

team. Chapters in this section deal with topics such as nutritional problems associated with chemotherapy and radiation therapy, the day-to-day nutritional management of cancer patients, and special techniques such as enteral and parenteral feeding. One chapter is devoted to special problems in the nutritional management of children with cancer.

This book can be recommended to specialists as well as to a wider audience as a useful source of much of the evidence that exists on the subject of nutrition and cancer.

K. K. CARROLL

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A Plant Family

The Orchids. Natural History and Classification. ROBERT L. DRESSLER. Harvard University Press, Cambridge, Mass., 1981. xii, 332 pp., illus., + plates. \$27.50.

The orchids, with their often dazzling and seemingly extravagant flowers, elicit greater human response and probably have attracted a larger group of devotees than any other group in the plant kingdom. With some 20,000 known species (and perhaps 5000 yet to be described) in approximately 725 genera, the Orchidaceae are conceded by most to be the largest family of flowering plants. Herbaceous in form, with flowering plants ranging in size from about 1 centimeter long (*Platystele*) to lianas of many meters (*Vanilla*, whence the true vanilla flavoring is derived), orchids are found in most regions of the habitable globe, either occupying terrestrial habitats, as is the case in temperate zones, or, as is most typical of tropical regions, being constituents of the rich epiphytic flora. It is in these tropical arboreal settings, especially in the Americas and southeast Asia, that orchids have attained their greatest density and diversity.

The same elevated habitats that have been so rewarding to orchid evolution have served in their relative inaccessibility to restrict our view of the orchids. Despite the extensive literature dealing with them, much of it written in a popular vein and often lavishly illustrated, the orchids remain enigmatic. Little is known of their population structure and dynamics, and even though much of their diversity in floral morphology may be related to their rich pollinator fauna—a fact that did not escape the attention of Darwin—many interpretations are based

on conjecture rather than observation. Despite excellent research carried on by some orchidologists, including the author of this book, much of the work tends to be compilatory or floristic, lacking the depth that may be attained monographically or the insights that may be gained from modern systematic approaches. The Orchidaceae remain fertile ground for innovative study.

For those who wish to enter the world of orchids, whether botanically or horticulturally, this beautifully illustrated and well-produced book will be an indispensable reference. Writing in a style that will appeal to amateur enthusiasts and professionals, the author justifiably digresses here and there to provide brief discussions of subjects such as classification, the organization of the plant kingdom, and speciation. Yet these sections do not seem to detract from the fact that this is a solid botanical contribution.

The book divides itself naturally into two parts. The first part consists of seven expository chapters that provide a definition of the orchids, consider their geographical dispersion in terms of the present and of geologic history, and describe their morphology, especially floral structures, in both phenetic and phyletic contexts. In the chapter on ecology, sections are devoted to mycorrhiza, epiphytism, ant relationships, phenology, and pollinators, among other subjects. Speciation and evolution of higher categories are the principal elements of the chapter on evolution; that dealing with classification provides a rationale for the taxonomic treatment of subfamilies, tribes, and subtribes that constitutes the second part of the treatise. For each of these taxa, as is appropriate, information is given on morphology, distribution, pollination, chromosome numbers, number of species, names of genera, and occurrence of intergeneric hybrids. The treatment of each concludes with a general discussion, thoughts on relationships and phyletic trends, and pertinent references.

The book is not without fault. For example, the discussion of the evolution of habit precedes the definition of pseudobulbs and other terms that give the background necessary to appreciate the evolutionary interpretations, and the introduction of the terms *r* and *K* selection without definition will leave some readers perplexed. But these are minor points. The book is informative and a delight to read.

DAVID M. BATES

L. H. Bailey Hortorium,
Cornell University,
Ithaca, New York 14853

Books Received

Controlling Technology. Genetic Engineering and the Law. Yvonne M. Cripps. Praeger, New York, 1980. xiv, 156 pp. \$21.95.

Coping with Crisis and Handicap. Proceedings of a symposium, Boston, Sept. 1979. Aubrey Milunsky, Ed. Plenum, New York, 1981. xvi, 358 pp., illus. \$19.50.

The Cornea in Measles. N. W. H. M. Dekkers. Junk, The Hague, 1981 (U.S. distributor, Kluwer Boston, Hingham, Mass.). vi, 122 pp., illus. \$29.

Cosmology. Michael Rowan-Robinson. Clarendon (Oxford University Press), New York, ed. 2, 1981. xiv, 154 pp., illus. Cloth, \$34.50; paper, \$17.95. Oxford Physics Series, 15.

The Endometrium. Hormonal Impacts. Proceedings of a symposium, Paris, Apr. 1980. Jean de Brux, Rodrigue Mortel, and Jean Pierre Gautray, Eds. Plenum, New York, 1981. viii, 168 pp., illus. \$29.50.

Energy and the Oceans. André Brin. Translated from the French edition (Paris, 1979). Westbury House, Guildford, Surrey, England, 1981 (U.S. distributor, Butterworths, Boston). x, 134 pp., illus. \$29.95.

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Oxides and Oxide Films. Vol. 6. Ashok K. Vijh, Ed. Dekker, New York, 1981. xii, 346 pp., illus. \$55. The Anodic Behavior of Metals and Semiconductors.

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Sprache und Spracherlernung. Unter mathematisch-biologischer Perspektive. Volker Beech. Walter de Gruyter, New York, 1981. viii, 192 pp., illus. \$46.

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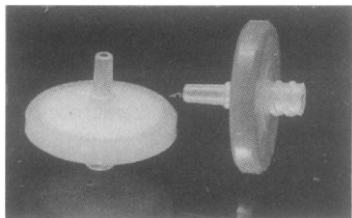
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Xth International Seaweed Symposium. Göteborg, Sweden, Aug. 1980. Tore Levring, Ed. Walter de Gruyter, New York, 1981. xiv, 782 pp., illus. \$97.50.

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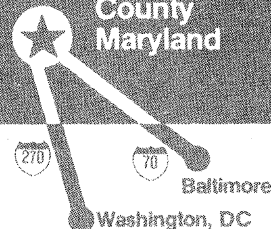
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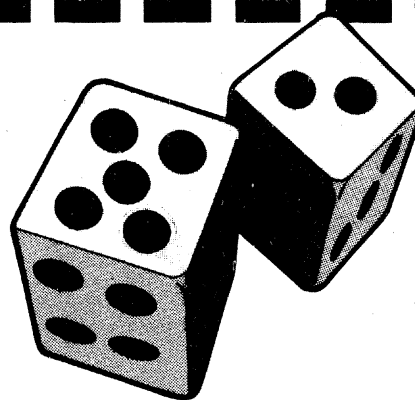
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1-7

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Environmental Test Chamber

The TJR-16 is a compact unit that maintains high and low temperatures from -112°F to 392°F (-80°C to 200°C) with a control tolerance to within 0.25°F throughout the range. A digital display indicates temperature in the chamber. Range setting is easily accomplished with a knob and display. Options include a control microprocessor, recorders, two-point temperature cycling, gas booster systems, and automatic protection against out-of-tolerance conditions. Tenney Engineering. Circle 841.

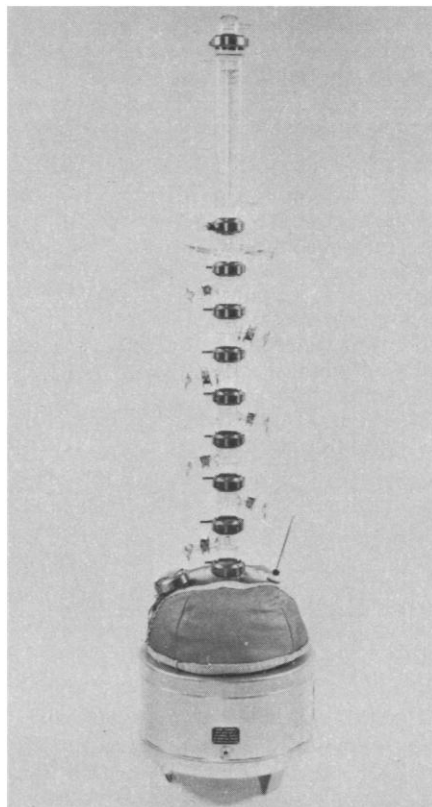
Ultramicro Balance

The UM3 has a broad 1- to 15-milligram electrical range, a capacity of 3005 milligrams, and readability to within 0.1 microgram. It features a single weighing pan, an easily read digital display and a built-in weight set that is protected against dirt and wear. Capabilities for

quick elimination of pan oscillations and automatic calibration are available. An output device is available for transferring weight data to a printer or to other data processing devices. Mettler Instrument. Circle 842.

Distillation Apparatus

The Bubble Cap is an educational scale instrument for demonstrating the production of fuel-grade products from fermentation mixtures. The still may also be used for conventional distillation applications such as solvent recovery or water purification. Visibility, resistance to corrosion, and cleaning are facilitated by the glass and Teflon construction. Liquid may be sampled from each of several bubble cap sections and an optimum configuration may be constructed



for each application. System comprises eight bubble cap sections, eight sampling units, a liquid divider, a coaxial condenser, a boiling flask, product receiver, heating mantle, framework, and clamps. Systems are available in several diameters. Kontes. Circle 837.

Scanning Electron Microscope

The S-520 provides microprocessor control of all units in the display system. Resolution is to 60 angstroms at magnifications from 20 to 200,000 times; accelerating voltage may be selected in 1-kilovolt steps from 1 to 30 kilovolts. Focus is automatic and is activated by push buttons in 2 seconds at magnifications up to 50,000 times and at working distances from 5 to 35 millimeters. Automated magnification system includes brightness and contrast control, an automatic (1000 power) quick-look mode, a micron marker, and one-button camera operation. A 4-inch specimen chamber is standard. Hitachi, Scientific Instruments Div. Circle 839.

Gel Permeation Data Processor

Model 490 GPC includes hardware and software. Data from up to 1000 area slices may be acquired, plotted in real time, stored and reconstructed with selectable baselines. Calibration data, operating parameters, and molecular weight distributions may also be stored and manipulated. Individual experiments may be compared graphically. Calibrating options include narrow or broad molecular weight standards, four fit modes (point-to-point, linear, quadratic, and cubic), and universal and internal standards. Plotting options include molecular weight versus area percent and cumulative area percent, weight-average molecular weight, number-average molecular weight, polydispersivity, and others. Nelson Analytical. Circle 838.

Literature

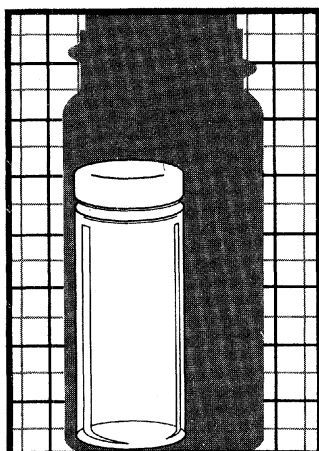
Anaerobic Identification describes the series 550 gas chromatograph designed to identify volatile and nonvolatile metabolic products of anaerobes. Gow-Mac. Circle 835.

High Pressure Liquid Chromatography provides chemical descriptions and performance criteria of 150 prepacked analytical and preparative columns and chromatography media. Whatman Chemical Separation. Circle 836.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 1298A and 1382E) and placing it in a mailbox. Postage is free.

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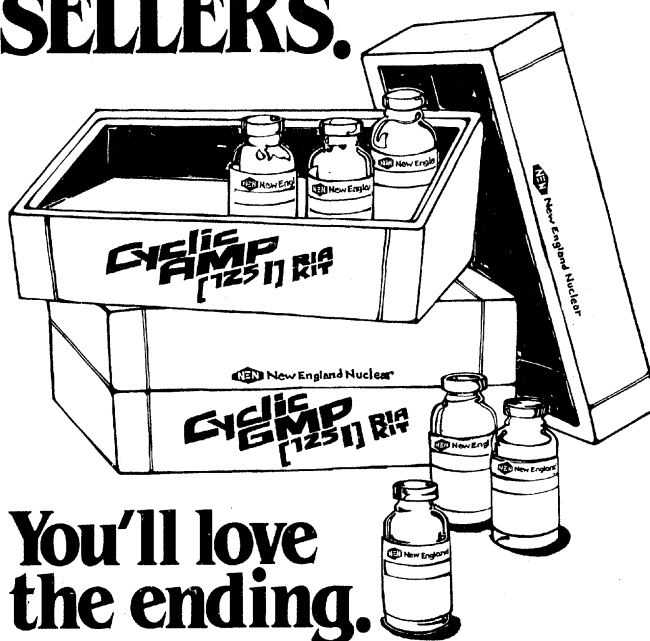
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Hematologist. Harvard-trained M.D. Desires clinical/research laboratory directorship or academic post near Washington, D.C. Box 317, SCIENCE. X

Physician. M.D./M.P.H. Experience in academia and government (NIOSH). Seeking position in preventive medicine, occupational health, or epidemiology. Box 305, SCIENCE. 12/18; 1/1

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Neuroscientist. Ph.D. 1978. Three years of postdoctoral experience including teaching. Publications. Research interests include neuroanatomy, neuroendocrinology, reproductive behavior. Seeking medical/industrial/academic research position. Box 312, SCIENCE. 12/18; 1/1

Teacher, Biology/Botany. Ph.D. 1980. Ten years of college teaching experience; excellent reviews. Though capable of quality research, desires position with primary responsibility to student education. Wide breadth in field biology (especially marine), natural history, systematics, biogeography, ecology, evolution. Box 315, SCIENCE. X

Tissue Culturist/Virologist. Ph.D. Research background in insect/mammalian cell cultures, physiological techniques, arbovirus/baculovirus replication, diagnosis of viral diseases; teaching at university. Seeking research position in industry or academic/research institution. Box 314, SCIENCE. 12/18; 1/1, 15

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Two **ASSISTANT PROFESSOR**-level appointments for tenure-track positions to begin in September 1982 are expected. One position is in the area of human anatomy and physiology; the other is in parasitology and invertebrate zoology. Teaching responsibilities will be at both the undergraduate and graduate level. Applicants should expect to develop a research program and seek external funding. Send complete résumé and three letters of recommendation to: David A. Harnett, Dean, Colleges of Liberal Arts and Sciences, University of San Francisco, 2130 Fulton Street, San Francisco, Calif. 94117. These positions are subject to budget approval. *University of San Francisco is an Equal Opportunity Employer.*

ASSISTANT PROFESSOR—Tenure-track position at the assistant professor level for September 1982. Ph.D. in organic/biochemistry required. Participate in teaching and conduct research. Send résumés and three letters of reference to: Dr. Richard T. O'Neill, Chemistry Department, Xavier University, Cincinnati, Ohio 45207. *An Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR. Vertebrate physiology with expertise in endocrinology; September 1982; tenure-track. Major responsibilities: teach undergraduate and graduate courses in specialty; participate in teaching of upper-level animal physiology; direct M.S. and undergraduate research; and develop an active research program with potential for external funding.

Qualifications: Ph.D. with postdoctoral research experience; commitment to quality teaching and research. Send curriculum vitae, undergraduate and graduate transcripts, a statement of research and teaching interests, and names and addresses of three references by 15 January 1982 to:

Dr. Joseph A. J. Orkiszewski
Chairman, Department of Biology
Villanova University
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Send curriculum vitae, a statement of research interests, and names of three references to:

Dr. John Papaconstantinou, Director
Division of Cell Biology
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and Genetics
The University of Texas Medical Branch
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Anatomy Search Committee
University of California
Riverside, California 92521

POSITIONS OPEN

The University of Pennsylvania is seeking applications for a tenure-track faculty position at the level of **ASSISTANT PROFESSOR** in the area of environmental and resources engineering. The candidate should have a Ph.D. and professional experience is desirable. Duties will include: teaching undergraduate and graduate courses in environmental systems engineering; participation in team research; and development of independent research activities. Reply with credentials to: **Dr. John D. Keenan, Chairman of Search Committee, Department of Civil and Urban Engineering, Towne Building D/3, University of Pennsylvania, Philadelphia, Pennsylvania 19104.** *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.*

Amherst College seeks an **ASSISTANT PROFESSOR** in the area of molecular, microbial, or developmental **GENETICS** to begin 1 July 1982. Doctorate required; postdoctoral experience desirable. Teaching expectation is three one-semester courses per year, one of which will be a team-taught genetics course with laboratory. The candidate will develop an active research program including the supervision of student research. Three-year renewable contract, with tenure decision during the sixth year. Send curriculum vitae, copies of publications, and three letters of reference to:

**Dr. William M. Hexter, Chairman
Biology Department
Amherst College
Amherst, Mass. 01002**

The deadline is 15 February 1982.

