references to Ms. Eleanor Dovre, NIEHS Personnel Office, Post Office Box 12233 (T-55), Research Triangle Park, North Carolina 27709, Telephone (919) 541-7513. Women and minority groups encouraged to apply. U.S. citizenship required.

NIH is an Equal Opportunity Employer

ENERGETIC MATERIALS CHEMIST

The Navy's largest research, development, test and evaluation activity, located at the foot of the Sierra Nevada has an immediate vacancy for a Senior Chemist to conduct research in ENERGETIC MATERIALS.

Applicants with a PhD in ORGANIC or PHYSICAL ORGANIC CHEMISTRY and 3 to 5 years of experience in:

- ▶ BASIC & APPLIED RESEARCH OF ENERGETIC MATERIALS
- ▶ SYNTHESSES, CHARACTERIZATION, REACTIVITY & UTILIZATION OF ENERGETIC MATERIALS
- ▶ TEST & EVALUATION OF DETONANT, PRIMARY & SECONDARY EXPLOSIVES
- ▶ EXPLOSIVE FORMULATION TECHNIQUES



Are encouraged to apply by 1 June 1983.

**Naval Weapons Center
ANN 092-385-83
China Lake, CA 93555**

An Equal Opportunity Employer U.S. Citizenship required

POSITIONS OPEN

FUNGAL MOLECULAR GENETICIST

Assistant or associate professor, 80 percent research, 20 percent teaching. Research will focus on genetic analysis and molecular basis of pathogenicity. A Ph.D. in genetics with experience in recombinant DNA techniques is preferred. Send résumé, transcripts, and three letters of reference by 15 July to: **Dr. Bikram S. Gill, Search Committee Chairman, Department of Plant Pathology, Kansas State University, Manhattan, Kansas 66506. Telephone: 913-532-6176. Equal Opportunity/Affirmative Action Employer.**

SCLAVO/ITALY

POSITIONS IN MOLECULAR BIOLOGY

Sclavo, an ENI subsidiary, is a company specializing in the production of biological products for medical application.

Headquarters, plants, and applied research facilities are located in Siena in a very pleasant situation, and laboratories are modern and well equipped. A separate center for basic research has now been established. This center includes divisions of molecular biology, biochemistry, cell biology, and immunology. Since the Molecular Biology Department is now expanding, positions are available at the senior and junior level. Applicants are expected to have a productive research record in the fields of nucleic acids, genetic engineering, cell transformation, or virology. Salaries will be commensurate with experience and seniority of the applicants, in accordance with international standards. Send résumé and names of referees to:

**Sclavo Research Center
ISVT Sclavo S.p.A.
Via Fiorentina 1
53100 Siena, Italy**

NEUROBIOLOGIST

The Division of Neurobiology, Department of Physiology, State University of New York (SUNY) at Buffalo, reopens a search for a position at the assistant professor level to start January 1984 and invites applications from qualified neurobiologists. Applicants must have a Ph.D. or M.D. degree with two or more years of postdoctoral training and should be prepared to take an active role in the medical, graduate, and undergraduate neurophysiology teaching activities of the division. Candidates should have demonstrated outstanding potential for independent research in neurobiology at the cellular or systems level. Deadline for applications: 1 August 1983. Please send curriculum vitae, a brief summary of research interests, and three letters of reference to: **Dr. Donald S. Faber, Division of Neurobiology, 313 Cary Hall, SUNY at Buffalo, Buffalo, N.Y. 14214.**

The State University of New York at Buffalo is an Affirmative Action/Equal Opportunity Employer.

PATHOLOGY FACULTY POSITIONS IN CLINICAL CHEMISTRY—CHIEF: M.D. with ABP certification in CP. Experienced in clinical consultation and clinical chemistry methodology, instrumentation, management, with good communication skills and documented activities in one's own original research (with publications) and in resident and student teaching.

ASSISTANT/ASSOCIATE CHIEF: M.D. and/or Ph.D. with fellowship training (or equivalent) in clinical chemistry methodology, instrumentation, management, with good communication skills and documented activities in one's own original research (with publications) and in teaching. Send curriculum vitae, copies of recent publications, and the names of three references by 17 June 1983 to: **S. T. Shaw, Jr., M.D., The University of Chicago, Pritzker School of Medicine, Box 404, 950 East 59 Street, Chicago, Illinois 60637. The University of Chicago is an Affirmative Action/Equal Opportunity Employer.**

PHYSICIAN/LABORATORY DIRECTOR PHILIPPINES

The Leonard Wood Memorial (American Leprosy Foundation) is seeking a resident director for its field laboratory in Cebu, Philippines. The facility staffs 22 professional and nonprofessional employees. Responsibilities will include direction of the clinical and epidemiological departments, and the animal facility. Prior experience in basic and field research in tropical medicine would be extremely helpful. Submit résumés/curriculum vitae and salary requirements to: **Michael W. Delaney, Director, Leonard Wood Memorial, 11600 Nebel Street, Rockville, Md. 20852.** Responses will be kept confidential.

POSITIONS OPEN

CAMBRIDGE UNIVERSITY. NEUROBIOLOGIST experienced in the analysis of neurons in the vertebrate brain or spinal cord using modern cellular techniques required. Normal age limit: 35. 'New blood' post in Zoology Department as demonstrator. Pensionable scale of stipends £6800 to £8510 per annum. Information form and applications (five copies) with curriculum vitae and names of three referees to: **The Secretary, Appointments Committee, Faculty of Biology A, Department of Applied Biology, Pembroke Street, Cambridge CB23DX, United Kingdom.** Closes 1 July 1983.

