

# Personnel Placement

Only those employers and individuals who do not discriminate on the basis of race, sex, religion, age, color, or national origin should submit Personnel Placement advertising.

**POSITIONS WANTED:** 40¢ per word; use of Box Number counts as 10 additional words. Minimum charge \$10. Prepayment required. This rate applies to individuals only; personnel agencies, companies, colleges, and universities take display rate for all advertising.

**DISPLAY (POSITIONS OPEN, MARKET PLACE, AND SO FORTH):** \$130 per inch, minimum, per insertion (1 inch is equivalent to 11 lines of 52 spaces each). Ads over 1 inch billed to nearest quarter inch. No charge for Box Number. Rates net. No agency commission allowed for ads under 4 inches. No cash discount. Prepayment required for foreign advertising. Purchase orders and billing information must accompany all other advertising.

COPY for ads must reach SCIENCE by Wednesday, 3-½ weeks before issue date (Friday of each week) requested. Send copy for all positions wanted ads and display ads under 5 inches to:

SCIENCE, Room 207  
1515 Massachusetts Ave., NW  
Washington, D.C. 20005

Send copy for display ads, 1/6 page and larger, to:

Scherago Associates, Inc.  
11 West 42nd Street  
New York, N.Y. 10036

BLIND AD replies should be addressed as follows:

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

Effective 1 January 1977, the display rate for SCIENCE will be \$145 per column inch, minimum.

## POSITIONS WANTED

**Biochemist, Ph.D.** Postdoctoral for 3 years. Experience in carbohydrate metabolism, glycoprotein and enzyme purification, and cell biology. Desires research position. Box 484, SCIENCE. X

**Biochemist, Ph.D.** Ten years of research experience at mammalian genetics laboratory using inbred strains and mutant stocks of mice. Current research: genetic-hormonal control of mitochondrial biogenesis. Seeks teaching/research position at university in biochemical genetics or developmental biology. Box 485, SCIENCE. X

**Biochemist-Chemist, Ph.D.** 1966. Broad biochemical research and teaching experience. Publications. Lipid biochemistry, neurochemistry, membranes, proteins, enzymes. Research in diabetes and metabolism. Natural product chemistry. Strong background in analytical methods and radioisotopes. On medical school faculty for last 6 years. Seeks research and/or teaching position. Box 486, SCIENCE. X

**Biochemist-Microbiologist, Ph.D.** 1970; 3 years postdoctoral, 4 years as investigator. Experience in protein purification, nucleic acids, enzymes, tissue culture, immunology, RIA, virology, and molecular biology. Several publications and awards. Seeking research, administrative, and/or teaching position in industry/academia. Box 487, SCIENCE. X

**Geologist/Aquatic Ecologist/Environmentalist, M.S., plus 59 credits.** Varied, in-depth experience in water chemistry, wetlands ecology and geomorphology, Testacea, Foraminifera, Ostracoda, Bryozoa, diatoms, mapping and identification of vegetation, remote sensing of environment, water pollution and delineation of outfalls, soil and core analysis, sedimentary petrography, environmental impact statements. Industry, oceanography, college, or research. H. J. Behm, 191 Boardwalk Avenue, Staten Island, New York 10312. Telephone: 212-356-6459. X

**Mechanical Engineer** from piping industry wants to participate in energy R & D; solar, wind, coal conversion. Will work for opportunity to earn advanced degree. Box 492, SCIENCE. 11/5, 12, 19

## POSITIONS WANTED

**Ph.D. Cell Biologist and Biochemist,** each with 3 years of experience and publications studying growth and differentiation of human stratified epithelial cells in culture, desire positions at level of assistant professor in same institute in order to continue fruitful collaboration. Box 488, SCIENCE. X

**Forensic Scientist-Microbiologist, Ph.D.** Competent in all phases of forensic science. Experience in research, teaching, and consultation. Seeks position in urban or state crime lab, investigative unit, or academic position. Box 489, SCIENCE. X

**Geneticist, Ph.D.** 1965. Canadian immigrant. Five years of teaching; more than 10 years of research in cytogenetics, biochemical genetics, and mutation research. Seventeen publications. Seeks research/teaching position in Canadian university or college. Box 490, SCIENCE. X

**Gross Anatomy/Embryology/Teratology, Doctorate.** Interdisciplinary life sciences background. Teaching/research experience. Publications. Broad research interests in reproduction and population. Seeks teaching/research position. Relocation. Box 491, SCIENCE. 11/5, 12

**Medical Microbiologist.** Energetic professional seeks research or academic position. Research interests: biochemistry of host/pathogen relations. Publications. Professional background: both college teaching and recent postdoctoral appointment with medical school affiliation. Some administrative experience. Good with people and in situations requiring cooperation among persons with divergent viewpoints and areas of expertise. Box 493, SCIENCE. X

**Physiologist/Physiological Chemist, Ph.D.** 1971. Teaching experience. Capable of independent research. Research interests in isozymes, metabolic control and development. Seeks position in teaching/research. Box 494, SCIENCE. X

**Psychopharmacologist, Ph.D.** Four years postdoctoral in neuropsychopharmacology of addictive, CNS-active, and psychotherapeutic agents. Broad background in brain-behavior mechanisms, techniques; publications, research supervision, journal reviewing, and so forth. Desires academic position rewarding creativity and experience. Box 495, SCIENCE. X

**Quantitative, Population Geneticist, Ph.D.,** postdoctoral research experience in computer simulation, publications. Three years of experience as research statistician and computer programmer. Seeks research and/or teaching position. Box 496, SCIENCE. X

**Soil Microbiologist, Ph.D.,** soil microbiology; M.S., soil genesis; postdoctoral experience. Nutrient pollution in streams, rivers, and lakes. Seeking academic/industrial position. Box 497, SCIENCE. X

## POSITIONS OPEN

**ACADEMIC TEACHING AND RESEARCH POSITION/analytical and environmental chemistry, Ph.D.** to assume a calendar-year appointment beginning 1 January 1977. Half-time teaching (one analytical chemistry course each semester) and half-time research (participant in multidisciplinary aquatic research program). Full-time research in the summer. One-year appointment with possibility for extension or reappointment; \$12,000 for 9 months plus \$2500 summer. Send résumé and three letters of recommendation before 10 November 1976 to **Dr. Philip L. Kumler, Chairperson, Department of Chemistry, State University of New York College at Fredonia, Fredonia, N.Y. 14063.** An Equal Opportunity/Affirmative Action Employer.

**ASSISTANT PROFESSOR:** The Department of Biology has an opening for an individual who can teach botany at the freshman level and an upper-level course in mycology. Preference will be given to individuals who also have training in plant anatomy and/or plant morphology. Development of a research program is essential. Deadline for application is 15 December. To apply send curriculum vitae, three letters of recommendation, and transcripts to: **Martin Bard, Chairman of Search Committee, Department of Biology, Indiana University-Purdue University at Indianapolis, Indianapolis, Indiana 46205.** An Affirmative Action/Equal Opportunity Employer

## POSITIONS OPEN

### ASSISTANT PROFESSOR—CELLULAR IMMUNOLOGIST

The Department of Microbiology, School of Public Health, Harvard University, has an opening for a cellular immunologist with interests in tumor and transplantation immunology. Three or more years of postdoctoral research experience are required. Preference will be given to individuals who have evidence of productivity as independent investigators. Send curriculum vitae and references to **Dr. Roger L. Nichols, Head, Department of Microbiology, 665 Huntington Avenue, Boston, Mass. 02115.**

### ASSISTANT PROFESSORS OF INTRODUCTORY BIOLOGY

The Division of Biological Sciences at Cornell University seeks two assistant professors to teach introductory biology courses. One course is for non-majors (not a course in human biology) and the other is an auto-tutorial course for majors and nonmajors. In addition to teaching, the individuals will be expected to develop a program of research, and subsequent promotion will depend upon both scholarly and teaching performance. The research area for one of these positions will be in the Section of Physiology; the other may lie in any of the five sections that make up the division. Postdoctoral research experience is highly desirable.