An Equal Opportunity/Affirmative Action Employer

ASSISTANT PROFESSOR, Department of Neurological Sciences, Rush Medical College. The Department of Neurological Sciences has a full-time position for an academically oriented neurologist, Board-qualified in EEG, and preferably with some experience in evoked potentials. Duties will include participation in an extensive epilepsy surgery program with use of long-term, video-tape monitoring, implanted electrodes, special diagnostic procedures, and electrocorticography. An interest in epilepsy and/or sleep disorders is desirable. Research space as well as designated research time is available according to the interests of the candidate. Contact: **Dr. F. Morrell, Director, Neurophysiology Laboratories, Rush Medical College, 1753 West Congress Parkway, Chicago, Ill. 60612.** *Rush Medical College is an Equal Opportunity/Affirmative Action Employer.*

DEPARTMENT OF ZOOLOGY UNIVERSITY OF CALIFORNIA, DAVIS

ASSISTANT PROFESSOR. Applications are invited for a tenure-track position at the assistant professor level for September 1982. A strong, independent research program is expected; fields of particular interest include, but are not limited to, **evolutionary biology, marine or behavioral ecology, and environmental physiology.** Preference will be given to candidates able to teach invertebrate zoology at the upper-division level. The appointee may also teach a one-quarter course in introductory biology and will have the opportunity to develop courses and/or seminars in his/her area of expertise. Persons wishing to apply should send curriculum vitae, reprints of published work, a description of research program and future plans, a summary of teaching experience and capabilities including evaluations if available, and three letters of recommendation to: **Dr. Arthur M. Shapiro, Chairman, Search Committee, Department of Zoology, University of California, Davis, Calif. 95616.** Final date for receipt of applications is 15 February 1982. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

University of California, San Diego, Department of Chemistry, invites applications for a faculty position in **BIOCHEMISTRY** at the assistant professor level (salary range: \$19,700 to \$25,900), beginning July 1982. Preference is for candidates with background in molecular biology, recombinant DNA or nucleic acid chemistry, but related areas will be considered. We are seeking candidates with a demonstrated ability for creative research and teaching at the undergraduate and graduate level. Candidates should send curriculum vitae, a list of publications, reprints of representative papers, a summary of plans for their research program, and the names of three references to: **Chairman, Department of Chemistry, B-032, University of California, San Diego, La Jolla, California 92093.** Deadline for applications is 15 January 1982.

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

18 DECEMBER 1981

POSITIONS OPEN

ASSISTANT RESEARCH PHYSIOLOGIST THE DEPARTMENT OF PHYSIOLOGY-ANATOMY UNIVERSITY OF CALIFORNIA, BERKELEY

Invites applications to fill a research position at the assistant research level. This position is for a cell biologist, who will conduct research on biochemical aspects of retinomotor movements in teleost fishes, with emphasis on the regulatory roles of cyclic nucleotides, calcium, and calmodulin in the retina. Applicants should have a Ph.D. and at least four years of postdoctoral experience, with a publication record in both the fields of cyto-skeleton and calmodulin research. Expertise in techniques of protein biochemistry and retina research are also required. This is a 1-year, 80 percent time position, with renewal and the possibility of expansion to full-time contingent upon funding. Interested individuals should write a letter explaining their qualifications and enclose current curriculum vitae and list of three or more persons who could act as referees to: **Search Committee, Department of Physiology-Anatomy, 4510 Life Sciences Building, University of California, Berkeley, Calif. 94720.** Applications must be received by 1 February 1982. *The university is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT/ASSOCIATE RESEARCH SPECIALIST

The Educational Technology Center, University of California, Irvine, announces an immediate opening for an assistant/associate research specialist. Ph.D. in science, mathematics, or science or mathematics education required. Candidate will take over duties as project manager on three National Science Foundation research and development grants involving the use of computers in science and mathematics instruction. Strong background in research and methodology, curriculum development, evaluation, and instructional computing is required. In addition, candidates should have some teaching experience, and, preferably, some experience working with teachers or students at the junior high level. Salary range: \$18,500 to \$25,000. For more detailed description, please write to: **Alfred Bork, Department of Physics, University of California, Irvine, Calif. 92717.** *An Affirmative Action/Equal Opportunity Employer.*

AUTONOMIC NEUROPHYSIOLOGIST

RESEARCH ASSOCIATE to serve as co-investigator of NASA-funded experiment to be conducted on astronauts in space shuttle. Applicant must have a doctoral degree and be an independent, established scientist with a broad understanding of autonomic cardiovascular physiology, and peculiar interest and skill in electrophysiology and/or central autonomic neuroanatomy. Send curriculum vitae and salary requirements to: **Dr. Dwain L. Eckberg, Cardiovascular Physiology, VA Medical Center, Richmond, Virginia 23249.**

BIOCHEMIST. Assistant professor position, tenure-track, starting fall 1982 in ACS-accredited department. Ph.D. in chemistry or biochemistry required; postdoctoral work or prior college teaching experience desired. Must have a strong interest in undergraduate teaching in a 4-year liberal arts university and a strong background in biochemistry and physical chemistry. Primary teaching duties will be in biochemistry; teaching duties may also include physical chemistry for the biological sciences, general chemistry and chemistry for nonscience majors. Other duties include developing an active undergraduate research program; ample research opportunities are available in this well-equipped department. Send application, résumé, unofficial copies of undergraduate and graduate transcripts, a two-page description of research plans, and the names and addresses of three references by 22 January 1982 to: **Dr. Alan S. Wingrove, Chairperson, Department of Chemistry, Towson State University, Towson, Maryland 21204.** *An Equal Opportunity/Affirmative Action Employer.*

The Department of Psychology at the University of Texas at Austin has a position for a **BIOPSYCHOLOGIST** in the area of brain mechanisms and behavior. The individual would be responsible for teaching graduate and undergraduate classes in physiological psychology as well as departmental service courses. The position is open at the assistant professor level, but others will be considered. Please send curriculum vitae, three letters of recommendation, and publications to: **Biopsychology Recruiting Committee (Attention: Del Thiessen), Department of Psychology, University of Texas, Austin, Texas 78712.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

BIOLOGY FACULTY

Small 4-year liberal arts college on Long Island, with heterogeneous, nontraditional student body and strong tradition of social criticism and pedagogical innovation, seeks candidates for the following position:

BIOLOGY: one full-time, tenure-track appointment at the assistant or associate professor rank. Must be qualified to teach general biology and any two of the following areas: microbiology, genetics, evolution, and ecology; Ph.D. required. Demonstrated teaching excellence and research background required. Candidate should demonstrate the ability and willingness to teach students with a broad range of cultural, ethnic, and academic backgrounds. Rank and salary dependent on qualifications and experience. Starting date: 1 September 1982. Deadline for applications: 31 January 1982.

Send résumé to:

**Director of Affirmative Action
STATE UNIVERSITY OF NEW YORK
COLLEGE AT OLD WESTBURY
Search Committee (BS/B)
Old Westbury, N.Y. 11568**

Affirmative Action/Equal Opportunity Employer

BIOMEDICINAL CHEMISTRY—Assistant professor (tenure-track). Applicants should have Ph.D., commitment to teaching and research, and training in one of following: mechanism of drug action and resistance, teratology, neuropeptides, or cardiovascular research. Submit curriculum vitae, three letters of reference, and statement of research interests by 1 March 1982 to: **Dr. Joon Rho, University of Southern California School of Pharmacy, 1985 Zonal Avenue, Los Angeles, Calif. 90033.** *An Equal Opportunity/Affirmative Action Employer.*

BIOMEDICAL ENGINEERING RESEARCH FELLOW position available immediately. Specializing in the cardiovascular system and in cardiac assist devices. Post-Ph.D. candidates should have training in engineering, mathematics, and computers. Fluid mechanics theory desirable. Highly competitive salary. Send curriculum vitae and names and telephone numbers of three references to: **Dr. Dov Jaron, Director, Biomedical Engineering and Science Institute, Drexel University, Philadelphia, Pa. 19104.** *Equal Opportunity/Affirmative Action Employer.*

CELL BIOLOGIST AND BIOCHEMIST

Researchers to investigate: (i) **COATED VESICLE** assembly, ligand, receptor, and coat interactions; in part using monoclonal ab to coat proteins and receptors; and (ii) **IgG transport** in unique tissue culture monolayers emphasizing the route, isolation of vesicular intermediates, recycling, and kinetics.

Dr. Thomas F. Roth, Department of Biological Sciences, University of Maryland (UMBC), Catonsville, Maryland 21228. *An Equal Opportunity/Affirmative Action Employer.*

CELLULAR IMMUNOLOGIST: Tenure-track position at assistant/associate professor level. Ph.D., D.V.M., or M.D. and postdoctoral training. Candidates must have demonstrated ability to initiate and sustain a creative research program and skill in teaching at the professional and graduate levels. Research interests in regulation of cellular interactions, antigen-specific cloned lymphocytes, or molecular mechanisms of immune regulation preferred. Available 1 July 1982. Curriculum vitae, three letters of reference, and summary of research plans to:

**Dr. Alan M. Kaplan
Chairman, Department of Medical
Microbiology and Immunology
University of Kentucky
College of Medicine
MN-524 Medical Center
Lexington, Kentucky 40536-0084**
Equal Opportunity Employer

CHAIRPERSON DEPARTMENT OF NEUROLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

Applications are invited from highly qualified individuals for the position of chairperson, Department of Neurology, University of Pennsylvania School of Medicine.

Reply to: Neurology Search Committee, Dean's Office, School of Medicine, University of Pennsylvania, Philadelphia, Pa. 19104.

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

CELLULAR OR MOLECULAR BOTANIST AND PHYCOLOGIST

The Department of Botany, Iowa State University, announces two 9-month, tenure-track positions (minimum salary: \$17,500) available 21 August 1982 for individuals with a Ph.D. or equivalent. **CELLULAR OR MOLECULAR BOTANIST** (assistant or associate professor level): special preference will be given to individuals with research experience in recombinant DNA, protoplast culture, nuclear and cytoplasmic interactions as they relate to development and regulation of DNA or protein synthesis. The applicant should be prepared to teach a one-semester course on the plant cell, a course in the individual's area of specialization, and possibly a course in general botany or general biology. **PHYCOLOGIST** (assistant professor level): preference will be given to individuals with teaching experience, field research experience in freshwater algae, and interests in algal evolution and/or algal ecology. Responsibilities include graduate-level courses (field biology or freshwater algae, and specialty) and contributions to other undergraduate and graduate courses. Summer teaching at Iowa Lakeside Laboratory is a possibility. Development of a strong research program is expected. Application deadline for both positions is 15 January 1982. Late applications may be considered: Send curriculum vitae, graduate academic transcript, a statement of research interests, and three letters of recommendation to: **Ronald C. Coolbaugh, Chairman, Department of Botany, Iowa State University, Ames, Iowa 50011. Iowa State University is an Equal Opportunity/Affirmative Action Employer.**

CELLULAR PHYSIOLOGIST urgently needed. Teaching and research experience emphasized. For participation in current work on cell culture of transformed cells. Please apply to: **Chairman, Physiology Department, Ponce School of Medicine, P.O. Box 7004, Ponce, P.R. 00732.**

CHAIRMAN DEPARTMENT OF INTERNATIONAL HEALTH THE JOHNS HOPKINS UNIVERSITY SCHOOL OF HYGIENE AND PUBLIC HEALTH BALTIMORE, MARYLAND 21205

Nominations and applications are invited for chairman of the Department of International Health, The Johns Hopkins University School of Hygiene and Public Health. Applicants for the position should be eminent scholars with educational and research experience in the field of international health. The position will be open as of 1 July 1982.

Nominations, applications, and inquiries should be directed before 31 January 1982 to:

**Professor Sam Shapiro
School of Hygiene and Public Health
The Johns Hopkins University
Baltimore, Maryland 21205**

The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer.

CHIEF SCIENTIST NEW YORK STATE BIOLOGICAL SURVEY

The New York State Education Department invites nominations and applications for the position of chief scientist to direct the Biological Survey of the New York State Museum. This position requires a highly qualified and recognized scientist who will show strength of leadership in a complex administrative environment. Minimum qualifications include a Ph.D. in a field of natural science and 3 years of research experience.

The successful candidate will direct a diverse group of research ecologists and systematists with programs in botany, entomology, zoology, and limnology, will oversee the management of the biological collections, and will coordinate the participation of the Biological Survey in the extensive exhibit and education programs of the State Museum. The Museum is committed to quality research, and continuation of an individual research program will be encouraged. The starting salary is \$32,598, with excellent benefits. Applications, including detailed résumés, reprints, and names of at least three references (do not have letters sent), should be submitted by 1 February 1982 to: **New York State Education Department, Division of Personnel, EBA, Box CS Number 1, Washington Avenue, Albany, N.Y. 12234.**

New York State is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

CHAIRMANSHIP DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY THE UNIVERSITY OF MISSISSIPPI MEDICAL CENTER

Candidates for the chairmanship of the Department of Pharmacology and Toxicology are being sought. Qualifications include an established reputation in research and teaching and the ability to direct a department with an active graduate program and teaching responsibilities for medical, dental, and nursing students. Applicants should submit curriculum vitae, list of publications, description of research plans, and names of three references by 1 March 1982 to: **Dr. Dennis J. O'Callaghan, Chairman, Search Committee, Department of Microbiology, University of Mississippi Medical Center, 2500 North State Street, Jackson, Miss. 39216. University of Mississippi Medical Center is an Equal Opportunity/Affirmative Action Employer, M/F/V/H.**

CHIEF, GASTROENTEROLOGY. Brooklyn VA is seeking a senior (associate or professor) candidate for chief of gastroenterology. The institution is fully integrated with State University of New York—Downstate Medical Center for undergraduate education and graduate training programs. There is an active clinical training program in gastroenterology and there is opportunity and support for clinical and basic research. There is a broad range of clinical training and research programs in all other medical subspecialties. Send curriculum vitae to: **Dr. Sheldon Rothenberg, Chairman, Search Committee, VA Medical Center, 800 Poly Place, Brooklyn, N.Y. 11209. An Equal Opportunity Employer.**

CURATOR, VERTEBRATE PALEONTOLOGY. Stovall Museum of Science and History. Specialists in Upper Paleozoic reptiles or late Cenozoic mammals preferred. Ph.D. geological and zoological training required. Position is tenure-track, with academic appointment in School of Geology and Geophysics. Responsibilities include research, collections management, public interpretation, and teaching. Closing date: 1 March 1982. Curriculum vitae, transcripts, reprints, and three letters of recommendation to: **P. K. Sutherland, School of Geology and Geophysics, University of Oklahoma, Norman, Oklahoma 73019. An Equal Opportunity/Affirmative Action Employer.**

CYTOGENETICIST

Corporation in Southwest invites applications for a Ph.D. cytogeneticist to direct a new cytogenetic service laboratory which accepts referrals on a nationwide basis.

Must have minimum of 4 years of laboratory experience in human cytogenetics beyond the doctorate.

This is an opportunity to get in on the ground floor of a rapidly developing company, and to live in a delightful community with an ideal climate.

Please send curriculum vitae, list of publications, and names (with telephone numbers) of three references to:

**VIVIGEN, INC.
550 St. Michael's Drive
Santa Fe, New Mexico 87501**

Cytogeneticist. Faculty position for experienced cytogeneticist to assist in direction of an active clinical cytogenetics laboratory. Knowledge of contemporary techniques and capability for independent research required. Appointment and salary dependent on qualifications. Deadline: 1 April 1982. *An Affirmative Action/Equal Opportunity Employer.* Contact: **W. H. Sternberg, M.D., Hayward Genetics Center, Pathology Department, Tulane Medical School, 1430 Tulane Avenue, New Orleans, La. 70112.**

DEVELOPMENT BIOLOGIST. The Department of Biology at the University of San Diego anticipates an opening in September 1982. Applicants should have a Ph.D. in the biological sciences; be competent to teach embryology, histology, and introductory biology courses; and be interested in establishing a research program. This opening is anticipated to be a multi-year, nontenure-track position. Please submit, by 15 February 1982, curriculum vitae, transcripts, statement of teaching philosophy, and description of current research interests, and have three letters of reference sent to: **Dr. D. K. Severson, Chairman, Department of Biology, University of San Diego, Alcalá Park, San Diego, California 92110. The University of San Diego is a small, private, Catholic, liberal arts university and is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

DEAN OF THE COLLEGE OF ENGINEERING AND APPLIED SCIENCES: State University of New York (SUNY) Stony Brook invites nominations and applications for the position of dean of the College of Engineering and Applied Sciences. The dean is chief academic and administrative officer for the college and reports to the provost. We seek an able administrator and educator who will lead the college in sustaining existing programs and in developing new ones. Candidates should normally have established a record of excellence in research, teaching, and administration, have an earned doctorate in engineering or science, and be qualified for permanent appointment to the faculty. Please send applications or nominations by 1 February 1982 to: **Professor Thomas F. Irvine, Jr., Chair, Search Committee for Dean of the College of Engineering and Applied Sciences, P.O. Box 599, Stony Brook, N.Y. 11790. SUNY Stony Brook is an Equal Opportunity/Affirmative Action Employer. AK Number 2200.**

ENGINEERING PHYSICIST

A research facility is seeking a full-time Ph.D. engineering physicist to design and develop electronic systems for the instrumentation of large high energy physics experiments. Duties include coordination with experimental groups for field operation and test systems developed by the particle instrumentation group, and researching and developing new concepts and detector instrumentation. May on occasion be required to lead the efforts of support people. Completion of postdoctoral training in experimental high energy physics is required. The annual salary offered would be \$31,200. Contact: **Jim Lasenby, Fermi National Accelerator Laboratory, P.O. Box 500, Batavia, Ill. 60510. Equal Opportunity Employer, M/F.**

EXECUTIVE DIRECTOR HUNTSMAN MARINE LABORATORY ST. ANDREWS, NEW BRUNSWICK

Applications are invited for the above position.