PLANT DISEASE PHYSIOLOGIST

Assistant or associate professor in plant pathology (80 percent research, 20 percent teaching) to develop a vigorous research program on the physiology and biochemistry of plant-pathogen interactions. Teaching responsibilities will include a graduate-level course in plant disease physiology. Available 1 September 1983. Apply before 15 July 1983 to: **Dr. Lowell B. Johnson, Search Committee, Department of Plant Pathology, Throckmorton Hall, Kansas State University, Manhattan, Kansas 66506. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL FELLOW POSITION available for 2 years to study surface membrane glycoproteins of macrophages and their relationship to macrophage activation. Require Ph.D. or M.D. degree and research in biochemistry and/or microbiology and/or immunology. Send résumé and names of references to: **Dr. E. Remold-O'Donnell, Center for Blood Research, 800 Huntington Avenue, Boston, Mass. 02115.**

POSTDOCTORAL FELLOW to study the structure of calcium channels in excitable membranes utilizing monoclonal antibodies, radiation inactivation, and functional reconstitution with purified neurotransmitter receptors. Prior experience in receptor biochemistry and/or ion transport highly desirable. Send curriculum vitae and names of three references to: **Dr. J. Craig Venter and Dr. David Triggler, Department of Molecular Immunology, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, N.Y. 14263. An Equal Opportunity Employer, M/F.**

POSTDOCTORAL FELLOW/ASSISTANT PROFESSOR (Ph.D. or M.D.) in molecular biology to join basic gastrointestinal research laboratory. Applicant should have strong background in molecular biology. Candidate will join group with ongoing interest in malignant transformation, intestinal cell function, differentiation, molecular biology involving viral hepatitis and hepatoma, and role of oncogenes in gastrointestinal malignancy. Individual will be encouraged to conduct independent research but will be expected to participate in collaborative projects. Send curriculum vitae, bibliography, references, and statement of research interests to: **Dr. Kurt J. Isselbacher, Chief, Gastrointestinal Unit, Massachusetts General Hospital, Boston, Mass. 02114. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION available 1 June 1983 for studies of monoamine and neuropeptide dynamics in retina and brain. Individuals seeking this position should have biochemistry or pharmacology training, and experience using contemporary biochemical techniques (for example, HPLC, electrophoresis, radioimmunoassay). Send curriculum vitae and names and addresses of three references to: **Dr. John D. Fernstrom, WESTERN PSYCHIATRIC INSTITUTE AND CLINIC, University of Pittsburgh School of Medicine, 3811 O'Hara Street, Pittsburgh, Pa. 15213. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION (research associate) available immediately in a research group studying molecular aspects of early mammalian embryogenesis, with emphasis on the teratocarcinoma cell system. Experience in molecular or cellular biology desirable. Please send curriculum vitae and two letters of reference to: **Chi Nguyen-Huu, Ph.D., Columbia University College of Physicians and Surgeons, Departments of Microbiology and Urology, 630 West 168 Street, New York, N.Y. 10032. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE. Available 1 January 1984 to study genetic and biochemical basis of virulence of *Bordetella pertussis*. Desired background: molecular genetics and/or bacterial surface antigen isolation/characterization. Send curriculum vitae, current research interests/goals, reprints, and two letters of recommendation by 1 September 1983 to: **Dr. Charlotte Parker, Department of Microbiology, University of Missouri School of Medicine, Columbia, Mo. 65212. Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION available July or September 1983 at Stanford University, School of Medicine. M.D. or Ph.D. applicant sought to work in areas involving regulation of catecholamine biosynthetic enzymes. Specific projects include cloning of cDNA probes, nucleotide sequencing, and assessment of gene regulation. These projects represent the collaborative efforts of three laboratories, headed by Drs. Roland Ciaranello, Jack Barchas, and Larry Kedes; fellows will interact with each laboratory. NIMH-funded stipends available for 2- or 3-year period. Interested applicants should write to: **Roland D. Ciaranello, M.D., Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, California 94305.**

POSTDOCTORAL POSITION available July or September 1983 in Laboratory of Developmental Neurochemistry, Department of Psychiatry, Stanford University School of Medicine. M.D. or Ph.D. applicant sought to work in areas involving regulation of catecholamine biosynthetic enzymes. Project includes investigation of enzyme regulation in tissue culture and regulation of enzyme synthesis in cell-free systems. NIMH-funded stipends available for 2- or 3-year period. Interested applicants should write to: **Roland D. Ciaranello, M.D., Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, California 94305.**

POSTDOCTORAL POSITION, starting fall 1983. Candidate having a Ph.D. in biochemistry sought for research examining perturbation of metabolism in human platelets. Experience with techniques of lipid resolution preferred. Send résumé and telephone numbers of three professional references to: **Dr. S. E. Rittenhouse, Hematology Research MRB216A, Brigham and Women's Hospital/Harvard Medical School, 75 Francis Street, Boston, Mass. 02115.** Possible interviews at ASBC meetings, June 1983, in San Francisco.

