

mediated exclusively by prokaryotes. It is estimated that between 15 and 50 percent of nitrogen fertilizer is lost through denitrification before it becomes available to the plant. In a chapter that summarizes our present state of knowledge of this somewhat neglected process, W. J. Payne *et al.* point out, "Nitrogen fixation and incorporation into metabolism assure that the biological world stays ahead of nitrogen deficiency, but denitrification just as certainly assures that the margin is always slim."

Two chapters (by G. A. Peters *et al.* and S. N. Talley and D. W. Rains) discuss the physiology and agricultural uses of the N_2 -fixing symbiotic association between a water fern, *Azolla*, and its cyanobacterial symbiont, *Anabaena*. This association (*Azolla pinnata*-*Anabaena*) has been domesticated for several centuries in Vietnam, where it is now grown as a fertilizer crop on over 40,000 hectares of fallow rice fields, providing sufficient nitrogen to produce 5 metric tons of grain per hectare. More recently (within the last three decades) cultivation of *Azolla* has been adopted in China, where *Azolla* now serves as the principal source of nitrogen for approximately 1,300,000 hectares of subtropical and temperate rice. Recent studies in California have shown that the *Azolla mexicana*-*Anabaena azollae* association excretes ammonia during growth. This source of nitrogen along with that contained in the biomass of the association seems to offer considerable promise for achieving the long hoped-for goal of supplying most of the requirements of a major cereal crop from biologically fixed nitrogen.

Advances in our understanding of the genetics and biochemistry of nitrogen fixation in the past several years have been remarkable, and the complexity of the system has been a surprise. At least 13 contiguous genes (*nif* genes) govern the process of nitrogen fixation by the free-living bacterium *Klebsiella pneumoniae*. These genes are transcribed in at least six distinct units. Modern techniques of microbial genetics—cloning, transposon mutagenesis, and deletion mutagenesis by induction of mu phage—have been effectively exploited in these studies.

Nitrogen Fixation is an important book for those engaged in research on this or related topics and for those who want to be up to date on this rapidly advancing field.

JOHN L. INGRAHAM

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Advances in Cancer Research. Vol. 31. George Klein and Sidney Weinhouse, Eds. Academic Press, New York, 1980. x, 332 pp. illus. \$35.

Advances in Photochemistry. Vol. 12. James N. Pitts, Jr., George S. Hammond, Klaus Gollnick, and Daniel Grosjean, Eds. Interscience (Wiley), New York, 1980. xvi, 360 pp., illus. \$42.50.

Affine Sets and Affine Groups. D. G. Northcott. Cambridge University Press, New York, 1980. x, 286 pp. Paper, \$22.50. London Mathematical Society Lecture Note Series, 39.

Alcoholism. A Practical Treatment Guide. Stanley E. Gitlow and Herbert S. Peyser, Eds. Grune and Stratton, New York, 1980. xvi, 288 pp. \$24.50.

Background Math for a Computer World. Ruth Ashley in consultation with Nancy B. Stern. Wiley, New York, ed. 2, 1980. xii, 308 pp. Paper, \$7.95.

Basic Biochemistry. Max E. Rafelson, Jr., James A. Hayashi, and Anatoly Bezkorovainy, Macmillan, New York; Collier Macmillan Canada, Toronto; and Baillière Tindal, London, ed. 4, 1980. x, 418 pp., illus. Paper, \$14.95.

Biogeochemistry of Amino Acids. Papers from a conference, Warrenton, Va., Oct. 1978. P. E. Hare, T. C. Hoering, and K. King, Jr., Eds. Wiley, New York, 1980. xviii, 558 pp., illus. \$56.

Birds. Readings from *Scientific American*. Introductions by Barry W. Wilson. Freeman, San Francisco, 1980. x, 276 pp., illus. Cloth, \$17.95; paper, \$8.95.

The Brain. Freeman, San Francisco, 1979. viii, 150 pp., illus. Paper, \$5.95. A *Scientific American* Book.

Brain and Pituitary Peptides. Papers from a symposium, Munich, June 1979. W. Wuttke, K. H. Voigt, and R.-R. Dries, Eds. Karger, Basel, 1980. viii, 238 pp., illus. \$64.

Cholera and Related Diarrheas. Molecular Aspects of a Global Health Problem. Papers from a symposium, Stockholm, Aug. 1978. Orjan Ouchterlony and Jan Holmgren, Eds. Karger, Basel, 1980. xii, 252 pp., illus. \$75.

Cisplatin. Current Status and New Developments. Papers from a symposium, Atlanta, Sept. 1979. Archie W. Prestayko, Stanley T. Crooke, and Stephen K. Carter, Eds. Academic Press, New York, 1980. xvi, 528 pp., illus. \$30.

The Classical Thermodynamics of Deformable Materials. A. G. McLellan. Cambridge University Press, New York, 1980. xviii, 338 pp., illus. \$62.50. Cambridge Monographs on Physics.

