

"The Mexican bull, '*Taurus Mexicanus*,' as pictured in Dr. Francisco Hernandez's natural history of Mexico (1651). Linnaeus used Hernandez's description as the type description for *Bos bison*, now *Bison bison*. *Bison bison* is the type species for the genus." [From *North American Bison*]

was composed of individuals that were browser-grazers, more or less solitary in their habits. *B. antiquus* (the intermediate-sized form) is considered to have been a grazer-browser, occupying the savanna-wooded-steppe habitat. These forms are presumed to have been more gregarious than *B. latifrons* and to have possessed many of the other adaptive features characteristic of the living form, *B. bison*. The living species is pictured as having the greatest biological potential, as being extremely gregarious, smaller in size, and dependent almost entirely upon grazing.

McDonald's evolutionary model is based upon his conclusions regarding behavior and habitat preference as well as upon morphological features. In his model, both *B. latifrons* and *B. antiquus* evolved from *B. sivalensis*, an Old World form. He believes that *B. latifrons* and *B. antiquus* were contemporaneous and allopatric and that the former became extinct and the latter evolved into *B. bison*. This approach differs in varying degrees from previous models. It refutes Allen's century-old theory that bison evolution in North America involved simply a decrease in horn size from *B. latifrons* through *B. antiquus* to *B. bison*. However, it differs less significantly from more modern models, nearly all of which call for more than one line of descent in North American bison.

The strength of this work lies in the vast number of specimens studied, the quantity of data collected, the multidisciplinary approach to the problem, and the author's willingness to draw some-

times bold conclusions from the available information. As McDonald points out, the study of bison taxonomy and evolution is controversial. This book will heighten that controversy; like all good works, it will raise more questions than it will answer.

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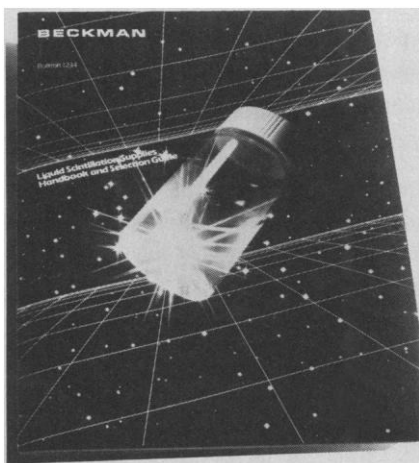
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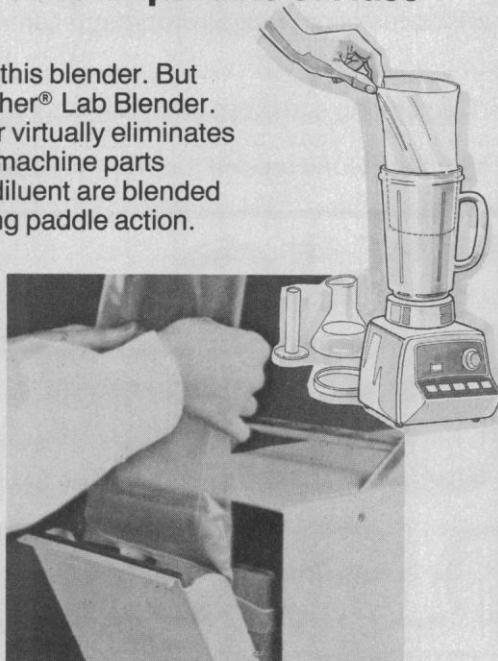
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POSITIONS OPEN

ACADEMIC PATHOLOGIST. A faculty position is available in the Department of Pathology, University of California, San Francisco. Required: M.D., Board-certified or Board-eligible in anatomic and/or clinical pathology with expertise in obstetrics-gynecology/cytopathology, and interest in investigative work. Direct inquiries to: Edward A. Smuckler, M.D., Ph.D., Department of Pathology, University of California, San Francisco, Calif. 94143. An Equal Opportunity/Affirmative Action Employer.

ANATOMY DEPARTMENT HEAD. The Purdue University School of Veterinary Medicine invites nominations and applications for the position of head of the Department of Veterinary Anatomy. Candidates must have a doctoral degree in an anatomical science and in medicine or veterinary medicine. Strong research and teaching capabilities are required and administrative experience is desirable. Applications and nominations will be accepted through 1 March 1982. Applicants should submit a résumé and the names and addresses of three references to: Dr. Billy E. Hooper, School of Veterinary Medicine, Purdue University, Lafayette, Indiana 47907. An Equal Opportunity/Affirmative Action Employer.

ANIMAL PHYSIOLOGIST

A tenure-track assistant professorship will be available 1 September 1982. The position involves teaching an introductory course in animal physiology, an advanced course in the applicant's field of special interest, and development of a research program involving graduate and undergraduate students. Preference will be given to those whose interests are in comparative and/or environmental physiology. Ph.D. required and postdoctoral experience is desirable.

Applicants should submit current curriculum vitae, three letters of recommendation, and a statement of research goals and teaching interests.

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Apply to: Dr. Frank J. Etges, Department of Biological Sciences, University of Cincinnati, Cincinnati, Ohio 45221.

Deadline: 15 February 1982.

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POSITIONS OPEN

ANATOMY—Tenure-track assistant professor, beginning 1 July 1982. The qualifications required are (i) Ph.D. or M.D. degree, (ii) teaching ability in any two of the following four areas: medical gross anatomy, neuroanatomy, histology, and embryology, and (iii) strong productive research program. Persons with postdoctoral experience will be preferred. The salary will be commensurate with qualifications and experience. Interested individuals should send complete curriculum vitae, details of research activities, and names of at least three referees before 1 March 1982 to: Dr. M. G. Joneja, Professor and Head, Department of Anatomy, Faculty of Medicine, Queen's University, Kingston, Ontario, Canada K7L 3N6. Canadian citizens and Landed Immigrants will be given preference. Persons of both sexes are encouraged to apply.

ANIMAL BIOCHEMIST

The Department of Agricultural Biochemistry of the University of Nebraska-Lincoln. Tenure-track assistant or associate professor. Postdoctoral experience and research interests in any area of basic biochemistry related to the growth and reproduction of domestic animals is desirable. This 12-month position, primarily in the Experiment Station, includes teaching duties. Résumé and names of three references should be sent by 28 February 1982 to: J. M. Daly, 206 Agricultural Biochemistry Hall, The University of Nebraska, Lincoln, Neb. 68583-0718. Telephone: 402-472-2932. An Equal Opportunity/Affirmative Action Employer.

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ASSISTANT PROFESSOR. The Department of Psychology at the University of Massachusetts/Amherst has a beginning level assistant professor position to be filled fall 1982. Candidates in the areas of: clinical psychology with an emphasis on child/developmental, severe psychopathology, and/or ethnic minority/cross-cultural issues; developmental psychology with an emphasis on language or comprehension development; physiological psychology with an emphasis on motivation; or social psychology with an emphasis on quantitative methods are invited to send curriculum vitae and three letters of reference before 1 February 1982 to: Bonnie Strickland, Ph.D., Chair, Department of Psychology, University of Massachusetts, Amherst, Mass. 01003. The University of Massachusetts is an Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR—BIOCHEMISTRY

The Department of Biochemistry at the University of Pittsburgh School of Medicine invites applications for two tenure-track positions to be filled effective 1 July 1982. Applicants must hold a Ph.D. or M.D. degree and have at least 2 years of postdoctoral experience. Candidates with demonstrated research ability and a commitment to excellence in teaching of medical and graduate students are sought. Successful candidates are expected to develop productive research programs with external funding in an area of biomedical significance. Send curriculum vitae, an outline of research interests, and the names of three references by 1 March 1982 to: Dr. Norman P. Curthoys, Department of Biochemistry, University of Pittsburgh School of Medicine, Pittsburgh, Pa. 15261. An Equal Opportunity/Affirmative Action Employer.

The Department of Physiology, College of Medicine, University of Saskatchewan, has available a limited-term position at the **ASSISTANT PROFESSOR** level. The position is nontenurable but may be continuous for 3 years. Applicants must have a Ph.D., D.D.S., D.V.M., or M.D. degree with postdoctoral experience. Preference will be given to individuals with teaching and research expertise in neurophysiology, gastrointestinal and/or renal physiology. Address inquiries to: N. M. McDuffie, Acting Head, Department of Physiology, College of Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0. Applications are welcome until the position is filled. While consideration will be given only to Canadian citizens and permanent residents until 15 March 1982, other applications may be considered after that date.

POSITIONS OPEN

ASSISTANT PROFESSORSHIPS

The Department of Biology, University of Alabama in Birmingham, invites applications for two tenure-track positions, beginning 1 September 1982. Positions available are: (i) **CELL BIOLOGIST**, with training in developmental biology and/or endocrinology, and (ii) **ENVIRONMENTAL MICROBIOLOGIST**, with training in microbial genetics. Postdoctoral experience desirable. Research should be compatible with ongoing programs in (i) vertebrate reproduction and (ii) microbial ecology. Ability and willingness to teach in both our undergraduate and graduate programs are necessary. Send curriculum vitae, three letters of reference, and other pertinent information by 20 February 1982 to: Dr. C. G. Crispens, Jr., Chairman of Search Committee, Department of Biology, University of Alabama in Birmingham, University Station, Birmingham, Ala. 35294. *An Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSORS

The Department of Biological Sciences at the University of Maryland Baltimore County (UMBC) will make a tenure-track appointment for fall 1982 in one of the following areas:

- 1) **ANIMAL PHYSIOLOGIST** with research interests in neural, endocrine, or regulatory problems in invertebrate or vertebrate biology, or
- 2) **PHYSIOLOGICAL ECOLOGIST** with research interests to complement current faculty research in ecological genetics, population dynamics, evolutionary ecology, behavior, and neural and endocrine physiology.

Candidates must have postdoctoral training and a record of research accomplishments. Appointees are expected to continue productive research programs and to teach at the undergraduate level in a team-taught course in anatomy and physiology, as well as advanced/graduate courses in their area of specialty. The Department of Biological Sciences offers the M.S. and Ph.D. degrees and also participates in the university-wide graduate program in marine-estuarine-environmental sciences. Funds will be provided to initiate research. Send curriculum vitae, statement of future research interests, and names of four referees to:

Dr. Frank E. Hanson
Department of Biological Sciences
University of Maryland Baltimore County
Catonsville, Maryland 21228

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ASSISTANT PROFESSOR—ECOLOGY. Applications are invited for a tenure-track, undergraduate teaching position starting in September 1982. Preference will be given to candidates who have completed the Ph.D. degree and have demonstrated excellence in teaching. Specialization in the areas of physiological ecology, energy relationships, and/or aquatic ecology is preferred. This position will require the teaching of an introductory course in biology and one course in general ecology, invertebrate zoology, or limnology each term. In addition, a productive research program is expected. Please send a letter of application, a complete résumé, and at least three letters of reference to: Dr. W. J. Oostenink, Department of Biology, Colgate University, Hamilton, New York 13346. Closing date for applications is 1 March 1982. *Colgate University is an Affirmative Action/Equal Opportunity Employer. Women and minority persons are encouraged to apply.*

BIOLOGY DEPARTMENT, University of Michigan-Flint, invites applications for positions beginning fall 1982: (i) full-time, tenure-track assistant professor level, with teaching responsibilities in human anatomy, histology, and developmental biology. Requirements: Ph.D., demonstrated teaching ability, active research record, and broad training in biology; (ii) full-time, tenure-track assistant professor level with teaching responsibilities in genetics and biostatistics. Requirements: Ph.D., demonstrated teaching ability, active research record, and broad training in biology; (iii) two full-time lecturers with responsibilities for laboratory instruction in two or more of the following areas: anatomy, physiology, cell biology, histology, and general biology. Requirements: master's or equivalent, demonstrated teaching ability, and broad training in biology essential for the lecturer positions. Positions are subject to funding and post approval. Send résumé, including teaching areas, copies of representative recent publications, and list of three references, by 1 March 1982 to: Dr. K. Lavoie, Biology Department, University of Michigan-Flint, Flint, Mich. 48503. *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGY—Full-time, tenure-track, academic-year appointment. Teaching and research expected. Teaching duties: large introductory biology course which serves majors and nonmajors. Individual is expected to conduct active scholarly program in his/her area of expertise. Qualifications: Ph.D. in a biological science; demonstrated competence in teaching at the introductory level preferred. Send résumé, transcripts, reprints, and names of three professional references to: **Biology Search Committee, 202 Deering Hall, University of Maine, Orono, Maine 04469.** Deadline: 28 February 1982. *An Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR—TOXICOLOGY

University of Minnesota

Candidates with an M.D. and/or Ph.D. in pharmacology or related field and three or more years of relevant postdoctoral experience in biochemical toxicology are invited to apply for this tenure-track position. The successful candidate should have a strong analytic background, show promise of developing an independent research program, and expect to teach and advise graduate and health professional students. Send curriculum vitae, statement of research plans, significant reprints, and names of three references to: **S. B. Sparber, Ph.D., Chairman of Search Committee, Department of Pharmacology, 3-260 Millard Hall, 435 Delaware Street, SE, University of Minnesota, Minneapolis, Minnesota 55455.** Deadline for receipt of applications is 1 March 1981.