POSTDOCTORAL POSITION IN CLINICAL CHEMISTRY—Two-year program beginning July 1983 in the clinical laboratory of a major medical oncology referral center. Applicants must have strong background in biological and/or analytical chemistry. Salary: \$18,000 per year. Send résumé and three letters of reference to: **Dr. W. Z. Borer, Division of Clinical Pathology, City of Hope National Medical Center, 1500 East Duarte Road, Duarte, Calif. 91010; telephone: 213-359-8111, extension 2775.**

POSTDOCTORAL POSITION—MOLECULAR PARASITOLOGY. Available 1 July. To participate in collaborative projects involving the control of gene expression in one of several parasites (primarily trypanosomes and schistosomes). Emphasis will be given to candidates with backgrounds in recombinant DNA, immunology, or protein chemistry. Send curriculum vitae and names of three references to:

**Dr. John Donelson
Department of Biochemistry
Bowen Sciences Building
University of Iowa
Iowa City, Iowa 52242**

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITION HUMAN QUANTITATIVE GENETICS

Research experience in any of the following would be an advantage: collection and analysis of family data; linkage studies; segregation analysis. The successful applicant will be expected to participate in a study of the clinical and genetic aspects of periodontal disease. Position available 1 August 1983. Send curriculum vitae and names and addresses of three referees to: **Walter E. Nance, M.D., Ph.D., Chairman, Department of Human Genetics, Box 33, Medical College of Virginia/Virginia Commonwealth University, Richmond, Virginia 23298, from whom further information can be obtained.**

MCV/VCU is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available 15 July for collaborative Venezuelan-North American ecosystem studies on the Orinoco River. Field of specialization can be physical, chemical, or biological with ecosystem orientation. Strong Spanish preferred. Salary commensurate with experience. Send résumé, names of references, and statement on Spanish proficiency to: **Dr. William M. Lewis, Jr., Department of Environmental, Population, and Organismic Biology, University of Colorado, Boulder, Colo. 80309. The University of Colorado is an Affirmative Action/Equal Opportunity Institution.**

DIRECTOR, MUSEUM EDUCATION

Leading science technology center seeks creative leader for expanding education department. Principal duties are: Program development for very broad range of museum and outreach activities; department management and administration; in-service training and leadership for professional staff; liaison with the Exhibit Department; and promoting programs to the public, schools, corporations and foundations. Broad knowledge of science education, formal and/or informal. Emphasis on physical science and technology is desirable but not essential. Applicant should have experience in one or more of the following areas: Program development and program funding; project management including budget preparation and control, museum or educational departmental administration. Salary range: \$22,200—\$33,200, depending on qualifications and experience. Send resume attention Personnel Department.

THE FRANKLIN INSTITUTE

20th & Race Streets
Philadelphia, PA 19103

An Equal Opportunity Employer, M/F/H

GENETICS SYSTEMS CORPORATION

of Seattle, Washington
seeks applicants to fill two positions.

An IMMUNOLOGIST is needed to head a group to develop nonisotopic immunoassays.

Applicant should have:

- a Ph.D. or equivalent;
- 2 to 5 years of industrial experience;
- experience in the development of *in vitro* diagnostic immunoassay kits.

An IMMUNOLOGIST is needed to develop *in vitro* diagnostic assay kits for cell surface antigens using monoclonal antibodies.

Applicant should have:

- a Ph.D. or equivalent;
- 2 to 5 years of experience in the development of *in vitro* diagnostic immunoassay kits;
- Knowledge of GMP is desirable.

GENETICS SYSTEMS CORPORATION

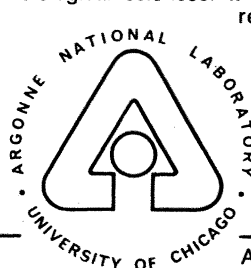
offers an excellent compensation and benefits package. Individuals are invited to submit their curricula vitae and the names of three references to:

Ingrid Rasch
Personnel and Administration Manager
Genetic Systems Corporation
3005 First Avenue
Seattle, Washington 98121

Announcement THE ARGONNE FELLOW PROGRAM

Argonne National Laboratory has established the position of Argonne Fellow to attract outstanding scientists and engineers to the Laboratory for extended periods, up to one to two years. Candidates should be distinguished scientists and engineers, at points of prominence in their careers. Multidisciplinary interests, creativity, and ability to interact with and motivate others, plus recognized preeminence in a field of current or potential importance to the Laboratory are among particular attributes sought.

Argonne's primary purpose as a non-profit research and development organization is to explore energy sources and investigate the fundamentals of physical, chemical, and biological sciences. It is engaged in nuclear



reactor development, energy and environment R&D, biological, medical, chemical, nuclear and high energy physics, and materials science research.

During their period of residence, Fellows may choose to become associated primarily with the programs of a specific Argonne division, or they may elect to pursue interdisciplinary activities that cut across current organizational structures. In addition, the Argonne Fellow may make significant contributions to the technical environment of the entire region through interactions in the industrial and university communities.

Residency will be flexible to meet mutual objectives. Typical Fellow residency will be for one year, extendable for a second, but a series of shorter periods in residence could be accommodated.

Financial support and other perquisites will be sufficiently attractive to command the attention of prestigious candidates.

Applications and recommendations for the Argonne Fellow Program should be addressed to Dr. Eliezer Huberman, Chairman, Argonne Fellow Committee, Box D-55, Bldg. 202, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, IL 60439.

An equal opportunity/affirmative action employer.