Applicants should send a curriculum vitae, which should include a description of teaching experience, and reprints of research publications. They should also ask for three letters of reference to be sent to: **Dr. R. D. O'Brien, Director, Division of Biological Sciences, Cornell University, Ithaca, New York 14850.** The deadline for receipt of applications is 15 December 1976.

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

### DEPARTMENT OF RADIOLOGICAL SCIENCES UNIVERSITY OF CALIFORNIA COLLEGE OF MEDICINE, IRVINE

The Department of Radiological Sciences invites applications for the position of **ASSISTANT PROFESSOR** in the **DIVISION OF NUCLEAR MEDICINE** at the University of California, Irvine, Medical Center.

Applicants should be Board-certified and thoroughly trained, preferably in a University Center, in the use of radionuclides, and must have demonstrated evidence of clinical expertise. A large proportion of time in this position will be devoted to research—applicants must therefore have had prior training (preferably in the form of a full-time research fellowship) in the fundamentals of research methodology and experimental design. To ensure that the successful candidate will be able to work closely with the medical imaging team, preference will be given to applicants with training in diagnostic radiology.

*Applications from all qualified candidates are welcome; minorities and women are encouraged to apply.*

If you are interested in this position, please write to the address below including a curriculum vitae, an autobiographical letter, and copies of any publications.

Closing date: 30 November 1976.

**Eric N. C. Milne, M.D., F.R.C.R.**  
Professor and Chairman  
Department of Radiological Sciences  
University of California, Irvine  
College of Medicine  
Irvine, California 92717

**ASSISTANT PROFESSOR** of environmental science or engineering in **WATER CHEMISTRY** to teach environmental measurements, applied water chemistry, and advanced topics. Develop a quality, externally supported research program on any aspect of water chemistry with environmental applications. Salary competitive. Starting 1 January 1977. Send résumé and three professional references to: **Dr. C. H. Ward, Chairman, Department of Environmental Science and Engineering, Rice University, P.O. Box 1892, Houston, Texas 77001.** An Equal Opportunity/Affirmative Action Employer.

### BOTANIST

With Ph.D. Excellence in teaching and research expected. Area of specialty is open.

Send inquiries, curriculum vitae, and so forth, to **Dr. Martin L. Morton, Chairman, Biology Department, Occidental College, Los Angeles, California 90041.**

## POSITIONS OPEN

### BIOCHEMIST

Amherst College seeks an assistant professor of biology in the area of biochemistry to begin 1 July 1977. Doctorate required. Responsibilities include teaching a one-semester biochemistry course (with laboratories) jointly with a member of the Chemistry Department, teaching two additional courses per year at the beginning and advanced undergraduate level, supervising senior thesis research projects, and being actively engaged in research. Applicants should send a curriculum vitae, copies of publications, and arrange to have three letters of reference sent to: **Chairman, Biology Department, Amherst College, Amherst, Mass. 01002.** An Equal Opportunity/Affirmative Action Employer.

### BIOCHEMISTS

Biochemistry, assistant or associate professor. Two positions, state-appropriated salaries are available. Candidates with experience and intent to do research on the control of proliferation in animal cells and/or biochemical carcinogenesis will be considered. Candidates for either level will be considered depending on: education (Ph.D. required), research experience, and publication record. Applicants must be prepared to establish their own research program within the above designated categories. The research commitment will be for at least 80 percent of the applicant's time with up to 20 percent time allowed for teaching in a degree-granting program of The University of Texas.

Qualified and interested applicants contact: **Dr. Darrell N. Ward, Head, Department of Biochemistry, The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, 6723 Bertner Avenue, Houston, Texas 77030.**

An Equal Opportunity/Affirmative Action Employer

### BIOLOGY INSTRUCTOR

William Rainey Harper College has the above faculty opening available 12 January 1977. Formal application and curriculum vitae must be on file to receive consideration by the deadline date of 19 November 1976. Please direct résumé to **James J. Smith, Personnel Specialist, William Rainey Harper College, Algonquin and Roselle Roads, Palatine, Illinois 60067.** An Affirmative Action/Equal Opportunity Employer

The Department of Biology, Lycoming College, has a position available 3 January 1977. Doctorate required. Principal responsibilities will be teaching genetics and nonmajors introductory course. Secondary interests should be in either the molecular area or the vertebrate area. Rank and salary based on background and experience. Credentials, transcripts, and reference letters should be sent to **Dr. R. Angstadt, Biology Department, Lycoming College, Williamsport, Pa. 17701.** An Equal Opportunity Employer.

### DIRECTOR FLORIDA SOLAR ENERGY CENTER

Nominations and applications are invited for the position of director of the Florida Solar Energy Center, effective 1 January 1977. The director is responsible for providing technical leadership and overseeing the administration and supervision of the activities of the Center, which is located at Cape Canaveral. The activities of the Center include development of solar energy utilization, state testing, and standards activities research and provide a coordinated state-wide approach in cooperation with public and private universities, industries, and government agencies. The director must be capable of working effectively with university faculty and administrators, the business community, design professionals, federal, state, and local governmental agencies, and with outside funding agencies. It is expected that candidates for this position will have earned doctorates in the physical sciences or engineering and demonstrated experience and capability in working with industry, government, and universities, in energy-related contexts. The mission of the Solar Energy Center is to provide services unique to the State of Florida operating as a State University System-wide activity. Nominations and applications should be sent by 1 December 1976 to:

**Vice Chancellor for Academic Programs  
State University System of Florida  
107 West Gaines Street  
Tallahassee, Florida 32304**

An Equal Opportunity/Affirmative Action Employer

## POSITIONS OPEN

### CHAIRPERSON DEPARTMENT OF COMMUNITY MEDICINE WRIGHT STATE UNIVERSITY SCHOOL OF MEDICINE

Nominations and applications are invited for this position through 30 November 1976. The chairperson will organize and develop the Department as a component of the School, which has a commitment to primary care medical education in a community-based setting, by integrating the community medicine concept in the overall teaching program, both graduate and undergraduate. Requirements are an M.D. degree, eligibility for Ohio licensure, Board certification in preventive medicine or primary care specialty, demonstrated leadership as a scholar, teacher, and researcher with appropriate experience in community medicine. Graduate degree(s) in public health, preventive medicine, education, or other academic discipline desirable. Rank and remuneration dependent on qualifications. Curriculum vitae and names of five references should be sent to **John R. Beljan, Dean, Wright State University School of Medicine, P.O. Box 927, Dayton, Ohio 45401.**

Wright State University School of Medicine is an Equal Opportunity/Affirmative Action Employer.

### UNIVERSITY OF TEXAS AT ARLINGTON DEPARTMENT OF GEOLOGY—CHAIRMAN

Applications are invited for the position of professor and chairman of geology. Ph.D., proven research productivity, and experience in graduate teaching required; some administrative experience desirable. Chairman must be qualified to lead in development of a doctoral program. Position demands strong academic leadership for dynamic department of ten full-time and five adjunct faculty currently offering B.S. and M.S. programs for 190 undergraduates and 50 graduate students. In addition to administrative and teaching duties, chairman will be expected to maintain a high-quality research program.