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

BIOLOGICAL OCEANOGRAPHER—WRITER to prepare reports and proposals. Ph.D. in biological oceanography or marine biology and meticulous technical writing and editing capabilities required. Ability to collaborate with team members essential. Knowledge of Gulf of Mexico advantageous. Forward curriculum vitae, statement of professional goals, and three references to: **Dr. Richard M. Hammer, Continental Shelf Associates, Inc., P.O. Box 3609, Tequesta, Fla. 33458.**

POSITIONS OPEN

ASSOCIATE DIRECTOR FOR RESEARCH. The University of Texas Health Center at Tyler is seeking qualified candidates for the position of associate director for research. Candidates should possess a doctorate in the medical or biomedical sciences with further postgraduate specialization in a research discipline. A record of excellence in scientific achievement and attainment of a senior faculty level or equivalent in an academic or research oriented institution, as well as a proven background in administrative roles, is required. Research interest in some facet of chest diseases is preferred. Send curriculum vitae and letter of interest to:

Search Committee
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The University of Texas Health Center at Tyler
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Tyler, Texas 75710
Equal Opportunity Employer

Applications are invited by qualified candidates for the position of **CHAIRMAN** of the Department of Biology at Washington University. Applicants should be well-established scientists with a strong background in research. Preference will be given to applicants with an interest in developmental biology or molecular aspects of plant biology. Interested applicants should provide complete curriculum vitae as well as the names of at least three scientists who can be contacted for references to: **Dr. L. Glaser, Department of Biological Chemistry, Box 8094, Washington University School of Medicine, St. Louis, Missouri 63110.**

Washington University is an Equal Opportunity/Affirmative Action Employer, M/F/H/V.

CHAIRPERSON, Department of Neuroscience, Albert Einstein College of Medicine. The candidate should have demonstrated leadership qualities, commitment to academic excellence, and international recognition for scholarly accomplishments. Send curriculum vitae and other pertinent information to: **Robert Katzman, M.D., Department of Neurology, Albert Einstein College of Medicine, 1300 Morris Park Avenue, Bronx, N.Y. 10461.** *An Equal Opportunity Employer.*

BIOLOGIST

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Lederle offers competitive salaries, comprehensive benefits and growth opportunities in an attractive Rockland County location accessible to many cultural, educational and leisure activities. Please reply in confidence, indicating salary history and requirements, to: Mrs. Nancy Levine, Professional Employment Coordinator, Lederle Laboratories, American Cyanamid Company, Pearl River, New York 10965.

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POSITIONS OPEN

ASSISTANT PROFESSOR in biological sciences, starting September 1982. Duties include teaching undergraduate courses in **INTRODUCTORY and MOLECULAR GENETICS** and establishing a research program. Experience in bacteriology, virology, or mycology would be advantageous. Smith College, a highly selective liberal arts college, provides excellent facilities for teaching and research and for interaction with colleagues in the Five-College area. Send curriculum vitae, a statement of research interests, and three letters of recommendation to: **Dr. E. A. Tyrrell, Department of Biological Sciences, Smith College, Northampton, Mass. 01063**, by 17 February 1982. *An Equal Opportunity Employer.*

ASSISTANT PROFESSOR in biological sciences, starting September 1982. Duties include teaching undergraduate courses in **IMMUNOLOGY and CELL BIOLOGY** and establishing a research program. Experience in microbiology or pathogenesis would be advantageous. Smith College, a highly selective liberal arts college, provides excellent facilities for teaching and research and for interaction with colleagues in the Five-College area. Send curriculum vitae, a statement of research interests, and three letters of recommendation to: **Dr. S. P. Scordilis, Department of Biological Sciences, Smith College, Northampton, Mass. 01063**, by 17 February 1982. *An Equal Opportunity Employer.*

ASSISTANT RESEARCH OCEANOGRAPHER POSITION

Scripps Institution of Oceanography (SIO) invites applications for an assistant research oceanographer position. The incumbent will be expected to apply methods of remote sensing to the study of physical processes in coastal areas. Jointly sponsored by the Center for Coastal Studies and the Visibility Laboratory, the position will be at the assistant research oceanographer level (\$22,900 to \$30,100, commensurate with qualifications). Applicant should have a background in physical oceanography at the Ph.D. level or equivalent. Strong interests in coastal physical oceanography and remote sensing are important assets, but prior experience in these areas is not required. Private foundation funding provides support for up to 2 years and is limited to U.S. citizens. Submit résumé, including names of three references, before 26 February 1982 to: **J. D. Frautschy, Deputy Director, A-010, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, Calif. 92093**. Request position profile at the same address. *An Equal Opportunity/Affirmative Action Employer.*

BIOCHEMICAL ENDOCRINOLOGIST position in the Department of Cellular and Molecular Biology at the Southwest Foundation for Research and Education which is affiliated with the University of Texas Health Science Center at San Antonio. The individual sought will be expected to collaborate in established programs examining hormonal regulation of target tissue function during aging and in neoplasia and to develop an independent complementary research program. Applicants with a Ph.D. degree and experience in studies of steroid and/or polypeptide hormone action in cell culture and in receptor quantitation are particularly encouraged. The Department of Cellular and Molecular Biology is directed by Dr. Sydney A. Shain, maintains a large colony of inbred rats for studies in aging, and has established programs of in vivo and in vitro studies related to prostatic cancer. The research environment provides an excellent opportunity for an aggressive, creative scientist. Send résumé, a statement of research interests, and names of three references to: **Personnel Manager, Southwest Foundation for Research and Education, P.O. Box 28147, San Antonio, Texas 78284**.

We are an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL SCIENTIST position available for participation in studies of hormonal regulation of prostate cancer cell function. We are seeking an individual trained in molecular biology/cell biology with predoctoral experience in maintenance and growth of cells in culture. The position is in the Department of Cellular and Molecular Biology at the Southwest Foundation for Research and Education. The department has established programs of in vivo and in vitro studies related to prostatic cancer. Send résumé, statement of research interests, and names of three references to: **Personnel Manager, Southwest Foundation for Research and Education, P.O. Box 28147, San Antonio, Texas 78284**.

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POSITIONS OPEN

ASSOCIATE CHIEF OF STAFF FOR RESEARCH AND DEVELOPMENT applications are invited at the Veterans Administration Medical Center, Kansas City, Missouri.

Candidates should be established M.D. research investigators who have a record of meritorious research, have been highly successful in competing for research funding, and are actively engaged in a substantial ongoing research program. Candidates to head this \$3-million program with 150 employees should have prior administrative experience and will be expected to provide dynamic leadership in the continuing development of research programs.

Joint appointments will be given at the Veterans Administration Medical Center and the appropriate department at the University of Kansas College of Health Sciences and Hospital.

Respond with curriculum vitae and three references to: **H. Daniel Lewis, M.D., Chairman, Search Committee, Veterans Administration Medical Center, 4801 Linwood Boulevard, Kansas City, Mo. 64128**.

An Equal Opportunity Employer

BIOCHEMISTS—MOLECULAR BIOLOGISTS

Tenure-track faculty positions at assistant and associate professor levels. Candidates should be interested in developing strong and independent research with long-term growth potential on the mechanisms of gene expression at the molecular level in either prokaryotic or eukaryotic systems. This area may be interpreted broadly from chemical-physical to genetic interests. Teaching includes medical, dental, and graduate students at sizable and rapidly expanding medical complex. Biochemistry department with excellent new facilities is undergoing substantial expansion. Salary commensurate with experience and competitive. Curriculum vitae, brief statement of present and future research interests, and three letters of recommendation should be sent to: **Dr. Robert D. Wells, Chairman, Department of Biochemistry, University of Alabama—Birmingham, Schools of Medicine and Dentistry, University Station, Birmingham, Alabama 35294**. *An Equal Opportunity/Affirmative Action Employer.*

BIOCHEMIST

Martin Marietta Laboratories (MML), Bioscience Department, has an opening for a biochemist or microbiologist interested in the production of chemical products by biological processes. Applicants should have a Ph.D. in biochemistry (or closely related area) and expertise in microbiology or genetics.

MML is the corporate research organization for Martin Marietta Corporation, a Fortune 200 company. Conveniently located on the Baltimore-Washington corridor, we offer competitive salaries and excellent benefits. Send résumé, including references, to:

**Monica C. Ballard
Martin Marietta Laboratories
1450 South Rolling Road
Baltimore, Maryland 21227**

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Applications are invited for a nonfaculty position, annually renewable for 5 years. Beginning salary: \$16,500 for 12 months. Ph.D. in biological sciences required. Postdoctoral experience preferred. Duties: (i) coordination of some 20 freshmen biology laboratory sections each quarter, (ii) supervision of 11 graduate teaching assistants and two part-time student help, (iii) rewriting of laboratory exercise protocol when needed, (iv) occasional lectures, and (v) acquisition and arrangement of supplies and equipment. Collaborative research opportunity available. Send curriculum vitae and three references with their telephone numbers to: **Dr. Woon H. Jyung, Chairman, Department of Biology, University of Toledo, Toledo, Ohio 43606**. Closing date for receipt of applications: 1 March 1982. *Affirmative Action/Equal Opportunity Employer.*

EXERCISE PHYSIOLOGIST with research and teaching emphases in biochemical adaptations to exercise; position open July 1982. Assistant professor on tenure-track or 3-year term position, depending on experience and qualifications. Responsibilities include teaching undergraduate and graduate courses in field of specialty and developing an active research program. Closing date: 1 March 1982. Send résumé, names of three references, and reprints of publications to: **J. L. Smith, Department of Kinesiology, University of California, Los Angeles, California 90024**. *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CELL PHYSIOLOGIST: RESEARCH INVESTIGATOR to investigate cell physiology, electrophysiology, pharmacology, and biochemistry of eccrine sweat gland and its relationship to normal and abnormal functioning in certain disease states. Duties: to identify and define problems, develop hypotheses, modify methodologies, and conduct research into mechanisms of eccrine secretory functions. Specific duties include isolation of single eccrine sweat glands under a stereomicroscope, microannulation of the sweat duct, microperfusion of the lumen of the duct, measurement of transport of various ions and solutes, measurement of cell and epithelial p.d. in the isolated sweat gland, cell isolation and tissue culture of isolated cells, cytofluorometry, microdetermination of various ions and solutes in micro sweat samples, construction and use of ion-selective electrodes, microdetermination of enzymes in tissue, and radioimmunoassay. Qualifications: M.D. or Ph.D. in cell physiology or pharmacology and the demonstrated ability to carry out the duties outlined. Previous experience in electrophysiology, cell separation, tissue culture, or renal physiology of isolated single nephron is important. Manual dexterity is essential. Salary: \$15,000. Send résumé and names of three references to: **Thomas J. Cannon, Iowa Department of Job Service, 1810 Lower Muscatine Road, Iowa City, Iowa 52240**.

CHAIRPERSON DEPARTMENT OF ANATOMY School of Medicine, University of Virginia

The University of Virginia invites applications for the position of chairperson of anatomy. Applicants should have strong records of productive research as well as experience in medical education. Preference will be given to candidates whose research interests are in cellular-molecular biology and whose teaching experience qualifies them to direct the educational activities of the Department of Anatomy. The department is responsible for instruction of medical students in gross anatomy, histology, neuroanatomy, and developmental biology and for graduate instruction in program leading to the Ph.D. degree in anatomy, cellular and molecular biology, and neuroscience. Candidates must have the M.D., Ph.D., or equivalent degree.

Qualified candidates may submit their curriculum vitae and bibliography to:

**R. G. Langdon, M.D., Ph.D.
Chairman of the Search Committee
Department of Biochemistry
University of Virginia School of Medicine
Charlottesville, Virginia 22908**

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

CHAIRPERSON: ANATOMY. Howard University, College of Medicine, Washington, D.C., invites applications from individuals with demonstrated leadership in research, administrative experience, and commitment to education in the health sciences. The successful applicant will be expected to play a major role in expanding the graduate program and furthering interdisciplinary research. Send letter of interest with curriculum vitae and the names of at least three references to: **Dr. G-M. Moolenaar, Anatomy Search Committee, Department of Physiology, Howard University, College of Medicine, Washington, D.C. 20059**. Closing date: 30 January 1982. *Howard University is an Equal Opportunity Employer.*

CHAIRPERSON Department of Biology

Position available for chairperson, Department of Biology, Cleveland State University. Duties will include providing service and leadership in teaching and research. Candidates must have record of scholarly accomplishment, a commitment to undergraduate and graduate teaching, administrative potential, earned doctorate in any of the biological sciences, and be eligible for a senior-level appointment. Salary negotiable and dependent upon experience.