POSITIONS OPEN

POSTDOCTORAL POSITIONS available immediately to study enzymology and hormonal regulation of protein kinases and protein phosphatase involved in glycogen metabolisms. Send curriculum vitae and names and telephone numbers of three references to: **Dr. Keith K. Schlender, Department of Pharmacology, Medical College of Ohio, C.S. 10008, Toledo, Ohio 43699.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS (two). Available immediately for 1 or 2 years for study of immunity to parasites and aging of immune system. Background in immunology or biochemistry preferred. Send résumé and three reference letters by 1 July 1983 to: **Dr. Julia W. Albright, Department of Life Sciences, Indiana State University, Terre Haute, Ind. 47809.** Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available summer 1983 for theoretical research on the conformation, properties, and interactions of polynucleotides. Candidates should have computer programming experience. Submit three letters of reference and curriculum vitae to: **Professor W. K. Olson, Department of Chemistry, Rutgers University, New Brunswick, N.J. 08903.** Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION IN PLANT PHYSIOLOGY/ECOLOGY

A postdoctoral position is available to study photosynthesis at the whole leaf level in amaranths. Experience in measurements of leaf gas exchange is required. Annual salary is approximately \$16,000. The position is available 1 July, and it is anticipated that it may be renewed for up to 3 years. Please send curriculum vitae and the names of three references to: **Dr. Jim Ehleringer, Department of Biology, University of Utah, Salt Lake City, Utah 84112.** Telephone: 801-581-7623.

POSTDOCTORAL POSITION available for Ph.D. with experience in electrophysiology and neurochemistry to investigate the synaptic modulation of acetylcholine release by autoreceptors. Send curriculum vitae and the names and addresses of three references to: **Dr. George G. Bierkamper, Department of Pharmacology, University of Nevada School of Medicine, Reno, Nevada 89557.** Affirmative Action/Equal Opportunity Employer.

A POSTDOCTORAL POSITION for dynamic light-scattering studies on polyelectrolyte systems (viz. BSA, DNA, nucleoproteins and so forth). Experience in dynamic light-scattering methods is required. Available 1 July, with a starting salary of \$16,000. Please send résumé with list of publications and a letter of recommendation to: **Professor Kenneth S. Schmitz, Department of Chemistry, University of Missouri, Kansas City, Kansas City, Mo. 64110.**

RESEARCH ASSOCIATE: Independent research into the mechanisms of ion transport in epithelial tissues by means of electrophysiological and fluctuation analysis methods, including microelectrode cell impalements, computer-driven voltage clamps, radioisotope studies, statistical analysis, and computer analysis. Requires M.S. degree in physiology (electrophysiology). Must be highly skilled in electrophysiological methods and techniques; epithelial studies; computer programming; data analysis and reduction; and statistical analysis. Must be capable of independent research with minimal supervision. Must be familiar with the relevant research literature. Salary: \$15,000 per year. Please send résumé to: **Illinois Job Service, 402 North Randolph Street, Champaign, Illinois 61820.** Reference number 4052.

Affirmative Action/Equal Opportunity Employer

Laboratory

Technical Specialist

Assist in running research laboratory studying blood-brain-CSP barrier systems in neurologic diseases. Bachelor's degree in biology or chemistry, plus 2 years of laboratory animal research required; master's plus computer knowledge preferred. Skill in laboratory animal surgery, handling radioisotopes, biochemistry and radiochemistry analysis essential. Send curriculum vitae to: **Jane McMahon, Assistant to Chairman, Department of Neurological Surgery, HSC T12-080, State University of New York (SUNY) Stony Brook, Stony Brook, New York 11794.** SUNY, Stony Brook, is an Equal Opportunity/Affirmative Action Employer. AK 609B.

POSITIONS OPEN

POSTDOCTORAL POSITION available now for interdisciplinary study of cerebral electrophysiology, O₂ metabolism, and blood flow in situ during seizures. Background in neurophysiology, circulatory physiology, or neurochemistry preferred. Micro-electrode experience desirable but not mandatory. Salary negotiable. Send curriculum vitae and three references to: **Dr. N. R. Kreisman, Department of Physiology, Tulane University School of Medicine, New Orleans, La. 70112.**

POSTDOCTORAL RESEARCH ASSOCIATE. A position is available 1 July 1983 for a Ph.D. molecular biologist or biochemist to study cytokinin biosynthesis in relation to plant development and oncogenesis. Experience in gene cloning desirable. Salary negotiable within the range \$16,000 to \$18,000, depending upon experience and qualifications. Please send curriculum vitae and three letters of reference to:

**Dr. R. O. Morris
Department of Agricultural Chemistry
Oregon State University
Corvallis, Ore. 97331**

Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973.

POSTDOCTORAL RESEARCH ASSOCIATE position available 1 July for participation in studies on the regulation of coagulation and fibrinolysis by vitamin K-dependent proteins. Applicants with experience in protein purification and characterization will be preferred. Send curriculum vitae and names of three references to: **Dr. F. J. Walker, Terre Haute Center for Medical Education, Indiana University School of Medicine, Room 135 Holmstedt Hall, Terre Haute, Ind. 47809.**

POSTDOCTORAL RESEARCH APPOINTMENTS are occasionally available in the Departments of Biochemistry, Biophysics and Medical Physics, Botany, Microbiology and Immunology, Molecular Biology, Physiology-Anatomy and Zoology at the **University of California at Berkeley, Berkeley, Calif. 94720.** Appointments are normally made for 1 year but with the possibility of renewals for a maximum of two more years. A description of the research interests of the faculty in each department is available from that department upon request, and highly qualified persons are invited to apply directly to the faculty member with whom they wish to work. If no position is available with that faculty member, the application may be circulated to others in the same or other departments with similar research interests. Applications should include a résumé, a brief statement of research interests and goals, and the names and addresses of three references. *The University of California is an Affirmative Action Employer.*

POSTDOCTORAL RESEARCH OPPORTUNITIES

The Graduate Program in Craniofacial Biology at The University of Southern California in Los Angeles offers outstanding scientists in the early stages of their careers several postdoctoral fellowships in a stimulating biomedical environment. Applicants must have a Ph.D. in biochemistry, cell biology, immunology, molecular biology, D.D.S., or M.D. Fellowships are available for 3 years beginning September 1983.