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Current Topics in Membranes and Transport. Felix Bronner and Arnost Kleinzeller, Eds. Vol. 13, Cellular Mechanisms of Renal Tubular Ion Transport. Emile L. Boulpaep, Ed. Academic Press, New York, 1980. xxvi, 434 pp., illus. \$45.

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Design and Memory. Computer Programming in the 20th Century. Peter H. Huyck and Nellie W. Kremenak. McGraw-Hill, New York, 1980. viii, 152 pp. \$11.95.

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Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics. Albert Y. Leung. Wiley-Interscience, New York, 1980. xx, 410 pp. \$47.

Energy. From Opulence to Sufficiency. Jerrold H. Krenz. Praeger, New York, and Hemisphere, Washington, D.C., 1980. viii, 264 pp., illus. \$24.95.

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The Entertainment Functions of Television. Papers from a conference. Percy H. Tanenbaum, Ed. Erlbaum, Hillsdale, N.J., 1980. x, 262 pp. \$19.95.

Freud. The Man and the Cause. Ronald W. Clark. Random, New York, 1980. xiv, 654 pp. + plates. \$19.95.

Friendship and Social Relations in Children. Hugh C. Foot, Antony J. Chapman, and Jean R. Smith, Eds. Illustrations by Patty Inkley. Wiley, New York, 1980. x, 396 pp. \$42.50.

From DNA to Protein. The Transfer of Genetic Information. Maria Szekely. Halsted (Wiley), New York, 1980. viii, 284 pp., illus. \$35.95.

Frontiers of Bioorganic Chemistry and Molecular Biology. Proceedings of a symposium, Moscow and Tashkent, Soviet Union, Sept. 1978. S. N. Ananchenko, Ed. Pergamon, New York, 1980. x, 474 pp., illus. \$80.

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(Continued on page 414)



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The TM 600 mini-Winchester disk drives are available in one-, two-, and three-platter models. Capacities vary from 3.19 to 11.5 megabytes in six models. Data transfer rate is either 4 or 5 megabytes per second. Track-to-track access time is 3 milliseconds and recording density is 7690 BPI. Average access time (1/3 of total stroke) is 168 milliseconds including head settling time (245 milliseconds in three models). Two standard interfaces are available. Tandon Magnetics. Circle 766.

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Fermenter

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cabinet wired to accept the user's choice of pH, pO_2 , temperature, agitation, foam, and recording modules. The working volume is 20 liters. The vessel may be sterilized in place. B. Braun Instruments. Circle 768.

Photomicrography

The PM-10AD system is microprocessor-controlled. An instant-response Silicone Blue Cell produces proper exposure automatically from 0.0002 second to 2 hours all across the visible spectrum. The unit automatically compensates for reciprocity failure under long exposure by properly matching exposure to the emulsion in use. An LED panel displays operating parameters such as film speed, shutter speed, exposure compensation, and exposure time. An automatic film winder may be overridden for multiple exposures. Actual shutter time may be locked in for repetitive exposures. Olympus. Circle 772.

Thermal Analysis

The TA 3000 system has applications in differential scanning calorimetry, thermomechanical analysis, thermogravimetry, or any combination of these techniques. The TC 10 processor accepts and evaluates data from analytic modules and controls their operation. The processor displays results and produces hard copy and signals for computer analysis. Measuring and evaluation methods remain stored when the device is switched off. The DSC module features a stable, reproducible baseline over a temperature range and presents the signal in milliwatts. Cooling is controlled down to -170°C . The TMA module features precise temperature control, accurate determination of sample thickness, ease of loading, short cooling time, straight baseline, and wide temperature range. The TG 50 thermobalance's range is from 0.001 to 150 milligrams. Mettler Instrument. Circle 770.

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The CryoCool immersion cooler, Extratrol temperature controller, and ETP temperature programmer enable one to cool biological specimens at rates from 0.75°C per minute to 1°C per hour with temperature control to within 0.05°C . There are three models to accommodate various requirements of temperature and specimen size. The user may reverse a program to provide a constant rate of thawing as well. Neslab Instruments. Circle 773.

Infrared Spectrophotometer

The 1300 series comprises three microprocessor-controlled models. Model 1310 offers a single slit program and two scan speeds. Models 1320 and 1330 have two slit programs and three scan speeds. Models 1310 and 1320 scan from 4000 to 600 cm^{-1} . Model 1330 has a range from 4000 to 200 cm^{-1} . The instruments all feature a four-digit display of wave number, with slit and relative gain, and an LED touch panel for ease of operation. There is also a self-diagnostic routine. Perkin-Elmer. Circle 757.

Literature

Prostatic Acid Phosphatase is an information packet that describes radioimmunoassay methods, techniques, and diagnostic applications. New England Nuclear. Circle 763.

pH Meter describes the model 611, an instrument that requires no separate temperature probe. Orion Research. Circle 764.

Laboratory Balances details the Precisa line of weighing instruments. Johnson Scale. Circle 774.