Cleveland State University is an urban institution with 19,000 students. The Department of Biology consists of 16 faculty members and has recently expanded into modern research facilities in a new science building.

The Ph.D. in regulatory biology is awarded in conjunction with the Research Division of the Cleveland Clinic Foundation. Candidates should submit curriculum vitae, short statement of professional goals, and names of at least three references by 15 February 1982 to: **Dr. Peter C. Baker, Chairperson, Search Committee, Department of Biology, Cleveland State University, 1983 East 24 Street, Cleveland, Ohio 44115**.

Senior Research Fellowships

THE BURROUGHS WELLCOME FUND, in collaboration with The Foundation for Advanced Education in the Sciences, announces a new program.

Three Senior Research Fellowships at the National Institutes of Health will be awarded beginning July 1, 1983. An initial stipend of \$30,000 will be offered with a two year tenure and optional third year.

Applicants must have completed a minimum of three years of post-doctoral research training.

The deadline for receipt of applications is August 1, 1982. For information and application please write: Lois Kochanski, FAES, 9101 Old Georgetown Road, Bethesda, Maryland 20814.

Equal Opportunity Employers.

VETERINARY PATHOLOGIST

Rohm and Haas, a leading multinational chemical company, is seeking an experienced individual to supervise its Pathology Unit located in Spring House, PA — an attractive suburb of Philadelphia.

We prefer broad-based experience and/or training in laboratory animal pathology, especially Toxicologic Pathology. Duties include designing, conducting and reporting of safety evaluation studies, with emphasis on the gross, histopathologic and clinicopathologic evaluation of animals used in such studies. Your qualifications should include a D.V.M., and advanced training in pathology and board certification.

We offer a salary commensurate with your level of achievement; an excellent, fully-paid comprehensive benefits package including relocation assistance; and an environment conducive to professional growth in our expanding Toxicology Department.

Please send a complete resume, in confidence, to:

Recruiting and Placement #282



PHILADELPHIA, PA. 19105

An equal opportunity employer M/F.



MARINE BIOLOGICAL LABORATORY Woods Hole, Massachusetts 02543

announces **SUMMER COURSES, 1982**

BIOLOGY OF PARASITISM

John R. David, Harvard Medical School
(Instructor in Chief)

EMBRYOLOGY

Rudolf A. Raff, Indiana University

MARINE ECOLOGY

Ivan Valiela, Boston University & MBL, and
John Teal, Woods Hole Oceanographic
Institution

MICROBIAL ECOLOGY

Harlyn O. Halvorson, Brandeis University

NEURAL SYSTEMS AND BEHAVIOR

Ronald Hoy, Cornell University, and Eduardo
Macagno, Columbia University

NEUROBIOLOGY

Thomas Reese, National Institutes of Health,
and John Hildebrand, Columbia University

PHYSIOLOGY

Joel L. Rosenbaum, Yale University

The instruction is intended for postdoctoral, graduate, and advanced undergraduate students; laboratory work is emphasized.

These full-time courses begin in mid-June with a formal program of five to six weeks followed by a post-course research session of four to six weeks (optional in some cases) in which the student does individual research under the tutelage of an instructor.

Financial aid is available for all courses. Completed applications must be received by MBL by *February 26, 1982*.

ADDITIONAL INFORMATION on course content and application materials may be obtained from the Admissions Office, Marine Biological Laboratory, Woods Hole, Massachusetts 02543; telephone 617-548-3705. MBL is an Equal Opportunity Institution.

POSITIONS OPEN

CELL-MOLECULAR BIOLOGIST; interest and training in genetics. Ph.D. preferred. Available September 1982. Erskine College is a fully accredited, church-related, liberal arts, coeducational college of 650 students, with 50 highly qualified faculty members. Contact: **Dean J. A. Knight, Erskine College, Due West, S.C. 29639.**

CHAIRMAN DEPARTMENT OF BIOLOGICAL SCIENCES UNIVERSITY OF MARYLAND BALTIMORE COUNTY

The Department of Biological Sciences at the University of Maryland Baltimore County (UMBC) is seeking a distinguished scientist to serve as **CHAIRMAN**. The department presently has a group of 20 professorial faculty ranging in research interests from molecular to population biology. It is anticipated that the department will be adding additional professorial faculty members within the next 3 years. Almost all faculty have federally funded research programs. Within a year, the department will expand into a new facility, effectively doubling the research and teaching space. The department presently offers the Ph.D. in biological sciences, in addition to the M.S. and B.A. degrees.

The appointment as professor and chairman is to become effective on or after 1 July 1982. Send curriculum vitae and names and addresses of at least three references to:

**Professors T. F. Roth and P. S. Lovett
Chairmen, Faculty Search Committee
Department of Biological Sciences
University of Maryland Baltimore County
Catonsville, Maryland 21228**

UMBC is an Affirmative Action/Equal Opportunity Employer.

CHAIRPERSON Department of Biology State University of New York (SUNY) College at Geneseo

The Department of Biology is seeking a chairperson whose academic specialization complements the disciplinary areas of the present faculty for fall 1982 appointment.

Qualifications: candidates are required to have an earned doctorate in the biological sciences and sufficient academic experience to qualify for a senior academic appointment. Preference will be given to individuals with teaching and research experience in cell biology, developmental biology, genetics, or microbiology. Candidates should also have demonstrated excellence in teaching and research and should have potential for academic administration.

Term of appointment: 3 years as chairperson, renewable; tenure in academic rank is negotiable.

Effective date of appointment: 1 September 1982.

Applications, including curriculum vitae, undergraduate and graduate academic transcripts, a statement of research interests and research plans, and a minimum of three letters of reference should be sent to: **Dr. Virginia Kemp, Coordinator of Search Committee, Erwin 205, SUNY Geneseo, Geneseo, N.Y. 14454; telephone: 716-245-5536.** Applicants are responsible for requesting referees to submit letters of reference.

Closing date for completed applications: 15 February 1982.

Affirmative Action/Equal Opportunity Employer

DIRECTOR, DEPARTMENT OF PHYSIOLOGY UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE

The University of Cincinnati College of Medicine is seeking a new director for the Department of Physiology. The College of Medicine enters 192 medical students per year and is part of the University of Cincinnati, which is a comprehensive urban state university with an enrollment of 35,000 students.

There are presently 13 full-time faculty members and 10 additional members with joint appointments. The department has a strong graduate program and offers a wide variety of graduate courses.

Candidates for the position should have a strong and productive research program, be interested in medical and graduate education, and have demonstrated some administrative abilities. The position is available immediately. Applicants for the position should send a résumé and names of three references to: **Dr. Jerry B. Lingrel, Chairperson, Search Committee, Department of Microbiology and Molecular Genetics, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267.**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

Chemistry

CULTURE MAINTENANCE SPECIALIST

Calbiochem-Behring, a La Jolla-based biochemical firm, is seeking a culture maintenance specialist to carry out a culture maintenance program for both R & D and production strains in an expanding microbiological R & D group.

Applicants must have a B.S./B.A. in bacteriology or microbiology with a minimum of 3 to 5 years of experience in culture maintenance or a M.S./M.A. and a minimum of 2 to 3 years of experience. Knowledge and practical ability in contemporary techniques of preservation, propagation, storage, and dissemination of one or more of the following types: bacteria, yeast, fungi, and streptomycetes, as well as skill in lyophilization and cryogenic preservation are required. Please submit résumé and salary history, in confidence, to:

**Kathy Simpson
CALBIOCHEM-BEHRING CORP.
A Subsidiary of
American Hoechst Corp.
10933 North Torrey Pines Road
La Jolla, California 92037
Telephone: 714-453-7331**

Affirmative Action Employer, M/F/H

The National Air and Space Museum seeks a **CURATOR** to do research in the history of space technology, on issues in manned space flight, launch technology, and space operations, for example; to maintain and study a collection of artifacts and documents bearing on the history of space technology; and to help mount exhibits. The successful candidate will either hold a Ph.D. in the history of technology or have substantial experience which evidences through publications an ability to conduct significant scholarly research in the history of modern technology. Salary: GS-11, -12, or -13 (\$23,566 to \$43,666), depending upon qualifications. This is a federal 3-year, term-appointment with the possibility of conversion to career-conditional status. Send Federal Standard Form 171, three letters of recommendation from scholars in field, and cover letter by 30 January to: **Smithsonian Institution, Office of Personnel Administration, 900 Jefferson Drive, SW, Room 1483, attention: Bruce Boyd, Washington, D.C. 20560.** *Equal Opportunity/Affirmative Action Employer.* Note: this is a federal Civil Service position. The candidate selected will be required to be certified by the U.S. Office of Personnel Management.

DIRECTOR OF CLINICAL HEMATOPATHOLOGY. Assistant/associate professor level. Available 1 July 1982. M.D. or M.D./Ph.D. with appropriate postgraduate training in pathology, particularly hematology, required. Certification/eligibility by American Board of Pathology and experience in administration of hematology laboratory highly desirable. Must have demonstrated interest/experience in teaching and research. Salary competitive. Forward curriculum vitae and arrange for three letters of recommendation to be submitted by 15 March 1982 to: **Robert E. Anderson, M.D., Chairman, Pathology Department, University of New Mexico School of Medicine, Albuquerque, N.M. 87131.** *Affirmative Action/Equal Opportunity Employer.*

ELECTRON MICROSCOPIST to run departmental electron microscopy laboratory with Phillips 300 and 400 scopes and ancillary equipment. Experience required, but Ph.D. not essential. Salary open. Send résumé to: **Microscopist Search Committee, Department of Biochemical Sciences, Princeton University, Princeton, N.J. 08544.**

Princeton University is an Equal Opportunity/Affirmative Action Employer, M/F.

EVOLUTIONARY ECOLOGIST

The University of Kentucky is seeking outstanding candidates to fill a tenure-track position in evolutionary ecology at the assistant professor level or higher. The successful candidate will be expected to have demonstrated excellence in research, including experience beyond the doctorate. Teaching responsibilities normally include one graduate and one undergraduate course per year. We expect to fill the position by fall 1982 or within the subsequent year, subject to approval of funding.

Applicants should submit curriculum vitae, a statement of research plans, and names and addresses of at least three references by 8 February 1982 to:

**The Search Committee
T. H. Morgan School of Biological Sciences
University of Kentucky
Lexington, Ky. 40506**

Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

DEAN, COLLEGE OF NATURAL SCIENCES AND MATHEMATICS. Position available 1 July 1982, at **TOWSON STATE UNIVERSITY.** Application deadline: 12 February 1982. For details, contact: **Dr. Mary Ann Myrant, Office of Academic Affairs, telephone: 301-321-2131.** *Equal Opportunity/Affirmative Action Employer.*

DIRECTOR, COOPERATIVE RESEARCH

Yale University seeks a director of cooperative research to increase communication between its faculty and business and industrial organizations. This is a new position in the office of the provost.

Among the director's responsibilities will be the administration of the university's Patent and Licensing Program; the facilitation of direct contacts between interested faculty and industrial researchers; helping to establish joint research projects; and development of industrial liaison program.

The director must demonstrate the ability to work effectively in both corporate and academic settings. A degree in science or engineering is preferred, and experience in patenting and licensing procedures is essential.

Send applications or nominations by 1 February 1982 to: **Joseph S. Warner, Director, Grant and Contract Administration, Yale University, 1504A Yale Station, New Haven, Connecticut 06520.**

Yale University is an Equal Opportunity Employer. Applications from qualified women and minority candidates are invited.

San Francisco State University Tiburon Center for Environmental Studies DIRECTOR

The Tiburon Center for Environmental Studies is a developing research and teaching center located on 35 acres in Marin County on San Francisco Bay. The director is responsible for the development and administration of the research and teaching programs at the center which cover a broad range of environmental studies with the primary focus on the physical and biological dynamics of the Bay. The position is supported half-time by the university and half-time from research or teaching activities. Candidates should possess an earned doctorate in an appropriate field, evidence of administrative abilities, and a commitment to teaching and research in the environmental sciences; 10-month salary, \$23,976 to \$36,540.