Research projects include the structure and function of enamel gene products, regulation of enamel gene expression, genetic studies of drug-induced birth defects in congenic strains of mice, bone diseases, pulmonary surfactant production during mouse fetal lung morphogenesis, primary and secondary palate formation, tooth morphogenesis, extracellular matrix regulation of differentiation, and evolutionary studies of dental gene products.

Please submit complete curriculum vitae and three letters of reference before 15 July 1983 to: **Dr. H. C. Slavkin, Chairman, Graduate Program in Craniofacial Biology, University of Southern California, University Park, Los Angeles, California 90089-0191.**

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

PULMONARY RESEARCHER. Pulmonary research relating to the neonate. Research in pulmonary cytopathology and chemistry in relationship to the problems of oxygen toxicity. Required: Ph.D. in physiology (pulmonary); \$20,000 per year. Send résumé to: **Job Order Number 3739296, c/o Charles Wilson, Office of Employment Security, Room 1302 State Office Building, Pittsburgh, Pa. 15222.** Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

POSTDOCTORAL POSITION available immediately to study mechanisms of oncogene activation and chromosomal rearrangements in human tumors. Experience in recombinant DNA technology desirable. Send curriculum vitae and names of three references to: **Dr. Riccardo Dalla Favera, Department of Pathology and New York University Cancer Center, New York University School of Medicine, 550 First Avenue, New York, N.Y. 10016.** An Affirmative Action/Equal Opportunity Employer, M/F.

POSTDOCTORAL RESEARCH ASSOCIATE POSITION available September 1983 through August 1986 for electrophysiological studies of steroid hormone effects on sexually dimorphic neurons of isolated frog brain. Experience with intracellular recording techniques essential. A background in tissue culture would be helpful. Send curriculum vitae and names of three references to: **D. B. Kelley, Department of Biological Sciences, 1018 Fairchild, Columbia University, New York, N.Y. 10027.**

RESEARCH

Position available immediately to study viruses transmitted by blood transfusion. Background in virology, immunology, tissue cultures, and recombinant DNA technology required. Preference will be given to candidates familiar with recombinant DNA technology and/or expertise in preparing monoclonal antibodies. Send résumé and two letters of recommendation to: **Dr. A. R. Neurath, The Lindley F. Kimball Research Institute of the New York Blood Center, 310 East 67 Street, New York, N.Y. 10021.** An Affirmative Action/Equal Opportunity Employer.

UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF MEDICINE

The Cardiovascular-Pulmonary Division seeks **TWO RESEARCH ASSISTANT PROFESSORS:** Ph.D. in physiology or bioengineering with proven competence either in mathematical modeling of the water-exchanging system of the lungs or neurophysiological techniques as applied to respiratory anatomy and physiology. Candidates should have electronics background and expertise in handling specialized techniques as well as pertinent computer hardware and software. Experience in both physiological and computer laboratories are prerequisites. Send résumés and names of three references to: **Michael McNicholas, Cardiovascular-Pulmonary Division, Department of Medicine, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa. 19104.** Equal Opportunity/Affirmative Action Employer, M/F.

RESEARCH ASSISTANT PROFESSOR. Nontenure-track position. Available July 1983. Teaching of elementary course in organic and biological chemistry required together with research. Candidates must have extensive postdoctoral experience in the mechanism of action of folate enzymes, filter-binding assays, and in immobilized enzyme technology. Apply by submitting curriculum vitae and three letters of recommendation by 10 July 1983 to: **Dr. Ronald R. Fisher, Department of Chemistry, University of South Carolina, Columbia, S.C. 29208.**

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

RESEARCH PHYSICIST POSITIONS

The Department of Physics of the University of California, Irvine, has several positions available for research on new accelerator concepts. One experimental and one theoretical plasma physicist are required with a Ph.D. or equivalent experience. Positions are available 1 July. Send résumé, bibliography, and names of three professional references to: **Professor Norman Rostoker, Department of Physics, University of California, Irvine, Irvine, Calif. 92717.** An Affirmative Action/Equal Opportunity Employer.

RESEARCH CHEMIST: Performs research, including original designs and inventions to identify, test, and develop catalyst for chemical and petrochemical utilization; will supervise technicians and produce full reports of work.

REQUIREMENTS: Ph.D. or equivalent (ABD plus dissertation research completed) with state-of-the-art knowledge or organo-metallic chemistry, including chromium or molybdenum organo-metallic catalysis. Demonstrated ability to conduct research of publishable quality.

Forty hours per week. **SALARY:** \$38,000 per year. Please submit résumé to: **Philadelphia Job Bank, 444 North 3rd Street, Philadelphia, Pa. 19123; refer to Order Number 3603944.**

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We now offer our recruitment advertisers the convenience formerly found only in daily newspapers. We call it "**The Four-Day Close.**" Instead of reserving space a month or more in advance, you now have until just four days before the issue is mailed to its 160,000-plus subscribers.