Microtomy Highlights illustrates and describes sectioning instruments and equipment. Hacker Instruments. Circle 775.

Online is an introduction to the use of systems, equipment manufacturers, and techniques. Data Courier. Circle 776.

Plasticware describes a complete line of containers, apparatus, and accessories for use in research and teaching laboratories. Mallinckrodt. Circle 779.

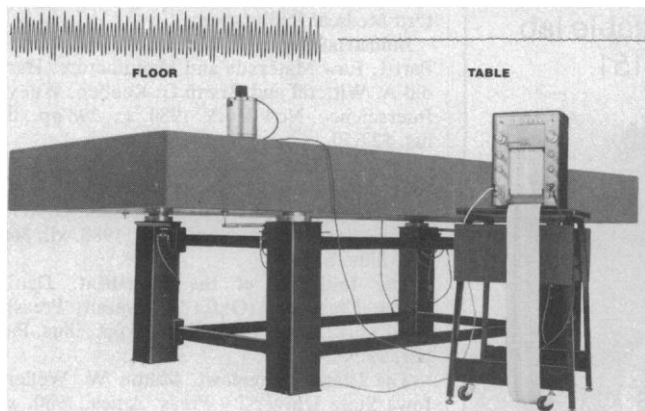
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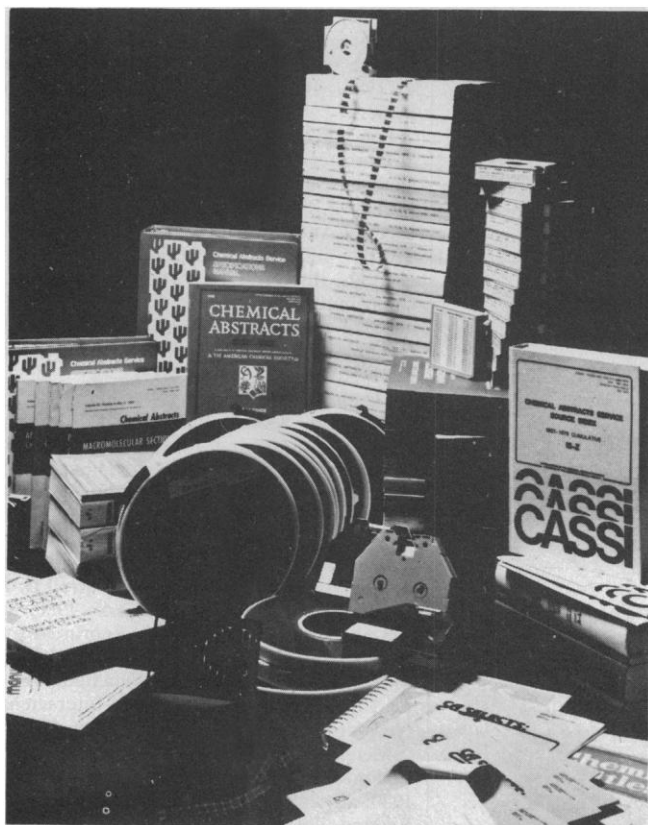
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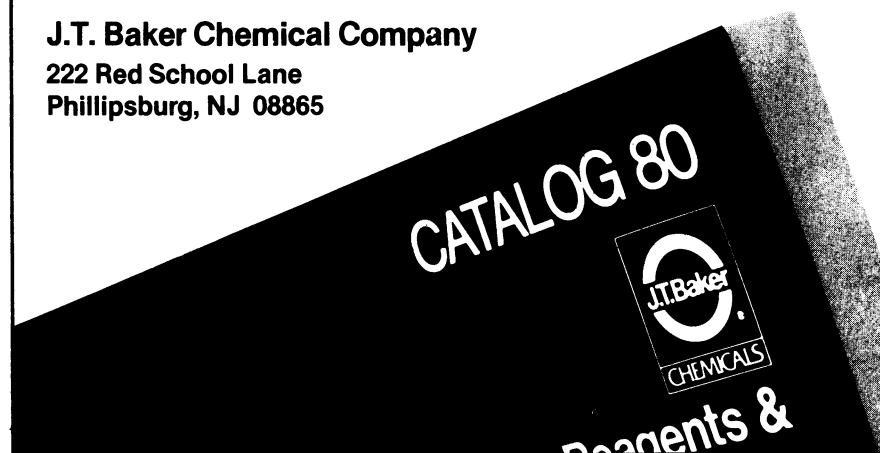
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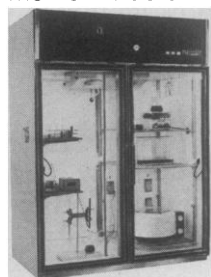
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(Continued from page 380)

How to Know the Aquatic Plants. G. W. Prescott. Brown, Dubuque, Iowa, ed. 2, 1980. viii, 158 pp., illus. Spiral bound, \$8.60. The Pictured Key Nature Series.

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The Island Waterfowl. Milton W. Weller. Iowa State University Press, Ames, 1980. x, 122 pp., illus. \$10.95.