Interested candidates should submit curriculum vitae, bibliography, and names of at least three references by 15 February 1982 to:

**Dr. James C. Kelley
Dean, School of Science
San Francisco State University
1600 Holloway Avenue
San Francisco, Calif. 94132**

An Equal Opportunity/Affirmative Action Employer

DIRECTOR, RESEARCH. Pacific Gamefish Foundation (PGF), an international nonprofit research organization based in Honolulu, Hawaii, invites applicants for the post of scientific director and general manager. Incumbent expected to develop and carry out research program on big game fish, keep members and others informed of research and marine affairs developments, and promote Pacific-wide cooperation in these activities. Must have experience in securing grants for research and managing an office, and must be able to relate to the business and scientific community in the Pacific. Applicants send curriculum vitae and references to: **PGF, P.O. Box 25115, Honolulu, Hawaii 96825.**

MICROBIOLOGIST CELL BIOLOGIST

The Department of Biological Sciences invites applications for two tenure-track positions in **microbiology** and **cell biology**. Successful applicants are expected to develop an active, independent research program and to participate in teaching. Microbiologists with specialization in energetics, membrane phenomena, or cellular regulation of fermentation and cell biologists with specialization in molecular mechanisms of cell/membrane phenomena are especially encouraged to apply. By 15 February 1982 applicants should send curriculum vitae and summary of research plans and arrange to have three letters of reference sent to:

**Dr. Hector R. C. Fernandez, Chairman
Division of Regulatory Biology and Biophysics
Department of Biological Sciences
Wayne State University
Detroit, Michigan 48202**

An Equal Opportunity Employer

POSITIONS OPEN

FACULTY POSITION IN MOLECULAR BIOLOGY. Applications are invited for a tenured-level faculty position in the Department of Molecular Biology, University of California, Berkeley. The department is interested in persons with highly productive research programs in eukaryotic molecular biology focusing on chromosome structure and/or gene expression and regulation. Applicants should send curriculum vitae, bibliography, copies of two representative recent publications, statement of teaching and research objectives, and names and addresses of three references to: **Chairman of the Search Committee, Department of Molecular Biology, University of California, Berkeley, Calif. 94720.** Applications should be received before 31 March 1982. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

INSTRUMENTATION SPECIALIST. Permanent professional-level position to operate and maintain a modern, well-equipped protein chemistry facility at University of Massachusetts Medical Center. Responsibilities to include protein/peptide sequenators, amino acid analyzer, and HPLC. Individual should be highly motivated and possess exceptional mechanical aptitude. Salary level: \$14,000 to \$21,000 per year or commensurate with experience. Send résumé and three letters of recommendation to: **Dr. John E. Mole, Department of Biochemistry, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, Mass. 01605.**

An Affirmative Action/Equal Opportunity Employer

MICROBIAL MICROBIOLOGIST—Assistant professor, tenure-track position in small liberal arts college for fall 1982. Ph.D. preferred with background in some combination of genetics, molecular biology, environmental microbiology, or water quality analysis. Teaching responsibilities include general microbiology, immunology, zoology, and nonmajor general science with participation in general biology. Development of upper-division courses will be encouraged. Send letter, résumé, transcripts, and names of three references to: **Dr. Mary F. Guest, Biology Department, Clarke College, Dubuque, Iowa 52001.** Deadline: 9 February 1982. *An Affirmative Action/Equal Opportunity Employer.*

Organic Synthesis Chemists

Are you seeking a challenging position designing and synthesizing new molecules with biological activity? Stauffer Chemical Company has immediate openings in our laboratories in New York and California for Ph.D. organic chemists interested in synthesis of agricultural chemicals. Stauffer Chemical Company is a leader in production of crop protection chemicals, and has a record of innovative thinking. Are you creative enough to help us move the frontier significantly?

Superior organic chemists, with an active mind and 0-5 years of relevant experience, are invited to send a resume to: **Ms. D. A. Walker, Western Research Center, Stauffer Chemical Company, 1200 S. 47th Street, Richmond, CA 94804, or Mr. G. J. DeMunnik, Eastern Research Center, Stauffer Chemical Company, Dobbs Ferry, NY 10522.** An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

FACULTY POSITION AVAILABLE MATERIALS SCIENCE

The Department of Materials Science of the G. W. C. Whitling School of Engineering at The Johns Hopkins University invites applications for a senior (tenured) faculty position in either metallurgy, ceramics, composites, or biomaterials. The duties involve both research and teaching at the graduate and undergraduate levels; candidates should have a distinguished record in research and teaching experience. Applications should include complete curriculum vitae and the names of at least three references, and should be sent by 30 January 1982 to:

**Professor O. M. Phillips
Chairman, Search Committee
Department of Earth and Planetary Sciences
The Johns Hopkins University
Baltimore, Maryland 21218**

The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer and particularly encourages applications from qualified minority or women candidates.

FACULTY POSITIONS. The Department of Microbiology invites applications for two tenure-track assistant professor appointments at the School of Medicine, University of Pittsburgh. We are particularly interested in individuals with a strong background in (i) immunology or (ii) with biochemical and/or molecular biology research training. These persons would be expected to use their expertise to develop independent research programs in (i) immunology or (ii) in work related to bacteria and/or parasites and their potential pathogenicity. In addition, the candidate must have an interest in and an aptitude for teaching graduate and medical students (i) in immunology or (ii) in medical bacteriology. Candidates must have a Ph.D. or M.D. degree and at least 2 years of pertinent postdoctoral research experience. Send curriculum vitae, bibliography, future research plans, and names and addresses of three references to: **Dr. Julius S. Youngner, Department of Microbiology, School of Medicine, University of Pittsburgh, Pittsburgh, Pa. 15261.** *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.*

ECOLOGISTS

Cedar Creek Natural History Area (CCNHA) of the University of Minnesota anticipates the opening of three research positions for ecologists. All three positions would be part of a 5-year NSF-sponsored Long-Term Ecological Research (LTER) study of the mechanisms of succession. The positions require a whole-system perspective and a desire to participate in a multi-investigator, cooperative study. CCNHA is a 5400-acre Experimental Ecological Reserve located 30 miles north of Minneapolis. The positions are

1) **RESEARCH FELLOW:** To live on site as a resident ecologist, to provide daily coordination of LTER research activities and data management, and to perform research in area of specialty. A Ph.D. or equivalent field research experience is required. Position available 1 April 1982.

2) **POSTDOCTORAL ASSOCIATE:** To study soil nutrient budgets and cycles, especially those of nitrogen. A Ph.D. with broad training in ecosystem ecology and plant and soil processes is required. This 3-year position may be extended to 5 years if the researcher obtains outside funding. Position available 1 April 1982.

3) **POSTDOCTORAL ASSOCIATE:** For an experimental field ecologist working on plants and/or herbivores. This 1-year appointment may be extended to 4 years if the researcher obtains outside funding. Position available 1 June 1982.

Review of applications begins 22 February 1982. Applications close on 15 March 1982. To apply, send curriculum vitae, a statement of research experience and interests, publications, and three letters of reference (sent separately) to:

**Dr. David Tilman
Department of Ecology and Behavioral Biology
318 Church Street, SE
University of Minnesota
Minneapolis, Minn. 55455**

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

POSITIONS OPEN

FACULTY POSITION

The Department of Microbiology, Cell Biology, Biochemistry and Biophysics of The Pennsylvania State University invites applications for a tenure-track position at the assistant or associate professor level. Candidates should be trained in bacteriology, have postdoctoral experience, and be capable of developing an independent research program in the molecular aspects of food microbiology and toxicology. The successful candidate will teach food microbiology. We provide excellent physical facilities, competitive salary and benefits, and a stimulating research environment. Applications should include curriculum vitae, copies of recent publications, a brief but detailed description of research goals, and the names of four individuals from whom we may request letters of recommendation. Applications will be accepted until 1 March 1982 or until the position is filled thereafter. Send to: **Dr. R. W. Bernlohr, Department of Microbiology, Cell Biology, Biochemistry and Biophysics, The Pennsylvania State University, 108B Althouse Laboratory, University Park, Pennsylvania 16802.**

An Affirmative Action/Equal Opportunity Employer

IMMUNOCHEMIST

Progressive Midwestern veterinary pharmaceutical company seeks a recent Ph.D. immunologist to add to its biological research and development staff. The successful candidate will have a strong background in immunochemistry with expertise in antigen purification and identification. A thorough understanding of agglutination reaction, ELISA techniques, immunoelectrophoresis, and HPLC is desired. The candidate will interact with other professionals in a campus-like atmosphere located in the Kansas City metropolitan area. BAYVET offers a competitive starting salary and comprehensive benefits package. To apply, send résumé, including salary history and requirements, to: **W. Huff, Director of Personnel,**

**BAYVET
Division of Cutter Laboratories, Inc.
P.O. Box 390
Shawnee Mission, Kansas 66201
An Equal Opportunity Employer**

RADIOCHEMIST POSITION

Experienced hot atom chemist sought as Associate Director of Radiochemistry for positron emission tomography project at the University of Washington. Academic appointment. Equal opportunity employer. Contact:

**Steven M. Larson, M.D.
Nuclear Medicine Service
(115)
VA Medical Center
4435 Beacon Avenue South
Seattle, WA 98108**

POSITIONS OPEN

FACULTY POSITIONS—BIOCHEMISTRY

The Department of Biochemistry of the Uniformed Services University of the Health Sciences invites applications from candidates for tenure-track appointments to be made at levels commensurate with experience beginning 1 July 1982. The appointees will be expected to teach and establish strong programs in areas of biochemistry that will complement activities of the existing faculty. Applicant should hold the Ph.D. degree in biochemistry and appropriate postdoctoral experience. Qualified persons should send their résumé, concise summaries of present and of proposed research, and the names of three references to: **Personnel/Manpower, attention: Dr. Lucy M. S. Chang, Acting Chairperson, Department of Biochemistry, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814.** Applications will not be returned. An Affirmative Action/Equal Opportunity Employer. Closing date: 15 February 1982.

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Faculty position in natural resource management. One joint appointment at the assistant professor level in economics and environmental studies, beginning 1 July 1982, subject to availability of funding. Qualifications normally include Ph.D. and notable academic record and demonstrated ability in teaching and research scholarship. The candidate should have demonstrable research capabilities in the application of stochastic processes and optimization theory to the study of renewable natural resources. Teaching duties will include courses in environmental economics and quantitative methods in natural resource management. Candidates should send a résumé, published and prepublished work, at least three letters of recommendation, and evidence of teaching performance to: **Llad Phillips, Chairman, Department of Economics, or Daniel B. Botkin, Chairman, Environmental Studies, University of California, Santa Barbara, California 93106.** Application date has been extended until 31 January 1982. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

INFORMATION SYSTEMS FACULTY. Drexel University has one tenure-track and one nontenure-track faculty opening available September 1982 for teacher/researchers with some combination of the following competencies: information systems analysis, data base design and management, computer and communication systems applications, office automation, and behavioral aspects of information systems.

- 1) Appointment to tenure-track position at assistant or associate professor rank, depending on qualifications. Salary negotiable. Doctorate in relevant field required or equivalent in experience. Demonstrated aptitude for graduate teaching and research essential. Interest in undergraduate teaching desirable. TIAA-CREF and generous fringe benefits.
- 2) Three-year appointment as Drexel Fellow in nontenure-track position. This is a 12-month contract with one quarter completely free of teaching, and with half-time teaching responsibilities during the other three quarters. Salary negotiable. Fellows participate in health and life insurance plans but not in TIAA-CREF. Tuition remission for personal academic development possible. Seeking person with growth potential in both research and teaching.