Applications, along with two copies of résumé and full names and addresses of at least three professional references, should be sent to:

**Dr. Donald F. Reaser  
Chairman, Search Committee  
Department of Geology  
University of Texas at Arlington  
Arlington, Texas 76019**

Closing date for applications: 15 January 1977.

The University of Texas at Arlington is an Equal Opportunity/Affirmative Action Employer.

### DEPARTMENT OF RADIOLOGICAL SCIENCES UNIVERSITY OF CALIFORNIA COLLEGE OF MEDICINE, IRVINE

The Department of Radiological Sciences invites applications for the position of **CHIEF OF NUCLEAR MEDICINE** at the University of California, Irvine, Medical Center. This appointment will be at associate professor or full professional level.

Applicants must have considerable expertise in clinical nuclear medicine, extensive experience in the formulation and implementation of original research protocols, and must be thoroughly experienced in teaching at both graduate and undergraduate levels. Resident positions in nuclear medicine are presently available—the new chief will have the opportunity of designing and directing the residency training program in nuclear medicine and will also be expected to supervise and direct one or more graduate students in the Radiological Sciences Graduate Program.

A new Department of Radiological Sciences is in the planning stage and the successful candidate will have the opportunity of designing and selecting equipment for his own division. A new Medical Sciences building is also presently under construction and there are outstanding opportunities for research both at the Medical Center and at the Radiological Sciences Medical Imaging Center on campus.

Applications from all qualified candidates are welcome; minorities and women are encouraged to apply. If you are interested in this position please write to the address below including a curriculum vitae and an autobiographical letter.

Closing date: 30 November 1976.

**Eric N. C. Milne, M. D., F.R.C.R.  
Professor and Chairman  
Department of Radiological Sciences  
University of California, Irvine  
College of Medicine  
Irvine, California 92717**

## POSITIONS OPEN

### CHAIRPERSON/HEAD DEPARTMENT OF OPHTHALMOLOGY

The Louisiana State University School of Medicine in New Orleans invites nominations and applications for the position of head, Department of Ophthalmology. Applicant should be a qualified ophthalmologist and have related administrative and research experience. Respond to: **Dr. Harold M. Albert, Chairman, Search Committee, 1542 Tulane Avenue, New Orleans, Louisiana 70112.** An Equal Opportunity Employer.

### DEAN, SCHOOL OF PHARMACY

The University of Washington invites applications and nominations for the position of dean of its School of Pharmacy. A complete curriculum vitae and the names and addresses of references should accompany applications. Send before 1 December 1976 to:

**Dr. Maureen M. Henderson  
Assistant Vice President for Health Affairs  
Health Sciences Center, SC-61  
University of Washington  
Seattle, Washington 98195**

The University of Washington is an Equal Opportunity Employer.

### DIRECTOR, DIVISION OF LIFE SCIENCES AND INSTITUTE OF ARCTIC BIOLOGY

Applications are invited for the position of director, Division of Life Sciences and Institute of Arctic Biology, University of Alaska at Fairbanks. The director will have administrative and budgetary responsibility for the instructional programs of the Division of Life Sciences and the scientific programs of the Institute of Arctic Biology. These programs involve marine and terrestrial biology, fisheries and wildlife, anthropology, and medical sciences with emphasis on the arctic environment.

Applicants should be senior scientists and hold a doctoral degree or its equivalent in training and experience. Desirable qualifications include published scientific contributions of high quality and evidence of innovation and leadership in an academic program in biological science. Salary is dependent upon qualifications and experience. Closing date: 15 January 1977.

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

Send application, résumé, and names of references to: **Dr. James V. Drew, Chairman, Search Committee, School of Agriculture and Land Resources Management, University of Alaska, Fairbanks, Alaska 99701.**

**ENVIRONMENTAL RADIOCHEMIST** with doctoral degree and experience in chemical, instrumental, and statistical analyses. Develop and perform quality control assays of radioactivity in biological and environmental media. Participate in graduate-level teaching and research. Academic appointment level and salary commensurate with qualifications. Résumés to **Dr. Keith Schlager, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pa. 15261.** Telephone: 412-624-2732. The University of Pittsburgh is an Equal Opportunity/Affirmative Action Employer.

### FACULTY POSITION IN CELL BIOLOGY

The Department of Cell Biology of the University of Texas Health Science Center at Dallas is seeking a senior faculty member to direct a course in cell biology and histology for graduate and medical students. The individual sought should already have developed a strong research program in the general area of cellular or developmental biology which can be continued in this position. Nominations or curriculum vitae should be sent to: **Faculty Search Committee, Department of Cell Biology, The University of Texas Health Science Center at Dallas, Southwestern Medical School, 5323 Harry Hines Boulevard, Dallas, Texas 75235.** An Equal Opportunity/Affirmative Action Employer.

Position available: **FUNCTIONAL MORPHOLOGIST** to teach vertebrate biology, spring semester (January) 1977. One term, temporary appointment, chance of additional year extension. Ph.D. required. Salary: \$8000. Applications received through 30 November. Contact **Dr. Donald Lundgren, Chairman, Department of Biology, 206 Lyman Hall, Syracuse University, Syracuse, New York 13210.** Syracuse University is an Equal Opportunity Employer.

# CHIEF, BIOMETRY BRANCH NATIONAL CANCER INSTITUTE

NATIONAL INSTITUTES OF HEALTH  
Public Health Service, DHEW

(A permanent, career position, of GS-16 level equivalence, with liberal government benefits, salary range up to \$39,000—depending upon experience and qualifications.)

The National Cancer Institute is recruiting for a scientist (statistician, biometrician, demographer) who will direct, coordinate and conduct:

- \* A national program of research and data collection pertaining to the origins of cancer, cancer detection, treatment and medical economics
- \* The research work of a staff of 60 workers, including 20 professionals with advanced academic degrees
- \* The biostatistical activities of the National Cancer Program
- \* Research in a field of personal interest relevant to the Cancer Program

A successful candidate will hold an advanced professional degree (Ph.D., Sc.D., M.D. or Dr. P.H.) or equivalent, in statistics, biometrics, biostatistics, epidemiology, sociology, demography, economics or computer science. Will have at least 3 years of professional experience. The candidate's professional experience must demonstrate the successful management and administration of a research program of high caliber—equivalent to the management of a large university department.

Submit SF-171, C.V. and bibliography by 11/30/76 to:

Ms. Shirley Brinson  
NCI Personnel Office  
Building 31, Room 3A32  
9000 Rockville Pike  
Bethesda, Maryland 20014

The National Cancer Institute is part of the Public Health Service—and agency of the United States Government. An Equal Opportunity Employer.

## PHARMACOLOGISTS

We are a major subsidiary of ICI Ltd. (London) a world leader in pharmaceutical research. Commitment is evidenced by \$25 million expansion to double laboratory capacity, and these openings in early 1977:

### RENAL

Ph.D. with industrial/post-doctoral renal experience. First 2 years will be spent at ICI's pharmaceutical research center in England, followed by permanent assignment in new Wilmington laboratories.

### CNS

- B.S./M.S. in Biology or Physiological Psychology preferably with experience in stereotaxic techniques and CNS pharmacology.
- B.S./M.S. for neurochemistry laboratory; experience in biochemical pharmacology extremely desirable.
- B.S./M.S. to join neuropharmacology laboratory. Experience with EEG systems useful.

### PULMONARY

B.S./M.S. to join pulmonary pharmacology laboratory. Experience in pulmonary mechanics and/or biochemical pharmacology helpful.