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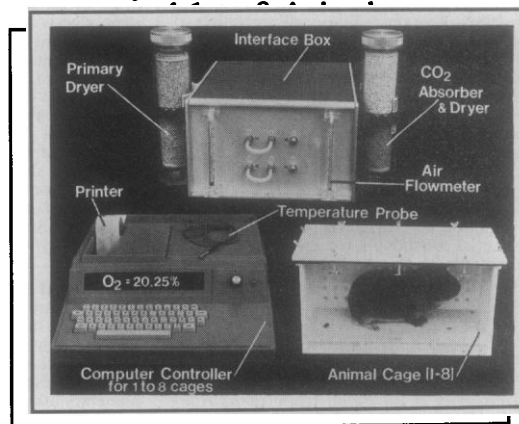
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Circle No. 6 on Readers' Service Card

Director Tumor Immunology

Start-up venture capital backed company in cancer detection-therapy, using monoclonal antibodies, seeks Director of Tumor Immunology.

We are seeking an experienced individual who has proven managerial ability and scientific achievements and who will divide time 50% for bench work, 50% for management tasks.

The successful candidate will possess: a Ph.D. or M.D.; 8-10 years scientific experience in fields of tumor immunology, tumor markers, lymphokines or enzymology; and a minimum one year in a management capacity.

We offer a salary commensurate with experience, a comprehensive benefits package and relocation assistance as well. Please send resume and salary history to:

**P.O. Box 6539
Silver Spring, MD 20906**

POSITIONS OPEN

RESEARCH ASSOCIATE. The Stanford University School of Earth Sciences and the Center for Materials Research seek a research-oriented scientist for an initial 3-year appointment to start approximately 1 October 1983. Responsibilities will include: (i) supervision and maintenance of a new XRF-XRD facility, (ii) supervision of a new ESCA spectrometer, and (iii) interaction with our microprobe technician in optimizing software for geological applications. Duties will include training faculty and student users of the XRF, XRD, and ESCA, but not service work. Experience in operation of XRF, XRD, and/or electron microprobe required; we will train on the ESCA. A good working knowledge of DEC Series 11 computers (11/02, 11/23, 11/34) operating under the RSX-11M monitor and of Fortran-level programming is essential. Although we envision that the duties associated with this new equipment will constitute a full-time job for a year or two, we prefer Ph.D.-level applicants who desire eventually to develop their own research program in conjunction with Stanford geology faculty. Send curriculum vitae to: **Gail Mahood, Department of Geology, Stanford University, Stanford, Calif. 94305.**

Stanford University is an Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE position available 1 October 1983 for research into microtubule assembly during maturation of amphibian oocytes. Candidates should have a Ph.D. in biochemistry, molecular or cellular biology. Curriculum vitae, research résumé, and names, addresses, and telephone numbers of at least three references should be provided to: **Dr. Steven R. Heidemann, Physiology Department, 111 Giltner Hall, Michigan State University, East Lansing, Mich. 48824-1101. Michigan State University is an Equal Opportunity/Affirmative Action Employer.** Applications will be accepted until 1 August 1983 or until a suitable candidate is identified.

RESEARCH SCIENTIST

The Denver Center for the Performing Arts has founded a research laboratory for the study of laryngeal and respiratory function, both as basic research and in application to vocal performance. The laboratory is located in Denver, Colorado. Its director is Dr. Wilbur J. Gould, and associate director, as consultant, Dr. Ingo R. Titze.

Responsibilities include developing and carrying out a research program in voice area, development of laboratory, grant writing, and cooperation with visiting scientists. Emphasis on voice physiology, acoustics, or perception. Demonstrated ability to design and report research. Background may be in physical or biological sciences, engineering, medicine, experimental phonetics/speech science, or research in vocal performance. Should have interest in vocal arts and enhancement of vocal performance in both live and recorded form.

Starting salary about \$27,500, depending on qualifications. Send letter of application with curriculum vitae, bibliography, and three or more letters of recommendation to:

Dr. Ingo R. Titze
Department of Speech Pathology and Audiology
University of Iowa
Iowa City, Iowa 52242

SCIENTIST/RESEARCH ASSISTANT PROFESSOR, NUCLEIC ACID CHEMISTRY. Applications at the research assistant professor level are invited for a person with considerable background in nucleic acid chemistry to study an unusual DNA in lymphocytes. Ph.D. in biochemistry or related area. Salary commensurate with experience. Applications together with curriculum vitae, research experience and interests, and the names of three references should be sent to: **Dr. Phyllis R. Strauss, Department of Biology, Northeastern University, 360 Huntington Avenue, Boston, Mass. 02115. An Equal Opportunity/Affirmative Action/Title IX University.**

Job opening: **SYSTEM SOFTWARE STAFF** of the Computer-based Education Research Laboratory (PLATO), with duties in maintenance, development, system management, and system design. Qualifications: bachelor's degree or comparable experience, with experience in system software and/or CAI programming. Should be able to work on own initiative in group of 10 to 20 people. Starting salary: \$18,000 to \$22,000. Send letter and résumé to: **Michael W. Walker, 252 ERL, 103 South Mathews, University of Illinois, Urbana, Ill. 61801.** Closing date: 20 June 1983.