Write, enclosing résumé, to: **Chairperson, Search Committee, School of Library and Information Science, Drexel University, Philadelphia, Pa. 19104.** Closing date: 1 March 1982. *An Equal Opportunity/Affirmative Action Employer.*

MOLECULAR BIOLOGIST/PARASITOLOGIST. A tenure-track position at the assistant professor level is available beginning August 1982. A cell-molecular biologist working with a parasite model, preferably a protozoan parasite, is sought. Individuals applying monoclonal antibody technologies to their research will also be preferred. Postdoctoral experience required, with demonstrated potential for excellence in research and teaching. Application closing date: 15 March 1982. Send curriculum vitae, including a 1- or 2-page statement of specific research plans, three letters of recommendation, and reprints to: **Dr. John R. Seed, Chairman, Department of Parasitology and Laboratory Practice, School of Public Health 201H, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27514.** *The University of North Carolina is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

EXECUTIVE DIRECTOR. Chief officer of The Wildlife Society. Position requires degrees in renewable natural resources fields; 3 to 5 years of experience in resources management; skills in wildlife ecology, administration, office and business management, and communications; and knowledge of governmental political process. Salary negotiable. Send letter of application, résumé, and three references by 20 February 1982 to: **Chairman, Search Committee, The Wildlife Society, 5410 Grosvenor Lane, Bethesda, Md. 20814.**

INDUSTRIAL POSTDOCTORAL POSITIONS. Southern Biotech, Inc., currently has available a number of industrial postdoctoral positions. Candidates should have completed their doctoral work. Our areas of interest are peptide chemistry (or possibly organic chemistry), hybridoma, and recombinant DNA. Interested parties should submit their curriculum vitae and three references to: **Lydia Dickenson, Southern Biotech, Inc., 3500 East Fletcher Avenue, Tampa, Fla. 33612.**

The Department of Radiation Oncology requests applications for the full-time position of **INSTRUCTOR** (nontenured) within the Division of Radiation Biology. Applicants must have a Ph.D. and postdoctoral training in radiation biology or related field. Candidates must be capable of independent research in the areas of hyperthermia, radiation modifiers, or microvascular pathology. The successful applicant will be expected to share the division's teaching responsibilities. Interested applicants should direct curriculum vitae and brief description of research experience and future research plans to: **Dr. A. J. Lawson, Division of Radiation Biology, University of Alabama in Birmingham, P.O. Box 441, Birmingham, Ala. 35294.**

An Affirmative Action/Equal Opportunity Employer

MMT INSTRUMENT SPECIALIST

We invite applications for a vacant position of instrument specialist at the Multiple Mirror Telescope (MMT) in Arizona. The MMT is a telescope of highly novel design largely devoted to state-of-the-art optical and infrared astronomical observations. The instrumentation is among the most advanced and relies strongly on modern digital technology. The instrument specialist will be responsible for the installation, checkout, and operation of the facility instruments at the MMT. At the moment these consist of two spectrographs and an infrared photometer. In the future, other instruments, specifically a CCD camera, will be added. The person filling this position will have as primary responsibility the care of the IR photometer. A background in infrared astronomy or physics and a familiarity with cryogenics is therefore very desirable. Minimum academic requirement is a bachelor's degree in physics or related field. The position requires working at the telescope location at an altitude of 8600 feet and at a 2-hour drive from Tucson. Applications should be sent before 15 February 1982 to: **Dr. J. M. Beckers, Multiple Mirror Telescope Observatory, University of Arizona, Tucson, Ariz. 85721; telephone: 602-626-1558.** The MMT Observatory is a joint venture of the University of Arizona and the Smithsonian Institution. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

DEPARTMENT OF BIOLOGY

PHYSIOLOGIST. Appointment to tenure-track position as assistant professor available 1 September 1982 in the Department of Biology at Davis & Elkins College. Ph.D. required. Teaching experience desirable. The college is a 4-year, church-related institution of the liberal arts and sciences with an enrollment of approximately 1000 students. Teaching responsibilities will include general physiology, general biology, and upper-level courses in the program. Submit curriculum vitae, transcripts, and three letters of reference by 1 March 1982 to: **Dr. James J. VanGundy, Head, Division of Natural Sciences and Mathematics, Davis & Elkins College, Elkins, W.Va. 26241.** *Equal Opportunity Employer.*

NIH-supported **POSTDOCTORAL POSITION** is available in neurobiology at the Boys Town Institute for Communication Disorders in Children. The neurobiology unit consists of laboratories of neurophysiology (E. Javel), neurochemistry (B. J. Morley), and neuroanatomy (W. B. Warr). Preference will be given to individuals with an interdisciplinary approach to audition. Send curriculum vitae, description of research interests, and three letters of recommendation to: **C. S. Watson, The Boys Town Institute for Communication Disorders in Children, 555 North 30 Street, Omaha, Neb. 68131.** *An Equal Opportunity Employer.*

POSITIONS OPEN

MOLECULAR BIOLOGIST

The **UNIVERSITY OF NOTRE DAME** is making a concerted effort in at least two departments to strengthen the area of molecular biology/genetics. A tenure-track position is open in the **DEPARTMENT OF MICROBIOLOGY** at the assistant professor level beginning 1 September 1982. We are looking for an outstanding individual to conduct an active research program encompassing the molecular aspects of gene expression which will complement existing programs in the department. Areas of special interest are **IMMUNOGENETICS** and **YEAST/FUNGAL** molecular biology; qualified individuals in other research areas will not be excluded from serious consideration and are urged to apply. Responsibilities include the direction of graduate student research and teaching at the advanced undergraduate and graduate levels. Applicants should have postdoctoral experience and strong prospects for funding.

Submit curriculum vitae, a summary of research interests, and the names of three references by 1 March 1982 to:

**Dr. Morton S. Fuchs
Department of Microbiology
University of Notre Dame
Notre Dame, Indiana 46556**

This University is an Equal Opportunity/Affirmative Action Employer.

NEUROSCIENCE—WASHINGTON

UNIVERSITY, McDONNELL CENTER FOR THE STUDY OF HIGHER BRAIN FUNCTION Postdoctoral or research assistant professor positions. To work in association with Dr. E. G. Jones. Particularly suitable candidates trained in **neuroimmunology, neuropharmacology, or single-cell physiology** who wish to expand their morphological experience. Starting date flexible. Write: **Dr. E. G. Jones, James L. O'Leary Division of Experimental Neurology and Neurological Surgery, Washington University School of Medicine, Box 8108, 660 South Euclid Avenue, St. Louis, Mo. 63110.** *Equal Opportunity/Affirmative Action Employer.*

PATHOLOGIST

Private practice position in 500-bed hospital in Southeast with new state-of-the-art laboratory. Clinical pathologist, preferably with subspecialty interest in immunology, hematology, and/or immunohematology. Will function as division director over several clinical laboratory sections, each supervised by another pathologist. Previous administrative experience and demonstrated management ability necessary. Board-certified, AP/CP or CP. Send curriculum vitae and references to:


Box 3, SCIENCE

PLANT PHYSIOLOGIST. Tenure-track position at the assistant professor level for teaching and research. Available 1 September 1982. Teaching responsibilities include an annual introductory-level course in plant physiology offered fall semesters, plus development of advanced courses to be offered during spring semesters. Research should address problems at the organismal level, preferably in woody plants. The person filling this position is expected to supervise M.S. and Ph.D. students, and actively to seek extramural research support. Qualifications include a Ph.D. in plant physiology or a Ph.D. in a related discipline with research experience in plant physiology. Send résumé, copies of transcripts, reprints of published works, and names and addresses of at least three professional references to: **Dr. Douglas Gellinas, Chairman, Department of Botany and Plant Pathology, University of Maine, Orono, Maine 04469.** Application deadline: 28 February 1982. *The University of Maine is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL ASSOCIATE in PLANT MOLECULAR BIOLOGY. To study genetic manipulation of plants through protoplast fusion methods. Opportunity to learn plant cell culture and nucleic acid techniques. Background in genetics, molecular biology, or biochemistry useful. Position for minimum of 2 years. Send curriculum vitae and three letters of reference to: **Dr. Maureen Hanson, Department of Biology, Gilmer Hall, University of Virginia, Charlottesville, Virginia 22903.**



Open to both
men and women

 Public Service
Canada
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Canada

Career Opportunities in Science in the Public Service of Canada

Research Scientists

Remuneration - \$23,225 to \$50,028
(dependent upon scientific productivity)

If you are a forward thinking scientist with a desire to develop your career in research, the Public Service of Canada may be the place for you. The Federal Government is involved in many fields of research and the need for scientists is continuous and variable as new programs are established. To meet these needs, the Public Service Commission of Canada (Ottawa) maintains an applicant inventory of scientists who are interested in contributing to the research programs of the Federal Government.

You are invited to submit your résumé, describing your present field of research and future ambitions. Should your expertise not be in im-

mediate demand your application will be retained in inventory for consideration as vacancies do occur. Salaries will be in accordance with your productivity as a scientist and are competitive with other employers. All applications will be administered in the strictest of confidence.

The fields of research within the Public Service of Canada for which there is a requirement for scientists are too numerous to list however a few are briefly described below. There are immediate vacancies in some fields and it is expected that there will be vacancies in all fields within the next year. Positions are in various locations from coast to coast.

HERBICIDES

Field and laboratory research on the effects of herbicides on the forest ecosystem and the study of the effects of changes in formulations and application technique. Participate in the development of herbicides as a management strategy for forest and woodlot managers.

PLANT PATHOLOGY

Research directed at the prevention and control of virus and other diseases which attack grapevines. Research on disease problems and control in greenhouse ornamental crops.

Research on the ecology of pest and beneficial species of arthropods associated with greenhouse

production systems both ornamental and vegetable.

FISHERIES RESEARCH

Research in stock identification, population dynamics, gear impact studies, spawning and recruitment assessment, biology and life history studies and alternative harvesting strategies. Research in the field of population dynamics of salmon for purposes of management, optimize fields and improve quality of information on stock status, assesses stock abundance and distribution.

Research in stock assessment, biology and population dynamics of exploited groundfish stocks.

Research on population mechanisms of groundfish stocks, density dependent growth, maturity, fecundity and recruitment, stock recruitment, biotic and abiotic environmental interactions in groundfish.

Research on stock identification and separation of commercial fishes through the use of biochemical population genetics.

Research into distribution, life-cycle, ecology and population dynamics of scallop and lobster stocks.

Research of biological and fisheries to provide stock assessments and biological advice to fisheries management.

Qualifications

To be eligible for employment as a Research Scientist with the Federal Public Service candidates must have graduated from a recognized university with a doctorate degree OR possess a lesser degree with research experience and scientific productivity equivalent to that of a doctorate degree.

Additional job information is available by contacting the National Capital Region Staffing Officer.

Toute information relative à ce concours est disponible en français et peut-être obtenue en communiquant avec l'agent de dotation de la région de la capitale nationale.

How to apply

Interested persons are invited to send their applications and/or résumé to the following address Quoting Ref. No.: 81-NCRSO-RES-1 and specifying field of scientific endeavour:

Miss J. Girling
National Capital Region Staffing Office
Public Service Commission of Canada
300 Laurier Avenue West
Ottawa, Ontario K1A 0M7
Telephone (613) 593-5331

**REMEMBER, IF YOU MEET THE REQUIREMENTS OF A PUBLIC SERVICE SCIENTIST
THERE PROBABLY IS A PLACE FOR YOU!**

Canada

POSITIONS OPEN

PHYSIOLOGY/ASSISTANT PROFESSOR. Tenure-track position. Appropriately trained to teach graduate-level mammalian physiology. Some background in biochemistry, toxicology, pathophysiology, or pharmacology desirable. Appointee must develop a strong research program with potential for securing grant funds and supervise M.S. and Ph.D. students in biological and biomedical sciences. Research area open, but should be compatible with ongoing research programs in physiology. Postdoctoral experience preferred; salary commensurate with qualifications and experience; effective date: August 1982. Send résumé, copies of transcripts, and three letters of recommendation by 1 March 1982 to: **Dr. Gary Killian, Box 10, Department of Biological Sciences, Kent State University, Kent, Ohio 44242.** *Equal Opportunity/Affirmative Action Employer.*

PLANT DEVELOPMENT

The Department of Biological Sciences has extended the search for a tenure-track assistant professorship beginning September 1982; appointment at more senior rank may be considered for uniquely qualified candidates. Preference will be given to candidates with postdoctoral experience who have demonstrated outstanding potential in an area which can expand the department's graduate program in plant development. The applicant selected will be expected to develop a research program in his/her general field, to direct M.S. and Ph.D. candidates, and to contribute to the departmental course work offerings.

Applications, including curriculum vitae, reprints, a statement of research plans, and three letters of reference, should be sent to: **Dr. S. K. Shapiro, Head, Department of Biological Sciences, University of Illinois, Box 4348, Chicago, Illinois 60680.** Closing date: 12 February 1982. Availability of this position is contingent upon budgetary allocation.