### GASTRO-INTESTINAL

B.S./M.S. with background in autonomic or cardiovascular pharmacology advantageous. Experience with isolated tissue work particularly desirable. Compensation and benefits compare favorably in American drug industry. Moving expenses covered. Serious candidates should submit complete C.V., including salary history and expectation, in complete confidence to:

C. T. Brodigan  
Employee Relations



ICI United States Inc.

Wilmington, Delaware 19897

An Equal Opportunity Employer M/F

## POSITIONS OPEN

### INDIANA UNIVERSITY SCHOOL OF MEDICINE

Northwest Center for Medical Education seeks applications for a full-time faculty position at the rank of assistant or associate professor to develop and coordinate graduate and postgraduate clinical programs. Send résumé to: **Fred Adler, M.D., Chairman, Search and Screen Committee, Northwest Center for Medical Education, Indiana University School of Medicine, 3400 Broadway, Gary, Indiana 46408.** *Indiana University School of Medicine is an Equal Opportunity Employer.*

### FACULTY POSITION—IMMUNOLOGY

The Department of Biochemistry and Molecular Biology of the College of Arts and Sciences of Northwestern University is seeking an individual with a Ph.D., or equivalent degree, and postdoctoral experience to establish a research program in cellular immunology and teach immunology to advanced undergraduates and graduate students with strong backgrounds in biochemistry and molecular biology. The appointment will be at the level of assistant professor. Preference will be given to candidates who show promise of developing research programs of exceptionally high quality and of becoming excellent teachers. Candidates should submit curriculum vitae and reprints, a statement of research interests, and three letters of reference to: **Dr. David Shemin, Department of Biochemistry and Molecular Biology, Northwestern University, Evanston, Illinois 60201.** *An Equal Opportunity/Affirmative Action Employer.*

A FACULTY POSITION is immediately available in the area of nuclear medicine. Ph.D. required; D.V.M. desirable but not essential. Applicants should have research interests involving the use of radionuclides for the measurement of physiological parameters or the detection and/or treatment of medical pathology and be willing to contribute to a group effort involving new radiopharmaceutical investigations and/or new radiation detection technology including image processing. The appointee will devote 50 percent of his/her time to teaching portions of radionuclide methodology and physiology courses and the remainder to research/service efforts. Rank and salary commensurate with qualifications. Send curriculum vitae and names of three referees by 30 December 1976 to: **R. H. Bubar, Department of Veterinary Anatomy, Physiology, and Pharmacology, College of Veterinary Medicine, University of Illinois, Urbana, Ill. 61801.** Telephone 217-333-1109. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer and encourages applications from minorities and women.*

FACULTY POSITION available January 1977 or later. Professor and head, Department of Foods and Nutrition. Provide leadership in teaching, research and service activities. Doctorate in nutrition, foods, institution administration or related area required. Send résumé to: **Dr. Elizabeth T. Sheerer, Chairperson, Search Committee, School of Home Economics, Dawson Hall, University of Georgia, Athens, Georgia 30602.** *Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION, **Muscle Biochemist** to conduct research in muscle biochemistry as it relates to agriculture and to interact with staff in the College of Medicine in areas related to muscle biochemistry. Applicants should have several years of postdoctoral experience and evidence of independence in research. Rank and salary will be commensurate with qualifications. Submit applications, including a curriculum vitae, list of publications, and the names of three references by 1 January 1977 to **Dr. Darrel E. Goll, Nutrition and Food Science, University of Arizona, Tucson, Arizona 85721.** *The University of Arizona is an Equal Opportunity/Affirmative Action Employer under State and Federal laws and regulations, including Title IX, 1972, Education Amendments.*

NEUROPHYSIOLOGIST, Ph.D., sought by international leader in chiropractic. Teaching experience required and clinical physiology experience desirable. Primary responsibility is teaching; research encouraged. Position begins January 1977. Salary competitive; liberal fringe benefits. Send curriculum vitae and have three letters of reference sent directly to: **Academic Dean, National College of Chiropractic, 200 East Roosevelt Road, Lombard, Illinois 60148.**

## POSITIONS OPEN

### HEAD, DEPARTMENT OF ANATOMY

The University of Illinois College of Medicine invites applications and nominations for the position of head, Department of Anatomy, in the School of Basic Medical Sciences. The department presently consists of 17 faculty members with research programs.

Applicants should possess a distinguished record in both research and teaching, as well as administrative ability.

Send nominations and applications to: **Dr. N. Khoobyarian, Chairman, Search Committee, Department of Microbiology, 835 South Wolcott Avenue, Chicago, Illinois.** Mailing address: P.O. Box 6998, Chicago, Illinois 60680.

*The University of Illinois is an Affirmative Action Employer.*

NEPHROLOGIST—The Division of Nephrology in the Department of Medicine at the University of Alabama in Birmingham has available a position at the assistant professor level. The position is open to qualified individuals at a senior level fulfilling three criteria. First, the individual must have expertise in the care and management of patients with renal disease and in the operation and administration of a hemodialysis unit. Second, the individual must have a firm commitment to teaching programs oriented to medical students, graduate students, house officers, and fellows. Finally, the individual should have a research background and be able to carry out independent research, preferably in the physiology of renal tubular transport processes. Apply to the **Division of Nephrology, University Station, Birmingham, Alabama 35294.** Telephone: 205-934-3585. *An Equal Opportunity/Affirmative Action Employer.* Expiration date for receipt of applications: 1 January 1977.

NEUROLOGIST to begin 1 July 1977. Full-time academic appointment with opportunities for research, teaching, and clinical responsibilities in adult neurology. Send curriculum vitae and bibliography and names of three references to **James N. Hayward, M.D., Chairman, Department of Neurology, University of North Carolina School of Medicine, Chapel Hill, N.C. 27514.** *An Equal Opportunity/Affirmative Action Employer.*

NEUROVIROLOGIST: The Department of Neurology, UCLA School of Medicine, has an opening for a clinical neurologist who has had research training in virology. Please send curriculum vitae to **Richard D. Walter, M.D., Chairman, Department of Neurology, Reed Neurological Research Center, Los Angeles, California 90024.** *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from qualified members of minority groups and women.*

PHYSIOLOGICAL PSYCHOLOGIST. A position as an assistant professor in the Department of Psychology at Arizona State University is available fall 1977 for a recent Ph.D. whose principal interests are in sensory processes from an electrophysiological perspective. Applicant must be prepared to teach courses in sensory and experimental psychology. Special consideration will be given to applicants who are familiar with microelectrode techniques and whose interests are in peripheral auditory processes. Opportunities exist for collaboration in a hearing-science grant program. Send curriculum vitae and three letters of reference to **Dr. Peter Killeen, Department of Psychology, Arizona State University, Tempe, Arizona 85281.** *The University is an Affirmative Action/Equal Opportunity Employer.* Applications must be completed by 3 December 1976.

### POPULATION GENETICIST

The Department of Biology, Syracuse University, anticipates an opening for a population geneticist beginning at the assistant professor level for fall 1977. Ph.D. required; postdoctoral research experience desirable. Duties will include both undergraduate and graduate teaching of evolutionary genetics and/or population biology. The appointee is expected to conduct a vigorous research program. Submit curriculum vitae, three letters of recommendation, and a short synopsis of research interests to: **Search Committee, Department of Biology, Syracuse University, Syracuse, New York 13210.** Deadline is 1 January 1977. *Syracuse University is an Equal Opportunity Employer.*

## POSITIONS OPEN

### POPULATION GENETICS AND BIOLOGY

We invite applications from candidates with an established research reputation in the general area of population genetics and biology. Research and teaching interests might focus on evolution, ecology, behavior, or similar fields. The position is at the professor or possibly associate professor level, and the appointment will be made during the year 1977. Salary is negotiable, but the salary range for a full professor is \$21,500 to \$33,500, and the salary range for an associate professor is \$18,000 to \$23,700.