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Metallography as a Quality Control Tool. Proceedings of a symposium, Tamiment, Pa.,

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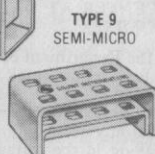
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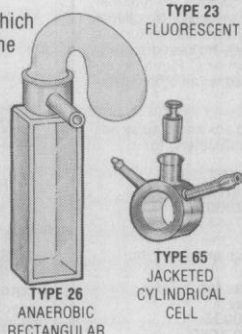
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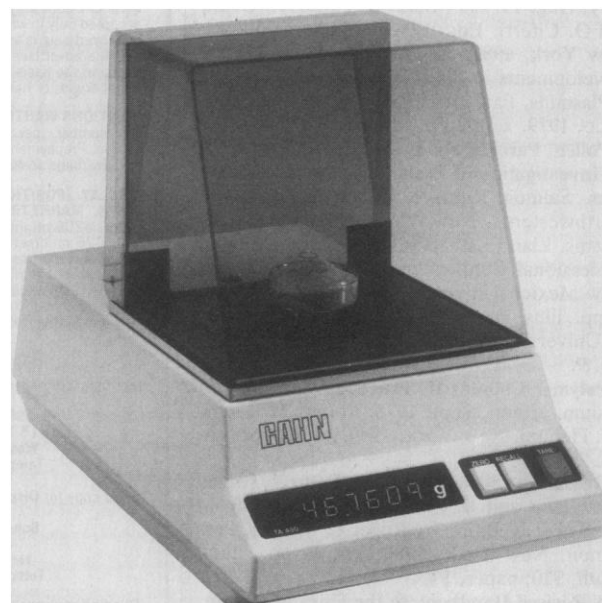
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July 1979. James L. McCall and P. M. French, Eds. Plenum, New York, 1980. viii, 338 pp., illus. \$39.50.

Methods in Enzymology. Sidney P. Colowick and Nathan O. Kaplan, Eds. Vol. 69, Photosynthesis and Nitrogen Fixation, Part C. Anthony San Pietro, Ed. Academic Press, New York, 1980. xxvi, 894 pp., illus. \$58.

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Send copy for all **Positions Wanted** ads and **Display** ads less than 1/6 page in size (125 millimeters) to:

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Washington, D.C. 20005
Telephone: 202-467-4456

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Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

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

POSITIONS WANTED

Chemist/Microbiologist. B.A., graduate studies in analytical chemistry. Desires position as chemist in New Jersey/New York area. Medical research, NMR, IR, AA, UV/VIS, GC, geochemical experience. Box 16, SCIENCE. 1/23, 30

Environmental/Biological/Biochemical. B.S., plus work toward M.S. Water and wastewater licenses. Governmental, research, and managerial experience. Will relocate. Résumé available on request. Box 17, SCIENCE. 1/23, 30

Geneticist. Ph.D. Seeks position as research associate to work with nucleases or polymerases. Some experience. Available immediately. Box 13, SCIENCE. 1/23, 30

Neuropharmacologist. M.D., Ph.D., associate professor, NIH grant. Seeks research position in neuropharmacology and neurobiology. Box 18, SCIENCE. X

Population Biologist/Cell Biologist, academic couple, Ph.D.'s, 1977; seek 1 1/2 FTE position. Postdoctoral research and teaching experience, grants, publications. Desire teaching/research positions in same department/college. Interested in teaching at introductory and advanced levels. Box 19, SCIENCE. X

Scientific Programmer/Systems Analyst. M.S. environmental physiology. Five years of DEC PDP-11 experience. Fortran, Macro-11, and Basic languages. RSX-11M, RSX-11S, and RT-11 operating systems. M6800 micro experience. Seeks academic or industrial position. L. Murdock, Star Route Box 941, Orange, California 92667. X

Synthetic Organic Chemist. Ph.D. Experienced in synthetic preparations, mechanistic studies, coordination chemistry, and analytical methods. Presently an NIH fellow at Brookhaven National Laboratory. Seeks a position in Washington, D.C., area. Box 20, SCIENCE. 1/23; 2/6

POSITIONS OPEN

The Massachusetts General Hospital and Harvard Medical School seek an **ACADEMIC NEUROLOGIST** at the assistant professor level with a Ph.D. or equivalent background in research. This individual should have expertise in electrophysiology and neuroanatomical procedures. Submit curriculum vitae to: Joseph B. Martin, M.D., Ph.D., Chairman, Department of Neurology, Massachusetts General Hospital, Boston, Mass. 02114. An Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF ANATOMY

Three tenure-track positions at the assistant professor level available in: (i) cell biology, (ii) developmental biology, and (iii) image processing. Primary teaching responsibilities are in an innovative gross anatomy course. Prior teaching experience desirable but not necessary. Send summary of current and future research plans, curriculum vitae, and three letters of recommendation to:

Dr. Andrew M. Nemeth
Chairman, Search Committee
Department of Anatomy/G3
University of Pennsylvania
School of Medicine
Philadelphia, Pa. 19104