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

PLANT PHYSIOLOGIST

Hampshire College is seeking a plant physiologist with a Ph.D. at the assistant professor level. The opening is for a 4-year renewable position starting fall 1982. Hampshire College has active programs in microbiology and the ecology of the Connecticut River Valley and maintains an experimental farm center. Applicants should have a strong commitment to teaching and pedagogical innovation and should be able to develop and supervise undergraduate research projects in the above areas. Expertise in soil ecology would be seen as a strong additional asset. Applicants should send their curriculum vitae, a brief statement of teaching ideas, and the names of three referees to: **N. A. Obert, School of Natural Science, Hampshire College, Amherst, Mass. 01002.** Closing date: 15 February 1982. *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL FELLOW

Postdoctoral position funded by an NIH Training Grant available in an ongoing program in biochemical mechanism of cardiac glycoside action. Emphasis is on Na,K-ATPase. A major area is in isolation of endogenous peptides that regulate ouabain binding and the sodium pump. Consideration will be given to those who have skills in protein isolation and chemical modification of proteins. Send curriculum vitae and names of three references to: **Dr. Arnold Schwartz, Department of Pharmacology and Cell Biophysics, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267.**

POSTDOCTORAL POSITION in cellular and molecular biology. Multidisciplinary cardiovascular research laboratory studying lipoprotein and receptor biochemistry and physiology seeking candidates with strong membrane biology, immunochemical, or molecular biology backgrounds. Send résumé and names of references to: **Dr. Robert W. Mahley, Gladstone Foundation Laboratories for Cardiovascular Disease, P.O. Box 40608, San Francisco, Calif. 94140.**

RESEARCH ASSOCIATE. Ph.D. or M.D. with training in muscle electrophysiology, mechanics, and/or biochemistry, to participate in research involving the cellular basis of drug and hormone action in smooth muscle. Opportunity to interact with biochemists, neurobiologists, physiologists, and pharmacologists. Available after 1 February 1982. Closing date for applications: 1 April 1982. Send curriculum vitae and three letters of reference to: **Dr. J. M. Marshall, Section of Neurosciences, Box G, Brown University, Providence, R.I. 02912.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ACADEMIC POSITIONS

POSTDOCTORAL POSITIONS (BIOPHYSICAL) are available for a combined spectroscopic, kinetic, and enzymatic study of the structure and thermodynamics of drug-nucleic acid complexes and carcinogen-nucleic acid complexes. We are particularly interested in the cooperative binding and allosteric effects which we have observed in selected systems. State-of-the-art instrumentation is available to support these projects (for example, 400 MHz NMR, computer interfaced CARY 219, JASCO CD, Perkin-Elmer fluorimeter). Applicants should forward curriculum vitae, transcript, and three letters of recommendation to: **Professor Thomas R. Krugh, Department of Chemistry, University of Rochester, Rochester, N.Y. 14627; telephone: 716-275-4224.**

POSTDOCTORAL POSITION IN CELLULAR AND MOLECULAR IMMUNOLOGY to study cell surface recognition mechanisms in lymphocyte migration. Background in immunology, biochemistry, cell biology, or molecular genetics. Please send curriculum vitae to: **Dr. J. J. Woodruff, Department of Pathology, Box Number 25, Downstate Medical Center, Brooklyn, N.Y. 11203.**

Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITION. A position is available for a Ph.D. interested in advanced research training in biochemical toxicology. Mechanisms responsible for selective damage by various hepatotoxins in periportal and pericentral regions of the liver will be probed using perfused rodent liver models. Salary will follow NIH guidelines. Send curriculum vitae and three letters of reference to: **Dr. R. G. Thurman, Department of Pharmacology, University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27514.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately for recent Ph.D. to study central mechanisms of alcohol and sedative drugs with emphasis on cellular calcium transport processes. Salary negotiable. Send curriculum vitae, statement of research background, and three names for reference to: **Steven W. Leslie, Ph.D., Department of Pharmacology, University of Alabama in Birmingham, The Medical Center, Birmingham, Alabama 35294.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION is available for research in enzymology and steady-state enzyme kinetics. Skills in organic synthesis are desirable but not required. Salary range: \$14,000 to \$16,000, depending on experience. Send curriculum vitae and names of three references to the following: **Paul F. Cook, Department of Biochemistry, Louisiana State University Medical Center, New Orleans, La. 70112.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS (two) are available in the Mammalian Cell Biology Group of the Division of Biological and Medical Research, Argonne National Laboratory, in the following areas of research:

Studies on the cellular and molecular mechanisms of carcinogenesis with mammalian cells in culture. Applicants should have a strong background in the area of carcinogenesis and/or physiology of the endocrine system. Experience in basic cell culturing techniques is desirable but not essential.

Application and use of cytofluorographic methods in studies of radiation effects on mammalian cells in vitro, with emphasis on mutagenesis and neoplastic transformation. Working knowledge of the operation and use of cytofluorograph/cell sorter is essential.

Qualified applicants must have received their doctorate within 3 years of the appointment. Salary is commensurate with experience.

Applications should include curriculum vitae and the names of three references. They should be forwarded to: **Walter McFall, Personnel Division, Argonne National Laboratory, 9700 South Cass Avenue, Argonne, Illinois 60439 (Box BIM 55).**

POSTDOCTORAL POSITION in EXPERIMENTAL MEDIUM-ENERGY NUCLEAR PHYSICS. To help establish and participate in programs at LAMPF and IUCF in nuclear reactions and basic interactions. Appointment to begin July 1982; funds may permit a longer appointment beginning as early as April 1982. Send curriculum vitae and three letters of recommendation to: **Professor J. R. Comfott, Department of Physics, Arizona State University, Tempe, Ariz. 85287.** Closing date: 28 February 1982. *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

PROFESSOR OR ASSOCIATE PROFESSOR OF BIOSTATISTICS

Applications are invited for a tenured position of professor or associate professor of biostatistics in the Department of Epidemiology and Public Health, Yale School of Medicine. The department is accredited as a School of Public Health; it also has an approved Ph.D. program in the Yale Graduate School. The position will be available as of 1 July 1982. Applicants should have a strong record of published research and experience in both the teaching of biostatistics and consulting. Curriculum vitae and the names of three people who are willing to send letters of reference should be forwarded by 31 March to: **Dr. Jennifer L. Kelsey, Chairman, Search Committee, Yale University School of Medicine, Department of Epidemiology and Public Health, P.O. Box 3333, 60 College Street, New Haven, Conn. 06510.** *Yale University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority group members are encouraged to apply.*

NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Social and Economic Science, is seeking candidates for the position of **PROGRAM DIRECTOR IN SOCIOLOGY.** This is a rotational assignment for 1 or 2 years with a salary range of \$39,689 to \$60,689 (limited by statute to \$50,112.50) per annum (equivalent to a GS-14/15). Appointment will begin in August 1982. Candidates should have a Ph.D. or equivalent experience and at least 6 years of successful scientific research experience. A broad, general understanding of current sociological research is required and some administrative experience is desirable. Responsibilities include all aspects of proposal development, review and evaluation, grants and program administration, and representation of sociology within the foundation and to the research community. This position is exempted from the competitive Civil Service. Candidates should submit curriculum vitae no later than 15 April 1982 to: **National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglio, EX 82-9.** For further information, telephone: 202-357-7841. *NSF is an Equal Opportunity Employer.*

NATIONAL SCIENCE FOUNDATION

National Science Foundation (NSF), Division of Chemistry, is seeking **PROGRAM OFFICERS** for the following programs to fill rotational assignments (1 year) for 1982-1983: structural chemistry, thermodynamics, dynamics, chemical physics, chemical analysis, and chemical instrumentation. These positions are exempted from the competitive Civil Service at the EC-14/EP level (equivalent to GS-14/15); salary range from \$39,689 to \$60,689 (limited by statute to \$50,112.50) per annum, based on professional qualifications and experience. Candidates should have 5 years of experience beyond the Ph.D. Résumés should be submitted to: **National Science Foundation, Personnel Administration Branch, 1800 G Street, NW, Room 212, Washington, D.C. 20550, attention: E. Paul Broglio.** For further information, telephone Mr. Broglio at 202-357-7841. *NSF is an Equal Opportunity Employer.*

RENAL PHYSIOLOGIST (Ph.D.)—A Ph.D. renal physiologist research position is available in a newly developing Nephrology Division of a university-affiliated hospital located in a highly desirable area. The position is hospital-based and not grant-dependent. Salary is negotiable. Send curriculum vitae to: **Vincent DiScala, M.D., Professor of Medicine, Director, Division of Nephrology, Nassau Hospital, 259 First Street, Mineola, Long Island, New York 11501.**

The Agricultural Research Service (ARS) of U.S. Department of Agriculture (USDA) has an opening for a **RESEARCH CHEMIST** with knowledge of biochemical mechanisms and theories in mammals and insects. The position is located at the Veterinary, Toxicology and Entomology Laboratory, College Station, Texas. The incumbent must be able to synthesize peptides (or analogs of peptides) which have been isolated from insects by this and other laboratories. This will be accomplished initially by wet chemistry or manual peptide synthesizers. This is a temporary research associate position not to exceed 1 year; it will be filled at the GS-11 (\$23,566 per annum) or GS-12 (\$28,245 per annum) level. Submit Form SF-171 and transcript to: **Dr. G. Mark Holman, P.O. Drawer GE, College Station, Texas 77841.** You will then be furnished with additional application requirements. Deadline for applications: 30 January 1982. *ARS-USDA is an Equal Opportunity Employer.*

Computer Software Professionals

WHILE YOU ARE READING THIS A CRAY SUPERCOMPUTER HAS JUST PERFORMED 400 MILLION OPERATIONS.

That's only a fraction of the Cray supercomputer capabilities, and just the beginning of what it will achieve in the future!

The Cray-1 is today's fastest supercomputer, producing 240 million floating point operations per second. That achievement—the benchmark of the industry—could only have happened in an atmosphere of innovation and dedication to setting new performance standards.

At Cray Research the software professional will find an environment of:

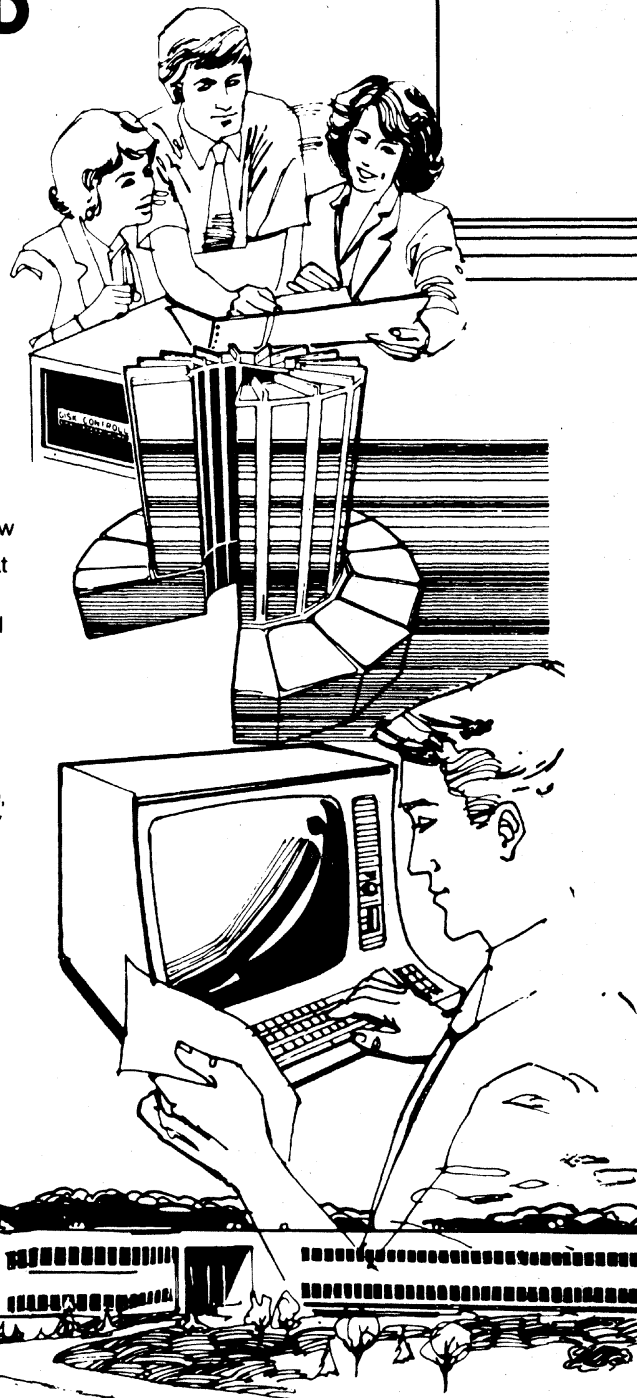
- Dedication to the languages & technologies of tomorrow
- A relatively small company with an informal attitude that encourages the exchange of ideas
- Career flexibility through both managerial and technical paths
- A quiet and serious place to work
- A modern facility in an attractive location

If you have 3 or more years software development experience, Cray can offer you a career of extraordinary dimension in any of the following areas:

- Tape Software Development
- NOS or NOS/BE System Development or Installation
- Development of Interactive Operating Systems
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- MVS System Development or Installation
- Product Development
- I/O Driver Development
- Communications
- Computer Networking
- Testing of Software Tools, Languages, Products, Operating Systems and Utilities

You'll find excellent career development programs and the opportunity to pursue your ideals and goals for achievement. Cray Research invites you to share in the achievements which have made us a leader in our industry by sending your resume in complete confidence to:

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John A. Borchers
Department 115
CRAY RESEARCH INC.
1440 Northland Drive
St. Paul, MN 55120

POSITIONS OPEN

PROGRAM LEADER IN ENERGY ANALYSIS

The Energy and Environment Division of the Lawrence Berkeley Laboratory (LBL) is seeking a program leader in energy analysis. Primary activity will include technical, economic, and environmental analysis of international, national, and regional energy systems; providing focus and leadership to overall program including future development; serving on key divisional and laboratory committees; and maintaining liaison between the program, DOE and other agencies, LBL, and University of California, Berkeley, programs. Possible joint University of California faculty appointment potential. Interested applicants should possess demonstrated outstanding creativity, leadership skills, and the ability to manage an interdisciplinary program that deals with a broad range of energy and environment issues. Prefer advanced degree in economics, public policy, or related scientific area and substantial experience in the energy field. Send two résumés, including salary history, by 15 February 1982 to: **EMPLOYMENT OFFICE, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, Calif. 94720. An Equal Opportunity Employer, M/F/H. PLEASE SPECIFY JOB NUMBER A1539.**