Please send curriculum vitae to:

**Biology Search Committee  
Attn: Burney J. Le Boeuf  
Thimann Laboratories  
University of California  
Santa Cruz, Calif. 95064**

The application filing deadline is 1 February 1977.

*The University of California is an Equal Opportunity/Affirmative Action Employer. Candidates will be considered without regard to race, color, religion, sex, or origin.*

### POSTDOCTORAL APPOINTMENTS

Postdoctoral appointments in the field of regulation of membrane-bound enzyme systems with special emphasis on purification and reconstitution of components of hormone-sensitive adenylyl cyclase. Strong background in membrane biochemistry, enzyme kinetics, or protein purification desired. Stipend: \$10,000 per year. Available immediately. Send curriculum vitae and references to **Dr. Lutz Birnbaumer, Professor, Department of Cell Biology, Baylor College of Medicine, Houston, Texas 77030.** *An Equal Opportunity Employer.*

POSTDOCTORAL FELLOW—Opportunity for research in the area of pharmacology, physiology, and hematology in research-oriented clinical department. Interests should include mineral metabolism, heavy metal intoxication, and/or new drug development. Send résumé and salary history to **Box 498, SCIENCE, Cornell University Medical College is an Equal Opportunity Employer, M/F.**

### POSTDOCTORAL FELLOW

Postdoctoral research position for Ph.D. or M.D. to study transport of solutes and water across lipid bilayer membranes, toad bladder, and kidney tubules. Available on or about 1 January 1978. Send résumé and two references to: **Dr. Erich E. Windhager, Department of Physiology and Biophysics, Cornell University Medical College, New York, N.Y. 10021.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION immediately available for research on fetal and tissue antigens and immune responses to these antigens, including autoimmunity. Previous relevant Ph.D.-level research experience required. No telephone inquiries. Send curriculum vitae, including names of references, to **Dr. George J. Friou, Director, Clinical Immunology and Rheumatic Disease Section, University of Southern California School of Medicine, 2025 Zonal Avenue, Los Angeles, California 90033.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION: Available immediately; research on the structure and function of transfer RNA and the mechanism of protein synthesis. Candidates should have experience in biochemistry and molecular biology. Salary: \$10,000 per year. Send curriculum vitae and names and addresses of three references to: **Dr. LaDonne Schulman, Department of Developmental Biology and Cancer, Albert Einstein College of Medicine, Bronx, New York 10461.** *An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL POSITIONS IN BIOCHEMISTRY, RICE UNIVERSITY

The Department of Biochemistry, Rice University, announces the immediate availability of a postdoctoral position in crystallography. Previous experience in single crystal x-ray structure determination of proteins and biologically important small molecules is required. Postdoctoral opportunities in other laboratories may also become available in the near future.

Prospective candidates should submit résumés together with the names of three individuals familiar with their research to: **Department of Biochemistry, Rice University, Houston, Texas 77001.**

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

## POSITIONS OPEN

### POSTDOCTORAL POSITION—VIROLOGY

The Department of Microbiology has an opening for a postdoctoral research fellow available 1 January 1977 for an epidemiologic study of enteric viruses. Applicants should have experience in techniques for isolating viruses from water and waste water. Stipend \$10,700 to \$13,200 depending on experience. Submit curriculum vitae to **Dr. Roger L. Nichols, Chairman, Department of Microbiology, Harvard School of Public Health, 665 Huntington Avenue, Boston, Mass. 02115. An Equal Opportunity Employer.**

**POSTDOCTORAL RESEARCH ASSOCIATE. Microbial biochemist.** Study peptides from enzymatic digestion of *Bacillus thuringiensis* insecticidal protein crystal (\$9,000 to \$10,000). Available 1 December for 1½ years. Experience in peptide separation desirable. Send curriculum vitae to **Dr. Kenneth Nickerson, School of Life Sciences, University of Nebraska, Lincoln, Nebraska 68588.**

*The University of Nebraska is an Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH AND TRAINING IN TOXICOLOGY/CELL CULTURE.** Available immediately for Ph.D. in life sciences. Research on the physiology and pharmacology of viable lung cells. Experience in cell culture techniques and membrane physiology preferred. Reply, with curriculum vitae and names of three references, to **Dr. Daniel B. Menzel, Department of Physiology and Pharmacology, P.O. Box 3709, Duke University Medical Center, Durham, North Carolina 27710. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL TRAINING IN TOXICOLOGY/NEUROPHARMACOLOGY.** A vacancy exists in the training program at Duke University, to work in a project on toxic effects of drugs on neurons in the central nervous system. Applicants must have, or expect to receive before appointment, a doctorate in pharmacology or in physiology, and must have successfully completed a research project using either microelectrode technique in central nervous system of mammals, or advanced neuropharmacological methods. An interview can be arranged for serious candidates at the Neuroscience Meeting in Toronto (telephone Dr. G. Somjen at 919-684-2262). Applicants should send a curriculum vitae, record of graduate courses, GRE scores, and request that three letters of recommendation be sent to: **Dr. D. B. Menzel, Director, Toxicology Training Program, Duke University Medical Center, P.O. Box 3709, Durham, North Carolina 27710. An Equal Opportunity/Affirmative Action Employer.**

The Department of Poultry Science at Oregon State University invites applications for two positions at the assistant professor level in the fields of (i) **poultry genetics—endocrinology** and (ii) **physiology—management**, involving both research and teaching responsibilities. The Ph.D. degree is required. The positions will be available 1 July 1977. Completed applications are desired as soon as possible, but will be accepted for consideration until 28 February 1977. *Oregon State University is an Affirmative Action Employer and encourages applications from qualified women and minorities.* For information about the department and specific requirements for the positions, write:

**Dr. G. H. Arscott, Head  
Department of Poultry Science  
Oregon State University  
Corvallis, Oregon 97331**

### THE UNIVERSITY OF DELAWARE invites applications for Unidel Professorships of Chemistry

Two new professorships of chemistry, both tenured, have been endowed by the Unidel Foundation. Outstanding candidates are sought, and salaries offered will be attractive to such persons. The University will contribute generously to relocation expenses.

The Department of Chemistry is most interested in attracting scientists of international reputation who wish to continue vigorous research pursuits in addition to a normal teaching load. No categorical constraints are set on the area of specialization within chemistry.

Qualified applicants are requested to send their applications with supporting documents to **D. Wetlaufer, Chair, Department of Chemistry, 1055 Brown Laboratories, University of Delaware, Newark, Delaware 19711.** Initial contacts should be made by 15 November 1976.

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

IBM Wallace J. Eckert Visiting Scientist Program

## environmental sciences

The IBM Thomas J. Watson Research Center is now inviting applications for appointment as Wallace J. Eckert Visiting Scientist in Environmental Sciences for the academic year of 1977 - 78.

Although the program is specifically intended for persons on sabbatical leave from universities and governmental laboratories, applications from any scientist prepared to carry out independent research will be seriously considered. The Visiting Scientist will normally be appointed for a period of one year. The primary responsibility of the Visiting Scientist will be to pursue a research program of his own choice at the Thomas J. Watson Research Center. A stipend will be paid and certain relocation expenses will be reimbursed.