Founded in 1970, the HML is operated by a consortium of universities, government departments, and private sector agencies as a base for research and teaching in the marine sciences. The HML also undertakes contract research in several areas of marine biology.

Salary and starting date negotiable, but hopefully the post will be occupied by 1 July 1982. Canadian immigration regulations require that only Canadians or landed immigrants need apply for this position.

Applicants should submit curriculum vitae and two letters of reference to: **Dr. W. C. Leggett, President, Huntsman Marine Laboratory, St. Andrews, New Brunswick, Canada EOG 2X0. Deadline for receipt of documents: 1 January 1982.**

FACULTY POSITIONS

The Virginia-Maryland College of Veterinary Medicine invites applications for faculty positions in the following areas:

**Cardiovascular or cardiopulmonary physiology
Clinical pharmacology
Gastrointestinal physiology
Internal medicine (cardiovascular or cardiopulmonary)
Neuroscience
Therigenology**

Applicants for clinical positions should hold the D.V.M. degree. Board-certification, Board-eligibility, and/or advanced training and degrees are desirable. Successful candidates will be expected to participate in teaching and/or clinical programs, and should have a strong commitment to developing productive research programs in their areas of expertise. Salary and rank will be commensurate with qualifications and experience.

Letters of application should include curriculum vitae, statements of research, clinical, and teaching goals, and the names and addresses of three persons who will provide letters of reference.

Closing date for applications is 1 January 1982 or until positions are filled.

Correspondence should be addressed to:

**Dr. Peter T. McGovern
Chairman, Division of Veterinary Biology
Virginia-Maryland College of Veterinary Medicine
Virginia Tech
Blacksburg, Va. 24061-5999
Telephone: 703-961-7666**

An Equal Opportunity/Affirmative Action Employer

UNDERGRADUATE GRANTS for participation in the SUMMER INSTITUTE ON PLANETS AND CLIMATE COLUMBIA UNIVERSITY in cooperation with the NASA GODDARD INSTITUTE FOR SPACE STUDIES

Will select 12 students for a 4-week lecture course and 6-week research session, devoted to the study of planetary atmospheres and climate change for a total of 6 points of academic credit. Full financial support, including tuition and fees, accommodations, a stipend, and round-trip travel expenses to New York City, will be awarded to each participant. Applicants must have a background equivalent to 3 years of college training in mathematics and science.

The deadline for applications is 1 April 1982. Further details and application information may be obtained from: **Dr. James Hansen, Goddard Institute for Space Studies, 2880 Broadway, New York, N.Y. 10025, telephone: 212-678-5626.**

HOFFMANN-LA ROCHE Biochemists

Recombinant DNA Research

Hoffmann-La Roche, one of the world's foremost manufacturers of pharmaceuticals, vitamins, and fine chemicals, seeks professionals to perform laboratory techniques associated with recombinant DNA research and interferon. These include isolation of nucleic acids, cloning, hybridization, restriction enzyme analysis, DNA sequencing, and bacterial isolation and screening.

Qualifications: BS or MS or equivalent in Biochemistry, Chemistry, or Microbiology, plus relevant experience.

Roche offers outstanding fringe benefits and an environment that encourages professional growth. Please send resume to Mr. Richard L. Dow, Associate Employment Manager.



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POSTDOCTORAL RESEARCH AWARDS

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BALLISTIC RESEARCH LABORATORY
in association with
THE NATIONAL RESEARCH COUNCIL

The National Research Council will make awards in 1982 under the Resident Associateship Program, which provides awardees with opportunities to conduct experimental and theoretical research as visiting scientists and engineers in the fields of:

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

In the Ballistic Research Laboratory complex located in the beautiful Chesapeake Bay country of Maryland, within easy driving distance of the metropolitan centers of Baltimore, Philadelphia, and Washington, D.C.

Programs are open to senior investigators as well as recent doctorates.

Further details on research programs may 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 areas of interest, to:

**Associateship Office (610-E1)
NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, NW
Washington, D.C. 20418**

Postmark deadline for application is 15 January.

STATE UNIVERSITY OF NEW YORK COLLEGE AT PURCHASE

Purchase is a growing undergraduate liberal arts college with strong science programs, interdisciplinary studies, and informal atmosphere with emphasis on the integration of teaching and research. The campus is located 35 miles NE of New York City in central Westchester County, an area with a high concentration of corporate and professional scientific organizations. Four or more tenure track openings in science and applied mathematics are anticipated for September 1982. Applicants must be able to develop research programs involving undergraduates and to demonstrate teaching excellence. Ph.D. required, postdoctoral experience preferred.

Cell Biologist, assistant or associate professor rank. Responsibilities include teaching cell, molecular, and developmental biology and EM Techniques and supervision of TEM/SEM facilities. Experience with tissue and cell culture desirable. Research in developmental biology preferred.

Animal Physiologist, assistant or associate professor rank. Teaching responsibilities include majors' physiology and non-majors' physiology and anatomy, plus more specialized courses such as endocrinology or neurobiology. Systems orientation preferred.

Environmental Scientist, rank open. Specialization in: a) environmental chemistry with research interests in (toxic) heavy metals or organic pollutants; OR b) hydrology and soils science with experience in land use planning. Ability to teach impact assessment and utilize computers in an undergraduate program preferred.

Applied Mathematics, rank open (one or more positions). Strong background in applied mathematics, plus competence in computer science, applied statistics or modelling in biology or environmental sciences. Research focus should be on problems in the natural sciences.

All faculty participate in general courses, undergraduate research supervision and academic advising.

Send resume, names of three references and summary of teaching interests and research plans to appropriate search committees, c/o Assistant to the President, **SUNY College at Purchase, Purchase, NY 10577**. An Equal Opportunity Employer. Deadline for application—January 31, 1982.

Director of West Indies Laboratory

Fairleigh Dickinson University, an independent, non-sectarian, multi-campus university, seeks a qualified candidate for the position of Director, West Indies Laboratory.

The Laboratory, which operates as an "overseas" campus of Fairleigh Dickinson University, is on a 7 acre site with laboratory buildings, library, dormitory, dining hall, shop, scuba and dock facilities. It offers courses in marine biology and geology, primarily at an undergraduate level. The Laboratory also hosts visiting groups and independent researchers from a variety of institutions.

The Director is responsible for the development and implementation of the overall academic mission of the Laboratory. The Director, who reports to the Vice President for Academic Affairs, prepares and recommends the Laboratory budget. The Director is also charged with overseeing Laboratory research, developing broad based or regional research programs, and with representing the University and the Laboratory in the island community of St. Croix.

The successful candidate must have a Ph.D. in marine biology, geology or oceanography and be a senior level active scientist with demonstrated experience in teaching, research, administration and the development of new programs and curricula.

Candidates should submit
Curriculum Vitae no later
than Jan. 25, 1982,
to: Mr. L. Castiglia
Campus Personnel Manager

**FAIRLEIGH DICKINSON
UNIVERSITY**

Rutherford, New Jersey 07070

An equal opportunity/
affirmative action employer, M/F

EXECUTIVE DIRECTOR

**Oak Ridge Associated Universities
Oak Ridge, Tennessee**

The Board of Directors of Oak Ridge Associated Universities invites applications and nominations for the position of Executive Director. ORAU is a private, not-for-profit association of 52 colleges and universities that was established in 1946 as one of the first university based, science-related, corporate management groups. Activities at ORAU are generally focused on energy, health, and the environment and range from the administration of fellowship and public education programs to policy studies and basic and applied research in biomedicine and physics. The successful candidate should be someone with demonstrated administrative ability, experience in sponsored program management, and the leadership qualities appropriate for the guidance of a large institute with a broad range of technical and educational programs. Nominations, applications and supporting materials will be accepted until January 31, 1982 and should be mailed to:

**Dr. George R. Holcomb
Chairman of the ORAU
Search Committee
300 Bynum Hall (008A)
UNIVERSITY OF
NORTH CAROLINA
Chapel Hill, NC 27514**

An Affirmative Action, Equal Opportunity Employer

POSITIONS OPEN

DIRECTOR, ANIMAL CARE DEPARTMENT Oregon Health Sciences University

The Oregon Health Sciences University is recruiting a Director of Animal Care for 1 July 1982. We are AALAC-accredited and provide animal care services for research and teaching, primarily for the School of Medicine. Persons with a D.M.V. or an equivalent, with at least three years of experience in animal facility management may apply. Certification or eligibility for certification by the American College of Laboratory Animal Medicine is desirable. By 15 March 1982, send résumé and the names of three persons to be used as references to:

Dr. John A. Resko
Department of Physiology
Oregon Health Sciences University
3181 Southwest Sam Jackson Park Road
Portland, Oregon 97201

The Oregon Health Sciences University is an Equal Opportunity Employer.

FACULTY POSITIONS IN PHARMACOLOGY

The Department of Pharmacology of the University of Texas Health Science Center at Dallas seeks applications for tenure-track positions at the level of assistant professor. Applicants must have a relevant Ph.D. or M.D. degree, postdoctoral training, and show evidence of firm commitment to a career in independent research. We are particularly interested in considering individuals with an appropriate background who wish to apply techniques of molecular or cellular biology or biochemistry to fundamental problems of pharmacological interest. Responsibilities will also include teaching of medical and/or graduate students after the first year of employment. The department is expanding its faculty, is well-equipped, and is prepared to offer an excellent environment for research as well as competitive salaries, space, and start-up funds. Send curriculum vitae, a brief description of proposed research, and three letters of reference to: **Dr. Alfred G. Gilman, Chairman, Department of Pharmacology, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITION IN GEOPHYSICS/ STRUCTURAL GEOLOGY/ENGINEERING GEOLOGY

The Department of Geological Sciences at Case Western Reserve University in Cleveland, Ohio, is seeking candidates to fill an anticipated faculty position in the broadly defined areas of geophysics/structural geology/engineering geology. While field of specialization is open, the successful candidate will be charged with conducting the department's teaching programs in geophysics at the graduate and undergraduate levels, in addition to carrying out a vigorous research program. Ample opportunities exist for research collaboration both within the Department of Geological Sciences and with faculty members in the School of Engineering.

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

Samuel M. Savin
Department of Geological Sciences
Case Western Reserve University
Cleveland, Ohio 44106

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

Virginia Mason Research Center, an Equal Opportunity Employer, is seeking an M.D. or Ph.D. to HEAD a major new Immunology Research Laboratory. Appointment will be at the level of member (professor) or associate member (associate professor), depending upon qualifications. Candidates should have major research interests in one or more of the following areas: HLA and disease; immunobiology of rheumatic and autoimmune diseases; lymphocyte differentiation, function, and immunoregulation; and/or immunology as it relates to cancer. This laboratory head is expected to develop and pursue independent research ideas in the area of immunology as it relates to human disease and must be able to interact with clinicians. A successful major fund raising campaign is underway to provide a stable base of support from which to launch grant applications.

All qualified candidates welcome; minorities and women encouraged to apply.

Please send résumé to: **John C. Houck, Ph.D., Director, Virginia Mason Research Center, 1000 Seneca Street, Seattle, Washington 98101.**

POSITIONS OPEN

The University of Texas at Dallas FACULTY POSITION IN ENVIRONMENTAL SCIENCES

BOTANIST—The Graduate Program in Environmental Sciences, The University of Texas at Dallas, seeks a botanist at the rank of assistant professor to fill a tenure-track position commencing August 1982. Candidates must possess the Ph.D. in botany with experience in vascular plant taxonomy and field ecology. Teaching responsibilities will include graduate courses in terrestrial and aquatic botany. Preference will be given to applicants demonstrating a primary research interest in the effects of pollution on plant communities. An acquaintance with the flora of Texas is desirable. Send statement of current teaching and research interests, current curriculum vitae (indication of ethnicity and sex for Affirmative Action statistical purposes is requested but not required), and at least three letters of reference by 1 February 1982 to:

Academic Search Number 240
The University of Texas at Dallas
P.O. Box 688
Richardson, Texas 75080

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

The Department of Radiology at the University of Michigan Medical School on occasion has open **FACULTY POSITIONS**. Physicians filling these positions will take part in the programs of patient care, teaching, and research of the Department of Radiology. They will supervise the activities of the house officers and aid in the teaching of house officers and medical students. Qualified applicants must be American Board of Radiology-certified or Board-eligible. Previous training or work experience in an academic institution as well as demonstration of previous academic research and teaching experience are desirable. Academic rank will depend on qualifications and experience.

Interested applicants should contact: **William Martel, M.D., Acting Chairman, Department of Radiology, University of Michigan Medical School, Ann Arbor, Michigan 48109. A nondiscriminatory, Affirmative Action Employer.**

FACULTY POSITION IN TOXICOLOGY

The Department of Community and Environmental Medicine invites applications for the position of **PROFESSOR** in the area of toxicology. Applications are sought from individuals with a Ph.D. degree in toxicology or related field or with an M.D. with several years of experience in conducting basic research and in teaching in the field of toxicology. The position requires demonstrated ability to secure research funds through contracts and grants in toxicology, to publish original research papers in refereed journals, and to teach toxicology at the graduate level. This faculty position is expected to complement the toxicology teaching and research faculty in the Department of Community and Environmental Medicine and the University of California Southern Occupational Health Center and the successful applicant will assist in further faculty recruitment in toxicology. The current Program in Environmental Toxicology at University of California, Irvine, concentrates in the areas of inhalation and pulmonary toxicology, biochemical toxicology, and chemical carcinogenesis. Candidates with experience in these fields and in biochemical mechanisms in neurotoxicology and reproduction toxicology would be especially attractive.

Candidates should send curriculum vitae and names of five referees to:

T. Timothy Crocker, M.D., Chair
Department of Community and
Environmental Medicine
Ronald C. Shank, Ph.D.
Chair, Search Committee
College of Medicine
University of California, Irvine
Irvine, California 92717

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

GENETICS. Assistant professor; Ph.D. required; full-time; tenure-track; fall 1982. Person should have the ability to teach genetics (emphasis), and general biology, comparative anatomy, embryology and/or histology, and have a STRONG commitment to teaching in a liberal arts institution. Submit résumé, transcripts, and three references to: **Dr. Joe Moody, Chairman, Department of Biology, Simpson College, Indianola, Iowa 50125. Closing date: 31 January 1982. An Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

GENETIC ENGINEERING WADLEY INSTITUTES OF MOLECULAR MEDICINE

Positions are available for research assistants, postdoctoral fellows, and senior scientists to participate in research on eukaryotic gene manipulation and regulation. Human, rat and yeast gene systems are under study with emphasis on human interferon and other human blood protein genes and various rat and yeast nuclear genes. Prokaryotic and eukaryotic cloning systems are being utilized.

Wadley Institutes of Molecular Medicine, which has played a prominent role in cancer research, is expanding its efforts in the area of molecular genetics and genetic engineering. The Wadley Center, which is centrally located to other medical and academic institutions in Dallas, contains excellent research facilities and offers a very stimulating environment for scientific growth.

Please send résumé, selected reprints, and at least three references to:

Dr. Arthur P. Bollon, Chairman
Department of Molecular Genetics
Director of Genetic Engineering
Wadley Institutes of Molecular Medicine
9000 Harry Hines Boulevard
Dallas, Texas 75235

DEPARTMENT OF GEOLOGY UNIVERSITY OF DELAWARE

The Department of Geology has an opening for a tenure-track position at the beginning assistant professor level. The position will be available 1 September 1982. The Ph.D. degree is required. Highly qualified candidates in any field of earth science will be considered, but preference will be given to those whose specialty areas are in geophysics or sedimentology-stratigraphy, or both. Interest on the part of the candidate in applying these specialties to coastal geology or to basin analysis, in supplement to interests of other faculty, would be desirable. Duties would include assistance in teaching courses in elementary geology, and perhaps in field geology, in addition to the candidate's specialty area, as well as supervision of graduate and undergraduate students. The department has seven full-time and several part-time or joint faculty, and offers undergraduate degrees in geology and geophysics as well as graduate programs through the Ph.D. The department is well equipped and has a vigorous research program in which the new faculty member would be expected to participate actively.