Equal Opportunity/Affirmative Action Employer

THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT DALLAS ANATOMIST

The Anatomy Program in the Department of Cell Biology invites applications for a tenure-track position at the assistant professor level. Ph.D., M.D., or equivalent, postdoctoral training, and experience in teaching human gross anatomy are required. Responsibilities include teaching in the human gross anatomy course for first-year medical students and participation in the department's Graduate Program. Candidates will be expected to conduct independent research in some aspect of biological structure, functional/evolutionary morphology, developmental biology, reproductive biology, neuroscience, or cell biology. Curriculum vitae, brief description of research program, and names of three referees should be sent to: Dr. William J. Goryea, Faculty Search Committee, Department of Cell Biology, The University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. The University of Texas is an Equal Opportunity/Affirmative Action Employer.

ANATOMIST. Assistant to associate professorship available on or before 1 June 1981. Capability to assist in human gross anatomy and neuroanatomy is essential. Research open. Preference shown for cell biology, SEM/TEM, neuroscience. Send résumé to: Dr. William E. Dossel, Chairman, Department of Anatomy, Creighton University, 2500 California Street, Omaha, Nebraska 68178. An Equal Opportunity/Affirmative Action Employer.

Anticipated tenure-track opening at the rank of **ASSISTANT PROFESSOR** beginning 1 September 1981. Applicant must hold the doctorate. Applicant will be expected to teach introductory biology or anatomy and physiology and a course in area of expertise (advanced undergraduate or master's level graduate). Priority will be given to applicant with strengths in developmental biology and statistics. Application deadline: 1 March 1981. Send curriculum vitae, including the names of three references, to: Dr. Joseph Cassin, Department of Biology, Adelphi University, Garden City, N.Y. 11530. An Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR OF BIOCHEMISTRY

Two new tenure-track positions will become available in September 1981. Preference will be given to candidates with two or more years of postdoctoral experience, established record of productivity, funded or pending research grant, and teaching experience. Candidates will preferably conduct research in the areas of nucleic acids or physical biochemistry and teach graduate and introductory level biochemistry courses. Appointments are for 9 months; salaries commensurate with experience. Please submit curriculum vitae, research synopsis (two to three pages), and names and addresses of three references as soon as possible. Send material to: Dr. Wesley Wicks, Department of Biochemistry, University of Tennessee, Knoxville, Tennessee 37916.

The University of Tennessee, Knoxville, is an Equal Opportunity/Title IX/Section 504/Employer.

PRESIDENT UNIVERSITIES RESEARCH ASSOCIATION

The Board of Trustees of the Universities Research Association has initiated a search for a President of the Association. The Search Committee is now in the process of assembling a list of suitable candidates and welcomes applications and recommendations from the research community. Universities Research Association operates the Fermi National Accelerator Laboratory for the United States Department of Energy. The Association is an equal opportunity employer.

Communications should be sent by February 1, 1981 to:

Dr. Robert L. Ketter
Chairman, Search Committee
Universities Research
Association
1100 Connecticut Avenue
Washington, D.C. 20036

BIOTECHNICAL RESEARCH

Phillips Research has immediate openings in a multidisciplinary effort in industrial applications in biotechnology which will include microbiologists, synthetic chemists, biochemists, engineers and others.

- Microbial Genetic Engineer
 - PhD in Microbiology, Biochemistry or Genetics
 - Experience with DNA isolation, gene splicing, cloning and other recombinant DNA techniques
- Microbial Biochemist
 - PhD in Microbiology or Biochemistry
 - Experience with intermediary metabolism pathway determination, enzyme assay and regulation
- Fermentation Microbiologist
 - PhD in Microbiology or Biochemistry
 - Experience in Culture isolation and identification, mutant selection and fermentation
- Fermentation Engineer
 - BS or MS Engineer
 - Experience in pilot plant development and operation scale-up procedures, and economic evaluation

All applicants should have a strong academic record.

PhD Applicants will preferably have post doctoral experience and a record of creative research achievements.

Send resume, transcripts and letter in confidence to:

Dr. H. W. Bost
Technical Recruitment Representative
228 Research Forum
Phillips Research Center
Phillips Petroleum Company
Bartlesville, OK 74004

PHILLIPS PETROLEUM COMPANY

An Equal Opportunity Employer

EXECUTIVE DIRECTOR BIORESOURCES CENTER

THE DESERT RESEARCH INSTITUTE (DRI) (a division of the University of Nevada System) is seeking a senior research scientist in the area of plant physiological ecology to head its Bioresources Center, one of five within the Institute. Candidates must have a Ph.D.; a widely recognized superior record of research in plant physiology, ecology, and environmental plant biology; demonstrated leadership capacity in the development, staffing, direction, and conduct of first-rate research programs on the frontier of plant science, emphasizing processes that determine the productivity of desert lands and the biophysical, physiological, and genetic basis of plant adaptations to the desert environment. The executive director is expected to be effective in securing grant and contract support for such a research program, as well as for ongoing research programs in aquatic and terrestrial biology. The candidate should have familiarity with a broad spectrum of biological research and interest in developing cooperative programs with other DRI Centers. The position is funded by the State of Nevada and is equivalent to a deanship. Starting salary will be in the range \$37,000 to \$47,500 and set in accordance with credentials. The position is available at the convenience of the candidate, but no later than 1 September 1981. Applications must be postmarked by 20 February 1981. Submit résumés to: **Bioresources Center Search Committee, Desert Research Institute, University of Nevada System, P.O. Box 60220, Reno, Nevada 89506.**

