

chanics category "bending fracture"?

It is unfortunate that Keeley persists in characterizing use-wear studies as fundamentally divided according to technical approach. In his words, "One approach concentrated on the low magnification study of edge damage, while the other employed a more catholic approach but nevertheless concentrated on the high magnification study of micro-wear polishes and striations." Seeing himself as the major exponent of the latter approach, Keeley derides low-magnification studies because those who have worked with a maximum magnification of about 50 have so far failed to discriminate the diagnostic use-polishes he has identified. The promotion of this view by such an influential researcher will surely inhibit flexibility on the part of novices to the field. There are researchers, including myself, who have obtained excellent results by employing high- and low-magnification microscopy in combination. Furthermore, as Keeley himself takes pains to point out, his use-polishes have so far been identified only on specific types of fine-textured siliceous stone. The vast majority of stone tools recovered from archeological sites are made of other types of stone that appear to sustain different wear patterns. These can be best identified at low magnification. Keeley also states that use-wear researchers who primarily employ low-magnification microscopes concentrate on use-fracturing (he uses the less precise terms "use-damage") at the expense of other forms of use-wear. This is misleading, as anyone can see by glancing through the publication resulting from the Vancouver conference.

Without a doubt one of the most problematic matters in use-wear research is the control of variables, there being as yet no generally agreed upon minimum standards of experimental design. Keeley rightly claims that the experiments carried out by other researchers lacked "methodological rigour." Certainly this has led to poor comparability between sets of data. But Keeley's condemnation applies as much to his own work. In carrying out his experiments he had in mind that they should be performed in a "natural" work environment:

As many of the experiments as possible were conducted outdoors, on the ground, in case the amount of grit introduced between the implement edge and the worked material should be artificially reduced by experimenting indoors on clean floors or countertops. Many of the experiments were done with dirty hands, since the ancient users of these tools were unlikely to wash their hands once a week, let alone several times a day.

By doing the experiments this way he has failed to adequately control the variable that according to his own account, and the results of other workers, is of paramount importance in the formation of use-polish, abrasion and striation. Keeley's interest is centered on the end result of wearing processes, and he sees the formation of use-polishes as a tangential issue, questioning whether a proper understanding of it is obtainable. Yet if he had controlled the introduction of abrasive particles in the tool-use operations he would have been able to elucidate the role of foreign particles in the development of his polishes. As it is, Keeley, and the readers of the book, can only speculate about why the use-polishes appear to be different.

Another problem with Keeley's experimental procedure is the use of dilute hydrochloric and nitric acids as cleaning agents for the experimental tools before examination for use-wear. He reports no demonstration that the use-wear was not altered by the acids.

It is also unfortunate that Keeley did not fully appreciate the value of the scanning electron microscope, with its broad magnification range and good depth of field. The book is liberally illustrated with 115 microphotographs taken through a metallographic microscope, but their resolution and depth of field are comparatively poor.

This book is destined to be a basic source of information on lithic use-wear. Its problems reflect the difficulties that are experienced in the early growth of any field of study. In the next few years we will undoubtedly see transformations.

JOHAN KAMMINGA

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(Continued on page 100)

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## ASSISTANT PROFESSOR IN RESOURCE SYSTEMS AND POLICY DESIGN THAYER SCHOOL OF ENGINEERING DARTMOUTH COLLEGE

We seek an analyst concerned with policies governing resource use and environmental quality. Applicants should have a Ph.D. in engineering or other appropriate discipline, strong competence in techniques of mathematical modeling and policy analysis, and substantial expertise in some aspect of natural resource systems. This is a tenure-track position that involves undergraduate and graduate teaching and research, with potential for collaboration with Dartmouth's Environmental Studies, Policy Studies, and Computer Sciences programs. The person selected will become a senior member of the Resource Policy Center, which conducts interdisciplinary studies of energy, water resources, transportation, environmental quality, solar technologies, and forestry. Candidates are sought who can supplement these ongoing programs while developing an active program of teaching and sponsored research in their own particular area of specialization.

Detailed information may be obtained from: **Dennis Meadows, Thayer School of Engineering, Dartmouth College, Hanover, N.H. 03755.** Telephone: 603-646-3551. Submit résumé, graduate transcripts, names and addresses of three references, and a brief statement of teaching and research interests. Closing date for applications is 15 December 1980. Dartmouth College is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and members of minority groups.

## POSITIONS OPEN

### CHEMIST

## ANALYTICAL CHEMIST

A position exists at the scientist or senior scientist level for the organic analysis of air samples. B.S. with experience, and M.S. or Ph.D. in analytical chemistry with the major area of research experience and study in gas chromatography and high performance liquid chromatography is required. Responsibilities will include extraction and separation analysis of organic compound from aerosols in a laboratory equipped with GC, HPLC and GC/MS. Competitive salary and fringe benefits. Send résumé to:

**Glenda Jahtaniah  
Northrop Services, Inc.  
P.O. Box 12313  
Research Triangle Park, N.C. 27709**  
Equal Opportunity Employer, M/F/H/V

The Department of Botany of Washington State University is seeking applications for a position in **STRUCTURAL BOTANY**. The appointment will be made at the **ASSISTANT PROFESSOR** level, beginning in September 1981. The level of structural emphasis is open (that is, from the cellular to the organismal level). Preference will be given, but not limited, to a person working on structure-function relationships. The appointee will be expected to maintain an active research program and to teach in structural botany courses. Applicants should send curriculum vitae documenting their research and teaching ability, a statement of current research interests and plans, transcripts, and arrange to have three letters of reference sent to: **Dr. Donald B. Fisher, Chairman, Structural Botanist Search Committee, Department of Botany, Washington State University, Pullman, Wash. 99164.** The closing date for receipt of applications is 15 November 1980. Washington State University is an Equal Opportunity/Affirmative Action Employer. We encourage minority, women, handicapped, Vietnam-era and disabled veterans and/or aged persons to apply and identify themselves as such in their applications.

## BIOLOGY UNIVERSITY OF SOUTH CAROLINA

The Department of Biology is strengthening its interest in eukaryotic gene expression and expects to appoint junior and senior faculty members in the areas of cell and molecular biology, developmental biology, and genetics. These appointees will complement the 15 faculty currently conducting research in these disciplines. Junior level faculty are expected to initiate and maintain vigorous research programs. Two appointees will be expected to teach in the areas of anatomy and developmental biology. Senior level applicants should have a distinguished record of achievement and be able to effectively interact in research and teaching with the other faculty. Salary and start-up funds are negotiable. Applicants should submit curriculum vitae, representative publications, and the names and telephone numbers of references by 1 December 1980. Nominations and informal inquiries are invited. Write or telephone:

**Dr. Roger Sawyer  
Biology Search Committee Chairman  
Department of Biology  
University of South Carolina  
Columbia, S.C. 29208  
Telephone: 803-777-7028**

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

**CELL PATHOBIOLOGIST.** Faculty appointment. Record of innovative and independent research. Women and members of minority groups are encouraged to apply. Applications must be received by 15 December 1980. Please forward curriculum vitae to: **John E. Craighead, M.D., Chairman, Department of Pathology, University of Vermont, Burlington, Vermont 05405.**

**IMMUNOPATHOLOGIST.** Faculty appointment. Record of innovative and independent research. Women and members of minority groups are encouraged to apply. Applications must be received by 15 December 1980. Please forward curriculum vitae to: **John E. Craighead, M.D., Chairman, Department of Pathology, University of Vermont, Burlington, Vermont 05405.**

## POSITIONS OPEN

### ASSISTANT/ASSOCIATE PROFESSORS ORAL IMMUNOLOGY AND/OR MICROBIOLOGY

The Department of Basic Dental Sciences of the University of Florida College of Dentistry is seeking qualified applicants for two tenure-track positions with at least 50 percent time for research. Rank and salary are negotiable commensurate with qualifications and experience. We are seeking two individuals with excellent training and postdoctoral experience, one in cellular immunology related to periodontal disease mechanisms, and another in oral microbiology/immunology. Successful applicants will be expected to participate in our predoctoral, postdoctoral, and graduate teaching program.

The positions are available immediately. Applicants should submit curriculum vitae, summary of current research, and three letters of recommendation prior to 1 December 1980 to: **Dr. William B. Clark, Chairman of Search Committee, Box J-424, University of Florida, Gainesville, Fla. 32610.** An Equal Opportunity/Affirmative Action Employer.

**BIOCHEMICAL ENDOCRINOLOGIST.** Tenure-track position at assistant professor level to begin about 1 July 1981. Minimum of 2 years of postdoctoral experience with demonstrated expertise in natural products chemistry, in vitro techniques, and microsurgery. Current interests in insect neuroendocrinology preferred. Send résumé, including statement of specific research plans, and have three letters of recommendation sent to: **Chairman of Search Committee, Department of Zoology, University of North Carolina, Chapel Hill, N.C. 27514,** by 1 December 1980. *The University of North Carolina is an Affirmative Action/Equal Opportunity Employer.*

### CHAIRPERSON—MARINE AFFAIRS

The Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, is seeking to fill a full-time tenure-track position as chairman of the newly created marine affairs division. The candidates must have a record of scholarly/professional accomplishments in one of the areas of marine affairs and be able to lead and attract talented faculty and support. The division of marine affairs will interact with five other disciplinary divisions at the Rosenstiel School in engineering, biology, geology and geophysics, physical oceanography, and atmospheric science and also the law school and school of business administration of the University of Miami. RSMAS is a graduate school and oceanographic research institution with 80 faculty and 150 students located in Virginia Key. Send application to **Dr. B. Le Méchauté, Acting Chairperson, Division of Marine Affairs, RSMAS, University of Miami, 4600 Rickenbacker Causeway, Miami, Florida 33149.**

*An Equal Opportunity/Affirmative Action Employer*

### DEAN OF SCHOOL OF PHYSICAL AND MATHEMATICAL SCIENCES NORTH CAROLINA STATE UNIVERSITY

North Carolina State University (NCSU) invites applications and nominations for the Dean of the School of Physical and Mathematical Sciences. NCSU is one of the 16 constituent institutions of the University of North Carolina. Located in Raleigh, NCSU is one of the three major research universities bounding the Research Triangle Park. There are approximately 20,000 students enrolled in the nine schools of the university. Within the School of Physical and Mathematical Sciences there are 1,020 undergraduate and 324 graduate students enrolled in 27 degree programs, and 233 faculty in the departments of chemistry, computer science, and geosciences, marine sciences, mathematics, physics, and statistics.

Qualifications: applicants should have earned a Ph.D. in a discipline within physical or mathematical sciences and established a substantial record of scholarship, leadership, and executive or administrative performance. Position available 1 July 1981. Salary commensurate with experience and qualifications.

Nominations and applications should be received by 17 October 1980. Nominations should include a brief statement about the nominee's experience and qualifications pertinent to the position. Individuals applying for this position should submit a résumé and the names of at least three references. Send nominations and applications to: **William H. Simpson, Secretary of Search Committee for Dean of PAMS, Assistant to Chancellor and Provost, "A" Holladay Hall, NCSU, Raleigh, N.C. 27650.** An Equal Opportunity/Affirmative Action Employer.

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

**OPENING DATE: October 1, 1980**

**CLOSING DATE: October 31, 1980**

**All applications must be postmarked by closing date**

## Director, Center for Research for Mothers and Children

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

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

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

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

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

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

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

## NATIONAL INSTITUTES OF HEALTH



**FACULTY POSITIONS IN  
COMPUTER ENGINEERING  
THAYER SCHOOL OF ENGINEERING  
DARTMOUTH COLLEGE**

The Thayer School of Engineering is recruiting for two positions in computer engineering which will be available beginning in September 1981. We will consider applicants for tenure-track positions at the assistant and associate professor level and visiting appointments at any level. Applicants should have a doctorate and a background in electrical engineering and computer systems, be interested in teaching at both the undergraduate and graduate levels, and have the desire to develop a strong research program. Candidates should possess competence in at least two of the following areas: micro-processors and their applications; digital systems architecture; networks and distributed processing; and digital process control.