REPRODUCTIVE PHYSIOLOGIST

Hampshire College is seeking a reproductive physiologist with a Ph.D. at the assistant professor level. The opening is for a 4-year renewable position starting fall 1982. Hampshire College has strong programs in women's health and women and science and has an active farm center. Applicants should be interested in teaching and supervising undergraduate research projects in human and animal reproductive physiology and must have a strong commitment to pedagogical innovation. Applicants should send their curriculum vitae, a statement of educational philosophy, and the names of three referees to: **N. A. Obeitz, School of Natural Science, Hampshire College, Amherst, Mass. 01002.** Closing date: 15 February 1982. *An Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSISTANT/ ASSOCIATE

Genentech, Inc., a pioneer in the field of recombinant DNA research, development, and manufacturing, is seeking an individual to operate and maintain a Fluorescent Activated Cell Sorter (FACS IV). Successful candidate will have a bachelor's degree and a minimum of 1 year of previous Activated Cell Sorter. We offer excellent compensation and benefits, complemented by a challenging, stimulating work environment. For immediate consideration, please send résumé with the names of three references to: **Human Resources (referring to Position Number 11-112), GENENTECH, INC., 460 Point San Bruno Boulevard, South San Francisco, Calif. 94080. Equal Opportunity Employer, M/F.**

RESEARCH ASSOCIATES. A number of positions available in hydrogen technology (advanced electrolyzers, storage, anode depolarizers, biomass); photoelectrochemistry (photosplitting of water, CO₂ reduction, solar cells); fuel cells (new electrolytes); and related subjects. Ph.D. in either electrochemical engineering or electrochemistry required. Salary: \$16,000 to \$20,000. **Texas A & M University is an Equal Opportunity/Affirmative Action Employer.** Apply to:

Professor J. O'M. Bockris
Chemistry Department
Texas A & M University
College Station, Texas 77843
Telephone: 713-845-5335

ARE YOU INTERESTED IN WORKING IN SPACE BIOLOGY?

NASA is offering several **RESEARCH ASSOCIATE AWARDS** for scientists to work in laboratories capable of providing scientific advice and facilities relevant to **SPACE BIOLOGY.** The awards will vary from \$14,000 to \$18,000, based on experience. They are planned for a 6- or 12-month period with the possibility of renewal. Proposals are due 1 April for 1 July funding and 1 October for 1 January funding. Eligible: U.S. citizens having Ph.D., D.Sc., M.D., D.D.S., or D.V.M. For information/application forms, contact (specify award date you are applying for): **Dr. X. J. Musacchia, Chairman, NASA Award Committee, Graduate School, University of Louisville, Louisville, Ky. 40292,** or **Dr. Thora W. Halstead, Space Biology Research Associates Program, Life Sciences Division, NASA Headquarters, Washington, D.C. 20546.**

POSITIONS OPEN

RESEARCH ASSOCIATE to carry out research on mechanisms of protein degradation in human neurological disorders and aging. The research involves purification and analysis of proteinases from human postmortem human brain, production of antibodies for RIA and immunocytochemistry, subcellular fractionations, and protein analysis. Recent Ph.D. with strong background in enzyme purification and protein analysis required; experience with immunologic techniques preferred. McLean Hospital, an affiliate of Harvard Medical School, is a psychiatric hospital located about 3 miles from Boston. The position, involving a joint appointment at McLean and Harvard Medical School, is available immediately. Send curriculum vitae and references to: **Dr. Ralph A. Nixon, Ralph Lowell Laboratories, McLEAN HOSPITAL, 115 Mill Street, Belmont, Mass. 02178. An Equal Opportunity Employer.**

RESEARCH PHYSIOLOGIST/ASSISTANT ADJUNCT PROFESSOR

Applications invited for nontenured academic position for cross-disciplinary research in inhalation and pulmonary toxicology, with emphasis in mammalian exercise physiology. Successful candidate will have a minimum of 2 years of postdoctoral research experience, with demonstrated record of achievement in research subject area, including evidence of ability to collaborate with other laboratory professionals as well as to conduct independent research. Experience with laboratory computer data acquisition and control system is desirable. Teaching duties will be assigned under the assistant adjunct professor title, with principal commitment to undergraduate and graduate seminars and research supervision in the area of the candidate's specialty. Send curriculum vitae and names of three referees to:

T. Timothy Crocker, M.D., Chair
Department of Community and
Environmental Medicine
College of Medicine
University of California, Irvine
Irvine, California 92717

An Affirmative Action/Equal Opportunity Employer

SCIENTIST R & D

Flow Laboratories, Inc., a leader in the biomedical industry, is seeking an individual to work with our cell systems R & D group. Research activities will focus on immune interferon, lymphokines, and high-density mammalian cell culture. Additional responsibilities will include development of media and improved substitutes for cell cultures. Require Ph.D., preferably in biochemistry or biology, and previous experience in the above areas, particularly in tissue culture and media formulation. Flow Laboratories is located in the Washington metropolitan area and offers a competitive salary and benefits package. Please send résumé, in confidence, to:

Personnel Manager
FLOW LABORATORIES, INC.
7655 Old Springhouse Road
McLean, Virginia 22102

An Equal Opportunity Employer, M/F/H/V

STAFF PROGRAMMER/ ENGINEER

An expert in RSX or UNIX systems is sought by the Biomedical Engineering Center, a joint Harvard-Massachusetts Institute of Technology (MIT) endeavor engaged in applying electrical engineering and physics to problems in medicine and biology. Candidates should have a bachelor's or master's degree in electrical engineering or computer science, or equivalent experience with the PDP11 family of minicomputers at the level of operating system extension and support.

Please submit two copies of résumé, referring to Job Number R639, to: **MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, Mass. 02139. MIT is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

The Department of Medicine, Uniformed Services University of the Health Sciences, invites applications for a part-time (intermittent) position (5 to 10 hours a week) at the **RESEARCH ASSISTANT** level. Candidate should have an M.S. or a Ph.D., have some background in digestive physiology and pharmacology, and have a strong interest in research. Applicants should submit complete curriculum vitae, including a list of references, to: **Personnel/Manpower Department, attention: Andre Dubois, M.D., Ph.D., Digestive Diseases Division, Department of Medicine, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814. The Uniformed Services University of the Health Sciences is an Affirmative Action/Equal Opportunity Employer.** Curriculum vitae will not be returned.

TECHNICAL DIRECTOR, U.S. Army Cold Regions Research and Engineering Laboratory (CRREL), Hanover, New Hampshire. Salary: \$50,112.50 per annum. This is a federal Senior Executive Service position, affording federal Civil Service benefits. Incumbent directs a staff of scientific, engineering, and support personnel engaged in research management. Requires knowledge of cold regions military and engineering operations, and expertise in civil or mechanical engineering, engineering science, physics, chemistry, or a closely related field. Requires international travel, including travel to isolated cold regions. To apply, telephone **Tom Peters, Office of Personnel, U.S. Army Corps of Engineers, Washington, D.C., at 202-272-0720,** to obtain application forms. Completed applications must be sent to: **USACE (DAEN-PEC-S), Room 5206 Pulaski Building, Washington, D.C. 20314,** postmarked by 9 February 1981. *CRREL is an Equal Opportunity Employer.*

ROYAL ONTARIO MUSEUM

VASCULAR PLANT SYSTEMATIST. Applications are invited for an academic curatorial position for July 1982. Responsibilities include curation of an herbarium (TRT), research in vascular plant systematics, public education in the museum context, and administration of a small staff. The successful applicant will establish a strong research program and vigorously build collections of vascular plants. The scope of the museum is worldwide, but it is expected that work on the Canadian and North American flora will be kept in balance with work involving the flora of other continents. The opportunity exists for a cross-appointment to the professorial staff of the University of Toronto. Qualifications include a doctorate in botanical systematics and additional relevant professional experience, especially in museums. Send curriculum vitae, statement of professional goals, and names of three references before 15 February 1982 to: **Dr. J. H. McAndrews, Department of Botany, Royal Ontario Museum, Toronto, Ontario, Canada M5S 2C6.**

WILDLIFE ECOLOGY. Faculty position in wildlife ecology; teaching and research; tenure track; 12-month. Teach undergraduate courses in terrestrial wildlife ecology, techniques, management and animal damage control and predation ecology. Develop specialty courses at graduate level. Development and execution of research projects and supervision of graduate students is integral portion of position. Will be expected to devote significant effort to research concerning animal damage control and predation ecology. Requires Ph.D. degree with field experience in wildlife research or education with particular experiences and/or training in animal damage control. Salary and rank negotiable. Applications will be received until a suitable candidate is found. Submit curriculum vitae, three letters of recommendation, publication list, and statement of research interests to: **Wallace Klusmann, Head, Wildlife and Fisheries Sciences Department, Texas A & M University, College Station, Texas 77843. An Equal Opportunity Employer.**

ZOOLOGISTS

Two full-time faculty positions are available at the assistant professor level on the Hamilton Campus of Miami University beginning August 1982. They are **animal physiologist**, a tenure-track position, and **ecologist-geneticist**, a nontenure-track position, which is renewable annually for a maximum of 3 years. A Ph.D. is required. Additional information is available upon request. Submit curriculum vitae and three letters of recommendation to: **R. G. Sherman, Chair, Zoology Department, Miami University, Oxford, Ohio 45056.** Application deadline is 26 February 1982. *Affirmative Action/Equal Opportunity Employer.*

Research Toxicologists

The Research & Development Division of G. D. Searle & Co. has immediate expansionary openings within its Product Safety Assessment Department. Primary responsibilities lie in the supervision of canine and rodent studies utilizing GLP's and current industry standards.

The individuals selected for these key positions will have an MS or equivalent in Toxicology with 3-5 years experience in the organization, analyzation and interpretation of animal toxicity data. Good written and oral communication skills are a must.

In return, we are offering a competitive salary, comprehensive benefits and relocation assistance. If you are interested in a challenging and rewarding career with a leader in pharmaceutical research, please send your detailed resume with salary history to:

Sheila Copeland
Employment Counselor
#81225-053

G. D. SEARLE & CO.
Research & Development Division
P.O. Box 5110
Chicago, IL 60680

*Equal Opportunity M/F/H... A Practice,
Not Just A Policy*



OPEN COMPETITION IN GEOMETRY

\$2500 AWARD

FOR THE MOST COMPLETE SOLUTION TO THE PROBLEM:

What geometrical properties of an inversion locus correspond to (are the counterparts of) the property of self-inversion of a basis curve at angles other than 0° or 180° ?

EXAMPLE: A Cassinian monoval self-inverts about its center at angles of 90° and 270° . No dissimilar inversion locus of a Cassinian monoval self-inverts at either of these angles. In what manner is the property of self-inversion of the basis Cassinian in 90° and 270° modes manifested in its inversion loci?

Entries must be original contributions to the theory of plane curves that include direct geometrical interpretations. For competition details and further information send stamped self-addressed envelope to:

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The Upjohn Company, a leading pharmaceutical company dedicated to the development of new therapeutic agents through basic research, is seeking a Ph.D. scientist to develop a research program to study non-psychiatric central nervous system disorders, particularly senile dementia and trauma. This independent research program will be integrated with established programs of a multi-disciplinary team concerned with the development of therapeutic agents for the treatment of these conditions.

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POSITIONS OPEN

SENIOR RESEARCH ASSOCIATE position to work on purification and biochemical characterization of adrenergic receptors. Candidate should have strong biochemical background and preferably some relevant postdoctoral experience. Salary and term are flexible and commensurate with background and experience. Send curriculum vitae and references to:

M. Caron or R. J. Lefkowitz
Howard Hughes Medical Institute Laboratory
Duke University Medical Center
Durham, N.C. 27710

CONVOCATION

The Ernest Witebsky Center for Immunology, State University of New York at Buffalo, announces the **Eighth International Convocation on Immunology** to be held 14 to 17 June 1982, at the Buffalo Marriott Inn, Amherst, New York. The theme of the program, "Regulation of the Immune Response," will include presentation of papers by distinguished scientists internationally recognized as experts on the topics: systemic immunoregulatory mechanisms; mucosal immunoregulatory mechanisms; immune regulation to exogenous antigens; and implications in clinical disease states. Further information may be obtained by contacting: **Dr. James F. Mohn, Director, The Ernest Witebsky Center for Immunology, Room 210 Sherman Hall, State University of New York at Buffalo, Buffalo, New York 14214. Telephone: 716-831-2848.**

SYMPOSIUM

14th Michigan Molecular Institute (MMI) Symposium THE EXTRACELLULAR MATRIX 28 June to 2 July 1982

Organizers: Susan Hawkes (MMI) and John Wang (MSU). Topics include: (i) structure and functional interactions of extracellular matrix (ECM) components: collagen, glycosaminoglycans, fibronectin, laminin, and chondronectin; (ii) systems for studying role of ECM in growth and differentiation; (iii) diseased states of ECM; and (iv) methods for culturing tissues and cells on surfaces derivatized with ECM and other defined components. Program includes: Bernfield, Stanford; Byers and Carter, University of Washington; Culp, Case Western University; Hassell, NIH; Hay, Harvard; Höök, University of Alabama; Kleinman, NIH; Lash, University of Pennsylvania; Nicolson, M.D. Anderson; Noonan, BRL; Reid, Albert Einstein College; Vogel, University of New Mexico; and Yamada, NIH. Contributed papers welcome. Further information from: **Symposium Secretary, MMI, 1910 West St. Andrews Road, Midland, Mich. 48640; telephone: 517-631-9450.**

REQUEST FOR PROPOSALS

The March of Dimes Birth Defects Foundation is interested in receiving **PROPOSALS** for small-scale research projects designed for the recognition, elucidation, and ultimate prevention of reproductive hazards in the workplace. Projects with emphasis on human experience are particularly encouraged.