The Wallace J. Eckert Visiting Scientist will join the General Sciences Department at the Research Center. Present departmental activities in environmental sciences include mathematical modelling of population dynamics, statistical analysis of ecosystems, stochastic hydrology, geomorphology of drainage basins, numerical taxonomy, and medical decision processes. Applicants for the environmental sciences appointment are not limited to these fields.

Those interested in applying for this post should send a letter, curriculum vitae, and a choice of supporting material (but not to include any formal research proposals) to **Dr. S. L. Hantler, Manager, Corporate Ph. D. Program by January 1, 1977.**



International Business Machines Corporation  
Thomas J. Watson Research Center  
P.O. Box 218, Yorktown Heights,  
New York 10598

## DIRECTOR OF TOXICOLOGY

M. S. or Ph.D. in toxicology, pharmacology, or biochemistry preferred. Responsibilities will include direction of programs involving toxicity evaluation of industrial and consumer products through contract laboratories, food and drug application, toxicology aspects of air and water pollutants, interface with research, product development and marketing management. Experience in industrial toxicology preferred.

Salary commensurate with educational background and experience, extensive benefits and career development. Please send your resume in confidence, including salary history to:

**W. F. Schreiber  
Employee Relations Services**



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## DIRECTOR, ENVIRONMENTAL MONITORING AND SUPPORT LABORATORY—LAS VEGAS

The U.S. Environmental Protection Agency is seeking a director, Environmental Monitoring and Support Laboratory—Las Vegas, GS-16/17, with the Office of Research and Development. The Laboratory is responsible for programs in development, test, evaluation and standardization of equipment, techniques, and systems for remote sensing and in situ sensing of environmental parameters; development of monitoring data and information systems; investigations of pathways of exposure and biological effects of selected pollutants (including radioactive); development and operation of a national pollution monitoring quality assurance program for radiation and remote sensing measurement systems; provision of technical support to Agency monitoring programs for system design, establishment, maintenance, field operations, and analytical services; and provision of aircraft services to the Agency for airborne monitoring research and field operations. Candidates must have a bachelor's or higher degree in physical science, engineering, or mathematics that included 24 semester hours in physical sciences and/or closely related engineering science such as mechanics, dynamics, properties of materials, and electronics; or equivalent combination of 4 years of experience and education that included 24 semester hours of physical science and/or closely related engineering science. In addition, at least three or more years of professional experience, including managing a scientific or technical group, are required. One year of the required experience must have been at a level of difficulty comparable to the next lower level in the Federal Service.

Location: Las Vegas, Nevada.

Salary: \$39,600 plus civil service benefits.

Contact: Please send a detailed résumé including salary history or a completed Standard Form 171 (Personal Qualifications Statement), which can be obtained from any federal government personnel office, postmarked no later than 18 November 1976, to **Brenda Cunningham (PM-212), Personnel Management Division, Environmental Protection Agency, 401 M Street, SW, Washington, D.C. 20460.**

## POSITIONS OPEN

### PROGRAM OFFICER

The Institute of Medicine of the National Academy of Sciences is seeking a program officer who will have principal staff responsibility for the development of ideas and proposals into viable projects for the organization. The individual will provide staff support to the Institute's Program Committee. Candidates should have an advanced degree or equivalent experience in fields related to health policy or administration of health programs; substantial experience and exposure to health policy issues; knowledge of government health affairs; and demonstrated competence in formulating health policy issues. Applicants should send résumé with salary requirement to: **Douglas Hammes, Associate Administrative Officer, Institute of Medicine, 2101 Constitution Avenue, NW, Washington, D.C. 20418.**

*An Equal Opportunity Employer*

### RECOVERY CHEMIST/MICROBIOLOGY/ ENGINEERING

Individual with 2 to 5 years of experience needed to develop and implement procedures for large-scale recovery of natural products from fermentation broths and botanicals. Will assist in fermentation pilot plant operation. Requires a working knowledge of large pilot plant-scale recovery equipment and safe working procedures. Qualified candidates should submit résumés to:

**M. L. Knill—Recruitment  
Department 710  
FREDERICK CANCER RESEARCH CENTER  
Litton Blonetics, Inc.  
P.O. Box B  
Frederick, Maryland 21701**

*An Equal Opportunity Employer, M/F*

### RESEARCH ASSOCIATE

A postdoctoral position in the Department of Pathology, University of Chicago, is available immediately for at least 2 years. Applicants should have training in protein sequence determination. Send curriculum vitae to **Dr. Heinz Köhler, La Rabida—University of Chicago Institute, East 65 Street at Lake Michigan, Chicago, Ill. 60649.**

### RESEARCH ASSOCIATE POSITION

Immediate opening for recent Ph.D. in plant physiology or biochemistry to study problems concerned with organelle transfer in plant cells. Experience with protoplast and tissue culture techniques required. Duration of appointment is 1 to 2 years. Send résumé and names of three references to **Dr. G. A. de Zoeten, Department of Plant Pathology, University of Wisconsin—Madison, Madison, Wis. 53706.** *An Affirmative Action/Equal Opportunity Employer.*

### RESEARCH ASSOCIATE OR POSTDOCTORAL

Ph.D. in cell molecular biology or biochemistry. Laboratory is directed toward analysis of genetic transcription in relation to differentiation and messenger RNA biogenesis. For details telephone: 303-394-8450. Send résumé and salary requirements to **S. DeBaca, Department of Anatomy, University of Colorado, School of Medicine, Denver, Colorado 80262.**

**RNA TUMOR VIRUS PATHOGENESIS.** A postdoctoral position is available immediately to study the pathogenesis of mouse leukemia viruses using molecular techniques. Recent Ph.D. should have experience with nucleic acid hybridization or RNA tumor viruses. Successful applicant will work in contact with a group of young, active virologists and cell biologists in a well-equipped department. Send curriculum vitae and references to: **Dr. Kenneth Manly, Department of Medical Viral Oncology, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, New York 14263.** *An Equal Opportunity Employer, M/F.*

**VISION SCIENTIST—ELECTROPHYSIOLOGIST:** Postdoctoral research associate position available for person qualified and interested in work on retinal neurophysiology; may start as early as 1 January 1977. Ongoing work includes mechanisms of synaptic transmission and of neural-glia interactions studied with ion-specific microelectrodes. Send résumé and three letters of reference to **Dr. Luis M. Proenza, Vision Research Laboratory, Department of Psychology, University of Georgia, Athens, Georgia 30602.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

The Departments of Rehabilitation Medicine and Pharmacology at the College of Physicians and Surgeons of Columbia University wish to recruit a **SCIENTIST** who is an established investigator to develop a research program in areas of mutual interest. First preference will be given to those working in the general area of the microcirculation, although other fields such as muscle activity and temperature regulation also will be considered. The appointment would carry a joint appointment in both departments commensurate with training and experience and would involve teaching responsibilities for medical and graduate students. Participation in the design and implementation of clinical research projects in collaboration with physicians is desirable. Write to: **John A. Downey, M.D., Chairman, Department of Rehabilitation Medicine, Columbia—Presbyterian Medical Center, 630 West 168 Street, New York, N.Y. 10032.** *Affirmative Action/Equal Opportunity Employer*

**VISION:** Postdoctoral position. Quantitative neurophysiology of transduction; tectal/microcircuitry; vertical CNS anatomy/behavior. *Affirmative Action/Equal Opportunity Employer.*

**T. G. Ebery  
University of Illinois  
524 Burrill Hall  
Urbana, Illinois 61801**

**ZOOLOGIST** to teach courses in invertebrate and vertebrate biology, including anatomy and embryology. Training and interest in fieldwork and natural resources management desirable. Opening due to a retirement from five-person staff, starting September 1977. Summer research opportunities, including modest bird, mammal, and herpetological museum collection. Contact **Dean J. Preston Cole, Coe College, Cedar Rapids, Iowa 52402.** *An Equal Opportunity/Affirmative Action Institution.*