Dartmouth College is presently expanding its academic programs in computers and computer science. As part of this expansion, it is intended to embark, together with the Kiewit Computation Center, upon a joint research and development effort involving networks and distributed processing. As a result, opportunities exist for collaboration within the Thayer School of Engineering, with the Kiewit Computations Center, and the undergraduate and graduate computer science programs.

Detailed information may be obtained from: Associate Dean John W. Strohbehn, Thayer School of Engineering, Dartmouth College, Hanover, New Hampshire 03755. Telephone: 603-646-2393. Please submit résumé, graduate transcripts, names and addresses of three references, and a brief statement of teaching and research interests.

The closing date for applications is 15 December 1980. *Dartmouth College is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and from members of minority groups.*

**GROUP MANAGER  
(Diagnostic Products)  
(Production)**

M.A. BIOPRODUCTS is a growing biomedical company located in Frederick County, Maryland (60 minutes from Washington, D.C.). We are seeking a well-qualified person to manage our Diagnostic Products Department. The position reports to the Vice-President of Manufacturing.

The Group Manager will be responsible for planning, directing, and coordinating the production of all diagnostic products (kits included). A broad knowledge of the immunodiagnostics field and manufacturing GMP's is essential. The individual must also have a proven record of managerial ability, production planning, and budget and inventory control.

Applicants with a Ph.D. in Immunology or Virology and 4-6 years of experience in a manufacturing environment will be given priority status. A background in the production of immunoassay reagents and kits or human/veterinary biologicals is preferred.

M.A. BIOPRODUCTS offers a competitive salary and benefits package. Interested professionals should forward their resumes, including salary history and requirements to:

John E. Gardner  
M.A. BIOPRODUCTS  
Bldg. #100, Biggs Ford Road  
Walkersville, Md. 21793



**M.A. BIOPRODUCTS**

An Equal Opportunity Employer M/F/H

**POSITIONS OPEN**

**BENTHIC ECOLOGIST**

Permanent position at research laboratory on the Chesapeake Bay for Ph.D. with experience studying animal-sediment interactions in estuarine or marine systems, and interests in population dynamics, community structure, or physiological ecology of benthic invertebrates preferred. Should be broadly trained with demonstrated quantitative and statistical abilities. Duties include participation in interdisciplinary applied ecological studies and development of an active personal research program. Applicants should submit curriculum vitae, statement of research interests, and three letters of recommendation by 31 October 1980 to:

Dr. Louis E. Sage  
Academy of Natural Sciences of Philadelphia  
Benedict Estuarine Research Laboratory  
Benedict, Maryland 20612  
*Equal Opportunity Employer*

**BIOCHEMIST.** The Department of Chemistry at the University of Oklahoma anticipates having an opening for a permanent faculty member in biochemistry. Minimum qualifications include a Ph.D. in biochemistry or chemistry and excellent credentials in, as well as a strong commitment to, both teaching and research in biochemistry. The successful applicant will be expected to teach at the undergraduate and graduate level and to maintain an active research program. Depending on background and experience, the appointment could be made at the rank of professor, associate professor, or assistant professor. Minority candidates are most strongly encouraged to apply. Applicants should submit a complete résumé including research and teaching experience, future research plans, and any other supporting material and have at least three letters of reference sent to: Professor Eddie Carol Smith, Chairperson of the Search Committee, Department of Chemistry, University of Oklahoma, 620 Parrington Oval, Norman, Oklahoma 73019. Applications must be postmarked by 1 November 1980. *The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer.*

**CURATOR/RESEARCH PLANT SCIENTIST**

Tenure-track position, University of California, Davis, at the assistant level. The appointee will administer the National Fruit and Nut Germplasm Repository at Davis and conduct research in the Agricultural Experiment Station. A Ph.D. in an area of plant science is required and experience with fruit trees or vines is desired. The appointee will be expected to conduct imaginative research leading to new or improved methods of maintaining clonal germplasm.

Applicants should submit curriculum vitae with a list of reprints of pertinent publications, thesis summary, undergraduate and graduate transcripts, and the names and addresses of four references to: Dr. Noel F. Sommer, Chairman, Search Committee, Department of Pomology, University of California, Davis, Calif. 95616. Candidates applying after 15 December 1980 might not be considered.

*The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

**DEAN  
COLLEGE OF ENGINEERING  
The Pennsylvania State University**

Applications and nominations are sought for the position of Dean of the College of Engineering. Candidates should have an earned doctorate and credentials to merit an appointment as a tenured faculty member in the College. Experience in teaching and research in an academic environment is desirable. Candidates should also have demonstrated strong administrative abilities and management skills.

Nominations or letters of application should be sent by 20 November 1980 to: Dr. Carl H. Wolgemuth, Chairman, Engineering Dean Search Committee, The Pennsylvania State University, Box S-22, 205 Old Main, University Park, Pennsylvania 16802.



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

**POSITIONS OPEN**

**NATIONAL SCIENCE FOUNDATION  
Washington, D.C. 20550**

The Directorate for Biological Behavioral, and Social Sciences is seeking qualified candidates for the position of EXECUTIVE ASSISTANT, PLANNING. The Executive Assistant is principal adviser to the Assistant Director and Deputy Assistant Director on Directorate-wide planning and budgeting as well as other directorate activities. Experience in the planning or management of research and development programs is essential. Applicants must have a Ph.D. or equivalent professional experience in a biological, behavioral, social, or closely related science, or education and experience in public administration, policy analysis, and program development. This position is part of the Senior Executive Service with a salary limited by law to \$50,112 per annum. Appointment to this position is on a career basis to a career-reserved position. Entrance on duty date for this position is the end of 1980. Send SF-171 and supplemental narrative to: National Science Foundation, Room 212, 1800 G Street, NW, Washington, D.C. 20550. For information on application procedures, telephone: Peggy Cadematori at 202-357-7857. *All applications must be received by 31 October 1980.*

**DIRECTOR OF RESEARCH.** The Children's Hospital, Children's Hospital Research Foundation, and Ohio State University College of Medicine invite applications and nominations for Director of Research, The Children's Hospital Research Foundation. The Foundation, housed in a 5-story building including a fully equipped animal facility, is located at one of the largest, most active pediatric institutions in the country, and engages in a complete program of basic and clinical pediatric research. Candidates should have a distinguished record of achievement in biomedical research. Responsibilities include providing administrative and scientific leadership, facilitating the faculty's research activities, and guiding the institution's growth. An interdisciplinary search committee will review all applications. Applications and nominations (including curriculum vitae) should be submitted by 14 November 1980 to: Vincent Hammarian, Ph.D., Acting Executive Director, The Children's Hospital Research Foundation, 700 Children's Drive, Columbus, Ohio 43205. *An Affirmative Action/Equal Opportunity Employer.*

**EMBRYOLOGIST/TERATOLOGIST.** Rank of assistant or associate professor. Qualifications: D.V.M. and/or Ph.D. with interest to teach veterinary embryology and evidence of research capability in teratology. Responsibilities include teaching embryology and participation in graduate degree and other educational programs of the School of Veterinary Medicine. Application closing date: 15 November 1980 or until filled. Submit curriculum vitae with statement of teaching and research interest and three references to:

Arthur Aronson, Head  
Department of Anatomy, Physiological Sciences  
and Radiology  
School of Veterinary Medicine  
North Carolina State University  
Raleigh, North Carolina 27650

*North Carolina State University is an Equal Opportunity/Affirmative Action Employer.*

**TWO FACULTY POSITIONS  
IN VEGETABLE CROPS**

**First position:** assistant rank (tenure-track); Ph.D. in plant physiology, horticulture, agronomy, ecology, soils, plant nutrition, or other related disciplines; 80 percent research, 20 percent teaching with research responsibilities for seed physiology, production, and storage.

**Second position:** rank and salary open to all levels commensurate with experience (tenure-track). Degree requirement same as first position plus teaching and research experience; 85 percent research, 15 percent teaching with research responsibility on stress physiology or ecophysiology of vegetable crops.

Submit curriculum vitae, including transcript of university courses, complete list of publications, reprints, teaching experience, statement of career goals, and the names of three referees, to: Dr. L. Rappaport, Chair, Department of Vegetable Crops, University of California, Davis, Calif. 95616. Deadline for receipt of these materials is 15 November 1980.

*The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

## POSITIONS OPEN

### ENVIRONMENTAL SPECIALIST

GAI Consultants, Inc., a national firm specializing in environmental studies, engineering, and geosciences, is seeking a senior staff member who will have assignments on solid waste, environmental, or geotechnical projects. The candidate must have a Ph.D. degree in biology, environmental studies, or resource management with direct experience in dealing with NEPA process and federal, state, and local environmental regulations for permitting and impact statements. Salary is commensurate with experience. Send résumé to: **GAI CONSULTANTS, INC., 570 Beatty Road, Monroeville, Pittsburgh, Pa. 15146.**



**FACULTY POSITION** in physical chemistry, assistant professor, tenure-track position, fall 1981. Ph.D. required and postdoctoral experience desirable. The successful candidate is expected to establish a strong research program in experimental physical chemistry. Candidates with expertise in the NMR area will be given preference. Teaching duties include graduate and undergraduate physical chemistry with some assignment in the general chemistry program likely. Candidates should supply a graduate transcript, curriculum vitae, résumé of future research plans, and have three letters of recommendation sent to: **Dr. Pierre Crabbe, Chairman, Department of Chemistry, University of Missouri, Columbia, Missouri 65211, before 30 November 1980. An Affirmative Action/Equal Opportunity Employer.**

### RENAL PHYSIOLOGIST

The Department of Physiology  
Medical College of Wisconsin

Applicants are invited to fill a tenure-track position in Physiology at the Assistant or Associate Professor level. Responsibilities will include teaching in the medical school physiology course and advanced courses in the graduate program in the candidate's area of research expertise. Candidates should be involved in an ongoing active research project and be a successful contributor to his or her area of study. Research emphasis should be on mechanisms controlling renal blood flow, glomerular filtration and reabsorption at both the tubular and organ level. Interested individuals should write a letter explaining their qualifications for the particular position and enclose a current curriculum vitae and a list of three or more persons for reference. Send information to **Dr. Allen W. Cowley, Jr., Department of Physiology, THE MEDICAL COLLEGE OF WISCONSIN, 8701 Watertown Plank Road, Milwaukee, Wisconsin, 53226.** Applications must be received by Dec. 1, 1980. The Medical College of Wisconsin is an equal opportunity, affirmative action employer, M/F/H.