An Affirmative Action/Equal Opportunity Employer

Pain and Society

Editors: H. W. Kosterlitz, L. Y. Terenius.

Chronic pain is a serious social problem, causing economic losses to society and demanding much medical care. However, pain is also a complex phenomenon whether considered as a normal sensation or as a symptom of somatic or mental illness.

This book reviews pain and its consequences for society in a very wide sense, in terms of ethics and religion, morality, sociology, psychology, psychiatry, neurology, anatomy, pharmacology, and biochemistry. It should appeal to anyone working on pain, its basic and clinical aspects or management.

Life Sciences Research Report 17

1980. X, 513 pages with 20 figures and 6 tables.

Paperback. \$ 39.40.

ISBN 3-527-12019-x


verlag
chemie
international

1020 N. W. 6th Street, Deerfield Beach, Fl. 33441

POSITIONS OPEN

ANIMAL BEHAVIORIST Cornell University

The Section of Neurobiology and Behavior, Division of Biological Sciences, wishes to appoint a tenured faculty member (associate or full professor). The candidate's research should include mechanisms or evolutionary aspects of animal behavior, with an emphasis on experimental approaches in the laboratory and/or field. The appointment will include shared responsibilities in teaching an introductory biology course for majors and occasional offerings of advanced courses in topics of the candidate's choice.

Applicants should provide a detailed description of their research and teaching experience, including current curriculum vitae and copies of recent representative reprints.

Address applications to: **Robert R. Capranica or Thomas Eisner, Search Committee, Langmuir Laboratory, Cornell University, Ithaca, New York 14850.** Applications will be reviewed beginning 1 March 1981.

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

ASSISTANT PROFESSOR

One-year initial tenure-track appointment in biology at University of La Verne, starting September 1981. Ph.D. Qualified to teach cell biology, biochemistry, microbiology, and general biology. Send curriculum vitae, transcripts, and three letters of reference by 15 March 1981 to: **Chairman, Biology Search Committee, Personnel Department, University of La Verne, La Verne, Calif. 91750.** *Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF BIOLOGY

The Division of Biology at Kansas State University invites applications for a tenure-track appointment beginning September 1981. The position requires the Ph.D., a strong commitment to undergraduate and graduate education, and the development of an active research program in the biological sciences. Individuals with postdoctoral experience will be given special consideration. Teaching responsibilities will include participation in a lower level undergraduate offering in organismic biology, a survey course of plants and animals. Research should be compatible with our already established programs in (i) physiology, (ii) genetics, developmental and cell biology, (iii) microbiology and immunology, (iv) systematics and ecology, or (v) virology and oncology. We are particularly interested in applicants with research interests in comparative physiology, parasitology, or infectious disease. The selection committee will start reviewing applications on 20 February 1981. Submit curriculum vitae, three letters of reference, and a brief description of future research plans to:

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

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

ASSISTANT PROFESSOR in cellular biochemistry (plant or animal) for fall 1981. Teaching duties include a one-semester course in general biochemistry and an advanced-level course in the area of the instructor's major interest. This is a tenure-track appointment for 3 years at the assistant professor level and requires a Ph.D. degree. Send completed application, containing résumé, description of research interests, and three letters of recommendation, to: **Professor William C. Grant, Jr., Chairman, Biology Department, Williams College, Williamstown, Mass. 01267.** Application deadline: 1 March. *Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR, IN-RESIDENCE, CHEMICAL PATHOLOGY

University of California, Irvine, Department of Pathology, is recruiting for a faculty position at assistant professor level. Required: M.D., clinical Board eligible/qualified, service experience in chemical pathology, demonstrated interest in independent research. Duties: Teach medical students and house staff; limited administrative responsibility in area of chemical pathology. *An Affirmative Action Employer.* Send curriculum vitae and references to: **H. Simpkins, M.D., Ph.D., University of California, Irvine, Department of Pathology, 101 City Drive South, Orange, Calif. 92804** by 6 March 1981. Position effective 1 July 1981.