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

POSITIONS OPEN

RESEARCH SCIENTIST IN CELL BIOLOGY—The Dana-Farber Cancer Institute, affiliated with Harvard Medical School, announces an immediate opening for a Ph.D. scientist in cell biology. The appointee will join a team involved in research and development of immunotoxins as reagents for treatment of human cancers and would be responsible for the study of their in vitro toxicity. The candidate should have broad experience in the area of in vitro cell culture and should also have some knowledge of immunology and biochemistry. Preference will be given to applicants with postdoctoral experience. Applicants should submit curriculum vitae and letters of recommendation to: **Dr. Baruj Benacerraf, President, DANA-FARBER CANCER INSTITUTE, 44 Binney Street, Boston, Mass. 02115. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH SCIENTIST(S) IN SPACE PHYSICS. The Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado announces openings for one or more research scientists. The successful candidate(s) will join our experimental research programs in solar terrestrial physics and planetary atmospheres. LASP has ongoing sounding rocket and satellite programs dedicated to the development of state-of-the-art instruments for space research. An advanced degree is required; a background in solar, planetary, or atmospheric sciences is desirable although experience in related areas will be considered. Salary commensurate with experience. Applications, including a current professional résumé and the names of three references, should be sent by 10 June 1983 to: **Dr. Charles Barth, Director, Laboratory for Atmospheric and Space Physics, Campus Box 392, University of Colorado, Boulder, Colo. 80309. The University of Colorado is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH TECHNICIAN

The University of Georgia (UGA) Marine Institute has an opening for an experienced **RESEARCH TECHNICIAN** to assist in a 2-year research project on trophic interactions between estuarine bacterioplankton and heterotrophic microprotozoa. Experience with epifluorescence microscopy and radioisotope techniques are desirable. Send résumé and names of two references to: **Dr. Barry F. Sherr, UGA Marine Institute, Sapelo Island, Ga. 31327. An Equal Opportunity/Affirmative Action Employer.**

RHIZOBIOLOGIST to prepare monoclonal antibodies against *Rhizobium*; use of monoclonal antibodies to identify *Rhizobium* strains and selection of mutants altered in surface properties. Minimum requirement: Ph.D. in microbiology plus in-depth research in the techniques in preparing anti-*Rhizobium* monoclonal antibodies and in genetic analysis of *Rhizobium*. Knowledge of techniques required to instruct other employees in their use; 40 hours per week; salary: \$28,000 per year. Contact: **B. Janek, Wisconsin Job Service, 206 North Broom Street, Madison, Wis. 53703; telephone: 608-266-3037.** This ad not paid for by Job Service funds.

TISSUE CULTURE PRODUCTION. Individual must possess B.S. degree in microbiology or virology plus 3 to 5 years of experience in large-scale propagation of herpesvirus, rubella virus, and preparation of viral antigens from these viruses. One or more years of experience in biophysical separation of viral antigens, maintenance of all types of cells in culture for virus propagation, preparation of cell culture media, and experience in handling and using rodents for preparation of antigens. For consideration, please send résumé with salary requirements, in confidence, to: **Dr. J. Kern, Litton Bionetics, Inc., 2020 Bridge View Drive, Charleston, S.C. 29405.**

VIROLOGIST AND IMMUNOLOGIST

ADVANCED GENETICS RESEARCH INSTITUTE (AGRI), a young, growing San Francisco Bay area company doing research and development in animal health products, has immediate openings for skilled hands-on scientists for our veterinary viral vaccine development program. Virologist position requires broad expertise in virus growth, assay, and titer methods. Immunologist needs strong background in immunochemistry and serology, including antibody/antigen purification and assay. Experience with veterinary virus and vaccine development a distinct advantage. Exciting opportunity for hardworking, highly motivated individuals. Please send résumé, including salary history and objectives, to: **Burt Dorman, AGRI, 2220 Livingston Street, Oakland, Calif. 94606.**

COURSES

SHORT COURSES IN ELECTRON MICROSCOPY Center for Electron Microscopy University of Illinois, Urbana-Champaign

(I) **Preparative Techniques for TEM**—18 to 23 July, an intensive "hands-on" course designed to teach participants the basic skills required for electron microscopy.

(II) **The Use of EM in Diagnosis**—24 to 26 July 1983, a lecture-discussion program on the role of electron microscopy in clinical diagnosis.

For applications and information, please contact: **Dr. Marcelle A. Gillott, CEM, University of Illinois, 78B Bevier Hall, 905 South Goodwin, Urbana, Ill. 61801; telephone: 217-333-2108.**

Approved for CMLE credits (ASCP).

TRAINEESHIPS

POSTDOCTORAL TRAINEESHIPS IN PARASITOLOGY/VECTOR BIOLOGY available in: biochemistry of parasitic helminths (Saz); developmental biology and in vitro cultivation of helminths (Weinstein); insect biochemistry and/or endocrinology (Fuchs). Appointments start between 1 July and 1 October 1983. Stipends begin at \$14,040 per year. Candidates must be U.S. citizen or permanent resident. Send résumé and names of three references to: **Dr. Paul P. Weinstein, Department of Biology, University of Notre Dame, Notre Dame, Ind. 46556.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP IN VISION RESEARCH. Postdoctoral position available from September 1983 for physiology, anatomy, or psychology Ph.D. in general area of vision research. Ongoing projects include single unit electrophysiological, anatomical and behavioral studies of visual system of birds and mammals. Image processing computer available for quantifying ¹⁴C 2-DG autoradiographs and other anatomical data, and for the control of complex stimulus patterns. Experience with anatomical or physiological techniques desirable. Send curriculum vitae and two letters of reference to: **Dr. B. J. Frost, Department of Psychology, Queen's University, Kingston, Ontario, Canada K7L 3N6.**