## POSITIONS OPEN

**FACULTY POSITION AT THE UNIVERSITY OF CALIFORNIA, DAVIS.** Assistant professor or associate professor (20 percent teaching/80 percent research). Position available for teaching and research emphasizing investigation of fundamental scientific principles applicable to muscle foods. Requirements include a Ph.D. degree pertinent to meat science (biochemistry, chemistry, food science, physiology, or a related field). Send résumé, transcripts of undergraduate and graduate work, and publications list to: **Professor W. D. Brown, Chairman, Search Committee, Department of Food Science and Technology, University of California, Davis, Calif. 95616.** Also have three or more persons send letters of recommendation. Applications should be received by 1 January 1981. *The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

University of Michigan Medical School. One position at **INSTRUCTOR TO ASSISTANT PROFESSOR** level, available immediately in the **DEPARTMENT OF ANESTHESIOLOGY.** Board-certified or -eligible anesthesiologist with Michigan licensure. Research, clinical, and didactic experience. Reply to: **Box 231, SCIENCE.** Code 06HO. *A nondiscriminatory, Affirmative Action Employer.*

University of Michigan Medical School. One position at **INSTRUCTOR TO ASSISTANT PROFESSOR** level, 1 July 1981, in the **DEPARTMENT OF ANESTHESIOLOGY.** Board-certified or -eligible anesthesiologist with Michigan licensure. Research, clinical, and didactic experience. Reply to: **Box 232, SCIENCE.** Code 18FO. *A nondiscriminatory, Affirmative Action Employer.*

University of Michigan Medical School. One position at **INSTRUCTOR TO ASSISTANT PROFESSOR** level, 1 January 1981, in the **DEPARTMENT OF ANESTHESIOLOGY.** Board-certified or -eligible anesthesiologist with Michigan licensure. Research, clinical, and didactic experience. Reply to: **Box 233, SCIENCE.** Code 31HO. *A nondiscriminatory, Affirmative Action Employer.*

## POSITIONS OPEN

### FACULTY POSITIONS AT THE OHIO STATE UNIVERSITY

The Chemistry Department expects to add three tenure-track faculty positions, effective June or September 1981. Appointment at the **assistant professor** rank is expected; however, outstanding individuals with experience will be considered also for the **higher ranks.** Preference will be given to persons with postdoctoral experience and with research interests in the **physical or biochemical** areas. For one of the physical positions, preference will be given to candidates with interests in laser applications to spectroscopy or multi-photon processes; the other position will be in a different area such as statistical mechanics and thermodynamics or surface structures and processes. For the biochemical position, preference will be given to candidates with research interests in the areas of membranes, nucleic acids, or enzymology. Applicants should submit: (i) a detailed résumé, (ii) transcripts of graduate studies, (iii) a summary of research interests, and (iv) reprints of representative papers. In addition, please supply the names of five persons we could contact for references; preferably, the candidate should have four letters of reference sent directly to: **Professor Devon W. Meek, Chairman, Department of Chemistry, The Ohio State University, 140 West 18 Avenue, Columbus, Ohio 43210.** **Deadline for completed applications: 1 November 1980.** *The Ohio State University is an Affirmative Action/Equal Opportunity Employer.*

**FACULTY POSITION** in synthetic organic chemistry, associate professor or professor. Tenure-track position in synthetic organic chemistry starting fall 1981. Ph.D. and several years of postdoctoral experience required. The candidate is expected to teach graduate and undergraduate organic chemistry and develop a strong research program in synthesis. Candidates should supply a graduate transcript, curriculum vitae, résumé of future research plans, and have three letters of recommendation sent to: **Dr. Pierre Crabbe, Chairman, Department of Chemistry, University of Missouri, Columbia, Mo. 65211** before 30 November 1980. *An Affirmative Action/Equal Opportunity Employer.*

## Immunopharmacologist

### Sr. Principal Scientist

Boehringer Ingelheim Ltd, continuing expansion of the pharmaceutical research facilities in Ridgefield, Ct, has a new opening for a Senior Principal Scientist in Immunopharmacology.

We are seeking an astute PhD scientist with good training and experience in immunology who will be responsible for the methods and assays necessary to evaluate the immunological profile of new compounds being developed for the anti-allergic and anti-inflammatory fields. A sound knowledge of all *in vivo* and *in vitro* investigational techniques and familiarity with short-term culture methods is required.

Competitive salary & benefits, including relocation package, outstanding work environment and collaborators as well as excellent area and quality of life create a unique opportunity for contribution and reward. Please send resume, including salary requirement, to: **Stuart E. Rapp, Personnel, R&D.**



**Boehringer  
Ingelheim**

**90 East Ridge, P.O. Box 368, Ridgefield, CT 06877**

*An Equal Opportunity Employer M/F*



## POSITIONS OPEN

**NEUROSCIENCE POSTDOCTORAL POSITIONS AVAILABLE** in the following areas: cellular neurophysiology (with W. H. Calvin, Ph.D., or P. A. Schwartzkroin, Ph.D.), epileptic neuron physiology and motor control (A. R. Wyler, M.D., and A. A. Ward, Jr., M.D.), neuroanatomical mechanisms of epilepsy and deafferentation (A. B. Harris, M.D., and L. E. Westrum, M.D., Ph.D.), physiology of human language and memory (G. A. Ojemann, M.D.), behavioral effects and mechanisms of action of anti-convulsants (J. S. Lockard, Ph.D.), and neurophysiology of peripheral nerve disorders (J. D. Loeser, M.D., and W. H. Calvin, Ph.D.). NRSA stipends for U.S. citizens or permanent residents with Ph.D. or M.D. and relevant research experience. Write individual faculty or: **Dr. William H. Calvin, Chairman, Selection Committee, Neurological Sciences Training Program, Department of Neurological Surgery RI-20, University of Washington, Seattle, Washington 98195.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** to work on the hormonal control of glycogen metabolism, protein phosphorylation, and protein kinases. Projects could range from studies with purified proteins to hormone action in whole tissue systems. Please send curriculum vitae and arrange for three referees to write to: **Peter J. Roach, Department of Biochemistry, Indiana University School of Medicine, Indianapolis, Indiana 46223. Telephone: 317-264-2931. An Equal Opportunity/Affirmative Action Employer, M/F.**

**POSTDOCTORAL POSITION** for research on the photochemistry of skin photosensitizing compounds. Mechanistic and product studies which require experience with separation and product identification methods in organic chemistry and biochemistry. Send résumé to: **Dr. L. C. Harber, Department of Dermatology, Columbia University, 630 West 168 Street, New York, N.Y. 10032.**

## POSITIONS OPEN

### FACULTY POSITIONS IN BIOCHEMISTRY

The Department of Biochemistry and Biophysics at Texas A & M University invites applications for several 12-month, tenure-track positions. Academic rank and salary will be commensurate with experience. Applicants should have a terminal doctorate, postdoctoral experience, and the demonstrated ability to either continue or establish an independent research program in collaboration with biochemists and molecular biologists who have similar interests. Particular interest is expressed in biochemists with experience in recombinant DNA technology, gene sequencing, and posttranslational processing, however, exceptionally qualified individuals with interests in other areas of biochemistry will be considered. Responsibilities will include research, teaching at the graduate level in the area of expertise, and participation in the undergraduate teaching program. Applicants should send complete curriculum vitae, a list of publications, a summary of future research plans, and the names of three references, no later than 1 November 1980, to: **Dr. E. G. Sander, Head, Department of Biochemistry and Biophysics, Texas A&M University, College Station, Texas 77843; telephone: 713-845-5032. Texas A&M University is an Equal Opportunity/Affirmative Action Employer.**

### MELLON FACULTY RESEARCH POSITIONS

available for investigators with postdoctoral experience. Preference given to candidates who can contribute uniquely to an existing research program in reproductive endocrinology. Current areas include molecular mechanisms of hormone action, regulation of gene expression, neuroendocrine regulation of ovarian cyclicity, and morphological identification of sites of hormone action. Future areas include immunology, recombinant DNA, and rhythm analysis. Positions available for up to 3 years with a starting salary of \$18,000. To apply, submit curriculum vitae, three letters of reference, and research plans to: **Chairman, Selection Committee, Reproductive Endocrinology Program, Department of Pathology, The University of Michigan, Ann Arbor, Mich. 48109. An Equal Opportunity/Affirmative Action Employer.**

The Department of Neurology at the University of Michigan is seeking applicants for **FOUR FACULTY POSITIONS**. Two positions are available on the full time university staff: one, at the assistant/associate professor level, is intended for a clinical investigator with a research background appropriate for the use of our newly funded position emission tomography (PET) facility; the other, at the instructor/assistant professor level, is for the clinician seeking to develop further both clinical and electrodiagnostic skills in a research setting. Two positions are also available for a clinician-researcher based at the Veterans Administration Medical Center with a university appointment at the assistant/associate professor level. There is also an assistant professor level position available for the clinical investigator and teacher desiring a university-based appointment with part-time assignment to the Veterans Administration Medical Center. Interested persons should send updated curriculum vitae and arrange to have three letters of recommendation sent to: **Kenneth L. Casey, M.D., Department of Neurology, University of Michigan, Ann Arbor, Mich. 48109. A nondiscriminatory, Affirmative Action Employer.**

### HUMAN QUANTITATIVE GENETICS POSTDOCTORAL RESEARCH ASSOCIATE

Experience in pedigree and/or path analysis of human multifactorial traits desired. Participate in studies related to hypertension, body composition, and growth. Available immediately. Salary: \$16,000 to \$20,000. Send résumé and three reference letters to: **R. M. Siervogel, Ph.D., Fels Research Institute, Wright State University School of Medicine, Yellow Springs, Ohio 45387.**

University of Michigan, **DEPARTMENT OF OBSTETRICS AND GYNECOLOGY**, is undergoing a major rebuilding program and is seeking applicants who have an M.D. degree, postdoctoral training, and Board-qualification or -certification in maternal/fetal medicine. Positions at any academic level (instructor through professor) will be considered. Send curriculum vitae, brief summary of present and future research, and names and addresses of three references to: **Alan E. Beer, M.D., Professor and Chairman, Department of Obstetrics and Gynecology, Women's Hospital, University of Michigan Medical School, Ann Arbor, Michigan 48109. A nondiscriminatory, Affirmative Action Employer. Code 13DO.**

# ENVIRONMENTAL QUALITY ENGINEERS

The Tennessee Valley Authority, Knoxville, Tennessee, is an independent, government-owned corporation "charged with the broadest duty of planning for the proper use, conservation, and development of the natural resources of the Tennessee River drainage basin and its adjoining territory." It is the Nation's largest producer of power serving seven states and four million people.

The Environmental Quality Staff is a policy-oriented, inter-disciplinary group that is responsible for planning, developing and coordinating TVA's corporate environmental affairs. It is responsible agency-wide for environmental policy and environmental initiatives formulation and recommends environmental policies and standards.

We have immediate positions for qualified Chemical and/or Process Engineers. Successful candidates will be involved in environmental aspects of advanced coal technologies, such as gasification and fluidized bed combustion. Will address entire fuel cycle, evaluating environmental, technical cost, standards and institutional implications of alternatives. Background should include MB/Ph.D., and a minimum of three years experience in related fields. Knowledge of environmental laws and regulations essential.

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TVA may consider for appointment only U.S. citizens and others eligible for payments under section 602 Pub L 94 -363 and section 750 Pub L 94-419

# RESEARCH SCIENTISTS

## RECOMBINANT DNA

Connaught Laboratories Limited is one of the world's largest producers of biological products. The creation of the Connaught Research Institute in July 1980 focused the activities of Connaught Laboratories on the innovative development of new products. In genetic engineering, our aim is to establish, in Canada, a team of scientists capable of exploiting the technology emerging from recombinant DNA work to contribute to the development of biological products.

Accordingly, we currently have opportunities for Research Scientists and Post-doctoral Research Fellows to join our active and growing team in the field of Recombinant DNA research. These persons will interact with other research scientists also working to obtain materials of biological and medical significance.

Candidates should have a successful research record in the field of molecular biology, with considerable experience in recombinant DNA and a record of productivity.

Curriculum vitae and reprints should be sent, in confidence, to: Linda L. Bell, Director of Personnel, Connaught Laboratories Limited, 1755 Steeles Avenue West, Willowdale, Ontario, Canada. M2N 5T8.



# EPIDEMIOLOGIST

THE INDEPENDENT STATE OF PAPUA NEW GUINEA

SOUTHERN HIGHLANDS  
RURAL DEVELOPMENT PROJECT

An epidemiologist is required by the Government of Papua New Guinea for the above project, which utilises a World Bank credit agreement.

The epidemiologist will direct the Tari Research Unit, which is carrying out a population based research programme into the four major disease problems of the area—acute respiratory disease, diarrhoeal disease, malaria, and pigbel—as well as malnutrition and health delivery systems.

The health research programme is part of a multidisciplinary research programme established to study the subsistence agricultural system and the impact of economic development on the people of the Province. The Province is the last area of Papua New Guinea to be contacted, modern development only beginning less than 30 years ago.

An epidemiologist is required for a period of 4 years, but a 2-year contract would be considered. Conditions of employment would include the provision of leave fares, housing, international primary schooling for children, and education allowances for secondary school children.

Mendi, the main town in the Southern Highlands Province, has a pleasant climate, being located at 1700 m.a.s.l. International primary schooling is available and there are facilities for squash, tennis, golf, and swimming. It is connected to Port Moresby by daily flights (except Sunday) and to Lae by road. The phones have I.S.D. to Australia and there are adequate medical facilities.