Send letter of application, résumé, a statement of teaching and research experience and interests, and names of three references by 1 March 1982 to: **Dr. F. M. Swain, Chairman of Search Committee, Department of Geology, University of Delaware, Newark, Delaware 19711.**

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

HEALTH SCIENCE. 12-month, tenure-track academic staff position in health sciences. Doctorate in anatomy, physiology, pathophysiology, pharmacology, or medicine. Responsibilities include teaching graduate and undergraduate level courses in discipline, directing existing undergraduate and graduate level health science programs, and developing new health science programs. Opportunity for research. Position available after June 1982. Rank and salary commensurate with education and experience. Applications must be postmarked by 1 February 1982 and sent to: **Dr. Ronald D. Ballard, Dean, School of Science and Humanities, Texas Wesleyan College, Fort Worth, Texas 76105.**

POSITION AVAILABLE IN HUMAN ANATOMY

Applications invited for a position in the Department of Human Anatomy. Primary teaching responsibilities will be in the area of gross anatomy; demonstrated commitment to excellence in research and teaching essential; one or more years of experience after the doctoral preferred. Appointment at the assistant professor or associate professor level depending on individual's qualifications. Send complete curriculum vitae, including a statement of research interests and names of at least three references, to: **Dr. Allen C. Enders, Chairman, Department of Human Anatomy, School of Medicine, University of California, Davis, Calif. 95616. Closing date for applications is 1 February 1982. The University of California is an Equal Opportunity/Affirmative Action Employer.**

MOLECULAR GENETICS Ph.D.'s

THE INTERNATIONAL PLANT RESEARCH INSTITUTE (IPRI) invites applicants for its rapidly expanding programs in advanced molecular genetics. Applicants with significant records of frontier achievements in eukaryotic molecular genetics are invited to join a strong team of innovative scientific leaders in the pleasant San Francisco area.

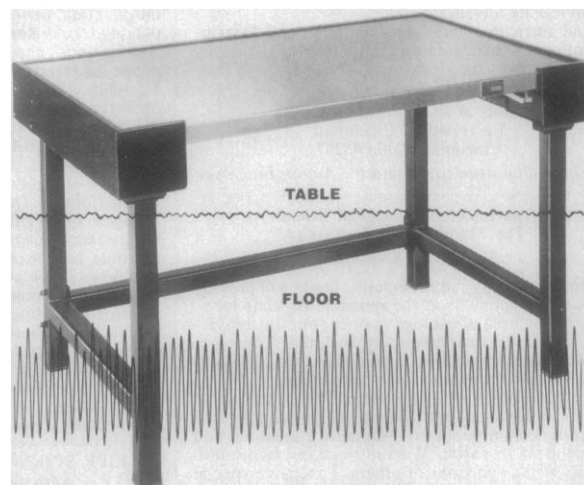
Send résumé with recent publications to:

DIVISION OF MOLECULAR GENETICS, IPRI, 853 Industrial Road, San Carlos, Calif. 94070.

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TMC-7

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Director Microbiological Research & Development

WYETH LABORATORIES, a leading manufacturer of pharmaceuticals and biologicals, has an opening for a trained bio-medical scientist, MD or PhD, to lead a multi-disciplinary team which will research and develop new approaches and products applicable to the prevention and treatment of infectious diseases and microbial resistance.

The successful candidate will have a broad background in technology and research administration, with majors in microbiology and/or immunochemistry and with post-graduate training or experience in biochemistry, molecular biology, immunology, genetics and the fermentation sciences.

A publications history or performance record should demonstrate creative ability in project conceptualization and experimental design.

This position offers an excellent starting salary and a good fringe benefits package. Qualified individuals should forward a resume to:

Rod Waters
Personnel Manager



**Wyeth
Laboratories, Inc.**
P.O. Box 8299
Philadelphia, PA 19101

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INSECT BIOCHEMIST

Outstanding career opportunity for established research professional at Shell's Biological Sciences Research Center in California.

Qualifications

- Ph.D. in Biochemistry, Entomology, or a closely related discipline.
- Demonstrated record of accomplishment in insect biochemistry.
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Shell Development Company
Biological Sciences Research Ctr.
P. O. Box 4248
Modesto, California 95352.

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An Equal Opportunity Employer M/F

POSITIONS OPEN

HEAD, DIVISION OF ENVIRONMENTAL AND INDUSTRIAL HYGIENE AND SAFETY

The Department of Environmental Health, University of Cincinnati, is seeking a qualified scientist to direct a well-established research and graduate training program in environmental and industrial hygiene and safety. Engineering, physical science and/or analytical chemistry background preferred. Unique opportunity for energetic and creative person in rapidly advancing field.

Send curriculum vitae, bibliography, and description of experience and research interests as well as three references to:

Dr. Raymond R. Suskind
Institute of Environmental Health
University of Cincinnati
Cincinnati, Ohio 45267

An Equal Opportunity/Affirmative Action Employer

Department of Biological Science The Florida State University MARINE ECOLOGY

Special "quality improvement" funds will provide for two appointments at the research associate level. The specific area of ecology is open, but the individuals should be experimentally inclined. These research associates will be considered for future tenure-track appointments in the department.

The department is a large, broad-based biological science unit with a large undergraduate program and a strong commitment to graduate education and independent research. We fully occupy two buildings as well as portions of others. Extensive special instrument and field facilities including a marine laboratory and a field station. Both technical and clerical staff is being expanded to support the research programs.

Applicants should send curriculum vitae, reprints, support letters, and a brief statement of research interest to: **A. Gib DeBusk, Chairman, Department of Biological Science, Florida State University, Tallahassee, Florida 32306.**

We are an Affirmative Action/Equal Opportunity Employer and welcome applications from women and minority group members.

Microbiologist/ Collection Curator

Cetus Corporation, a leader in the biotechnology industry, has an opening available for a Microbiologist (BS/MS) having 3 to 4 years' industrial or academic experience in maintenance of culture collections. Must be familiar with processing bacteria, actinomycetes, and fungi. Some taxonomic experience desirable. Send resume with letters of recommendation to:

CETUS CORPORATION
Box 5203
600 Bancroft Way
Berkeley, CA 94710

*an equal opportunity employer,
m/f/handicapped*

cetus

POSITIONS OPEN

ICHTHYOLOGY JOB DESCRIPTION

Cornell University solicits applications for a tenure-track position, preferably an assistant professor, in the Section of Ecology and Systematics to begin September 1982. We seek a systematic ichthyologist with broad interests in vertebrate biology and a strong research program. The successful candidate will participate in curation of the Ichthyology Collection. Teaching responsibilities include an upper-level course in biology of fishes, a share of the introductory vertebrate biology course, and participation in the graduate program in vertebrate biology. Applications must include curriculum vitae and names of three references, and will be reviewed 1 February 1982. Send application to: **Dr. W. N. McFarland, Section of Ecology and Systematics, Cornell University, Ithaca, New York 14850.** *Cornell University is an Affirmative Action/Equal Opportunity Employer.*

Smith College, Department of Physics, anticipates hiring a **LECTURER** for a 2-year (1982-84) non-tenure track position at salary level of instructor or assistant professor. Applicants should have a Ph.D. in physics or be near the completion of that degree. Smith is a women's, liberal arts college with a Physics Department of four and a strong emphasis on teaching. There is opportunity to collaborate on research with colleagues at Smith as well as nearby institutions. Direct applications with curriculum vitae to: **Bruce Hawkins, Chair, Department of Physics, Smith College, Northampton, Mass. 01063.** *An Equal Opportunity Employer.*

LIFE SCIENCE RESEARCH POSITIONS Agricultural Research Service

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

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

MICROBIOLOGIST—Applications and nominations are invited for tenure-track position at the assistant, associate or, if appropriate, full professor level. We seek an ambitious, capable individual with postdoctoral experience who can develop an externally funded research program, participate in the departmental undergraduate and graduate teaching programs, and share administrative duties. Salary is negotiable. Applicants should send curriculum vitae, a statement of research goals, and the names of three references to: **Dr. David Wharton, Department of Biology, Northeastern University, Boston, Mass. 02115,** before 28 February 1982. *Equal Opportunity/Affirmative Action/Title IX Employer.*

MICROBIOLOGY

The Biology Department of Indiana University-Bloomington plans to make a tenure-track appointment in the Microbiology Section at the assistant professor level. Teaching responsibilities will include the area of microbial genetics. Applicants will be expected to develop a strong research program in an area of microbiology such as microbial development, host-parasite relationships, microbial genetics, or physiology/biochemistry. Send resume and three letters of recommendation to: **Dr. George Hegeman, Department of Biology, Indiana University, Bloomington, Ind. 47405,** by 1 March. *Indiana University is an Equal Opportunity/Affirmative Action Employer.*

PHYSIOLOGY FACULTY POSITION. Assistant professor, tenure-track position for July 1982. An interest and postdoctoral research experience in gastrointestinal physiology, particularly in peptides of the gastrointestinal tract and their regulatory role, are preferred. Candidates will be expected to teach physiology of the digestive tract to medical students, to participate in graduate courses, and to develop an independent research program. Applicants should submit curriculum vitae, reprints, and statement of research interests and teaching experience, and have three letters of recommendation sent to: **Dr. Robert E. Forster, Chairman, Department of Physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa. 19104.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

PEPTIDE CHEMIST. **SRI INTERNATIONAL** on the **SAN FRANCISCO PENINSULA**, seeks a peptide chemist in the Bio-Organic Chemistry Laboratory with a Ph.D., 1 to 5 years of experience, and a **SOLID-PHASE PEPTIDE CHEMISTRY** publication record, to participate in peptide synthesis program including preparing grant and contract proposals for new projects. Send resume with three references to: **R. A. Zaragoza, SRI INTERNATIONAL, 333 Ravenswood Avenue, Menlo Park, Calif. 94025.** *An Equal Opportunity Employer.*

Ph.D. in PHYSICS, to teach physics and mathematics. Position is available 20 August 1982. Salary and rank depend on qualifications and teaching experience. Send resume to:

Dean Anna D. Reuben
Morris College
Sumter, South Carolina 29150

Equal Opportunity/Affirmative Action Employer

PLANETARIUM DIRECTOR

The University of North Carolina at Chapel Hill is seeking qualified candidates for the position of **director** of The Morehead Planetarium. Responsibilities include business management and supervision of a major public planetarium with a Zeiss Model VI Projector, state-wide public school programs, exhibits, and related special events. Background in astronomy or physical science, creative showmanship, planetarium management, and supervision of a complex operation desirable. Applications should be received by 1 February 1982.

For an application, please contact: **Employment Division, 111 Pettigrew Hall, The University of North Carolina at Chapel Hill, Chapel Hill, N.C. 27514.** Telephone: 919-962-2991. *Equal Opportunity/Affirmative Action Employer.*

PLANT MOLECULAR BIOLOGY. The Department of Botany, University of Illinois at Urbana-Champaign, invites applications for a tenure-track position at the assistant professor level for appointment in August 1982, subject to budgetary approval. Applicants must have a Ph.D. in plant biology/biochemistry and research interest in genetic engineering as it relates to the basic biology of gene expression in plants and/or the modification of plant genomes. The appointee will be expected to do research in the above area and to contribute to the graduate and undergraduate teaching programs. Salary is open, depending on applicant's qualifications.

Applicants should send curriculum vitae, a summary of proposed research, and the names of at least three references to: **Dr. Zane B. Carothers, Search Committee Chairman, Department of Botany, University of Illinois, 505 South Goodwin, Urbana, Illinois 61801-3793; telephone: 217-333-0070 or 333-3261.** In order to ensure full consideration, applications must be received by 1 February 1982. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

PLANT PATHOLOGIST—Ph.D. full-time, tenure-track position as assistant professor with research (75 percent) and teaching (25 percent) duties. Emphasis on multiple disease resistance in wheat. Develop research program, teach graduate course(s), and direct graduate programs. For full consideration, submit current resume, transcripts of grades, and three letters of reference to: **Dr. W. L. Klarman, Professor and Head, Department of Plant Pathology, Oklahoma State University, Stillwater, Okla. 74078,** by 15 February 1982. Telephone: 405-624-5643. *An Affirmative Action/Equal Opportunity Employer.*

POPULATION GENETICIST: A tenure-track position is available at the assistant professor level beginning September 1982. Principal teaching duties will be in general genetics, lecture and laboratory, with additional responsibility for development of advanced courses in population, ecological, or human genetics. An active research program is expected. Applicants must have the Ph.D. degree by 1 September 1982. Applications, including curriculum vitae, copies of graduate and undergraduate transcripts, statements of research interests, and three letters of recommendation, must be sent by 1 March 1982 to:

Chairperson
Population Genetics Search Committee
Biology Department
George Mason University
Fairfax, Va. 22030

George Mason University is an Affirmative Action/Equal Opportunity Employer.

**CSIRO
BIOCHEMIST (RESEARCH FELLOW)
A\$19,662 to A\$28,564 per annum
DIVISION OF PLANT INDUSTRY
CANBERRA, A.C.T., AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

GENERAL: The division conducts pure and applied research in genetics, plant breeding, genetic resources, biochemistry, microbiology, plant nutrition, ecology, crop adaptation, soil fertility, and plant introduction.

The position is in the Biochemistry Section where current research includes studies on chloroplast membranes, protein and nucleic acid metabolism in chloroplasts, photosynthetic carbon metabolism, the biochemistry and physiology of seed proteins, and haemoproteins involved in nitrogen fixation.

DUTIES: To undertake research on the biochemistry of C4 photosynthesis. This will be part of a project which presently includes studies on enzyme regulation, metabolism of isolated cells and organelles, and metabolite transport processes.

QUALIFICATIONS: Applicants should have a Ph.D. degree or equivalent in an appropriate field. Previous experience in the field of photosynthesis biochemistry would be an advantage.

TENURE: The position is available for 3 years with the possibility of extension up to 2 years beyond this period if mutually desired. Superannuation benefits available.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference Number A4735, should reach:

**The Chief
Division of Plant Industry
CSIRO
P.O. Box 1600
CANBERRA CITY, A.C.T. 2601, AUSTRALIA**
by 29 January 1982.

**CSIRO
BIOLOGICAL SYSTEMS MODELLER
A\$19,662 to A\$28,564 per annum
DIVISION OF COMPUTING RESEARCH
CANBERRA, A.C.T., AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

A scientist with biological and computer modelling experience is required to work in the division's simulation section which is concerned with modelling complex systems which may have physical, biological, and economic aspects. Projects of biological interest include: developmental biology, biotechnology, insect and parasite control, plant and animal growth, and aquatic and terrestrial ecosystems. Such projects are carried out in close collaboration with staff of other divisions of CSIRO.

The section is multidisciplinary, with expertise in computing, systems theory, and the physical sciences and considerable experience in biological modelling. Research interests of the simulation section also include programming, numerical methods, and all aspects of the methodology of modelling.

The division's research staff are located in close proximity to several of the major biological divisions of CSIRO and to the research schools of Sydney University and the Australian National University. The appointee will have opportunities for close contact with biological scientists and modelling groups throughout Australia.

The division has branches in most Australian cities and provides to other divisions a high-level consulting service covering most phases of advanced computer use. Fields in which other sections of the division are working include operating systems, data-base management, image processing, graphics, microelectronics, and numerical taxonomy.

The division has a Control Data Cyber 76 computer as the main component of a very large multi host network known as CSIRONET. This provides a powerful tool for research and development, and enables scientists in CSIRO laboratories throughout Australia to use both central and distributed facilities for either batch or interactive computing. It also allows sharing of data and cooperative development of programs.

DUTIES: (i) Within a group of diverse computing and modelling specialists, to collaborate extensively with biological groups applying simulation modelling to practical problems. (ii) to develop further the computing and theoretical techniques needed for the simulation and dynamic analysis of biological and other complex systems.

QUALIFICATIONS: A Ph.D. degree in an appropriate biological field or equivalent qualifications together with demonstrable research ability. Considerable computational skill and ability to develop computer models is essential.

TENURE: Three years with superannuation.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference Number A1895, should reach: **The Chief, Division of Computing Research, CSIRO, P.O. Box 1800, CANBERRA CITY, A.C.T. 2601, AUSTRALIA**, by 29 January 1982.

**CSIRO
PLANT BIOLOGIST (RESEARCH FELLOW)
A\$19,662 to A\$28,564 per annum
DIVISION OF PLANT INDUSTRY
CANBERRA, A.C.T., AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

GENERAL: The division carries out research on problems fundamental to agricultural production. Its Genetic Resources and Biosystematics Section is concerned with increasing taxonomic and evolutionary knowledge of the native Australian flora and with the collection, conservation, and utilization of genetic variation in crops and pasture plants.

DUTIES: Undertake research concerned with the population genetics and utilization of Australian wild relatives of cultivated plants. This will involve team research based on studies of genetic heterogeneity, reproductive biology, disease resistance, applied breeding and testing. The appointee will be required to contribute to one or more projects using relevant techniques which may include experimental crossing, fertility and compatibility testing, cytology, electrophoresis, yield, and quality testing.