## ANNOUNCEMENT

The "20th Annual Report on Research Under Sponsorship of The Petroleum Research Fund," containing technical progress reports and information about the ACS-PRF program of grants-in-aid in support of "... advanced scientific education and fundamental research in the 'petroleum field' ..." is available *gratis* upon request to: **The Petroleum Research Fund, American Chemical Society, 1155 16th Street, NW, Washington, D.C. 20036.**

## FELLOWSHIPS

### SUMMER RESEARCH FELLOWSHIPS FOR BLACKS AND OTHER MINORITIES AT THE MARINE BIOLOGICAL LABORATORY

The Josiah Macy, Jr. Foundation has provided funds to defray laboratory fees and housing costs (up to \$4500 per person) for teachers who wish to improve their research and teaching abilities during the summer of 1977, either through independent study or research in collaboration with a staff member or another visiting scientist. Special attention is to be given to needs of faculty members of 4-year black colleges, who will be designated Macy Scholars. Applications must be completed by 1 February 1977. For applications and information, write the **Director's Office, Marine Biological Laboratory, Woods Hole, Mass. 02543,** specifying the *Macy Program*, or telephone **Dr. James D. Ebert, 617-548-3705.** *Marine Biological Laboratory admits investigators of any race, color, and national or ethnic origin.*

### SUMMER RESEARCH FELLOWSHIPS AT THE MARINE BIOLOGICAL LABORATORY

For summer 1977, funds are available to help defray laboratory fees and/or housing costs for a limited number of postdoctoral investigators (up to \$4500 each). Applications are encouraged from investigators with from 1 to 5 years of postdoctoral experience whose research requires marine organisms or the Laboratory's special facilities. Applications must be completed by 1 February 1977. For applications and information, write the **Director's Office, Marine Biological Laboratory, Woods Hole, Mass. 02543.** *Marine Biological Laboratory admits students of any race, color, and national or ethnic origin.*

## FELLOWSHIPS

### TWO POSTDOCTORAL FELLOWSHIPS IN THE EARTH AND PLANETARY SCIENCES

The Lamont-Doherty Geological Observatory of Columbia University invites scientists interested in any field of the earth and planetary sciences to apply for the following fellowships.

Two postdoctoral fellowships, each awarded for a period of 1 year (extendable to 2 years in special instances) beginning in September 1977, with a stipend of \$13,000 per annum. Completed applications are to be returned by 15 February. Application forms may be obtained by writing to the **Director, Lamont-Doherty Geological Observatory, Palisades, New York 10964.**

Award announcements will be made 31 March 1977.

## GRADUATE STUDY

**DOCTORAL PROGRAM IN PROBLEMS OF TECHNOLOGY AND PUBLIC POLICY.** The program in engineering and public policy at Carnegie-Mellon University offers an interdisciplinary research-oriented Ph.D. for persons with an undergraduate degree in engineering or the mathematical or physical sciences. Persons with more advanced training or experience are especially welcome. Some financial support is available. Contact **Engineering and Public Policy, Graduate Program, Carnegie-Mellon University, Pittsburgh, Pa. 15213.**

## TRAINEESHIPS

**PRE- AND POSTDOCTORAL RESEARCH TRAINING IN MOLECULAR AND CELLULAR AGING—**The University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences invites applications for traineeships supported by a training grant from the National Institute of Aging. Research is limited to aging research projects. Information and application forms are available from **Director, Aging Research Training Program, University of Tennessee—Oak Ridge Graduate School of Biomedical Sciences, Biology Division, Oak Ridge National Laboratory, P.O. Box Y, Oak Ridge, Tenn. 37830.** *An Equal Opportunity Employer.*

## PROGRAMS

**RESIDENCY IN DERMATOLOGY:** A 2-year residency program in comparative dermatology will be available beginning 1 July 1977. An internship or equivalent training is required as a prerequisite. For more detailed information on the program, potential applicants should direct inquiries to **Dr. Alexander deLahunta, Director of the Veterinary Medical Teaching Hospital, New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853.** *An Equal Opportunity Employer.*

**RESIDENCY IN NEUROLOGY** available 1 July 1977. Three-year program conducted by Department of Neurology of the University of North Carolina School of Medicine at North Carolina Memorial Hospital. Stipends range from \$11,958 to \$14,584. Write: **James N. Hayward, M.D., Chairman, Department of Neurology, University of North Carolina School of Medicine, Chapel Hill, North Carolina 27514.** *The North Carolina Memorial Hospital is an Equal Opportunity/Affirmative Action Employer.*

### RESEARCH TRAINING IN IMMUNOLOGY AND IMMUNOPATHOLOGY

The Clinical Immunology and Immunopathology Units of the Massachusetts General Hospital announce a postdoctoral (M.D. or Ph.D.) research training program in immunology and immunopathology supported by NIH. The first year of the program consists of rotations through several laboratories employing the entire spectrum of immunologic techniques. During the second year, fellows join a preceptor conducting research in immunology or immunopathology related to disease states. Training is supplemented by attendance at immunology courses, lectures, and seminars. Positions available currently and for July 1977. U.S. citizenship or visa permitting permanent residence in U.S. required. For applications write to either: **Dr. Kurt J. Bloch, Clinical Immunology and Allergy Unit, or Dr. Robert T. McCluskey, Department of Pathology, Massachusetts General Hospital, Boston, Massachusetts 02114.**

## POSTDOCTORAL RESEARCH

The National Research Council is now accepting applications for the Research Associateship Programs for 1977. The programs provide scientists and engineers opportunities for postdoctoral research on problems in the fields of CHEMISTRY — SPACE SCIENCES — PHYSICS — ATMOSPHERIC & EARTH SCIENCES — ENGINEERING — LIFE SCIENCES — MATHEMATICS and ENVIRONMENTAL SCIENCES.

Complete details including information on specific research opportunities and application materials may be obtained by writing:

Associateship Office JH606S  
**NATIONAL RESEARCH COUNCIL**  
2101 Constitution Avenue, N.W.  
Washington, D.C. 20418



## ENVIRONMENTAL ENGINEER

Needed in our Division of Environmental Planning, Chattanooga, Tennessee.

TVA conducts a regional water quality management program which includes the use of reservoir and stream models for predicting future water quality conditions; identifying the effects of waste-water discharges, surface runoff, power plants, and reservoir operations on aquatic systems; and developing optimum management strategies.

The current position involves the formulation and application of water quality models to meet these objectives. The position presents the challenge of using and developing promising theoretical concepts for use in practical problems involving long-range planning, as well as day-to-day decision making for a large and complex water resource system.

Requires Ph.D. in Environmental Engineering or related field of engineering or physical sciences. M.S. in Environmental Engineering plus two years of experience related to the work described is also acceptable. Applicants should have a strong background in water quality modeling and computer techniques. Experience in systems analysis is highly desirable.

Starting salary \$17,650-\$20,575, depending upon qualifications. Within-grade salary increases and promotional opportunities. Benefits include vacation and sick leave; liberal hospitalization, accident, and life insurance plans; and a retirement plan.

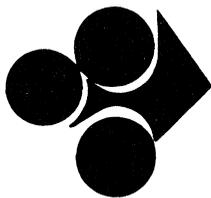
Send resume or call Employment Branch SC-32, Room 232 MIB.