Interested applicants should apply to the address given, giving full personal details, indication of remuneration expected (in American dollars), a telephone contact number, telex or telegraphic contact number or address, and curriculum vitae.

The Project Co-Ordinator, S.H.R.D.P.,  
Department of Finance  
Post Office, Wards Strip  
Waigani  
Papua New Guinea

Telex: Finance NE 22218. Telegrams: Finance Waigani.



# MARINE BIOLOGICAL LABORATORY

## Woods Hole, Massachusetts 02543

## announces JANUARY COURSES, 1981

**Basic Ecology And Management Of Resources** (Robert Howarth and George Woodwell, Co-Instructors in Chief)

**Behavior** (Jelle Atema)

**Comparative Pathology Of Marine Invertebrates** (Frederik Bang)

**Developmental Biology** (Instructor in Chief to be announced)

**Neurobiology** (Daniel Alkon)

For the eighth consecutive January, MBL will offer intensive courses, with emphasis on laboratory work, intended primarily for graduate and advanced undergraduate students. The courses last four weeks (January 4-30, 1981) and are conducted concurrently.

Tuition is \$550.00; room and board is approximately \$275.00. Limited financial aid is available.

Completed applications must be received at MBL by November 10.

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.

## POSITIONS OPEN

### HORN POINT ENVIRONMENTAL LABORATORIES UNIVERSITY OF MARYLAND

**FACULTY MEMBER** sought for 12-month, tenure-track position to conduct research and teach at graduate level, in one of the following areas: **hydrology, physical oceanography of coastal systems, marine benthic ecology, or algal physiology and ecology.**

Appointment anticipated at rank of associate or full professor, although candidates qualified for assistant professor will be considered. Salary commensurate with rank and experience. Ph.D. in area of specialization, exceptional competence in research, and strong potential for obtaining research funding required. Recent expansion of facilities provides opportunities for major new research programs. Send résumé, letter describing experience and qualifications, and list of at least four referees by 30 November 1980 to: **S. D. Sulkin, Head, Horn Point Environmental Laboratories, Box 775, Cambridge, Maryland 21613. The University of Maryland is an Affirmative Action/Equal Opportunity Employer.**

**FLOWERING PLANT SYSTEMATIST.** (Emphasis on anatomy-morphology). Applications are invited for a position in flowering plant systematics, emphasizing morphology, anatomy, and taxonomy. A Ph.D. is required and postdoctoral experience is desired. The position (\$16,000 to \$18,000 per academic year) is at the assistant professor level, tenurable, and begins September 1981. The successful applicant will be expected to maintain an active and vigorous research program and seek external research support. The appointee will be expected to share in teaching graduate and undergraduate courses in one or more of the above areas and to supervise Ph.D. and M.S. students. The granting of tenure will be contingent upon the successful development of a research program and obtaining external research support, as well as the development of excellence in teaching. Please send curriculum vitae documenting research interests and plans and teaching ability, three letters of reference, transcripts, and copies of publications to: **Charles E. Miller, Department of Botany, Ohio University, Athens, Ohio 45701.** Closing date for receipt of applications is 31 December 1980. *Ohio University subscribes to Equal Opportunity and Affirmative Action employment practices.*

**LIPID BIOCHEMIST.** Career Federal Service. Develop independent research program to study synthesis and/or degradation of lipid at the cellular level in meat animals. Position located at Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, Neb. GS-11/12/13, salary based on qualifications and experience. For application, contact: **J. Brooks, USDA-SEA/AR-B5, 2000 West Pioneer Parkway, Peoria, Illinois 61615. Telephone: 309-671-7813. An Equal Opportunity Employer.**

**MANAGER OF ENERGY RESEARCH.** The manager, who will have faculty rank, will be responsible for policy concerning energy research at the University of Alaska. The manager will seek innovative ideas on both conventional and alternative energy resources, issue requests for proposals, evaluate proposals, and be responsible for monitoring the progress of research on energy. Opportunities will be provided for part-time personal research in association with one of the research institutes. Candidates should have a Ph.D. in science or engineering, or the equivalent in training and experience. Previous administrative experience is desirable. Applications, including the names of at least three referees, should be sent to: **Vice Chancellor for Research and Advanced Study, University of Alaska, Fairbanks, Alaska 99701, by 20 October 1980. An Equal Opportunity/Affirmative Action Employer and Educational Institution.**

### NEMATODE GENETICS AND DEVELOPMENT

The Laboratory of Genetics at the University of Wisconsin invites applications for assistant professor positions from persons doing research in nematode genetics and development. Applicants will be screened by an interdepartmental committee and will be considered, where appropriate, for possible appointments in departments other than Genetics. Send curriculum vitae, reprints, and at least three letters of recommendation to: **Professor Oliver Nelson, Chairman, Search Committee, Laboratory of Genetics, University of Wisconsin, Madison, Wisconsin 53706. The University of Wisconsin is an Equal Opportunity Employer.** Applications must be postmarked no later than 31 October 1980 to insure consideration for position.

## POSITIONS OPEN

### MANAGER OF THE NATIONAL LASER USERS FACILITY

An experienced individual is required for the position of manager of the National Laser Users Facility (NLUF) at the University of Rochester. At this facility, very high peak power lasers (up to 12TW) and associated diagnostic instrumentation are available to qualified scientists for user experiments in high energy density physics including laser fusion, laboratory astrophysics, equation of state studies, x-ray physics, and fundamental radiation matter interactions. The manager will report to the deputy director of the Laboratory. Tasks associated with the position include coordinating proposals from prospective users, coordination of the NLUF Steering Committee, arranging for efficient engineering interface between facility staff and users, and scheduling time for user experiments. The applicant should have a Ph.D. in experimental physics or an engineering discipline. Previous scientific management experience would be helpful. Send résumé to:

**Jack Wilson  
Laboratory for Laser Energetics  
250 East River Road  
Rochester, New York 14623**

or telephone: 716-275-2074 for further details.

*An Equal Opportunity Employer, M/F*

### ROSENSTIEL SCHOOL OF MARINE AND ATMOSPHERIC SCIENCE UNIVERSITY OF MIAMI

The Division of Biology and Living Resources is looking for new faculty in the areas of **MARINE PHYTOPLANKTON, MARINE MACRO-ALGOLGY, CORAL REEF ECOLOGY, MARINE INVERTEBRATE ZOOLOGY, MACROBENTHIC POPULATION ECOLOGY.**

The positions are tenure-track (assistant professor to professor); salaries depend on qualifications and experience. Those not filled in 1981 will be filled in subsequent years. Please contact the unit below for more detailed information and job descriptions.

Applications should be submitted no later than 1 January 1981 to:

**Dr. C. Richard Robins, Chairman  
Division of Biology and Living Resources  
School of Marine and Atmospheric Science  
4600 Rickenbacker Causeway  
Miami, Florida 33149**

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

### NEUROANATOMIST

Developing medical school, problem-based learning, primary care physician, self-directed learning, small group tutorials, learning facilitator, multimedia learning resources, rural medical practice. Do you possess the personal qualities necessary to become involved in the development and implementation of an innovative program in medical education which combines these unique features? Are you a top-quality teacher/scholar with an earned doctorate in neuroanatomy? If answers are yes, send your curriculum vitae to: **Office of the Dean, Mercer University, School of Medicine, Macon, Georgia 31207.**

### NEUROBIOLOGIST

The Department of Biological Sciences at Stanford University seeks a cellular neurobiologist for a faculty appointment at the assistant professor level. The appointee will be expected to develop an active and distinctive research program and participate in both graduate and undergraduate teaching. Interested persons should send curriculum vitae and the names of three references to: **Dr. Corey S. Goodman, Department of Biological Sciences, Stanford University, Stanford, California 94305 by 15 November 1980.**

*Stanford University is an Equal Opportunity/Affirmative Action Employer.*

**PLANT PHYSIOLOGIST.** Career Federal Service. Incumbent will develop independent research program to study biochemical and ecological factors that affect or control yield and quality of forages utilized by high-producing dairy cattle. Position located at Iowa State University Campus, Ames, Iowa. GS-12/13/14, salary based on qualifications and experience. For applications: **J. Brooks, USDA-SEA-AR-B10, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7319. An Equal Opportunity Employer.**

## POSITIONS OPEN

### DEPARTMENT OF PHARMACOLOGY UNIVERSITY OF HOUSTON

Applicants are invited for tenure-track faculty positions in pharmacology at assistant and associate professor levels. Applicants should be engaged in research in the general field of autonomic cardiovascular pharmacology and possess expertise in areas such as neurochemistry; neurophysiology; receptors; brain peptides and CNS mechanisms related to cardiovascular homeostasis. Candidates in other related fields are also encouraged to apply. Applicants for the associate professor position should have demonstrated excellence in research and have an established research program. Candidates for positions of assistant professor should have preferably 2 years of postdoctoral experience and should demonstrate potential for developing an independent research program.

The successful candidate would also be expected to participate in teaching physiology and pharmacology courses to undergraduate pharmacy students and advanced pharmacology courses to graduate students. Applicants should send curriculum vitae, a short statement of research goals, and names of three references to:

**Dr. Mustafa F. Lokhandwala, Chairman  
Department of Pharmacology  
UNIVERSITY OF HOUSTON CENTRAL CAMPUS  
Houston, Texas 77004**

*An Equal Opportunity/Affirmative Action Employer*

**PHARMACOLOGIST.** The Department of Physiological Sciences, College of Veterinary Medicine and College of Arts and Sciences, Oklahoma State University (OSU), seeks applications for a tenure-track position. Candidates must have a Ph.D. or D.Sc. in pharmacology. A D.V.M. degree is desirable but not essential. Teaching responsibilities will be portions of an undergraduate course and two veterinary medical courses in pharmacology. The individual will also participate in developing a graduate course in pharmacology and will be expected to develop a research program in pharmacology. Salary from \$24,000 to \$27,000, depending on experience. Position available 1 January 1981. Screening begins on 15 October 1980. Applicants should send curriculum vitae and the names of three references to:

**Dr. Lester L. Rolf, Chairman  
Search Committee  
Department of Physiological Sciences  
Oklahoma State University  
Stillwater, Oklahoma 74078**

*OSU is an Equal Opportunity/Affirmative Action Employer.*

**PHYSIOLOGIST/GROWTH ENDOCRINOLOGIST.** Career Federal Service. To develop independent research program studying the effects of various metabolic hormones on protein and lipid metabolism in beef cattle, sheep, and swine. Position located at Roman L. Hruska U.S. Meat Animal Research Center, Clay Center, Neb. GS-11/12/13, salary based on qualifications and experience. Applications: **J. Brooks, USDA-SEA-AR-B8, 2000 West Pioneer Parkway, Peoria, Illinois 61615. Telephone: 309-671-7813. An Equal Opportunity Employer.**

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT), POSTDOCTORAL ASSOCIATES.** Two positions available for study of fibroblast division, differentiation, motility, and aging. Techniques include interactive computer analysis and cytotoxicity of cells in lineages. Please send curriculum vitae and names of three references to: **MIT Personnel Office, 77 Massachusetts Avenue, Cambridge, Mass. 02139. Attention Job Numbers C80-25, C80-26. An Equal Opportunity/Affirmative Action Employer.**

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

**POSTDOCTORAL RESEARCH AWARDS**  
Sponsored by the  
**BALLISTIC RESEARCH LABORATORY**  
in association with  
**THE NATIONAL RESEARCH COUNCIL**

The National Research Council will make awards in 1980 for research under the Resident Associateship Program which provides awardees with opportunities to conduct experimental and theoretical research as visiting scientists and engineers in fields of:

Applied Computer Sciences  
Applied Mathematics  
Combustion Research  
Continuum Mechanics  
Fluid Mechanics  
Materials Sciences  
Nuclear and Radiation Physics  
Physical Chemistry  
Probability Theory and Stochastic Processes  
Quantum Chemistry

in the laboratory complex located at the head of the beautiful Chesapeake Bay country of Maryland, within easy driving distance of the metropolitan centers of Philadelphia, Baltimore, and Washington, D.C.