QUALIFICATIONS: Applicants should have a Ph.D. degree in an appropriate field or postgraduate research experience of equivalent standard or duration supported by satisfactory evidence of research ability.

TENURE: The appointment is for a fixed term of 3 years. Superannuation benefits available.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference Number A4695, should reach:

**The Chief
Division of Plant Industry
CSIRO
P.O. Box 1600
CANBERRA CITY, A.C.T. 2601, AUSTRALIA**
by 29 January 1982.

**CSIRO
DIVISION OF SOILS
ADELAIDE, S.A., AUSTRALIA
CHIEF OF DIVISION**

Applications are invited for the position of chief, Division of Soils, from scientists who have an outstanding record of personal research achievements and leadership in soil science, or other appropriate fields. The position will become vacant in December 1982, on the expiry of the term of appointment of Dr. A. E. Martin as chief. If able to join the division before this date, the successful applicant will be appointed as chief designate and have the opportunity to commence planning the future course of the division.

CSIRO is Australia's largest and most comprehensive research organization, having approximately 7500 employees, of whom 2700 are research and professional scientists. Its broad charter covers research into problems of primary and secondary industries, and also such fields of community interest as human nutrition, the environment, and the development and use of natural resources. The organization's research activities are grouped into five institutes, and the Division of Soils is one of the divisions in the Institute of Biological Resources. The other constituent divisions of the Institute are Entomology, Forest Research, Horticultural Research, Irrigation Research, Land Resources Management, Land Use Research, Plant Industry, Tropical Crops, and Pastures and Wildlife Research.

The Division of Soils has its headquarters at Adelaide, and also operates research laboratories at Brisbane and Townsville (Queensland), Canberra (A.C.T.) and Hobart (Tasmania). The total staff of the division is 205, which includes 100 professional scientists.

The objectives of the division are to conduct research into soil science, including the physics, chemistry, and biology of soils, together with the integrative disciplines of pedology and geomorphology and to develop the principles for its application in both dryland and irrigated agriculture, forestry, hydrology, engineering, and conservation.

The chief of division is responsible to the institute director for the leadership, development, scientific direction, and integration of the division's research programs, and is encouraged to promote active collaboration with other divisions, industry, and research bodies working in associated areas.

The salary for the position is negotiable, but will not be less than A\$43,988 per annum.

Appointment to CSIRO is for an indefinite period and carries Commonwealth Government superannuation privileges, subject to normal conditions. The position of chief is offered for a negotiable term of the order of 7 years, with subsequent options for a further term, if mutually desired, or for a senior position in the organization.

The executive of CSIRO has appointed a Search Committee to seek suitable candidates for this position, and the chairman of the committee is M. V. Tracey, AO, FTS, director of the Institute of Biological Resources. Mr. Tracey would be pleased to discuss the position with potential applicants and to receive advice concerning this appointment from people with a particular interest in it. He may be contacted at the address below.

Applications, stating full personal and professional details, and quoting reference Number A5187, should be submitted to: **M. V. Tracey, AO, FTS, Director, Institute of Biological Resources, CSIRO, P.O. Box 225, Dickson, A.C.T. 2602, AUSTRALIA**, by 29 January 1982.

POSITIONS OPEN

POSTDOCTORAL FELLOW

Postdoctoral position in virology to study the genetics of influenza viruses. Project includes: (i) molecular cloning of influenza virus genes, sequencing and expression of cloned genes, and (ii) analysis of the biological function of individual genes, pathogenicity factors, analysis of epidemiologically important influenza virus strains. Position now available. Please submit curriculum vitae to: **Dr. Peter Palese, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 10029. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION to study the components of the renin-angiotensin systems in the kidney, brain, and other organs. Emphasis will be on localization, purification, and characterization of these components. Experience in protein and peptide chemistry desired. Please send curriculum vitae and three letters of recommendation to:

Ian A. Reid, Ph.D.
Neuroendocrine Laboratory
University of California, San Francisco
San Francisco, Calif. 94143

An Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL POSITIONS are available in the Cancer Research Laboratory, University of Western Ontario. Staff includes Doctors G. Chaconas, K. Ebisuzaki, E. Faust, D. Fujita, and B. Milavetz. Areas of research include DNA replication, poly-(ADP)ribose metabolism, tumour virology, control of mammalian cell cycle, and cloning of mammalian genes with particular reference to cancer. Submit curriculum vitae and letters of reference to: **Dr. David Denhardt, Cancer Research Laboratory, University of Western Ontario, London, Ontario, Canada N6A 5B7.**

POSTDOCTORAL POSITION available for participation in studies on control of human hemoglobin differentiation. Experience with nucleic acid technology, especially hybridization and restriction fragment blotting techniques, desirable. Send résumé to: **Dr. R. F. Rieder, State University of New York-Downstate Medical Center, 450 Clarkson Avenue, Brooklyn, N.Y. 11203. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS for lipid research related to arteriosclerosis are available at The Hormel Institute, University of Minnesota, through a training grant award from the USPHS National Heart, Lung and Blood Institute. The program is intended to provide research training in areas of lipid chemistry, biochemistry, and biophysics related to cardiovascular disease, and includes lectures and seminars. Participating faculty members are: Doctors W. J. Baumann, H. L. Brockman, R. T. Holman, H. M. Jenkin, D. R. Pfeiffer, O. S. Privett, H. Schlenk, and H. H. O. Schmid. Applicants select a faculty sponsor specialized in their area of interest. Collaboration with other faculty members is possible.

The 1-year appointments are renewable and currently provide a minimum stipend of \$16,000. Applicants must be U.S. citizens, noncitizen nationals, or permanent residents of the United States with Ph.D., M.D., or equivalent degree. Applications should include curriculum vitae, list of publications, and the names of three references. For further information or to apply, write to: **Dr. R. T. Holman, Professor and Director, The Hormel Institute, University of Minnesota, 801 16th Avenue, NE, Austin, Minn. 55912. Telephone: 507-433-8804.**

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

POSTDOCTORAL POSITION

Immediate opening for Ph.D. in the physical sciences to participate in an HHS-supported training program. The program seeks to train highly qualified scientists in medical applications of ionizing radiation through formal courses, participation in seminars, and involvement in research. Research projects include development of x-ray and gamma-ray imaging devices, development of short lived radiopharmaceuticals, applications of computer science, and in vivo studies of tracer kinetics. A requirement for appointment is either U.S. citizenship or permanent U.S. visa. Address correspondence to: **Dr. Gordon L. Brownell, Director of the Physics Research Laboratory, Massachusetts General Hospital, Fruit Street, Boston, Mass. 02114.**

POSITIONS OPEN

POSTDOCTORAL POSITION available in program studying the neural and humoral regulatory mechanisms controlling ocular blood flow. Experience with blood flow measurement techniques preferred. Send résumés to:

Dr. L. M. Parver
Suite 607
1145 19th Street, NW
Washington, D.C. 20036

UNIVERSITY OF SASKATCHEWAN
Department of Biology

POSTDOCTORAL POSITION available to investigate the liposome-mediated transfer of chromosomes into auxotrophic cells of *Datura*. Candidates should have a strong background in genetics and cell biology and be trained in the use of plant cell culture techniques.

The position is available immediately for a 1-year term (renewable for a further 2 years) at a salary of C\$16,380.

Candidates should send curriculum vitae and two letters of recommendation to: **Dr. John King, Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.**

POSTDOCTORAL POSITION available in research directed at serum complement system with emphasis on application of basic knowledge to renal disease. Appointment for 3 to 4 years. Should be experienced in methods of protein fractionation, electrofocusing, and radiolodination and hemolytic methods for measurement of complement components. Salary range: \$14,000 to \$16,000. Send curriculum vitae and names of references to: **Clark D. West, M.D., CHILDREN'S HOSPITAL RESEARCH FOUNDATION, Elland and Bethesda Avenues, Cincinnati, Ohio 45229.**

An Equal Opportunity Employer, M/F

POSTDOCTORAL POSITION available in July 1982 for M.D. or Ph.D. with strong interest in the regulation of proliferation and differentiation of hematopoietic stem cells. U.S. citizenship or permanent residence required. Send curriculum vitae and three references to: **J. L. Spivak, M.D., Hematology Division, The Johns Hopkins Hospital, Baltimore, Md. 21205. Equal Opportunity/Affirmative Action Employer.**

ERINDALE CAMPUS
University of Toronto

POSTDOCTORAL RESEARCH ASSOCIATE

We are seeking a research associate to participate in a team research effort which involves investigations on the biochemistry of nucleic acids in the edible mushroom, *Agaricus bisporus*, and mycoviruses that infect this agriculturally important mushroom. The successful candidate should have a strong background in the biochemistry of nucleic acids and genetics. Preference will be given to individuals with recombinant DNA experience or experience with monoclonal antibodies. Salary: \$15,000 to \$17,000 per annum. Appointment date: 1 January 1982. Closing date for receipt of applications: 31 December 1981. Send curriculum vitae and two letters of reference to:

Dr. P. A. Horgen
Biology Group
University of Toronto
Erindale Campus
Mississauga, Ontario, Canada L5L 1C6



UNIVERSITY OF ROCHESTER
DEPARTMENT OF PHYSIOLOGY
Postdoctoral Research Associates
(Fully funded positions available)

Research opportunities in:

- 1) The biophysics and electrophysiology of excitable membranes: nerve and heart muscle. Voltage clamp measurements of ionic currents, techniques of spectral analysis and optical studies.
- 2) Neural control of the circulation: roles of renin-angiotensin system.

For information write:

Dr. Ted Begenisich, Dr. Robert S. Kass,
or **Dr. Martha L. Blair**
Department of Physiology
Box 642
University of Rochester Medical Center
Rochester, N.Y. 14642

POSITIONS OPEN

POSTDOCTORAL POSITIONS in behavioral aspects of heart disease prevention for NHLBI-funded training program. Areas of interest include behavioral science, nutrition, public health, and preventive cardiology. Stipends are available for 2 or 3 years with a starting date of 1 July 1982. Send curriculum vitae, statement of research and training goals, and three letters of reference to: **Norman L. Lasser, M.D., Ph.D., Department of Medicine, College of Medicine and Dentistry of New Jersey-New Jersey Medical School, 100 Bergen Street, Newark, N.J. 07103.**

POSTDOCTORAL POSITION. Positions are available for recent Ph.D. graduates interested in advanced training and research in experimental cancer chemotherapy. Areas currently under study are: (i) the biochemical pharmacological basis of anticancer effects inclusive of pharmacokinetics drug biotransformation and target cell determinants of drug action; (ii) the selective effects of drugs on the various components and interactions involved in immune responses to tumor and nontumor antigens; (iii) the regulation of cell metabolism by hormones, nucleotide pools, and cyclic nucleotides, particularly cyclic CMP; (iv) the pharmacological and cellular basis for chemical carcinogenic transformation in animals and in tissue culture; and (v) clinical pharmacological studies on drug selectivity. Nucleosides, antifolates, polyamines, carbohydrates of the plasma membrane, and anthracycline antibiotics are among the classes of agents studied. Reply in writing to: **Dr. E. Mihich, Department of Experimental Therapeutics, Grace Cancer Drug Center, Roswell Park Memorial Institute, Buffalo, New York 14263.** Please include curriculum vitae and indicate at least two references. *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS available immediately to study interaction of hyperthermia and ionizing radiation on cell cycle progression and cell survival in synchronous mammalian cells in culture or in normal tissues in vivo. Background in radiation biology, hyperthermia, or mammalian cell culture required. Salary commensurate with experience; renewable for 2 to 3 years. Please send résumé and names of three references to: **Dr. D. B. Leeper, Laboratory of Experimental Radiation Oncology, Department of Radiation Therapy, Thomas Jefferson University Hospital, Philadelphia, Pa. 19107. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE POSITION available 1 June 1982 to study the replication of adenovirus DNA. Experience in electron microscopy of nucleic acids, nucleic acid enzymology, or DNA tumor viruses is essential. Salary: \$15,000 to \$18,000 per year, depending on experience. Deadline for applications: 31 January 1982. Send curriculum vitae and three references to: **Dr. George D. Pearson, Department of Biochemistry and Biophysics, Oregon State University, Corvallis, Oregon 97331. Oregon State University is an Equal Opportunity/Affirmative Action Employer and complies with Section 504 of the Rehabilitation Act of 1973.**

POSTDOCTORAL RESEARCH SCIENTIST required for cardiology research laboratory actively involved in the study of protein metabolism in cardiac tissue. Previous experience in protein purification, immunochemical techniques and/or molecular biology essential. Some experience with tissue culture would be helpful. Interested applicants please forward curriculum vitae and the names and addresses of three references to:

Department of Medicine
Northwestern University Medical School
303 East Chicago Avenue
Chicago, Ill. 60611

DEPARTMENT OF PSYCHOBIOLOGY UNIVERSITY OF CALIFORNIA, IRVINE

Applications are invited for two faculty positions: (i) **developmental neurobiology**, preferably someone using cellular and molecular approaches, and (ii) **cellular neurophysiology**. For both positions specific research area is less important than demonstrated scholarly promise and ability to interact in a broadly based Neurobiology Department. The positions are for assistant professorships but one may be filled at tenured level. Interested candidates should send résumé and representative reprints, and ask that three letters of reference be sent to: **Chair, Department of Psychobiology, University of California, Irvine, California 92717. Affirmative Action/Equal Opportunity Employer.**

Molecular Genetics, Inc. is a rapidly expanding company designing products for Agriculture and Animal Health based upon advanced biotechnology. Our laboratory facility supports projects involving molecular biology, immunology, genetics, plant tissue culture and animal research. We are seeking scientists who have doctoral degrees with post-doctoral experience as well as technicians in the fields of:

**Molecular Biology
Fermentation
Microbial Genetics**

Qualified candidates should have an interest in participating in a unique, academically-oriented work program.

We are located in the pleasant environs of Minnesota offering easy access to some of the country's authentic wilderness areas and an excellent quality of life in Minneapolis.

Please supply resume and salary history to:



Molecular Genetics Inc

10320 Bren Road East
Minnetonka, Minnesota 55343

An Equal Opportunity Employer M/F/Hc

**CSIRO
RESEARCH FELLOW (Two Positions)
A\$19,662 to A\$28,564 per annum
DIVISION OF COMPUTING RESEARCH
CANBERRA, A.C.T., AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

FIELD: Open Systems Architecture.

The Division of Computing Research operates an Australia-wide computer network to provide a computing service to CSIRO, government, and other users located throughout the country. Major host computers used by the division included a CDC Cyber 76, a CDC Cyber 730, a FACOM M190, two FACOM M150s, and a Two Pi V32, and services are offered using the CDC operating systems SCOPE 2 and NOS/BE, FACOM OS IV/F4, and IBM VM370/CMS.

The host computers at the division's Canberra Computer Centre are connected to each other and to the long-distance communications network by a local high-speed (50 million bits per second) contention network using a Network Systems Corporation's HYPERchannel.

The division is currently undertaking a development project in conjunction with Facom Australia Ltd. aimed at enhancing the existing local network into a general resource sharing system based on the proposed ISO Open Systems Architecture model.

DUTIES: As a member of the group devoted to resource sharing development, the appointee will define and implement the necessary intermachine connection protocols, along with some necessary local network support functions.

QUALIFICATIONS: A Ph.D. or equivalent qualifications, in computing science or a related field. Proven experience in the field of communications protocols and software (with special emphasis on X.25 or equivalent packet switched systems). Knowledge and experience with local networks and the ISO Open Systems Interconnection model would be highly desirable.

TENURE: Initially until April 1983, with possible extensions.

APPLICATIONS: In writing and stating full personal and professional details, the names of at least two referees, and quoting reference Numbers M8771 and M8240, should reach:

The Chief
Division of Computing Research
CSIRO

P.O. Box 1800
CANBERRA CITY, A.C.T. 2601, AUSTRALIA

by 29 January 1982.

**CSIRO
ASSISTANT CHIEF (GENETICIST)
A\$29,638 to A\$38,921
DIVISION OF ANIMAL PRODUCTION
PROSPECT, N.S.W. AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

FIELD: Genetics.

The Division of Animal Production, with headquarters at Prospect, near Sydney, New South Wales, conducts research aimed at understanding the genetic, nutritional, and physiological basis of animal functions with the aim of improving the efficiency of livestock production.

DUTIES: The appointee will assist the chief of the division in the guidance and coordination of a research group with interests ranging from basic research in molecular and developmental genetics to animal breeding in poultry, sheep, and cattle. Future basic research in the genetics program will be broadly directed at the application of new genetic technologies to animal improvement, and the successful applicant will be expected to provide scientific leadership in this area. In addition, the appointee will liaise with scientists in the division who are studying skin biology, nutrition, and reproduction, and to aid in the development of interdisciplinary research programs to improve animal production.

QUALIFICATIONS: Applicants should have a Ph.D. degree or equivalent, a substantial record of research achievement in genetics, and the ability to lead a research team. An interest in the application of molecular and cellular biology and quantitative genetics to improving animal production is essential.