For further information, please write to:

Vice President for Research, March of Dimes Birth Defects Foundation, 1275 Mamaroneck Avenue, White Plains, N.Y. 10605.

DOCTORAL PROGRAM

DOCTORAL PROGRAM—PHARMACOLOGY
Medical University of South Carolina, Department of Pharmacology, seeks qualified candidates for Ph.D. program. Interdisciplinary environment with research capabilities ranging from gas chromatography-mass spectrometry through cell cultures and animal studies to clinical studies of patients with disease. Research training is available in biochemical pharmacology, cardiovascular pharmacology, drug metabolism, toxicology, analytical chemistry, and clinical pharmacology. Stipends available. Contact: **Graduate Training Director, Department of Pharmacology, Medical University of South Carolina, Charleston, S.C. 29425.**

CONFERENCE



**Fundamentals of
Thermochemical
Biomass Conversion:
An International
Conference**

Conference will be held in Estes Park, Colorado, October 18-22, 1982. Emphasis will be on the current state of knowledge of mechanisms, kinetics and thermochemical and thermophysical property data for all non-biological biomass conversion. Appropriate topics include: relevant structure, composition and properties of biomass; pyrolysis; char gasification; liquefaction; combustion; catalytic science; modelling. Information on "Call for Papers" (Abstracts due March 1, 1982) available:

**Zo Milne, SERI 1617 Cole Boulevard
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FINANCIAL ASSISTANCE

Lerner-Gray Fund for Marine Research provides financial assistance in marine zoology, exclusive of botany. Level: advanced predoctoral students and postdoctoral researchers. Range: \$200 to \$1000. Projects can be carried out anywhere in the world. Applications due by 15 March on prescribed forms. Write: **Lerner-Gray Fund for Marine Research, American Museum of Natural History, Central Park West at 79th Street, New York, N.Y. 10024.**

GRADUATE STUDY

GRADUATE STUDY IN BIOLOGY

The Department of Biological Sciences, Murray State University, is seeking applicants for several graduate teaching assistantships ranging from \$2400 to \$3000 per academic year, and research assistantships up to \$6000 per year. The Department of Biological Sciences offers diverse research opportunities leading to an M.S. degree in biology. Some of the research areas are fisheries, wildlife, microbiology, physiology, and botany. Send applications to: **Dr. Joe King, Department of Biological Sciences, Murray State University, Murray, Ky. 42071.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS

Postdoctoral fellowships to begin 1 July 1982 are available in the Division of Metabolism and Nutrition, Department of Medicine, Columbia University. Interdisciplinary training in basic research and/or clinical investigation is available in the following: lipid and lipoprotein metabolism, hyperlipidemia, platelet and coagulation biochemistry and disease, biomathematics and computer modeling, regional myocardial blood flow and coronary circulation, electrophysiology and arrhythmias, vitamin A and retinol-binding protein and metabolism.

The requirements are an M.D. or Ph.D. or equivalent and U.S. citizenship or permanent residency. Annual salaries are standard NIH postdoctoral stipends plus supplement. Submit applications to:

**DeWitt S. Goodman, M.D.
Division of Metabolism and Nutrition
Department of Medicine
Columbia University
630 West 168 Street
New York, New York 10032**

Applications are being accepted for NIH National Research Service Award **POSTDOCTORAL FELLOWSHIPS** for training in environmental mutagenesis and carcinogenesis (starting date: July 1982). Stipends are set by NIH according to experience. Candidates must be U.S. citizens or aliens with permanent residence status. The faculty includes J. E. Cleaver, R. B. Painter, H. M. Patt, R. Pedersen, Z. Werb, and S. Wolff. Candidates with a Ph.D. degree in biological sciences or with an M.D. degree are eligible to apply. Send curriculum vitae, three letters of recommendation, and graduate transcript by 30 March 1982 to: **Sheldon Wolff, Program Director, Laboratory of Radiobiology and Environmental Health, University of California, San Francisco, San Francisco, California 94143. An Equal Opportunity Affirmative Action Employer.**

FELLOWSHIPS

HERBERT H. JASPER POSTDOCTORAL RESEARCH FELLOWSHIP IN NEUROSCIENCE. One year of financial support. Exceptional research facilities working with investigator of choice. Apply by sending complete curriculum vitae, including a brief statement of research interests and two letters of reference, before 28 February 1982 to: **Fellowship Committee, Centre de recherche en sciences neurologiques, Faculté de médecine, Université de Montréal, C.P. 6128, Montréal, Québec, Canada H3C 3J7.** Fellowship award to be announced 30 April 1982.

SEVEN POSTDOCTORAL FELLOWSHIP POSITIONS are available in fall 1982 for research in estuarine lagoon and nearshore continental shelf waters. Research areas include phytoplankton systematics and ecology, zooplankton biology, invertebrate reproduction and development, benthic community ecology, fish ecology and behavior, sedimentary processes, and biogeochemistry. Deadline for application is 1 April 1982. Request information brochure and application packet from: **Dr. Marsh J. Youngbluth, Postdoctoral Program, Harbor Branch Institution, Inc., RR 1, Box 196-A, Fort Pierce, Fla. 33450. An Equal Opportunity Employer.**

POSTDOCTORAL FELLOWSHIPS IN PHYSIOLOGICAL PSYCHOLOGY at University of California, Los Angeles (UCLA). Training in basic research and experience with application of physiological methods to clinical and other applied problems will be provided. Faculty include Doctors A. Arnold, J. Beatty, L. Butcher, G. Ellison, J. Garcia, F. Krasne, J. Liebeskind, D. Novin, and E. Zaidel. Send transcripts, names of three references, curriculum vitae, and a statement of research interests to the individual faculty member with whom you would like to work or to: **Dr. Donald Novin, Program Director, Psychology Department, UCLA, Los Angeles, Calif. 90024.** Applications received by 31 March 1982 will be considered for funding prior to or beginning June 1982. *The University is an Equal Opportunity/Affirmative Action Employer and applications from qualified minority candidates are invited.*

SPECIAL GRADUATE FELLOWSHIP will be awarded to an outstanding graduate student applicant to Molecular Biology Graduate Program, University of Arizona. Stipend of \$8000 for first year. Out-of-state tuition waiver. Available academic year 1982-1983. Apply in writing to: **Dr. W. Meinke, Department of Molecular and Medical Microbiology, University of Arizona, Tucson, Ariz. 85724.**

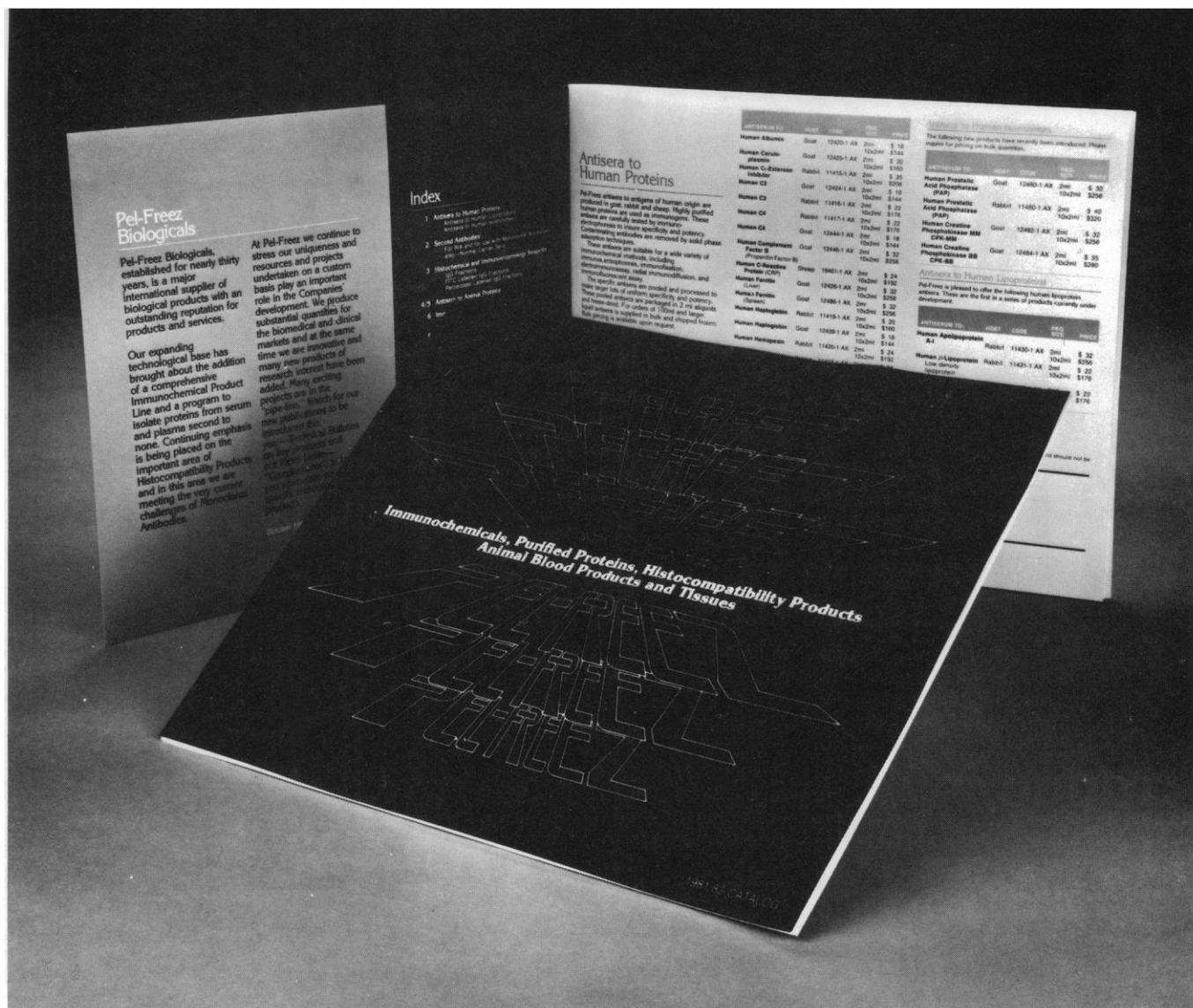
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Applications are invited for a **POSTDOCTORAL FELLOWSHIP** tenable at the Plant Breeding Institute, Cambridge, England, but supported by DeKalb AgResearch, Inc. The successful applicant will join the plant molecular genetics group to study the structure and function of crop plant mitochondrial DNA's in relation to the developmental biology of male sterility. The fellowship will be for 1 year initially with an option to continue for an additional 1 or 2 years. Suitably qualified persons should apply, sending résumés with names and addresses of three references, to: **Dr. R. B. Flavell, Plant Breeding Institute.** Applications accepted through 15 February 1982.

ASSISTANTSHIPS

Teaching and research **GRADUATE ASSISTANTSHIPS IN LIFE SCIENCES** up to \$6000 per year are available for Ph.D. and master's (thesis) candidates with research interests in animal, aquatic, physiological, and plant ecology and systematics; molecular and physiological genetics; immunobiology, animal and plant physiology; cellular and molecular biology; medical microbiology; medical technology; mycology; and parasitology and virology. Contact: **Chairperson, Department of Life Sciences, Indiana State University, Terre Haute, Indiana 47809,** for applications and information. *Indiana State is an Equal Opportunity/Affirmative Action Employer.*

GRADUATE ASSISTANTSHIPS. The Division of Cell and Molecular Biology, Department of Biological Sciences, offers assistantships carrying a 12-month stipend up to \$7000, plus tuition waiver. A firm grounding in chemistry, genetics, or biochemistry is desirable. Information and application forms may be obtained from: **Division of Cell and Molecular Biology, Department of Biological Sciences, State University of New York at Buffalo, Amherst, N.Y. 14260.**



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