Some programs are open to senior investigators as well as recent doctorates. Further details on research programs can be obtained from: Dr. L. J. Puckett, Ballistic Research Laboratory, Aberdeen Proving Ground, Md. 21005; telephone: 301-278-2236.

For application materials and details on specific research opportunities, write promptly, giving research areas of interest, to:

Associateship Office (JH 608-H2)  
NATIONAL RESEARCH COUNCIL  
2101 Constitution Avenue, NW  
Washington, D.C. 20418

**VISITING FELLOWSHIPS**  
in  
**CANADIAN GOVERNMENT LABORATORIES**

The Government of Canada offers Fellowships for 1981-1982 on behalf of the following Canadian Government Departments and Agencies: Agriculture Canada; Department of Communications—Communications Research Centre; Department of National Defence; Energy, Mines and Resources Canada; Environment Canada—Atmospheric Environment Service; Environmental Management Service—Canadian Forestry Service, Inland Waters Directorate, Lands Directorate; Environmental Protection Service—Air Pollution Control Directorate; Department of Fisheries and Oceans—Fisheries Atlantic, Fisheries Pacific and Freshwater, Ocean and Aquatic Sciences; Health and Welfare Canada—Health Protection Branch; National Museums of Canada—Museum of Natural Sciences; National Research Council Canada; and Atomic Energy of Canada Limited.

Fellowships have an annual value of \$16,777 (under revision) and are subject to Canadian income tax. The initial appointment will be for 1 year with a possibility of renewal for a second year in some departments. An allowance will be provided towards the cost of travel.

A candidate normally should have a doctorate degree or equivalent experience. Equivalent experience is considered to be a master's degree plus at least 2 years of experience beyond this degree together with a demonstrated capability for conducting successful independent research. There are no restrictions limiting the nationality of applicants; however, successful candidates who are not Canadian citizens or landed immigrants residing in Canada must satisfy all of the Canadian immigration requirements before commencing tenure of the fellowship. Please note that the Department of National Defence can only consider applications received from Canadian citizens.

Applicants should have normally received their Ph.D. degree or equivalent experience within the last 5 years.

For further information, please write to: The Scholarships Officer, Natural Sciences and Engineering Research Council Canada, Montreal Road, Ottawa Ontario, Canada K1A 0R6.

Applications must be received in Ottawa by 15 January 1981 to be considered in the 1981-1982 competition.



**Government  
of Canada**

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du Canada**

# **OPPORTUNITIES**

Biomedical Placement, the leader in the search for competent technical personnel, has several openings available. Excellent salaries, benefits and advancement potential with these industry leaders.

- PhD — Immunology/Microbiology — Group Leader Infectious Disease diagnostic R&D
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- PhD — Geneticist/Biochemist — Senior Scientist Bacillus Recombinant R&D
- BS to PhD — Chemistry — Mass Spectroscopist Systems Development/Spectra Analyst
- MS — Chemistry — Section Head — Pharmaceutical methods development and implementation
- PhD — Microbial Physiology — Senior Scientist Amino Acid Biosynthesis/Fermentation
- BS-ME or Biomed. Eng'g. — Project Leaders Design blood-process/joint replacement

All fees are assumed by employers. Each candidate is treated as an individual and given careful consideration. Call collect or send c.v. in confidence to Dr. Arthur Goldberg.



**the biomedical placement agency**  
1331 brandywine batavia, IL 60510  
312-879-9181

# **ELECTRON MICROSCOPY TECHNICIAN**

## **University of New Brunswick**

Applications are invited for the position of scientific technician responsible for the operation and routine maintenance of a Cambridge S4-10 scanning electron microscope and related equipment, including a Tracor Northern NS-880 X-ray analysis system, and extensive specimen preparation equipment.

The SEM is part of a well-equipped facility that also includes three transmission electron microscopes and four ultramicrotomes, and caters to the research and teaching needs of the university.

Applicants should have a relevant university degree or equivalent qualification, and have had appropriate experience in electron microscopy, including the preparation of biological specimens for the SEM.

Salary will be in the range \$13,708 to \$17,561; or \$16,250 to \$20,604 according to qualifications and experience.

Applications, including curriculum vitae and the names of two or three referees, should be sent to: **Chairman, Department of Biology, Bag Service 45111, University of New Brunswick, Fredericton, New Brunswick, Canada E3B 6E1.**



Closing date: when a suitable applicant is found.

**UNIVERSITY OF NEW BRUNSWICK**

## POSITIONS OPEN

### PLANT PHYSIOLOGIST

The Division of Biology has a tenure-earning position available at the ASSISTANT PROFESSOR level. Applications are invited from outstanding candidates who have an active research interest in photosynthesis or plant growth and development. Plant physiology is broadly defined and both plant biochemists and physiological-ecologists are encouraged to apply. Physiological ecologists will have an opportunity to carry out research projects on our Konza Prairie Research Natural Area. Individuals with postdoctoral experience will be given special consideration. The successful applicant will be expected to establish a vigorous research program and to participate in graduate and undergraduate teaching. The Selection Committee will start reviewing applications on 31 October 1980. Submit curriculum vitae, three letters of reference, and a brief description of future research plans to:

**Dr. Terry C. Johnson, Director**  
Division of Biology  
Kansas State University  
Manhattan, Kansas 66506

*Kansas State University is an Equal Opportunity/Affirmative Action Employer.*

**MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT), POSTDOCTORAL ASSOCIATES.** Tissue fabrication. Two positions available immediately for study of the function of specialized cells in 3D lattice in vitro and in vivo. Knowledge of tissue culture methods and general biochemistry essential. Renewable grant provides stipend of \$18,000 per year. Please send curriculum vitae and names of three references to: MIT Personnel Office, 77 Massachusetts Avenue, Cambridge, Mass 02139. Attention Job Numbers C80-23, C80-24. An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** available at Big Ten university studying the effect of dietary lipids on the structure and function of cell membranes and its relationship to heart disease. This project utilizes cell cultures, erythrocytes, and model membranes and examines the effect of lipid composition or membrane permeability. Experience with methodology relating to membrane lipids or proteins advantageous. Salary minimum: \$15,000. Send résumé and the names of two or three references to: Box 230, SCIENCE.

**POSTDOCTORAL POSITION.** Available 1 January for gene cloning studies of membrane molecules that regulate immune responses and determine susceptibility to disease. Salary negotiable. Send curriculum vitae and have three letters of recommendation sent to: Dr. Jack Silver, Department of Microbiology and Public Health, Michigan State University, East Lansing, Michigan 48824.

**POSTDOCTORAL POSITION** available. Opportunity to participate in studies of lipoprotein metabolism in cell culture systems. In addition to tissue culture facilities for fibroblasts, smooth muscle cells, and macrophages, techniques for the characterization and radioimmunoassay of apolipoproteins are available. Opportunity for related independent research. NIH training grant supplemented to institutional levels is available immediately. Contact: Dr. B. A. Kottke, Atherosclerosis Research Laboratory, Mayo Clinic, Rochester, Minnesota 55901, or telephone: 507-285-5901.

*Mayo is an Equal Employment/Affirmative Action Institution.*

**POSTDOCTORAL POSITION** in cardiovascular pharmacology available immediately for a recent Ph.D. in pharmacology, physiology, or biochemistry who is interested in the metabolic aspects of blood flow regulation. The project is related to the study of purine receptors in isolated vascular preparations and binding studies. Salary: \$14,000. Experience in cardiovascular sciences preferred. Write to: Dr. S. Jamal Mustafa, Department of Pharmacology, East Carolina University, Greenville, North Carolina 27834. An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION IN PHYSICAL BIOCHEMISTRY.** Structural and dynamic studies of pyridoxal phosphate in enzymic reactions by pulsed laser techniques. Start immediately at \$12,000 per year. Curriculum vitae and references to: Dr. J. W. Ledbetter, Department of Biochemistry, Medical University of South Carolina, Charleston, S.C. 29403. Telephone: 803-792-2331.

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available January 1981 with active group working in area of developmental biochemistry and perinatal biology. Investigations will be concerned with role of growth factors (EGF) on embryonic and fetal growth and EGF-receptor regulation and specificity of effects in embryos. Position is funded by NIH training grant with salary beginning at \$13,380 and increasing with years of experience. Send curriculum vitae and names of references to: Dr. Joseph B. Warshaw, Department of Pediatrics, Yale University School of Medicine, 333 Cedar Street, New Haven, Conn. 06510.

**POSTDOCTORAL POSITION.** A postdoctoral position of 1 to 2 years duration is available to study aminergic mechanisms, and the role of biogenic amines, in endocrine and nerve tissue. The study is an interdisciplinary one involving the use of ultrastructural, biochemical, and pharmacological techniques. Interested candidates should send curriculum vitae and names of references to:

**Dr. E. A. Nunez**  
Department of Anatomy and Cell Biology  
College of Physicians & Surgeons  
Columbia University  
630 West 168 Street  
New York, New York 10032

*Equal Opportunity/Affirmative Action Employer*

### POSTDOCTORAL POSITION IN CELL BIOLOGY

A postdoctoral position is available to study extracellular control of growth, synthesis, and secretion of prostatic binding protein, and polyamine metabolism in normal and tumorigenic prostatic epithelial cells in vitro. Emphasis will be on the role of androgens, nutrients, other hormones, growth factors, and reconstituted extracellular matrices on epithelial cell growth and the above functions.

Candidates must have a Ph.D. or M.D. degree in an area of the life sciences and interest in a career in cell biology. Prior training in techniques of cell culture, immunochemistry, and biochemistry is desirable.

Interested candidates should contact:

**Dr. Wallace L. McKeenhan**  
W. Alton Jones Cell Science Center  
Old Barn Road  
Lake Placid, N.Y. 12946

**POSTDOCTORAL POSITION** available immediately in the area of glycoprotein structure and biosynthesis in a cultured human erythroleukemic line. Applicant should have a Ph.D. in biochemistry or chemistry. The position offered will be sponsored jointly by Dr. R. A. Laine and Dr. S. J. Turco. Salary: \$16,000. Please send curriculum vitae and names of references to: Dr. R. A. Laine, Department of Biochemistry, University of Kentucky Medical Center, Lexington, Ky. 40536. Telephone: 606-233-5591.

### POSTDOCTORAL RESEARCH ASSOCIATE

Position available to start fall-winter with group investigating role of ion transport in insulin action. Studies include Na-K-ATPase, ion fluxes, physiological studies on whole animals, effect of ions on metabolic pathways, intracellular microelectrodes. Fourier transform NMR. Previous experience in these specific areas is not necessary, but background which motivates interest in these areas is desirable. Send résumé and three references to: Dr. Richard D. Moore, Professor of Biophysics, State University of New York, Plattsburgh, New York 12901. *Equal Opportunity/Affirmative Action Employer.*

There is an opportunity for a **POSTDOCTORAL RESEARCH POSITION** available immediately for studies on adaptive changes in plasma membrane glycoproteins and phospholipids in relation to hormone action and membrane function. Send inquiries, curriculum vitae, and references to: Dr. Jay Tepperman, Department of Pharmacology, State University of New York, Upstate Medical Center, Syracuse, New York 13210. An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL RESEARCH POSITION** in psychology. To study psychopharmacology, disorders of sleep, and gerontology; experience in sleep research required; experience in pharmacology, psychopathology, or aging helpful; 2-year appointment; starting January 1981; \$14,000 to \$16,000. Send curriculum vitae, including research goals and three letters of reference, to: Dr. Michael Bonnet, Sleep Laboratory, 116 A1, VA Hospital, 3200 Vine Street, Cincinnati, Ohio 45220.

## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE** in membrane biochemistry or biophysics to study photopigments in halobacteria. Project involves the characterization and isolation of primary light driven ion pump and secondary energy transducing mechanisms involved in ion and amino acid transport. Experience in BLM, electrophysiology, membrane function, or spectroscopic techniques as applied to membrane structure. Salary range: \$13,500 to \$19,000. Send résumé and three letters of recommendation to: R. E. MacDonald, Section of Biochemistry, Wing Hall, Cornell University, Ithaca, New York 14850.