TENURE: This is an indefinite appointment which carries Australian government superannuation benefits. However, the role of assistant chief is offered for an expected term of 7 years.

NOTE: An outstanding applicant may be offered appointment at a higher level.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference Number A0905, should reach:

The Chief
Division of Animal Production
CSIRO

BLACKTOWN, N.S.W. 2148, AUSTRALIA

by 29 January 1982.

**Senior Scientists
Process Development**

Genentech, Inc., the recognized leader in the field of recombinant DNA research and manufacturing, is currently seeking individuals for senior level positions in the area of protein purification and process development.

Successful candidates will possess PhD's in Biochemistry or a related area and have a strong background in process development as applied to protein isolation and purification. These positions involve independent research and development in a team environment, as well as heavy interface between Research and Manufacturing.

If you are seeking an opportunity to be part of a multi-disciplinary approach to the development of proteins with pharmaceutical applications, we invite you to send your resume or curriculum vitae to **J. Robertson, Professional Employment. Please refer to Position #11-110.**

Genentech, Inc.
Genentech, Inc.
Genentech, Inc.
Genentech, Inc.
Genentech, Inc.

460 Point San Bruno Boulevard
South San Francisco, CA 94080

We are an equal opportunity employer m/f

POSITIONS OPEN

UNIVERSITY OF CALIFORNIA, IRVINE

POSTDOCTORAL/RESEARCH ASSOCIATE. A 2-year research project on identification of injury and mechanisms of action of formaldehyde on ciliated, mucus-secreting (respiratory) epithelia and on alveolar ducts and alveoli of mammalian lung is ready for participation by a doctoral level research associate or recent doctoral graduate in cell biology of motile organelles, SEM and TEM, histochemistry, cell membrane characterization in differentiated cells, or related fields. Project support by senior investigators and facilities for mucociliary clearance of radio-labeled particles, light and electron microscopy, cell/organ culture, lung biochemistry, and inhalation exposure of animals to well-characterized experimental atmospheres; in medical school departments of the University of California, Irvine and Los Angeles. Salary commensurate with background, up to \$22,000. AVAILABLE IMMEDIATELY (fall 1981). Contact: T. T. Crocker, M.D., Department of Community and Environmental Medicine, College of Medicine, University of California, Irvine, California 92717.

An Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL TRAINEE (M.D. or Ph.D.) available immediately. Positions in multidisciplinary studies related to neuronal and humoral mechanisms of blood pressure regulation and hypertension. Studies involve cell, molecular, neurobiological, neuropharmacological, as well as protein and nucleic acid chemical research on pressor substances and cultured cells. Persons with experience in neuropharmacology, neurobiology, cell and tissue culture, and protein and molecular biology will fit in the program. Send résumé to: Tadashi Inagami, Ph.D., Director, Hypertension Center, Vanderbilt University School of Medicine, Nashville, Tennessee 37232. Vanderbilt is an Equal Opportunity Organization.

SEARCH FOR A PROFESSOR AND CHAIR OF THE DEPARTMENT OF BEHAVIORAL SCIENCES, HARVARD SCHOOL OF PUBLIC HEALTH

We are searching for a behavioral scientist with a strong record of research, teaching, and scientific leadership in the role of social and behavioral factors in health status. Strong emphasis will be placed on ability to work collaboratively with other departments within the School of Public Health and other faculties throughout the university. The deadline for application is 1 March 1982.

Harvard University is an Equal Opportunity Employer with an Affirmative Action Program.

Curriculum vitae and bibliography, as well as statement of program plans, should be sent to:

Professor Frederick Mosteller
Department of Health Policy and Management
Harvard School of Public Health
677 Huntington Avenue
Boston, Mass. 02115

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

REPRODUCTIVE PHYSIOLOGIST UNIVERSITY OF WISCONSIN-MADISON

Applications are invited for a position as assistant professor in the Department of Meat and Animal Science, University of Wisconsin-Madison. The position will be 60 percent research and 40 percent teaching. Responsibilities will be to conduct innovative research in mammalian reproductive biology and to participate in teaching undergraduate and graduate courses in reproductive physiology. Candidates must have a Ph.D. degree with emphasis in reproductive physiology; postdoctoral training is preferred. Applications are due 1 February 1982. Applicants should send résumé and three letters of reference to: Robert G. Cassens, Chairman, Department of Meat and Animal Science, 1675 Observatory Drive, University of Wisconsin, Madison, Wisconsin 53706. The University of Wisconsin provides Equal Opportunities in Programs and Employment.

POSITIONS OPEN

REPRODUCTIVE BIOLOGY

The Department of Reproductive Biology at Case Western Reserve University School of Medicine invites applications for the position of senior assistant or associate professor. Candidates with a Ph.D. and/or M.D. degree should have demonstrated excellence in research and ability to obtain independent research funding. The area of research in reproductive biology is open although we are especially interested in neuroendocrinology, cellular mechanisms of hormonal action, and/or basic mechanisms in the regulation of growth and development of the fetus, and male reproduction. Submit detailed curriculum vitae, list of publications, statement of research activities, and names of three references to: Dr. R. B. Billiar, Department of Reproductive Biology, Case Western Reserve University School of Medicine, Cleveland, Ohio 44106. An Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE—Ph.D.

Position available in the laboratory of Dr. Foteos Macrides, a multidisciplinary laboratory studying the neurobiology of the olfactory and limbic systems. Background should include two or more of the following: single unit recording; HRP histochemistry, immunohistochemistry, autoradiography, neurobehavioral research, and neuroendocrinology. Send curriculum vitae, summary of research experience, reprints, and references to: Dr. Foteos Macrides, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.

An Equal Opportunity/Affirmative Action Employer

RESEARCH ASSOCIATE. Position available immediately to perform independent research on the mechanisms for toxicity, biochemical effects, and mammalian metabolism of halogenated aromatic compounds. The research will concentrate on investigating the role of metabolism in haloaromatic-induced porphyria and will involve feeding or dosing studies with experimental animals followed by an ultrastructural and histopathologic examination of tissues and assessment of biochemical and physiological changes in the treated animals. The role of nutritional factors of toxicity will also be examined in additional feeding studies. In vivo and in vitro studies will focus on the effects on various enzymes involved in heme biosynthesis. Other in vitro and in vivo studies will examine the absorption, distribution, and excretion of radioactive haloaromatics. Metabolites will be isolated, purified, and identified using various physical and chemical techniques. Applicants must have a Ph.D. degree in biochemistry or nutrition and at least 2 years of postdoctoral training and 2 years of research experience in toxicology, drug metabolism, biochemistry, nutrition, and pathology. Applicants must also have demonstrated superior performance and productivity in the design and conduct of toxicological research as reflected by a significant number (more than five) of publications in refereed toxicologic journals. Previous experience in directing the research of others is also necessary. Salary: \$18,616; 40-hour week. Work location: Corvallis, Oregon. Applications, including résumé, should be sent to: Employment Division, attention: Job Order Number 1501392, 875 Union Street, NE, Room 208, Salem, Oregon 97311.

SENIOR RESEARCH ASSISTANT—PHARMACOLOGY. An established clinical pharmacological research group is seeking to fill a senior supportive staff position in the area of drug disposition. Responsibilities include the development of new assays for drugs and metabolites in biological fluids, routine analytical determinations, technical training, and supervision of clinical trainees and other staff, laboratory management and maintenance, and collaboration with faculty in research.

Applicants should have graduate training (M.S.) in a pharmacological science with several years of experience in the above areas, especially with state-of-the-art chromatographic and radiometric techniques. In addition, a working knowledge of pharmacokinetics including computer programming and statistical analysis, and experience in electronic and mechanical troubleshooting is required. The position is to be funded by federal and other grants with competitive salary and fringe benefits (\$16,500 to \$18,500).

Applicants should submit a résumé and three letters of reference to: Dr. G. R. Wilkinson, Department of Pharmacology, Vanderbilt University, Nashville, Tennessee 37232.

Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

RESEARCH ASSOCIATE IN CHEMISTRY—A research position in organic chemistry applying advanced chemistry research to problems in organophosphorus-fluorine chemistry. Applicant must have a Ph.D. in synthetic organic chemistry and must have a good working knowledge and laboratory experience in organofluorine and/or organophosphorus chemistry. Also, experience in the use of ^{19}F and/or ^{31}P nuclear magnetic resonance spectroscopy for structural elucidation is required; \$15,700 per year. Send curriculum vitae, college transcripts, and three letters of recommendation to: Tom Cannon, Job Service of Iowa, Box 2390, Iowa City, Iowa 52240. Equal Opportunity Employer.

SOUTHERN RESEARCH INSTITUTE, with a staff of 600, has immediate openings as follows:

RESEARCH SCIENTISTS. Ph.D. in toxicology or physiology, or a D.V.M. Previous experience with laboratory rodents in a carcinogenicity or toxicology laboratory is preferred. Duties involve participation in ongoing carcinogenesis bioassay program, as well as acute and subchronic toxicology, including supervision and coordination of all aspects of carcinogenesis bioassay and toxicology.

ELECTRON MICROSCOPIST. B.S. or M.S. biologist with experience in transmission electron microscopy and photographic techniques. Experience in cell culture work also desirable. Work involves study of cell structure and functions.

Send résumé, salary requirements, and references to:

D. D. Johnson
Personnel Office
SOUTHERN RESEARCH INSTITUTE
P.O. Box 3307-A
Birmingham, Alabama 35255

An Equal Opportunity/Affirmative Action Employer

SUPERCONDUCTING CYCLOTRON DESIGNER

Accelerator physicist needed to assist in the design of the central region and extraction mechanism of new superconducting cyclotron. Must work with other designers, performing theoretical analysis and computer calculations to design these components and their integration into the accelerator.

Ph.D. in physics plus 2 years of experience in the design of a cyclotron's central region and extraction system required.

Salary: \$22,000.

Contact: Michigan Employment Security Commission, M. L. Munk, 5015 South Cedar Street, Lansing, Mich. 48910. Telephone: 517-373-3636.

VICE CHANCELLOR FOR RESEARCH AND DEAN OF GRADUATE STUDIES University of Maryland at Baltimore (UMAB)

UMAB invites applications and nominations for an individual to provide central focus for all research activities; increase long-term support for research and graduate training; assure that services are responsive to research needs; advise the chancellor on the use of research funds; and provide a focus for all graduate education and maintain quality control of graduate training programs.

Candidates should have achieved significant national recognition as scientists and administrators with a successful record of managing research programs. They should articulate with the chancellor and be knowledgeable and capable of maintaining effective contact with federal and private funding sources. UMAB is a center in downtown Baltimore with wide-ranging research that brings over \$30 million a year in extramural funding; it is comprised of the Schools of Dentistry, Law, Medicine, Nursing, Pharmacy, Social Work and Community Planning, Graduate School, and University of Maryland Hospital.

Confidential nominations and résumés should be received by 31 December 1981 by: Dr. Adil E. Shamoo, Chairman of the Search Committee, University of Maryland at Baltimore, Biological Chemistry, 660 West Redwood Street, Baltimore, Maryland 21201. Those arriving after 31 December 1981 may be considered.

An Equal Opportunity/Affirmative Action Employer

MICROBIOLOGISTS/ BIOCHEMISTS

Our Genetics Division offers exciting career opportunities in research using genetic manipulation and recombinant DNA technology to create products that are useful to such fields as energy and agriculture, as well as the chemical and pharmaceutical industries.

The ideal candidates for the microbiology positions will have a BS/MS in microbial genetics and physiology and/or biochemistry; experience in recombinant DNA and microbial genetics is essential. Research areas will include amino acid overproduction, hydrocarbon modification and anaerobe genetics.

Biochemist positions will involve work in purification of viruses, isolation and purification of nucleic acids, analysis of nucleic acids and gene cloning. Requirements for these opportunities include BS/MS with experience in molecular biology of nucleic acids and recombinant DNA technology and sequencing.

Please send your resume/C.V. to:

J. Wamstad

BETHESDA RESEARCH LABORATORIES

Box 6009 PKSM
8717 Grovemont Circle
Gaithersburg, Maryland 20878
(a suburb of Washington, D.C.)



An equal opportunity employer, M-F-H

SCIENTIFIC/MEDICAL TRANSLATORS

GERMAN-ENGLISH

BOEHRINGER INGELHEIM Ltd., one of America's most distinguished and rapidly growing pharmaceutical companies with international affiliation has positions available for Scientific/Medical Translators.

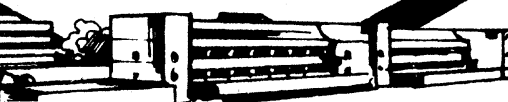
These outstanding opportunities require individuals with:

- Excellent command of both German and English (knowledge of French or Spanish desirable).
- Minimum of 3 years experience in translating medical, pharmacological or biochemical material on a professional basis.
- Degree or equivalent in one of the life sciences and ideally pharmaceutical industry experience and familiarity with terminologies of pharmaceutical science and technology.

Selected candidates will assist the Medical Writing Unit in preparing English translations, primarily of German-language text. You will be dealing with subject matter that is diverse and at a high level of technical/scientific complexity. To qualify for this position you will be expected to submit a specific translation sample of the company's choosing.

We are ideally located in income-tax free Ridgefield, Ct. (with easy access to NYC) which offers exceptional living, educational, cultural and recreational facilities. In addition, our compensation package provides generously for you and your family, with an attractive starting salary and superior company paid benefits including dental and life insurance, investment savings plan, company-paid pension, educational reimbursement, relocation assistance, and more.

Please send a confidential resume with salary requirements to: MR. G. ROLAND RANSOM, Manager of Employment, BOEHRINGER INGELHEIM, LTD, 90 East Ridge, P.O. Box 368, Ridgefield, Connecticut 06877. We are an equal opportunity employer m/f



Boehringer Ingelheim Ltd.

Cetus

a leader in the commercial application of biotechnology is seeking:

- Ph.D.s in molecular biology with experience and interest in virology and infectious diseases. Preference will be given to individuals with a broad background which includes recombinant DNA techniques and immunological characterization of viral antigens. Positions are available at the Sr. Scientist, Scientist, and Postdoctoral levels.
- Ph.D.s in biochemistry or molecular biology with 3-5 years' postdoctoral experience, preferably in DNA cloning, expression and eukaryotic gene regulation for pharmaceutical use.

Applicants should send their resumes in confidence to:

CETUS CORPORATION
Box SJN
600 Bancroft Way
Berkeley, CA 94710
(415) 549-3300



Molecular Biologist

The Plant Genetics Department of Pfizer Central Research provides basic research support for corn and soybean breeding programs. We seek a PhD level scientist to carry out research designed to develop vector systems for transferring foreign genes into corn and soybeans and to explore potential applications of gene transfer technology to crop improvement.

In addition to a PhD with training in molecular biology, experience with gene cloning techniques and microbial genetics is required. Prior experience with higher plant systems is preferred.

This position offers an excellent opportunity for professional recognition and career growth. We also offer a competitive compensation and benefit package and the opportunity to live in an attractive Connecticut shore community. Please send resume and description of research interests to: Mr. F. G. Ziegler, Pfizer Inc., Eastern Point Road, Groton, CT 06340.



An equal
opportunity employer

POSITIONS OPEN

RESEARCH ASSOCIATE MOLECULAR BIOLOGY OF HUMAN HEMOPHILIC FACTOR

Immediate opening for two research associates or postdoctoral fellows to address central issues in the molecular biology, biosynthesis, structure and function of the human hemophilic factor protein. Candidates must have demonstrated accomplishment in applicable areas of protein biochemistry, primary structure analysis, or protein biosynthesis and in vitro translation. Experience in trace protein purification and use of immunochemical methodology is desirable. Appointments are for 2 years with reappointment dependent upon accomplishment and progress. Salaries are competitive and appropriate to the level of experience and appointment. Starting dates as soon as possible after 1 January 1982. Inquiries accompanied by curriculum vitae to: **Dr. T. S. Edgington, Research Institute of Scripps Clinic, La Jolla, Calif. 92037.**

SENIOR BIOLOGIST University of Florida

A research position is available immediately for an immunologist with experience in cell culture and related techniques. Current research involves the immunologic characterization of tumor antigens on chemically induced tumors in mice and includes the cloning and characterization of cytotoxic killer lymphocytes raised against these tumors. Minimum requirements are a M.S. degree plus 2 years of experience, Ph.D., or equivalent degree. A strong background in tumor and/or cellular immunology is desirable. Send complete résumé to: **Central Employment Center, 3rd Floor Stadium, University of Florida, Gainesville, Fla. 32611, by 15 January 1982.** Requests must refer to position identification number 50687 in order to guarantee consideration.