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## Announcing the AAAS



## Mass Media Intern Program

AAAS announces the continuation of its unique, 10-week intern program to support advanced students in the natural and social sciences as reporters, researchers, and production assistants in the mass media.

In 1977, up to 18 students will become summer interns at radio and television stations, newspapers and magazines throughout the United States. These interns will have the opportunity to participate in the process by which events and ideas become news, to increase their understanding of editorial decision-making and information dissemination, and to prepare themselves as interpreters of science to the public, no matter what their final career choices may be.

To obtain a description of the program and application procedures, write to:

Coordinator  
Mass Media Intern Program  
AAAS, 8th Floor  
1776 Massachusetts Ave., N.W.  
Washington, D.C. 20036

**The deadline for receipt of application is  
1 February 1977**

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- ECONOMIC & ECONOMETRIC ANALYSIS
- BUILDING TECHNOLOGY & TOTAL ENERGY SYSTEMS
- CONSERVATION TECHNOLOGY
- PROGRAM/PROJECT PLANNING, EVALUATION & CONTROL

Our ENERGY GROUP has an extensive and rapidly growing business with commercial, Federal and State clients, limited only by our ability to build a talented and creative staff. If you are the best in your field and want a challenging career opportunity limited only by your abilities, send your resume and salary history to:

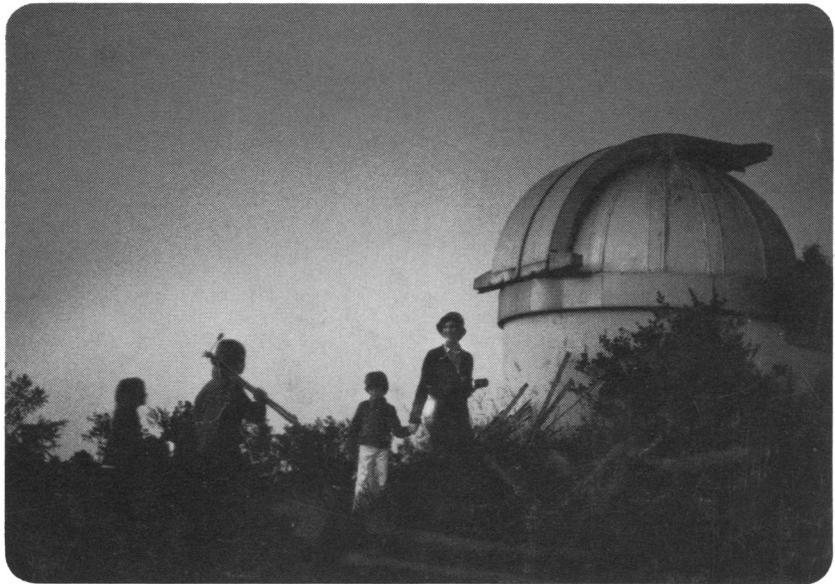
Eric R. Zausner  
Senior Vice President  
Manager of Energy Programs

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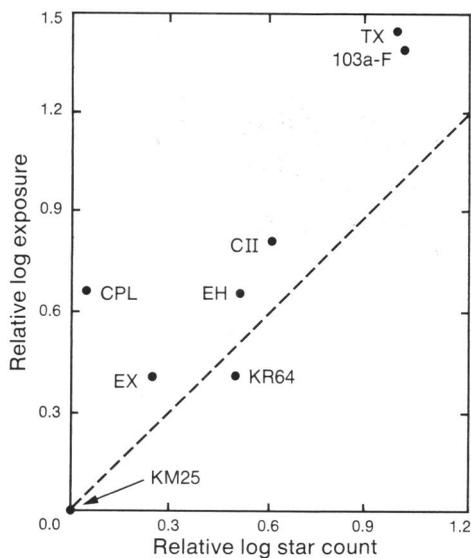


# How many stars are there?



A picture is to be taken. No, several pictures. Guided exposures successively longer from "one chimpanzee, two chimpanzees, three chimpanzees" all the way to 5 minutes. In the next exciting chapter it will be found that the longer the exposure, the more stars.

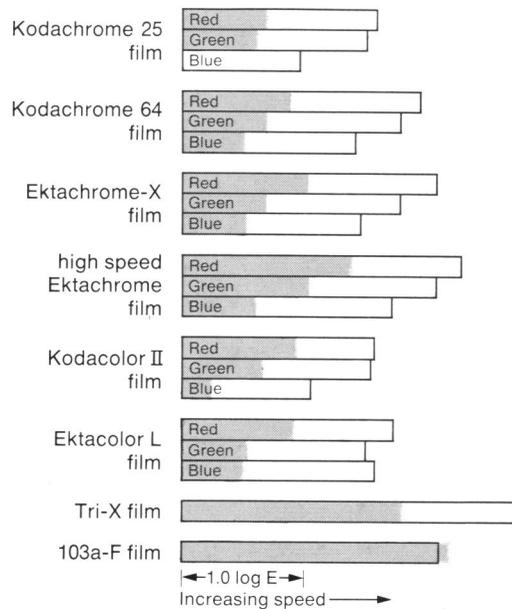
The number of stars depends on the kind of film. Here is what we found when we tried it ourselves:



The origin represents one of the most available of 35 mm films, Kodachrome 25 film; *KR64*, Kodachrome 64 film; *EX*, Kodak Ektachrome-X film; *EH*, Kodak high speed Ektachrome film daylight (5033); *CII*, Kodacolor II film (5035); *CPL*, Kodak Ektacolor professional film 6102, type L; *TX*, Kodak Tri-X pan film (5063); *103a-F*, Kodak spectroscopic film, type 103a-F, acetate rem jet. For the first four of these, reversal color films, the ordinate represents threshold film speed for 5-minute exposures, specifically the logarithm of the ratio of the exposure required to create a reversed density of 3.0 on Kodachrome 25 film to that required for the same density on the plotted film; for the remaining four, negative films, the divisor is the exposure to create a density of 0.1 above minimum density. Only the blue response of the color films was used, and star counts were made from enlarged negative prints bearing a background sky density of 0.6. The color films were processed as recommended by Kodak; the two black-and-white films were developed 5 minutes in Kodak developer D-19. All points would fall on the 45° line if star count depended only on film sensitivity.

For astrophotography not requiring accommodation to the patience of youngsters and for other technical photography calling for long exposure to weak intensity—bioluminescence, for example—exposures longer than 5 minutes are often

needed. Then one becomes more aware of low-intensity reciprocity failure, an effect that requires disproportionately large increases in exposure time. Emulsions vary in this respect, as shown here:



Bar length represents logarithm of speed increase for a 1-second exposure, as compared with the blue-light speed of Kodachrome 25 film for a 1000-second exposure. The unshaded portion of each bar represents speed gain when the energy is delivered over one second of time, as compared with 1000 seconds. Speed measurements of the color reversal films are on the basis of exposure required to yield an absolute density of 2.0 in the processed film; for the negative films, exposure to give a density of 0.6 above  $D_{min}$ . Overlapping of shaded area in bottom bar indicates film requires somewhat less total energy when delivered over 1000 seconds than for one second. Typical values but not specifications.

Kodak spectroscopic film, type 103a-F, may not be as widely stocked as the others, but let those who really need it note that at 1000 seconds it is even "faster" than at one second! For guidance in obtaining it and for information on Kodak spectroscopic plates, type IIIa, which permit further improvement in low-intensity speed by baking in nitrogen or hydrogen atmosphere (they are now extending the vision of the big optical telescopes to make them in effect very much bigger than when they were built), get in touch with E. J. Hahn, Scientific and Technical Photography, Kodak, Rochester, New York 14650.