*An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL RESEARCH ASSOCIATE** for resonance Raman studies of photosynthetic systems. Experience in either photosynthesis research or resonance Raman spectroscopy desirable. Salary: \$12,000 for 12 months. One-year appointment with renewal possibility. Send résumé and three references to: Professor Richard P. Van Duyne, Department of Chemistry, Northwestern University, Evanston, Ill. 60201. An Equal Opportunity/Affirmative Action Employer.

### POSTDOCTORAL RESEARCH ASSOCIATES—

Two positions available immediately (or later)—membrane studies of (i) biogenesis and (ii) the cell surface. (i) Use of bacteriophage PM2 to determine control of formation of new membranes. Multidisciplinary approach involves genetics (viral mutants, site-specific mutagenesis, cloning), morphology (EM), biochemistry (protein, lipid analysis, membrane isolation) and physical chemistry (protein-lipid interaction). Experience with bacteriophage and biochemistry desirable but interest and ambition are more important. (ii) Purified glycolipids and glycoproteins are being incorporated into macroscopic spherical membranes of defined lipid composition to demonstrate adhesion-specific molecules and signals for contact sensation. Changes in structure are monitored with fluorescent probes in correlation with functional changes in membrane conductance. Interest in cellular adhesion, contact sensation, conformation of cell surface molecules, biophysics. Minimum qualification for both positions is Ph.D. in the above related fields. Salary for this postdoctoral training is \$12,000 to \$13,500 per year. Applicants should send curriculum vitae and names of three references to: Dr. Gregory J. Brewer, Department of Medical Microbiology and Immunology, P.O. Box 3926, Springfield, Ill. 62708. Application deadline: 1 November 1980. *Southern Illinois University is an Equal Opportunity/Affirmative Action Employer.*

**POSTGRADUATE RESEARCH POSITION** in biochemical and morphological approaches to hormone-cell interactions related to development and aging in the nervous system. Design and carry out experiments involving the use of tissue culture, biochemical techniques, enzyme assays, and microscopy. Candidate will be responsible for developing hybridoma and RIA techniques. M.S. in biological science with background in biochemistry, neuroanatomy and 1 year of laboratory experience including RIA and hybridoma techniques. Starting salary: \$1200 to \$1500 per month, depending on qualifications. Send curriculum vitae and references to: Box 238, SCIENCE.

### DOLLY GREEN PROFESSORSHIP JULES STEIN EYE INSTITUTE University of California, Los Angeles (UCLA)

The Department of Ophthalmology and the Jules Stein Eye Institute, UCLA School of Medicine, are seeking applicants for the recently established Dolly Green Professorship of Ophthalmology. Individuals dedicated to a career in vision research and teaching are encouraged to apply. The Search Committee favors candidates with an interest and background in neurobiology and special interests and expertise in morphology, electrophysiology, and molecular mechanisms.

Applications should be submitted with curriculum vitae, bibliography, and a letter discussing career goals to:

**Dean Bok, Ph.D., Chairman**  
Dolly Green Professorship Search Committee  
Jules Stein Eye Institute  
UCLA School of Medicine  
Los Angeles, California 90024

All applications and inquiries will be treated in strict confidence. *Candidates are encouraged to apply regardless of sex or ethnic origin. UCLA is an Equal Opportunity/Affirmative Action Employer.*

## TOXICOLOGISTS

Clement Associates, Inc., a scientific consulting firm located in Washington, D.C., is seeking Ph.D. and M.S. toxicologists with special interests in the areas of biochemistry, metabolism, mutagenicity, or teratology for work with both industrial and government clients. No lab work is involved. Diversified experience in the life sciences is desirable. Send resume, with salary requirements and references with phone numbers, by October 27, to:

Marie Baumann  
Director of Personnel  
**Clement Associates, Inc.**  
1010 Wisconsin Avenue, N.W.  
Suite 660  
Washington, DC 20007



**Clement Associates Inc.**

## Associate/Assistant DEAN for R&D

The College of Medicine and Dentistry of New Jersey, N.J. School of Osteopathic Medicine invites applications from qualified individuals holding an advanced degree in Medicine (D.O. or M.D.) and/or PhD with a recognized research program as evidenced by publications, grant supports, and honors. Candidates must have substantial academic and administrative experience.

You will be responsible for administrative development and planning of research at CMDNJ-NJSOM, with particular emphasis in the area of clinical research. It is expected that active interaction with medical students, post-doctoral and faculty members will be initiated by you to stimulate and strengthen the research endeavors of the Clinical Sciences Division of the School. Expertise in obtaining grant funds at Federal and local levels is desirable.

New facilities at the Camden campus of the School are being designed. You will help in the design of the new building, assist in the recruitment of researchers, develop cooperative agreements between departments of the School, and assist in the preparation of a research budget.

The level of appointment and salary (in an academic department) will be dependent upon academic and professional experience.

Interested applicants should send C.V. and bibliography, along with the names of three references by January 30, 1981 to Daniel H. Belsky, D.O., FAC, OOG, Chairperson, Search Committee, Medical Arts Building.



**COLLEGE OF MEDICINE  
AND DENTISTRY OF NEW JERSEY**  
New Jersey School of Osteopathic Medicine  
300 Broadway, Camden, N.J. 08103

Equal Opportunity/Affirmative Action Employer



The International Atomic Energy Agency seeks *Safeguards Inspectors* to participate in the execution of the Agency's safeguards programme. Required university degree in nuclear chemistry, nuclear chemical engineering, nuclear electronics/instrumentation or economics. Experience in the processing of nuclear materials, preferably in plant operation or in the instrumental measurements of quantities of nuclear material advantageous. Fixed-term contract for two years with the possibility of further extension if service satisfactory. Tax-free emoluments depending on qualifications and experience, between US\$ 36,000.00 and US\$39,000.00 per annum. Send curriculum vitae under Vacancy Notice No 61/80 to Division of Personnel, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria before 19 November 1980.

## Research Position Available

# HEPATIC ENDOCRINOLOGY

The Laboratory of Organ Function and Toxicology has one research position available at the tenure-track or postdoctoral level. The research efforts of this Laboratory are directed towards understanding the mechanisms of organ-specific toxicity. The position recruited is in the area of hepatic and endocrine function and toxicology. The research of this group is concerned with various aspects of hepatotoxicity emphasizing the more subtle alterations in liver function following exposure to environmental agents. Areas studied include enzymology, endocrinology, pathology, and pharmacology in adult and developing systems. A multidisciplinary approach is utilized to: (1) identify sensitive biochemical indicators of hepatotoxicity that might have clinical value; (2) elucidate mechanisms of hepatotoxicity; (3) understand the regulation of hepatic protein synthesis including the role of the hypothalamic-pituitary-gonadal axis; and (4) characterize the role of endocrine action in the regulation of hepatic function in control, and treated animals including the role of hormone receptors and toxicant-receptor interactions.

The individual selected will focus on a research problem dealing with the role of hepatic hormone receptors in the biologic/biochemical response of the liver to hormonally-active chemicals. These studies will utilize both *in vivo* and *in vitro* systems.

Salary is competitive and commensurate with education and experience. If interested, please send a curriculum vitae and the names of three references by November 15, 1980, to: Dr. George W. Lucier, Acting Chief, Laboratory of Organ Function and Toxicology, National Institutes of Health, Public Health Service, National Institute of Environmental Health Sciences, P.O. Box 12233, Research Triangle Park, NC 27709. An Equal Opportunity Employer.

**NATIONAL INSTITUTES OF HEALTH**



## POSITIONS OPEN

### PREDOCTORAL RESEARCH POSITIONS CANCER RESEARCH

Two positions available immediately to study cytogenetic parameters of human melanoma and myeloma. Research training in cell culture, chromosome banding analysis, and related aspects of molecular biology will be provided. Opportunity for a Ph.D. degree in molecular biology is available for qualified students. Research opportunities include chromosomal analysis of direct and cultured human melanoma with emphasis on karyotypic evolution in response to selected drug therapy. Also, study in cytogenetic and cytogenetic analysis of human myeloma is available. Send résumé and names of three references to: **Dr. Frank Meyskens or Dr. Jeffrey Trent, University of Arizona Cancer Center, Tucson, Ariz. 85724. An Equal Opportunity/Affirmative Action Employer.**

### INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS (ICRISAT)

Applications are invited for the position of:  
**PRINCIPAL PLANT BREEDER  
(PEARL MILLET).**

Responsibilities include planning and conducting research to develop improved varieties, hybrids, and composites of pearl millet for the semiarid tropics. The emphasis is on the development of materials that will perform well under stress conditions, with projects on resistance to drought, diseases, pests, and parasitic weeds, together with projects on breeding and screening methodologies, grain quality, and response to low fertility. Qualifications: Ph.D. in plant breeding with an excellent academic record. Significant research experience in plant breeding, preferably of pearl millet, or other cross-pollinated crop, as evidenced by publications. Experience in organizing, guiding, and coordinating research on crop improvement, and on working with a team of research scientists. Working experience in the tropics and knowledge of French desirable. Salary commensurate with experience; excellent fringe benefits.

Send résumé to: **Director General, ICRISAT, Patancheru P.O. 502 324, AP, India** before 15 November 1980.

### PROFESSOR AND CHAIRMAN DEPARTMENT OF BIOLOGY SYRACUSE UNIVERSITY

Applications for the chair of the Department of Biology are invited from individuals with an earned doctorate in the biological sciences. Candidates must have an outstanding and funded research program and will be expected to demonstrate potential for administration, as well as to be committed to curriculum development and undergraduate instruction. The position is available 1 July 1981. The department consists of 28 full-time faculty, currently administering 64 graduate students and 200 majors. Candidates for this position should send curriculum vitae and names and addresses of five references to: **Dr. P. B. Dunham, Department of Biology, Syracuse University, Syracuse, N.Y. 13210. An Affirmative Action/Equal Opportunity Employer.**

**PROFESSORSHIP IN MICROBIOLOGY AND BASIC MEDICAL SCIENCES.** Tenurable position beginning August 1981; rank open; salary dependent upon training and experience. Ph.D. and/or M.D. and a minimum of 2 years of postgraduate research experience required. Appointee will be expected to participate in a program of instruction in microbiology for medical students, direct graduate student research, and develop a vigorous program of research at the molecular level. Send résumé and names of three referees to: **Dwayne C. Savage, Department of Microbiology, 131 Burrill Hall, University of Illinois, Urbana, Illinois 61801, by 15 January 1981. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.**

**RESEARCH SCIENTIST.** Immunologist, knowledgeable in cellular immunology, immunobiochemistry, and immunobiology to work on basic projects for evaluation of immunopotentiating compounds. The position involves the designing of new bioassays to monitor the immune response and to establish experimental disease models. Candidates are expected to have a Ph.D. degree or M.Sc. with 4 to 5 years of working experience in the appropriate area. Please send curriculum vitae and names of references to: **Shirley Bobier, Ortho Pharmaceutical (Canada) Ltd., 19 Green Belt Drive, Don Mills, Ontario, Canada M3C 1L9.**

## POSITIONS OPEN

### NATIONAL SCIENCE FOUNDATION (NSF)

The NSF's Division of Applied Research, Directorate for Engineering and Applied Science, is seeking qualified applicants to fill a 1- or 2-year rotational appointment as a **PROGRAM OFFICER IN APPLIED BEHAVIORAL SCIENCE.** The position is excepted from the competitive civil service (equivalent to the GS-14/15); salary range, based on qualifications and experience, is from \$34,713 to \$50,112.50 per annum. Major responsibilities include both the review and evaluation of proposals in applied behavioral science, predominantly psychology, and initiatives to continue the development of this broadly based area of Foundation support. Candidates should have 6 to 8 years of experience beyond the Ph.D. and a broad current interest in behavioral science. Candidates should submit curriculum vitae to: **The National Science Foundation, Personnel Administration Branch, Attention: E. Paul Broglio, Room 212, 1800 G Street, NW, Washington, D.C. 20550, by 1 February 1981.** For information, telephone: **202-357-7841.** Individuals interested in possible appointments for later years are also encouraged to apply now. *NSF is an Equal Opportunity Employer.*