POSITIONS OPEN

The Program in Linguistics and Cognitive Science at Brandeis University is seeking to fill two positions. For fall 1981: **ASSOCIATE PROFESSOR IN COGNITIVE SCIENCE** with research interests in central visual and conceptual representation, computer simulation, cognitive development, and philosophy of psychology. For fall 1982: **Tenure-track ASSISTANT PROFESSOR OF COGNITIVE SCIENCE** whose interests bridge generative linguistics and cognitive psychology, including computer simulation and theory of mental representation, especially in the domains of language acquisition and visual memory. Send curriculum vitae, copies of publications, and letters of recommendation to: **Professor Ray Jackendoff, Program in Linguistics and Cognitive Science, Brandeis University, Waltham, Mass. 02254.** Deadline for applications: 1 March 1981. *Brandeis University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR GENETICS/EVOLUTION

BIOLOGIST. Full-time, tenure-track position for assistant professor available September 1981, subject to funding. M.S. plus 30 hours required; Ph.D. preferred. Some college-level teaching experience required. Candidates should have knowledge of genetics and evolution plus a general biology background. Teaching duties will include courses in genetics, evolution, and introductory biology. Salary will be commensurate with education and experience. Submit résumé by 6 February 1981 to: **Affirmative Action Office, Re: Biologist, Salem State College, Salem, Mass. 01970.**

An Equal Opportunity/Affirmative Action Employer

ASSISTANT/ASSOCIATE PROFESSOR MEMBRANE PHYSIOLOGY

The Department of Physiology and Biophysics at The University of Iowa College of Medicine invites applications for tenure-track appointments at the assistant or associate professor level. We seek individuals having well-defined interests in cellular or molecular aspects of membrane function, with particular focus on transport across eukaryotic cell membranes. Applicants must have the Ph.D. and/or M.D. degree and two or more years of postdoctoral or faculty experience, with an excellent record of productivity in original research. Candidates should be prepared to conduct a strong independent research program and take an active role in the medical and graduate teaching activities of the department. Please send curriculum vitae, a brief description of research interests, teaching experience and career objectives, an indication of rank desired, and names of at least three references to: **Dr. Michael Jennings, Department of Physiology and Biophysics, The University of Iowa College of Medicine, Iowa City, Iowa 52242.**

The University of Iowa is an Equal Opportunity/Affirmative Action Employer. We welcome applications from qualified female and minority candidates.

ASSISTANT PROFESSOR/PLANT ECOLOGIST

The Department of Botany, University of Massachusetts/Amherst, invites applications for a tenure-track appointment at the level of assistant professor. Responsibilities will include participation in an introductory ecology course and an advanced course in area of specialization. Outstanding candidates in any area of plant ecology are encouraged to apply. Please submit, before 28 February 1981, curriculum vitae, copies of recent publications, and three letters of reference to:

**Ecologist Search Committee
Department of Botany
University of Massachusetts
Amherst, Mass. 01003**

An Affirmative Action/Equal Opportunity Employer

ASSISTANT/ASSOCIATE PROFESSOR OF VIROLOGY. Depending on background and degree of experience. Candidate should have potential as an independent researcher and an interest in teaching at the graduate level. Individuals interested in the application of viral genetics to problems of medical and/or public health importance are encouraged to apply. Salary open to negotiation, depending on experience. Minimum academic year salary of \$21,000 with potential for summer salary. Send curriculum vitae and names of three references to: **Dr. Myron Essex, Chairman, Department of Microbiology, Harvard University School of Public Health, 665 Huntington Avenue, Boston, Mass. 02115.** *Women and members of minority groups are encouraged to apply. Harvard University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

PHYSIOLOGY UCR/UCLA PROGRAM IN BIOMEDICAL SCIENCES

The UCR/UCLA Program in Biomedical Sciences, which offers an accelerated M.D. curriculum jointly between the University of California, Riverside (UCR) and the University of California, Los Angeles (UCLA) School of Medicine, has a faculty opening in **PHYSIOLOGY** at the **ASSISTANT PROFESSOR** level. Teaching responsibilities will be in cardiovascular/respiratory physiology for medical students. Applicants are required to have postdoctoral experience, and should be able to continue with or develop an independent research program. *The University of California is an Affirmative Action/Equal Opportunity Employer.* Applications, including curriculum vitae and names of references, should be sent to:

**Dr. Paul M. Quinton, Chair
Physiology Search Committee
Division of Biomedical Sciences
University of California, Riverside
Riverside, California 92521**

ASSISTANT PROFESSORS, PHYSIOLOGY AND BIOPHYSICS. We are expanding our search to include candidates working in systems as well as in cellular physiology. Applicants should have Ph.D., M.D., or both; and postdoctoral training. Please send curriculum vitae, a brief outline of future research plans, and the names of at least three references to: **W. G. Van der Kloot, Ph.D., Department of Physiology and Biophysics, Health Science Center, State University of New York at Stony Brook, Long Island, N.Y. 11794.** *Equal Opportunity/Affirmative Action Employer.*

ASTRONOMY FACULTY POSITION

The Astronomy Program of the University of Maryland has an opening for fall 1981 that may be filled at the **assistant-professor** or **tenure rank**. Applications received by 28 February 1981 will be given full consideration. Send résumé to: **Dr. Mukul Kundu, Director, Astronomy Program, University of Maryland, College Park, Md. 20742.** *The University of Maryland is an Equal Opportunity/Affirmative Action Employer. Applications from women and members of minority groups are welcome.*