Equal Opportunity/Affirmative Action Employer

SENIOR FACULTY POSITIONS FOR PHYSICIANS IN OCCUPATIONAL MEDICINE

One tenure faculty position and one full-time clinical faculty position are announced for participation in a residency program in the Department of Community and Environmental Medicine, California College of Medicine, and in the University of California Southern Occupational Health Center at the University of California, Irvine. Qualifications should include eligibility for medical licensure in California and certification by the Board of Preventive Medicine. Experience should include productivity as principal investigator with significant contributions to the scientific literature, ability to obtain extramural research support, research in an area relevant to occupational medicine, and demonstrated ability either in a clinical field relevant to occupational medicine or with preventive medicine programs in the workplace. Experience in instruction of medical students and occupational medicine residents is highly desirable. Responsibilities will include continued development of existing occupational medicine residency program, medical student instruction in occupational medicine, and development of a research program relevant to occupational medicine in a department that has growing capabilities in toxicology, epidemiology, biochemistry, and immunology.

Send curriculum vitae, statement of current research support, and names of three references to:

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

An Affirmative Action/Equal Opportunity Employer

TOXICOLOGY. The Board on Toxicology and Environmental Health Hazards of the National Academy of Sciences is seeking a professional in the area of chemical toxicology with an emphasis on environmental fate and human exposure. The individual will be responsible for the technical interaction with experts in the fields of chemical characterization, chemical manufacturing processes, chemical production volume dynamics, chemical use, environmental fate of chemicals, and human exposure. A Ph.D. degree or equivalent is required with 1 year of postdoctoral experience in toxicology or related field. Applicants should submit curriculum vitae to: **Dr. Scott R. Baker, Board on Toxicology and Environmental Health Hazards, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20418.** *An Equal Opportunity Employer.*

POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR OF MICROBIOLOGY

Position open for virologist/molecular biologist (2 to 5 years of postdoctoral) to do research and training in virology, cell biology, genetics, biochemistry. Active research, graduate, and postdoctoral training programs. Completely equipped and functioning laboratory plus excellent support facilities available. Send résumé to: **Professor Robert R. Wagner, Chairman, Department of Microbiology, University of Virginia School of Medicine, Charlottesville, Va. 22908.** *An Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE DEPARTMENT OF CHEMISTRY THE OHIO STATE UNIVERSITY

Applications are invited from individuals with an M.S. in organic chemistry and several years of research experience. Candidates must have training in the synthesis of fluoro derivatives of polynuclear aromatic hydrocarbons, heterocyclic compound synthesis, UV, IR, mass and NMR spectroscopy, and chromatographic techniques and should be able to conduct literature searches and write up papers. Recent publications desirable. Write to: **Ohio Bureau of Employment Services, 309 South Fourth, Columbus, Ohio 43215.** Salary: \$13,800 to \$15,240 per annum. *An Equal Opportunity/Affirmative Action Employer.*

GRADUATE STUDY

NEUROSCIENCES AT BAYLOR COLLEGE OF MEDICINE

An interdepartment Neuroscience Program is offered at Baylor College of Medicine for students interested in advanced study leading to the Ph.D. in neuroscience. The faculty of the program share common interests in neurobiology and strive to promote collaborative research intended to maximize the interdisciplinary nature of the student's education. Applications must be completed by 1 March 1982. Applicants are notified regarding admission and financial support by 15 April. Information regarding the program curriculum, research opportunities, and application procedures may be obtained from:

**Scott F. Basinger, Ph.D., Predoctoral Director
Program in Neuroscience
Baylor College of Medicine
Texas Medical Center
Houston, Texas 77030**

PROGRAMS

CAREER CHANGE

This unique program offers the candidate with an earned doctorate in the sciences (or equivalent) the opportunity to obtain a doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: **The Dean of Admissions, The New England College of Optometry, 424 Beacon Street, Boston, Mass. 02115.**

Graduate Training in Basic Medical Sciences—The College of Medicine, University of South Alabama, invites applications from qualified individuals interested in pursuing the Ph.D. degree in basic medical sciences. Applications are now being accepted for September 1982 entrance into the graduate program leading to the doctorate with specialization in anatomy, biochemistry, microbiology/immunology, pharmacology, or physiology. A Ph.D.-M.D. track is available for exceptionally qualified students. This program accepts both qualified nondegree holding students after only 3 years of undergraduate study or applicants holding degrees. Tuition is waived. A \$5000 per year stipend is awarded to each student accepted into the program. Applications are accepted at any time but must be completed by 30 April. For further information, write:

**Edwin R. Hughes, M.D.
Director, Graduate Program in
Basic Medical Sciences
University of South Alabama
MSB 1015
Mobile, Alabama 36688**

PROGRAMS

The Rand Graduate Institute (RGI)

Invites applications for its doctoral degree program in policy analysis. Deadline for submitting applications for 1982-1983 is February 1, 1982. RGI is an integral part of The Rand Corporation. Its curriculum consists of interdisciplinary study, combined with compensated work, leading to the award of the Ph.D. in Policy Analysis. The Rand Graduate Institute is fully accredited by the Western Association of Schools and Colleges.

A master's degree, or equivalent post-bachelor's degree training and experience, is required for admission.

For more information concerning application procedures, write: The Rand Graduate Institute, 1700 Main Street, Santa Monica, California 90406, or telephone: 213/393-0411.

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COURSE

Twenty-Third Annual Course in Medical Genetics and Experimental Mammalian Genetics. Directors: Victor A. McKusick, M.D., and Thomas H. Roderick, Ph.D. Location: The Jackson Laboratory, Bar Harbor, Maine. Time: 19 to 30 July 1982.

First conducted in 1960, this course has been supported throughout by The March of Dimes Birth Defects Foundation and conducted as a joint enterprise of the Johns Hopkins University and the Jackson Laboratory. Persons may apply for the course by writing to either: **Dr. Victor A. McKusick, The Johns Hopkins Hospital, Baltimore, Md. 21205,** or **Dr. Thomas H. Roderick, The Jackson Laboratory, Bar Harbor, Maine 04609.**

SYMPOSIA

Application of Short-Term Tests in the Analysis of Complex Environmental Mixtures. Sponsor: Genetic Toxicology Division, U.S. Environmental Protection Agency, 25 to 27 January 1982, Chapel Hill, North Carolina. Discuss current and future approaches for evaluating mutagenic, carcinogenic, and teratogenic effects; soil, water, and air media; pollutant characterization; sources, exposure, and hazard assessment. Contact: **Olga Wierbicki, NSI, P.O. Box 12313, Research Triangle Park, N.C.; telephone: 919-549-0411.** For technical information, contact: **Dr. Shahbeg Sandhu, telephone: 919-541-3850.**

International Symposium on Molluscan Genetics, 20 to 22 July 1982, is being organized and sponsored by the American Malacological Union in conjunction with its 51st Annual Meeting, at the Fountain Bay Club in New Orleans, La., 19 to 23 July 1982. Abstracts of papers to be offered for presentation must be submitted by 1 March 1982. Each participant is expected to submit a peer-reviewed manuscript in advance of the meeting. Proceedings of the symposium will be published in *Malacologia*. Inquiries may be addressed to: **Dr. George M. Davis, Department of Malacology, Academy of Natural Sciences, 19th and the Parkway, Philadelphia, Pa. 19103,** or to: **Dr. Louise Russert Kraemer (President, American Malacological Union), Department of Zoology, University of Arkansas, Fayetteville, Ark. 72701.**

GEORGE WASHINGTON UNIVERSITY SPRING SYMPOSIUM ON HEALTH SCIENCES (Washington, D.C.—18 to 21 May 1982) GENE EXPRESSION 1982

The conference will feature five sessions on gene structure, expression, and gene transfer. **Chromatin Structure:** Gary Felsenfeld (NIH), A. Varshavsky (MIT), and S. Elgin (St. Louis); **Gene Structure:** P. Leder (NIH), M. Warming (Carnegie), A. Efstratiadis (Harvard), L. Kedes (Stanford), and J. Seidman (NIH); **Gene Expression:** D. Hamer (NIH), G. Khoury (NIH), and M. Wigler (CSH); **Cell Free Systems:** R. Roeder (St. Louis), P. Sharp (MIT), C. Parker (Caltech), and B. Solnar-Webb (Johns Hopkins); **Gene Transfer:** F. Anderson (NIH), F. Ruddle (Yale), W. Salser (UCLA), and P. Hoppe (Maine).

There will be open registration for a limited number of participants including those who wish to make poster presentations. For further information write to:

**A. Kumar
Department of Biochemistry
George Washington University
School of Medicine
2300 Eye Street NW
Washington, D.C. 20037
Telephone: 202-676-4415**

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Congressional Science and Engineering Fellowships

Applications Invited

The American Association for the Advancement of Science (AAAS) invites applications for a 1-year Congressional Science and Engineering Fellowship it will offer for the period beginning 1 September 1982. The Fellowship Program provides an opportunity for accomplished and societally aware postdoctoral to mid-career scientists and engineers to participate in and contribute to the public policy-making processes within the Congress for approximately 1 year. Fellows work as special legislative assistants within the congressional staff system.

Persons may apply from any physical, biological or behavioral science or any field of engineering. The term "science" is used broadly to include the system sciences, public health, and other technical professions. In addition to the Fellowship awarded by the AAAS, about 25 others are given by participating professional societies some of which cosponsor awards with the Association. The AAAS runs the overall program for the set of Congressional Science and Engineering Fellows. (See article in *Science*, 2 October 1981, page 52, for details of the program and information on this year's Fellows.) Addresses of all participating societies are available from the address listed below.

The 1982-83 AAAS Congressional Science and Engineering Fellow will receive a stipend of \$24,000; an additional \$1500 is available for relocation expenses and travel in connection with the Program.

In order to obtain detailed information on the program and specific application requirements write: **Congressional Science and Engineering Fellow Program, American Association for the Advancement of Science, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036**.

The deadline for application is 19 February 1982. The award will be announced before 1 May 1982.

ASSISTANTSHIPS

TEACHING ASSISTANTSHIPS AVAILABLE

The Department of Botany and Microbiology at Arizona State University has graduate teaching assistantships available beginning fall semester 1982. Stipends range from \$5000 to \$5500 per academic year. Completed applications must be received by 15 February 1982. Research areas in the Botany Program include cellular biology/ultrastructure, ecology, palynology, phycology, physiology, and systematics. Research areas in the Microbiology Program include bacterial enzymology/genetics, immunology, medical microbiology/mycology, physiology, systematics, ultrastructure, and virology. Send inquiries to: **Dr. M. R. Sommerfeld, Department of Botany and Microbiology, Arizona State University, Tempe, Ariz. 85287.** *Equal Opportunity/Affirmative Action Employer.*

TRAINEESHIPS

POSTDOCTORAL TRAINEESHIPS IN CELLULAR AGING

Two postdoctoral positions will be available between June and September 1982 in the area of in vitro cellular aging, funded through a training grant from the National Institute on Aging. A wide range of research interest can be accommodated under the training grant, including clonal analysis of senescence, somatic cell hybridization, biology of endothelium, regulation of cell multiplication and function, connective tissue biology, molecular genetics, biology of ciliated cells, and development of new in vitro cell types relevant to the study of aging.

Appointments will be for 2 years at a starting salary of at least \$13,380 per year, plus liberal benefits. Each stipend also carries travel and supply money, and the fellow may take advantage of the courses in in vitro cell biology offered by the Cell Science Center's Education Program.

Candidates must have an interest in aging research, and must also be permanent residents of the United States and be committed to a career in aging research.

Interested persons should send curriculum vitae, names of references, and specific areas of interest to:

Personnel Department
W. Alton Jones Cell Science Center, Inc.
Old Barn Road
Lake Placid, New York 12946

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FELLOWSHIPS

MOLECULAR CELL BIOLOGY

PREDOCTORAL FELLOWSHIPS. The Graduate Program in Molecular Cell Biology invites applications from highly qualified students interested in an interdisciplinary Ph.D. program. Major areas of emphasis include animal virology, bacterial and somatic cell genetics, cancer biology, cellular immunology and immunochemistry, connective tissue and protein biochemistry, infectious diseases and host defense, membrane biochemistry, nucleic acid synthesis, and research involving the cause and prevention of dental caries. All students admitted to the program receive stipends of \$6300 plus tuition and fees per year. After admission to candidacy, the stipend is increased to \$7000 per year. Contact: **Dr. Roy Curtiss III, Director of Molecular Cell Biology Graduate Program, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Alabama 35294.**

POSTDOCTORAL FELLOWSHIPS IN IMMUNOLOGY

Positions available for postdoctoral training in basic immunology (idiotypic regulatory mechanisms) and applied problems (tumor immunology and leukemia virus-lymphocyte interactions). Other related activities in the department include research on biology of interleukins, interferons, and cellular immunity (cytotoxic and NK cells). Send complete curriculum vitae and references to:

Jan Cerny, M.D., Ph.D.
Department of Microbiology
University of Texas Medical Branch
Galveston, Texas 77550

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FELLOWSHIPS

MARINE POLICY AND OCEAN MANAGEMENT RESEARCH FELLOWSHIPS

Woods Hole Oceanographic Institution offers 1-year fellowships to professionals in social sciences, law, or natural sciences to conduct research in marine policy and ocean management with emphasis on ocean waste disposal, fisheries, marine mineral management, and marine policy problems and opportunities in developing countries. (A second year's appointment may be possible.) Recipients of awards are selected on a competitive basis, with primary emphasis placed on research promise.

Applicants must have completed a doctoral level degree or possess equivalent professional qualifications through career experience.

Fellowship stipend is \$20,000. Appointees are eligible for group health insurance and a modest research budget. Recipients are encouraged to pursue their own research interests independently or in association with resident staff. Completed applications must be received by 1 March 1982 for 1982-1983 awards. Awards will be announced in April. Write for application forms to: **Dean of Graduate Studies, Education Office, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543.**

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POSTDOCTORAL FELLOWSHIP OR ASSISTANTSHIP

Two positions available immediately in ongoing programs. The first deals with protein structural aspects of the allosteric regulation of enzyme activity, and uses biophysical techniques to investigate allosteric mechanisms. Applicants should have considerable experience in enzyme purification and some familiarity with biophysical methods of studying proteins.

The second program involves studies of the transport, uptake, efflux, and metabolism of an antineoplastic drug in cultured human cells. Applicants should have experience of cell culture techniques. Experience in transport measurements and HPLC is desirable.

Send curriculum vitae and names of three persons who will provide references to: **Dr. R. L. Blakley, Division of Biochemical and Clinical Pharmacology, St. Jude Children's Research Hospital, Box 318, Memphis, Tenn. 38101.**

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IMPERIAL CANCER RESEARCH FUND RESEARCH FELLOWSHIP

Applications are invited for a 3-year postdoctoral appointment to clone mammalian DNA sequences specifying control regions, structural genes, and transforming genes and to test the expression and biological activity of the cloned sequences by the use of DNA transfection techniques and eukaryotic vector systems.

Salary range: £8,787 to £10,837 (inclusive of London Allowance) with entry according to qualifications and experience.

For further information, contact: **Dr. M. Fried (telephone: 01.242.0200, extension 297).** Applications with curriculum vitae and the names of two referees should be sent to: **The Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London W.C.2, England,** quoting reference number 10/82.