**PROJECT COORDINATOR.** Scientist/engineer. Experience with synchrotron radiation, experimental crystallography and/or x-ray and neutron scattering, to supervise instrumentation and operation of State University of New York (SUNY) beamline at the National Synchrotron Light Source at Brookhaven National Laboratory, Upton, Long Island. Work requires close cooperation with experimental scientists and design engineers and allows opportunity for research. Initial appointment for up to 3 years. Appointment at research assistant or associate level possible for qualified individual. Salary: \$22,000 to \$24,000 per year, plus fringe benefits. Résumés, including names of three references, to: **Professor P. Coppens, SUNY-Beamline Project Director, Chemistry Department, SUNY, Buffalo, N.Y. 14214.** Closing date for filing: 31 October 1980. *An Equal Opportunity/Affirmative Action Employer.*

Harvard University. The Department of Psychology and Social Relations is searching for nontenure appointees (initially for a 5-year term beginning 1 July 1981) in the areas of **SOCIAL, PERSONALITY, AND COGNITIVE PSYCHOLOGY.** In each case a secondary competence in developmental psychology is welcome but not essential. Applications should include current curriculum vitae, and applicants should ask at least three individuals familiar with their work to write directly to: **David M. Green, Chairman, Department of Psychology and Social Relations, Harvard University, 33 Kirkland Street, Cambridge Mass. 02138.** Applications received after 1 November 1980 may not be considered. *Harvard University is an Equal Opportunity/Affirmative Action Employer.*

### RESEARCH ASSOCIATE

Immediate opening for individual at postdoctoral level of experience to conduct studies in both radiobiology and viral oncology. Experience with cell culture and with murine leukemia viruses desirable. Send curriculum vitae and names of three references to: **Dr. Richard Steeves, Radiation Oncology, K4/B100, University of Wisconsin Hospital, 600 Highland Avenue, Madison, Wisconsin 53792. An Equal Opportunity Employer.**

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

**RESEARCH ASSOCIATE** with Ph.D. degree wanted to run laboratory dealing with amino acid and hormone measurements for clinical investigative studies.

Contact: **Philip Felig, M.D., Yale University School of Medicine, 333 Cedar Street, New Haven, Conn. 06510.**

*Yale University is an Affirmative Action/Equal Opportunity Employer. Applications from females and minority groups are encouraged.*

## POSITIONS OPEN



### PRESIDENT MARLBORO COLLEGE

Marlboro College, a small, rural, accredited, 4-year liberal arts institution in Vermont, seeks a creative, broadly experienced president.

Established in 1946, Marlboro offers programs in the arts, humanities, and social and natural sciences. The College's primary commitment is to the liberal arts and to excellence in undergraduate education.

The position will be available 1 September 1981. Applicants should submit a résumé, a brief statement outlining their interest in the position, and have four letters of reference sent to:

**Hilly van Loon, Secretary  
Presidential Search Committee  
Marlboro College  
Marlboro, Vermont 05344  
Telephone: 802-348-7817**

Applications must be submitted by 30 October 1980. *Marlboro College is an Equal Opportunity Employer.*

**RESEARCH ASSOCIATE**—Sidney Farber Cancer Institute is seeking to fill a position in cell biology at the research associate level. The applicant should have a Ph.D. or equivalent degree with formal background in developmental biology and embryology. Laboratory experience in cell culture, cell fusion, and microinjection technique is essential. Send résumés to: **Michael Lehman, Personnel Recruiter, SIDNEY FARBER CANCER INSTITUTE, 44 Binney Street, Boston, Mass. 02115. An Affirmative Action/Equal Opportunity Employer.**

The Division of Geological and Planetary Sciences at the California Institute of Technology invites applications for a **RESEARCH FELLOW** position in a program of research concerned with the changes in chemistry and physical properties which accompany radiation damage and other altering phenomena in minerals which are structurally damaged by internal and external radioactive cations. The research is concerned with the spectroscopic (UV, VIS, NIR, IR), thermal (to 1000 K), and microchemical characterization of radiation-induced changes in the structural state of silicate minerals, oxidation state changes of cations in response to radiation, and the role of H<sub>2</sub>O and OH<sup>-</sup> in alteration and annealing of radiation damage. Interested persons are asked to contact: **Dr. Barclay Kamb, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125. An Equal Opportunity/Affirmative Action Employer.**

The Cleveland Clinic Foundation has a position available for a **RESEARCH FELLOW** in the Department of Cardiovascular Research. The fellow will be engaged in biochemical/pharmacological studies of angiotensin II and related compounds, with specific emphasis on possible nuclear localization and protein synthetic pathways. The position will require familiarity with biochemical laboratory equipment and analytical devices. Normal working hours: 8:30 a.m. to 5:30 p.m. weekdays in the Research Laboratories of the Foundation. Minimum: bachelor's degree required; Ph.D. preferred. Stipend: \$15,000 per year. Contact: **John R. Irwin, The Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106; telephone: 216-444-2342. An Equal Opportunity Employer.**

### TECHNOLOGY AND PUBLIC POLICY

The Department of Engineering and Public Policy of Carnegie Institute of Technology and the Schools of Urban and Public Affairs and Humanities and Social Science, Carnegie-Mellon University, have one or more joint faculty openings: (i) for applied social scientists interested in doing collaborative policy research with engineers or (ii) for engineers interested in doing collaborative policy research with social scientists. Problem areas of interest include social impacts of computers and telecommunications, product liability and safety, electric power load management, retrospective technology assessment, and energy and environmental systems. Desirable areas of skill include decision analysis, optimization techniques, organizational analysis, and regulatory process and law. Send résumé with list of publications to **Indira Nair, Engineering and Public Policy, Carnegie-Mellon University, Pittsburgh, Pennsylvania 15213.**

# Wound Healing Research

An opening in an eastern United States research facility for a Senior Scientist (Ph.D) with ability to establish and conduct research projects in wound healing. Prefer strong biological/biochemical background with patent/publication record in cutaneous biology.

We offer a very competitive salary and comprehensive benefits program.

Qualified candidates should send a resume including salary requirements to:

**Box 239, SCIENCE**

*an equal opportunity employer (M/F/H)  
Vietnam era/disabled veterans*

## CELL BIOLOGISTS/ PHARMACOLOGISTS

Pfizer's Central Research Laboratories are seeking cell biologists skilled in cancer therapeutics research to join a multidisciplinary team engaged in exploring approaches to the control of metastasis. This research program is expected to identify and exploit novel biological mechanisms concerned with dispersal and colonization of cells from the primary site of solid tumors. Publication of important findings will be encouraged.

Applicants should hold a PhD in Pharmacology, Biochemistry or Cell Biology and have a demonstrated record of publication.

These positions provide an excellent opportunity for professional recognition and career growth. In addition, we offer a competitive compensation and benefit package and the opportunity to live in an attractive Connecticut Shore community. Please send resume and salary history, in confidence, to: **Mr. F. G. Ziegler, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.**

An Equal Opportunity Employer



## Announcing The First International Congress For INTERFERON RESEARCH

**WASHINGTON, DC, 9-12 NOVEMBER, 1980**

The CONGRESS will be chaired by William E. Stewart II, of the Sloan Kettering Institute For Cancer Research, and organized jointly by Scherago Associates and the **Journal of Interferon Research**.

Approximately fifty (50) papers will be presented by recognized authorities from North America, Europe, the Middle East, and Japan. There will also be numerous poster presentations dealing with all aspects of interferon research.

For more information, please write to:

**Mr. Edward Ruffing  
International Congress For  
Interferon Research (ICIR)  
c/o Scherago Associates  
1515 Broadway, New York, NY 10036  
(212) 730-1050**

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Zip

MV10

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LABEL  
HERE**

## POSITIONS OPEN

### RESEARCH INSTRUCTOR IN BIOCHEMISTRY

The Department of Biochemistry of Vanderbilt University will fill a faculty opening on or before 1 September 1981, for a research instructor or research assistant professor in biochemistry with training and experience in isolation and structural studies of glycoproteins. This is a nontenure-track faculty position. The individual holding this position will, however, be given full consideration for appropriate tenure-track faculty positions as they occur. The position involves at least two-thirds time collaborative research on structure and function of glycoproteins. One-third time can be free for independent research, subject to independent grant support. Teaching of graduate and medical students is not required but opportunities are available on a limited scale if desired. At least 2 years of postdoctoral research experience are required.

Applicants should send curriculum vitae, bibliography, and the names of three references to: Dr. L. W. Cunningham, Chairman, Department of Biochemistry, Vanderbilt University, Nashville, Tennessee 37232.

*Vanderbilt University is an Affirmative Action/Equal Opportunity Employer.*

**RESEARCH SCIENTIST** (immediate) to perform experimental and theoretical radio-frequency radiation (RFR) bioeffects studies. Several positions to investigate the biological consequences of RFR, the physiological effects, and the fundamental mechanisms through which pulsed RFR may interact with biological tissues. Electrophysiology background desirable for one position.

**RESEARCH SCIENTIST** position (immediate) for Ph.D. with background in visual science and specific experience in VER. Experimental program also involves ERG, ocular exposures, and data acquisition and analysis to detect visual functional changes, resulting from laser radiation insult to the eye.

Send résumé and other credentials, including salary history and requirements, to: **TECHNOLOGY INCORPORATED, Life Sciences Division, 511 West Rhapsody, San Antonio, Texas 78216.** *Equal Opportunity/Affirmative Action Employer.*

### SENIOR ACQUISITIONS EDITOR

Position available immediately in our Scientific and Technical Books Department. Energetic, enthusiastic individual needed for challenging position in new department. Qualifications must include a science or engineering background and advanced degree or 5 years of related business experience. Develop and manage own publishing program. Travel required. Salary commensurate with qualifications, corresponding to that of assistant/associate professorship. Complete benefits package. Send curriculum vitae and names of three persons who can be contacted as references, to:

Personnel Department  
**MACMILLAN PUBLISHING COMPANY**  
866 Third Avenue  
New York, N.Y. 10022  
*An Equal Opportunity Employer, M/F*

The Center for Reproductive Sciences of the International Institute for Study of Human Reproduction invites applications for a position as **STAFF ASSOCIATE** in the Electron Microscopy Core involving collaboration of several investigators studying a variety of reproductive tissues. Will be responsible for operation and maintenance of a JEM 100C and JSM-U3, preparative techniques, and photographic work. B.S. and minimum of 4 years of experience are required. Applications should include names of three references and be addressed to: **Georgiana Jagiello, M.D., Director, Center for Reproductive Sciences, College of Physicians & Surgeons of Columbia University, 630 West 168 Street, New York, N.Y. 10032.** *An Equal Opportunity/Affirmative Action Employer.*

### VIROLOGIST/CELL BIOLOGIST

Leading veterinary manufacturer has excellent opportunity for individual with M.S. or equivalent experience in virology/cell biology. Duties include scheduling, coordinating, supervising, and participating in application of virological techniques for manufacture of cell culture origin virus vaccines. The candidate must have 3 to 5 years of experience in virology/cell biology. Managerial and supervisory skills are required. Excellent salary and benefits. Send résumé in confidence to: **Personnel Director, Wellcome Animal Health Division, Burroughs Wellcome Company, P.O. Box 167, Kansas City, Mo. 64141.** *An Equal Opportunity Employer, M/F.*

## POSITIONS OPEN

The Charles F. Kettering Research Laboratory is seeking applicants for **STAFF POSITIONS** with research interests in: (i) the structure and function of nitrogenase; (ii) the genetics and molecular biology of nitrogen-fixing organisms; (iii) the physiology and biochemistry of  $N_2$ -fixing symbiotic associations; (iv) the interrelationship between nitrogen fixation and photosynthesis; or (v) whole plant physiology related to nitrogen fixation, photosynthesis, or plant productivity. Applicants at all levels of experience will be considered. The successful applicants will be expected to seek external support to augment their research programs. Send curriculum vitae and other appropriate information to: **Dr. William E. Newton, Charles F. Kettering Research Laboratory, 150 East South College Street, Yellow Springs, Ohio 45387.**

## SEMINAR

### INTERNATIONAL SEMINAR ON THE ASSESSMENT OF TOXIC AGENTS IN THE WORKPLACE— ROLES OF AMBIENT AND BIOLOGICAL MONITORING 8 to 12 DECEMBER 1980 in Luxembourg

The Commission of the European Communities, the U.S. Occupational Safety and Health Administration (OSHA) and the National Institute of Occupational Safety and Health (NIOSH) are sponsoring this workshop which is aimed at better establishing the respective roles of biological and ambient monitoring and placing them in the general context of the protection of workers' health. Presentations and participation are by invitation only due to limited space. However, in order to allow for particularly interested additional individuals to attend, a few places will be held in reserve. There will be no registration or conference fees.