POSTDOCTORAL FELLOWSHIP IN IMMUNOBIOLOGY. Postdoctoral fellowships in cancer immunobiology are available at Sloan-Kettering Institute for Cancer Research. Fellows will be trained in cellular immunology, development and interaction of lymphoid cells, molecular immunology, clinical immunology and cancer, human and mouse immunogenetics, tumor immunology, cell surface immunochimistry, and immunogenetics. Training methods include individualized research with qualified mentor training in clinical laboratory analysis, lectures, courses, seminars, discussions, rounds, clinics, and conferences. Individual research program will be offered either in New York City or at Walker Laboratory, Rye, N.Y. Only U.S. citizens or foreign nationals with permanent resident or immigrant visas will be considered. Send inquiry with brief résumé to: **Dr. Y. S. Choi, Immunobiology Training Program Director, Sloan-Kettering Institute for Cancer Research, 145 Boston Post Road, Rye, N.Y. 10580. An Equal Opportunity/Affirmative Action Employer.**

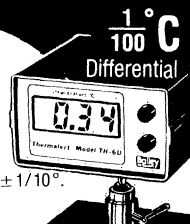
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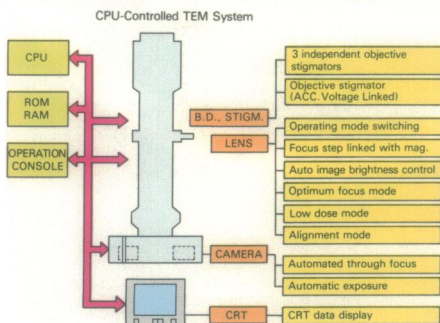
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Besides TEM, STEM and SEM analyses, the H-800's normal geometry permits both EDX and EELS spectroscopy without any change in specimen position at all.

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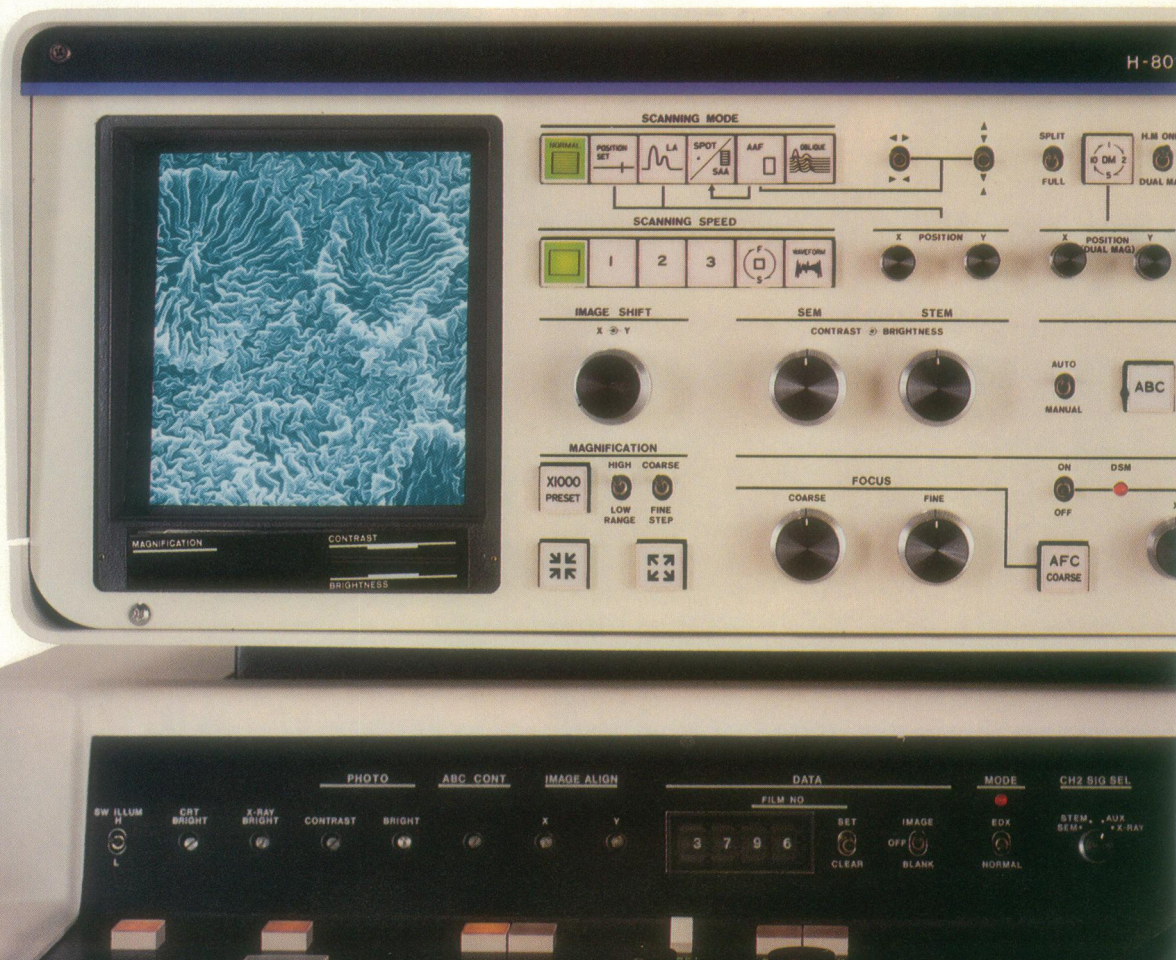
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