POSTDOCTORAL FELLOWSHIPS available at Fels Research Institute, Temple University Medical School, Philadelphia. Areas of interest include: chemical carcinogenesis, molecular biology, virology, biochemistry of receptors, cell proliferation, and DNA repair. Address inquiries to: **Dr. Renato Baserga, Temple University School of Medicine, OMS Building, 3400 North Broad Street, Philadelphia, Pa. 19140.** *Temple University Medical School is an Affirmative Action/Equal Opportunity Employer.*

GRADUATE FELLOWSHIPS IN BIOMEDICAL ENGINEERING AND SCIENCE. These fellowships are supported by the Calhoun Endowment to Drexel University. Each fellowship provides a minimum \$7200 tax-free stipend, plus waiver of all tuition and fees for 12-month appointments. Exceptional first year graduate students are eligible for awards beginning fall term 1982. Deadline for completed application is 31 January 1982. For applications, please write: **Dr. Dov Jaron, Director, Biomedical Engineering and Science Institute, Drexel University, Philadelphia, Pa. 19104.**

FELLOWSHIPS

A **POSTDOCTORAL FELLOWSHIP** is available starting January 1982 to work on plasticity in the adult nervous system. Ongoing projects in the laboratory include studies on the effects of increased neural activity on the biochemistry of neurons and their effector cells and studies on recovery of function after neural damage. The position is funded on an NIH postdoctoral training grant. If interested, please send curriculum vitae and three letters of recommendation to: **Dr. Richard E. Zigmond, Department of Pharmacology, Harvard Medical School, 250 Longwood Avenue, Boston, Mass. 02115.**

GRADUATE FELLOWSHIPS IN MOLECULAR BOTANY

Plant scientists at the University of Vermont invite applications from highly qualified applicants interested in contemporary studies of plants. Areas of inquiry include: DNA and proteins of chloroplasts, glycoproteins and lectins, electrophysiology of membranes, *Rhizobium*-legume symbiosis, host-parasite recognition, photorespiration, ribosome structure, amino acid transport, and recombinant DNA studies. Full tuition remission and tax-free stipend of approximately \$5100 per year. Write: **Dr. R. Ullrich, Life Sciences Building, University of Vermont, Burlington, Vt. 05405.**

POSTDOCTORAL RESEARCH FELLOWSHIPS—NIH-funded multidisciplinary (biochemistry, physiology, pharmacology) membrane biology training program. Trainees choose amongst several applied areas: **CANCER RESEARCH**, analysis of anticancer drug interactions with tumor cells (membrane transport, drug metabolism, interaction with cellular targets); transport in plasma membrane vesicles and lipid membrane systems. **CARDIOVASCULAR—RENAL**, the role of interfacial phenomena in transduction, transcapillary transport, calcium transport in SR, transport in epithelial cells in culture. Emphasis on network thermodynamic modeling of biological processes. Send curriculum vitae to: **Dr. I. David Goldman, Box 663, Medical College of Virginia, Richmond, Va. 23298.**

POSTDOCTORAL FELLOWSHIP. NIH traineeship available in basic cancer chemotherapy dealing with the mechanism of action and metabolism of anticancer agents. Applicants must be either U.S. citizens or have permanent visas. Send curriculum vitae and names of two references by 30 January 1982 to: **Dr. George Mandel or Dr. Philip Klubes, Department of Pharmacology, The George Washington University Medical Center, 2300 Eye Street, NW, Washington, D.C. 20037.**

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RESEARCH MINERALOGIST

The Department of Mineral Sciences at the American Museum of Natural History is re-opening its search for a tenure-track position for ASSISTANT CURATOR OF MINERALOGY beginning July 1982. This is a research position with an average of 1/4 time responsibility towards departmental activities, collection management, exhibition, and interaction with the mineral community at large. High quality problem-oriented research is the prime responsibility. The field of specialization within the mineral sciences is open, and may include and combine aspects of X-ray crystallography, ultrastructure analysis, crystal growth, spectroscopy, gemology, petrologic mineralogy, mineral geochemistry, crystal and thermochemistry, medical mineralogy, and mineral physics. Major research facilities include a fully automated ARL-SEMQ electron microprobe, X-ray laboratory, minicomputers, and a 100,000 specimen mineral collection. Opportunities exist for research and/or teaching collaboration with nearby institutions such as Columbia (Lamont-Doherty Geological Observatory), Princeton, SUNY at Stony Brook, Yale and Mt. Sinai School of Medicine (TEM facilities).

Requirements are a Ph.D. in hand by time of appointment, an ability to do creative research, and a desire to learn about collections and relate to the public in terms of exhibition and speaking. Applications should include: (1) curriculum vitae, (2) names of three persons familiar with your work who will write letters of recommendation, and (3) a brief statement of research interests.

These must be submitted by February 1, 1982 to:
Dr. Martin Prinz
Chairman, Department of Mineral Sciences

American Museum of Natural History
Central Park West at 79th Street
New York, New York 10024

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MICROBIOLOGY- ASSISTANT PROFESSOR

PhD or equivalent degree with 2 years post doctoral experience. Qualified to teach medical microbiology and cellular immunology or molecular biology/genetics to medical students and graduate students. Should be able to maintain vigorous independent and collaborative research program in: Cellular immunology, macrophages, immunotoxicology, or molecular and genetic levels of pathogenesis of viral/bacterial infections. For full consideration send curriculum vitae, 3 recommendations and a brief description of research interests and accomplishments by February 1, 1982, to:

DR. PAGE MORAHAN, Chairman-Elect
Department of Microbiology

MEDICAL COLLEGE OF PENNSYLVANIA

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Natural History Museum EXECUTIVE DIRECTOR

Applications are invited for the position of Executive Director, Natural History Museum, Los Angeles County, which includes the satellite Page Museum of La Brea Discoveries. The Museum is acknowledged as the fourth among the natural history museums in the nation.

Candidates should have a record of research or scholarly achievement and significant administrative experience in a museum, university or similar institution. A doctoral degree in either a field of natural science (life or earth sciences) or history is preferred. Candidates must have demonstrated ability to work with diverse governances and deal effectively with the public. Ability to secure endowments and grants is expected and must be a matter of record.

The Executive Director is responsible to the Museum Board of Governors, a private support Foundation Board of Trustees, and the elected Board of Supervisors of Los Angeles County and supervises 175 full-time employees including over thirty curatorial personnel. Principal divisions in the Museum are Earth Sciences, Life Sciences, History, Education and Exhibitions.

Salary will depend upon experience and qualifications. Send inquiries or applications to:

Dr. John R. Schlosser
445 S. Figueroa St., Suite 2330
Los Angeles, California 90071

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RESEARCH OPPORTUNITIES IN IMMUNODIAGNOSTICS INFECTIOUS DISEASES

Abbott Laboratories is seeking research scientists for fundamental research projects involving the diagnosis of both viral and bacterial infections.

Qualified candidates should have experience with antigen purification, antibody production, and viral culturing techniques, as well as a PhD or MS in Microbiology, Immunology, or Virology. Knowledge of Parasitology would also be desirable for one of the available positions.

PhD candidates with preferably 2-3 years post-doctoral experience will be responsible for research projects aimed at the development of new diagnostic products. Responsibilities would also include directing the activities of two to four scientists. MS candidates would function as a member of a research team under the direction of a PhD level researcher.

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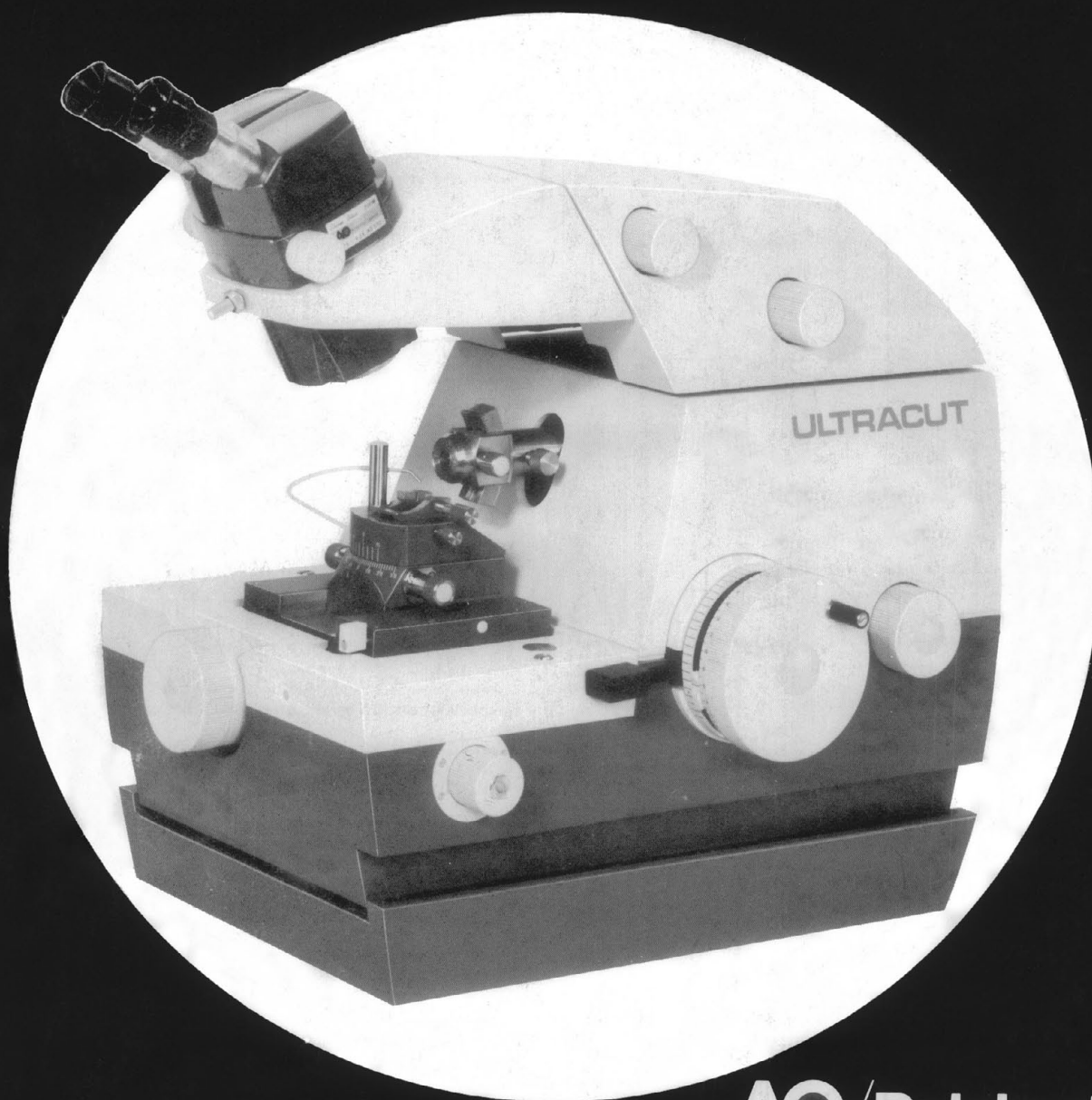
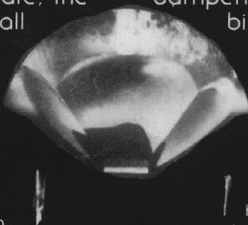
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Information for Contributors

The Editors of *Science*

Papers published in *Science* often receive far more attention than papers published in specialty journals. As a consequence, the rate of submission of papers is high—about 5000 manuscripts are submitted each year. The rejection rate of about 80 percent contrasts with that of most specialty journals, which is usually about 30 percent. Most of the material submitted to *Science* is of good quality and worthy of publication, and virtually all the scientific papers are eventually published somewhere. In selecting papers for *Science*, the editors must consider the needs of a broad audience. Insofar as the input of manuscript permits, preference is given to items that seem to be of general significance.

General Information

Four types of signed papers are considered: Articles, Reports, Letters, and Technical Comments. The author's membership in the AAAS is not a factor in selection. Papers are considered with the understanding that they have not been published and are not under consideration elsewhere. Authors will usually be notified of acceptance, rejection, or need for revision in 6 to 8 weeks (Reports) or 8 to 10 weeks (Articles).

Outside reviews. Almost all Articles and Reports, including those solicited by the editor, are sent to two or more outside referees for evaluation. Referees suggested by authors are used at the discretion of the editors. Papers that depend on statistical inferences for their conclusions may be sent to statisticians (in addition to other referees) for review.

Length limits. Papers that exceed the length limits cannot be handled expeditiously and in some cases will be returned without review. The limits are stated below in number of pages based on standard-size pages (8½ by 11 inches) typed with double spacing throughout (including the references and notes) and with 1-inch margins.

1) Articles: Up to 20 pages of text, including the references and notes, and

one table or figure for approximately every three manuscript pages.

2) Reports: Up to seven pages of text, including references and notes, and two tables or figures that together will occupy no more than half a printed page.

3) Letters: Up to 250 words.

4) Technical Comments: Up to two pages of text, including references and notes.

Selection of Manuscripts

1) Articles: About half the Articles published in *Science* are solicited by the editor. Both solicited and unsolicited Articles undergo outside and in-house review. Articles are expected to (i) provide a review of new developments in one field that will be of interest to readers in other fields, (ii) describe a current research problem or a technique of interdisciplinary significance, or (iii) present a study of some aspect of the history, logic, philosophy, or administration of science or a discussion of science and public affairs. Readers should be able to learn from a technical Article what has been firmly established and what are significant unresolved questions; speculation should be kept to a minimum. Preference is given to Articles that are well written, well organized, and within the length limit. Balance of subject matter in *Science* is an important consideration when a choice is made between acceptable Articles.

2) Reports: Reports are selected on the basis of reviewers' comments and an in-house review. Reports are expected to contain solid research results or reliable theoretical calculations. Preference is given to those that describe departures or discoveries that will be of broad interdisciplinary interest or of unusual interest to the specialist. In making the final selection, the editors take into consideration (i) the reviewers' comments: reports most likely to be accepted are those that receive persuasive outside reviews favoring publication; (ii) clarity of presentation within the prescribed length

limit; and (iii) subject matter in relation to that of other papers on hand. An attempt is made to balance the subjects of Reports so that one discipline is not overrepresented to the exclusion of others.

3) Letters: Letters are selected for their pertinence to material published in *Science* or because they discuss significant problems of interest to most scientists. Letters of a highly technical nature are usually transferred to the Technical Comments section. Letters pertaining to material published in *Science* may correct errors, provide support or agreement, offer different points of view, clarify, or add information. Outside reviewers may be consulted on questions of accuracy. Insinuations and conjecture about another author's motives, abilities, or intelligence are considered inappropriate for publication. The selection of letters is intended to reflect the range of opinions received.

4) Technical Comments: Technical Comments may be selected for publication if they express significant criticisms of papers published in *Science* or offer useful additional information. Technical Comments are usually sent for an opinion to the authors of the original papers before being reviewed. Discussions of minor issues or priority claims are not deemed appropriate, nor are questions that can be resolved by correspondence between the critic and the original authors.

5) Book Reviews: The selection of books to be reviewed and of reviewers is made by the editors.

Submission of Manuscripts

Submit an original and two duplicates of each manuscript together with a letter of transmittal giving:

- 1) the name(s) and telephone number(s) of the author(s);
- 2) the title of the paper and a statement of its main point;
- 3) the names, addresses, telephone numbers, and fields of interest of four to six persons in North America but outside your institution who are qualified to referee your paper;
- 4) the names of colleagues who have reviewed your paper; and
- 5) the fields of interest of readers who may want to read your paper.

Manuscript Preparation

Typing. Use double spacing throughout the text, tables, figure legends, and references and notes.

Units of measure. Use metric units. If measurements were made in English units, give metric equivalents.

Symbols and abbreviations. Define all symbols, abbreviations, and acronyms.

References and notes. Number references and notes in the order in which they are cited in the text. Place references cited only in tables or figure legends after the text references. Gather all acknowledgments into a single, brief statement at the end. Use *Bibliographic Guide for Editors & Authors* (American Chemical Society, Washington, D.C.) for abbreviations of journal titles. For journals not listed there provide the full title. Use the following forms:

For a journal paper: H. Smith, *Am. J. Physiol.* **98**, 279 (1931).

For a book: F. Datchile and R. Roy, in *Modern Very High Pressure Techniques* (Butterworth, London, 1961), pp. 163-180.

For a paper in a compilation: F. Datchile and R. Roy, in *Reactivity of Solids*, J. H. de Boer, Ed. (Elsevier, Amsterdam, 1960), p. 502.

For unpublished material: A. Giraud, paper presented at the American Nuclear Society Conference, Washington, D.C., November 1976.

Illustrations. For each illustration submit three copies of a quality suitable for reproduction. Label each on the back with the name of the author and the figure number. Plan figures for the smallest printed size consistent with clarity. Color may be used if necessary but authors are billed accordingly. Cite all illustrations in the text and provide a brief legend for each.

Tables. Type each table on a separate sheet, give it a number and title, and cite it by number in the text. Give each column a heading. Indicate units of measure in parentheses in the heading for each column, and do not change the unit of measure within a column.

Equations and formulas. Use quadruple spacing around equations and formulas that are to be set off from the text. Define all symbols.

Special Requirements and Procedures

1) Articles: Provide a title of one or two lines of not more than 26 characters and spaces each; a brief author note giving your position and address; and a summary of 50 to 100 words. The summary should convey to the general reader the main point of the paper and outline the results or conclusions. The introduction should portray the broad significance of the work, and the whole text should be intelligible to scientists in different disciplines. Explain all technical terms likely to be known in only one field. Insert short subheadings at appropriate places in the text to mark your main ideas. Provide a reference list in accord with *Science* style. Reference lists should not be exhaustive; citation of a single review article can often replace many references. A maximum of 40 references is suggested.

2) Reports: Provide a title of one or two lines of not more than 54 characters and spaces each, and an abstract of 50 to 75 words. The abstract and the first portion of the report should portray for the general reader the results described and their significance. The body of the report should be intelligible to scientists in other fields of expertise. Complete documentation need not be presented but should be available in cited references.

3) Letters: Letters should be short (up to 250 words) and to the point; they should be carefully phrased, free of technical jargon, and nonrepetitive. When a Letter refers to an Article published in *Science* the original author is usually given an opportunity to reply. Letters are frequently shortened and edited. Letters are acknowledged by postcard; authors are notified if their letters are accepted for publication. Letters must be typed with double spacing.

4) Technical Comments: Technical Comments on Reports or Articles are published at the end of the Reports section. When a Technical Comment is accepted for publication the authors of the

original paper are usually given an opportunity to reply.

5) Book Reviews: Instructions accompany review copies when they are sent to reviewers.

Printing and Publication

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