Individual requests may be addressed to:

Alex Berlin, Ph.D. Commission of the European Communities Batiment Jean Monnet Plateau du Kirchberg Luxembourg, Europe	Ralph E. Yodaiken, M.D. NIOSH Parklawn Building 5600 Fishers Lane Rockville, Md. 20852
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## COURSE

### SHORT COURSE ON LASER MICROBEAM IRRADIATION

26 to 30 January 1981. **Laser Microbeam Program (LAMP), Department of Developmental and Cell Biology, University of California, Irvine, Calif. 92715.** Contact: **M. W. Berns** at above address or telephone: 714-833-6291. Tuition fee: \$250.

A minicourse will be given at the NIH-sponsored Biotechnology Resource Facility. The course will consist of lectures and laboratory exercises on the operation and construction of a laser microbeam as well as the application of laser microsurgery in cell biology and developmental biology. Students will gain hands-on experience in laser operation, tissue culture, microirradiation of cell organelles, and embryonic systems.

## DOCTORAL PROGRAM

**DOCTORAL PROGRAM—IMMUNOLOGY.** Medical University of South Carolina, Department of Basic and Clinical Immunology and Microbiology, seeks highly qualified candidates for Ph.D. program. We are a highly motivated department with more than 140 publications last year and we provide an interdisciplinary environment with research capabilities ranging from amino acid sequencing through cell culture and animal studies to clinical studies of patients with disease. Research is available in immunogenetics, cellular immunology, and immunochimistry, clinical immunology, molecular virology and microbial genetics, and physiology. Stipends available. We provide an intellectually stimulating and unique geographic environment (year-round fishing, golfing, sailing, and tennis). Contact:

**Dr. E. W. Ades**  
Graduate Training Director  
Department of Immunology  
Medical University of South Carolina  
Charleston, South Carolina 29403

*An Affirmative Action/Equal Opportunity Employer*

## TRAVEL GRANTS

### \$ FOR NATURAL AND SOCIAL SCIENTISTS \$

Faculty members in colleges in Florida, Kentucky, Louisiana, North Carolina, South Carolina, and Tennessee may apply for supplemental small grant assistance (average \$400) for travel to use facilities and equipment not available locally and needed in research. Write: **Small Grants Program, Southern Regional Education Board, 130 Sixth Street, NW, Atlanta, Georgia 30313.**

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIPS AND GRANTS** are available for research in which the natural resources of The Huyck Preserve are utilized. Laboratory space and housing provided for family or assistants. Stipends to a maximum of \$2000. Applications are due 15 January 1981. Applications and inquiries to: **Dr. R. C. Dalgleish, Biological Station, E. N. Huyck Preserve, Inc., Rensselaerville, N.Y. 12147.**

**POSTDOCTORAL FELLOWSHIPS** in molecular endocrinology studying the mechanism of the growth-promoting action of somatomedins and the regulation of the expression of the somatomedin gene. Some theoretical or practical experience in either of these areas and purification of polypeptides required. Available immediately. Contact: **Dr. E. M. Spencer, Children's Hospital of San Francisco, 3700 California Street, San Francisco, Calif. 94118; telephone: 415-387-8700, extension 426.**

**POSTDOCTORAL FELLOWSHIP IN BIOCHEMICAL ENDOCRINOLOGY.** to study the effects of sex hormones on striated muscle. Send curriculum vitae and names of references to: **Dr. S.R. Max, Department of Neurology, University of Maryland School of Medicine, Baltimore, Maryland 21201.**

**POSTDOCTORAL FELLOWSHIP (NIH).** Immediate opening for a candidate with either a cell biology or a pharmacology background. Study involves the interaction of liposomes with macrophages and the development of liposomal drug delivery systems. Send résumé and letter of reference to: **Dr. R. L. Juliano, Texas Medical School, Houston, Texas 77025.** *An Equal Opportunity Employer.*

### POSTDOCTORAL FELLOWSHIPS Visual Science

Applications for NRSA fellowships in the 1980-1981 or 1981-1982 academic years are being accepted by the Eye Research Institute of Retina Foundation. Preceptors and programs are: Biochemistry—A. Adler, B. Chakrabarti, C. Cintron, and L. Reif-Lehrer; Physiology, Pharmacology, and Virology—A. Neufeld and D. Pavan-Langston; Immunology—M. Abelson, M. Allansmith, and C. S. Foster; Morphology—C. Cintron, I. K. Gipson, K. R. Kenyon, and M. Lahav; Neuroscience—A. R. Adolph, P. H. Hartline, T. Hirose, D. M. Snodderly, J. Weiter, and R. Zuckerman; Bioengineering and Biomaterials—M. G. Doane, G. T. Feke, and M. F. Refojo. A brief brochure describing the training program in detail is available. Write to the preceptor of interest at:

**Eye Research Institute of Retina Foundation**  
20 Staniford Street  
Boston, Mass. 02114

**POSTDOCTORAL FELLOWSHIP.** Available immediately. Research is focused on functional and cytotoxic evaluations of macrophage subpopulations. Background in immunology, microbiology, and/or in vitro techniques desirable. Send résumé, research interests, and names of three references to: **Dr. Alvin Volkman, Department of Pathology and Laboratory Medicine, East Carolina University, Greenville, North Carolina 27834.** *Affirmative Action/Equal Opportunity Employer.*

## MARKETPLACE

### RESEARCH GRANTS

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

# STATE OF KUWAIT

## KUWAIT UNIVERSITY

### College of Science

Applications are invited for posts as Professors, Associate Professors and Assistant Professors in the departments of Biochemistry and Zoology for the academic year commencing September 1, 1981 in the areas listed below. Initial contracts may be entered for a maximum of three years and are renewable upon mutual agreement of both parties.

Applicants for these posts must have a Ph.D. or equivalent. Only applications for positions announced below will be considered.

English is the language of instruction in the College of Science.

#### College of Science

- Department of Biochemistry:** Biochemistry with special background in Marine Biology
- Department of Chemistry:** Nuclear and Radiochemistry, Physical Chemistry Spectroscopy
- Department of Geology:** Geophysics-Tectonics, Petroleum Geology, Geochemistry, Mineralogy-Crystallographer
- Department of Mathematics:** Computer Science, Operations Research, Statistics, Numerical Analysis. The Department is especially interested in recent holders of the Ph.D.
- Department of Physics:** (Lecturer or Assistant Professors only). Digital Electronics, Experimental Solid State Physics (specializing in Photophysics "Photoacoustics), Theoretical High Energy Physics
- Department of Zoology:** Ecology (preferably Desert Ecology), Marine Biology (preferably Fish and Fisheries), Cytogenetics or General Zoology

Application forms may be obtained from:

Embassy of the State of Kuwait  
Kuwait University Office  
4201 Connecticut Avenue, N.W. Suite 404  
Washington, D.C. 20008

Completed applications, together with non-returnable copies of academic qualifications and representative publications, must be returned to this office by December 15, 1980 or by registered post directly to:

Department of Administrative Affairs  
Kuwait University  
P.O. Box 5969  
Kuwait

All applications must be received in Kuwait by December 31, 1980

Appointments are governed by the following considerations:

- 1) Rank and salary will be determined according to present academic position, qualifications and years of experience. There is no Kuwaiti income tax deduction.
- 2) Annual return air tickets to the country of citizenship or permanent residence are provided to spouse and three children not exceeding the age of twenty.
- 3) Free furnished accommodation with utilities supplied.
- 4) Education allowance for school-age children.
- 5) End of service gratuity equal to one month's basic salary for each year spent in the service of the University.



Open to both  
men and women



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## VETERINARY VIROLOGIST

Salary: \$33,474 – \$39,288

Ref. No.: 80-SM-OC-NHW-FW-1690 (S)

National Health and Welfare  
Health Protection Branch  
Ottawa, Ontario

### Duties

The incumbent directs and supervises the quality control testing program in animals, of biological products used for the control of viral diseases in humans; recommends on release or rejection of viral vaccines and on standards and regulations for adoption as official methods. The appointee is expected to develop independent research programs in the areas of infectious diseases, immunology, including studies on cell mediated immunity and monoclonal antibodies, and in animal virology with emphasis on polio, herpes and hepatitis viruses. There is also the opportunity for participation in international collaborative studies on polio and rabies viruses.

### Qualifications

Graduation in veterinary medicine and membership, or eligibility for membership, in a Canadian professional veterinary licensing agency; post-graduate training or equivalent experience in virology and some experience in pathology arising from viral diseases.

### Language requirements

Knowledge of English is essential.

Clearance No.: 330-232-001

Additional job information is available by writing to the address below;

Toute information relative à ce concours est disponible en français et peut être obtenue en écrivant à l'adresse suivante:

### How to apply

Send your application form and/or résumé to:

Frank Whitteker,  
Senior Management Staffing Program  
L'Esplanade Laurier, 17th Floor, West Tower  
300 Laurier Avenue West  
Ottawa, Ontario, K1A 0M7  
(613) 995-9437

Please quote the applicable reference number at all times.





## Very pretty and all-natural.

**B**ut what does it prove?

It proves how clever were certain parties who, long before the availability of Kodak Vericolor II professional film, drew an 8-shaped analemma figure on globes and sundials to show the daily declination of the sun over the course of a year.

That, though, hardly needs proving. Nor is proof needed that a decent result is obtainable from a sheet of that film exposed 48 times over a full year.

Why, then, do the directions for use say "process promptly"?

**ANSWER:** This is one of the "professional" films we make for portrait and commercial photographers. These users refrigerate their film and process promptly anyway, out of business necessity. Their raw film inventory justifies dedicating a refrigerator to it. We take this into account in balancing the relative sensitivities of the three color layers for best color rendition of subjects like fashions and

flowers by which such users earn their bread. We take enormous pride in being that fussy about nuances of color which most people can scarcely appreciate.

Not everyone blessed with such sensitivity to color depends on it for a living. Fortunately for us, they too buy film and expect the same high level of color rendition though their shooting schedules are not so tight, they may not process so promptly, and their refrigerators are more likely to be stocked with watermelon and hamburger than color film. This we must assume in balancing the relative layer sensitivities of "amateur" films.

All this crafty scheming for fine tuning of photographic properties to differences between use by professionals and non-professionals is just an example of the upgrading in product performance that goes on over the years.

The "process promptly, store at 55°F (13°C) or lower" advises which kind you are using. Whoever reads it as an indication that "professional" film is less stable than "amateur" film is much mistaken.

In *Sky and Telescope* for June, 1979, that magazine's Dennis di Cicco told all about how he took this one-year-long picture. Analemmas at once became a hot subject. The magazine's August '79 issue found it necessary to advise readers how to purchase a 16" x 20" print. The deal is still on. If you want to know all about analemmas, see page 20 of *Sky and Telescope* for July, 1972. If you want a copy of Kodak Pamphlet E-36, "Nine KODAK Color Films for Process C-41," write Department 412-L, Kodak, Rochester, NY 14650. If you need detailed information on astronomical photography, make that address "Scientific and Technical Photography" instead of "Dept. 412-L."



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