BEHAVIORAL BIOLOGIST/PSYCHOPHARMACOLOGIST. The Long Island Research Institute (LIRI) has an opening for a research scientist engaged in studies of animal models of psychopathology, depression and/or schizophrenia, and their pharmacological control. Salary: \$21,000 to \$28,000, depending upon experience. Send curriculum vitae to: **R. E. Whalen, Scientific Director, LIRI, Health Sciences Center 10T, State University of New York, Stony Brook, N.Y. 11794.** *LIRI is an Equal Opportunity Employer.*

BIOBIOLOGICAL SCIENCES. Associate or full professor. Salary negotiable. To develop a graduate research and teaching program in endocrinology in relation to brain and behavior, including the training of predoctoral students, and possible collaborative research with other faculty. While comparative studies are appropriate, emphasis is on the mammalian brain. A doctorate in the relevant area, and postdoctoral research and teaching experience. Reply by 1 March 1981 to: **Dr. Benson E. Ginsburg, U-154, University of Connecticut, Storrs, Conn. 06268.**

Equal Opportunity Employer

MEHARRY MEDICAL COLLEGE BIOCHEMISTRY FACULTY POSITIONS

We are seeking applicants for tenure-track positions at the **ASSISTANT AND/OR ASSOCIATE PROFESSOR LEVELS.** The anticipated starting date is 1 July 1981. Applicants must have a Ph.D. or M.D. degree and postdoctoral training. We are primarily interested in individuals with research interest in regulation of metabolism, cell surface recognition phenomena and/or chemical enzymology, although excellent candidates in other areas of biochemistry will be considered. Candidates must have a firm commitment to graduate medical education and successful applicants will be expected to maintain a research program of high quality as well as to teach in the graduate and medical biochemistry programs. Applications including curriculum vitae, representative publications, a concise statement of research interests and/or proposed research, and the names of three references should be sent to: **Dr. Ifeanyi J. Arinze, Chairman of the Search Committee, Department of Biochemistry, School of Medicine, Meharry Medical College, Nashville, Tennessee 37208.**

POSITIONS OPEN

BIOCHEMISTRY FACULTY POSITION

The Department of Biochemistry at the University of California, Berkeley, invites applications for a faculty appointment at the assistant professor level. Candidates should have demonstrated excellence, originality, and productivity in research and they should possess a relevant background in biochemistry as well as a strong commitment to teaching. The department is particularly interested in persons whose research is relevant to the biochemical or biophysical understanding of eucaryotic processes, including differentiation, development, or regulation. Applicants should submit curriculum vitae, a bibliography, a two-page outline of research objectives, a summary of teaching interests, copies of two representative publications, and names of three referees to: **S. Linn, New Staff Committee, Department of Biochemistry, University of California, Berkeley, Calif. 94720.** Applications should be received prior to 1 March 1981. *The University of California is an Affirmative Action Employer.*

BIOLOGY FACULTY POSITIONS

Available fall 1981. A full-time teaching position, tenure-track, for a Ph.D. in physiology with a background in microbiology. Experience in radiobiology an asset. Assistant/associate level, depending on experience. Interested persons should respond with a letter of application, a résumé, and three letters of recommendation by 2 March to: **Chairman, Biology Department, La Salle College, 20th and Olney Avenues, Philadelphia, Pa. 19141.** *An Equal Opportunity/Affirmative Action Employer.*

BIOLOGIST: A tenure-track assistant professor position will be available September 1981, for candidates with active research interests in cellular and/or developmental biology. Teaching responsibilities include developing graduate-level courses in the area of expertise as well as teaching undergraduate courses, including an undergraduate botany course. Ph.D. required; postdoctoral experience preferred. Candidates should provide comprehensive curriculum vitae, list of publications, transcripts, pertinent reprints, three letters of recommendation, and a brief description of research goals to: **Chairman, Department of Biological Sciences, University of South Alabama, Mobile, Ala. 36688** by 15 March 1981. *The University is an Equal Opportunity/Affirmative Action Employer.*

BIOLOGY OF THE LEPIDOPTERA

The Biology Department and Museum of Comparative Zoology of Harvard University are seeking to fill a joint position: the Sidney A. and John H. Hessel Assistant or Associate Professorship of Biology and Assistant or Associate Curatorship of Lepidoptera. The incumbent is expected to assume responsibility for the care, maintenance, and growth of the Lepidoptera collection. Preference will be given to candidates with a strong research program in the biology of Lepidoptera and the ability to teach entomology and related disciplines.

Salaries for assistant and associate professors in the 1980-1981 budget year range from \$18,900 to \$24,500 on a 10-month basis.

Applicants should send curriculum vitae, statement of research interests, and three letters of recommendation to: **Professor Karel F. Liem, Museum of Comparative Zoology, Harvard University, Cambridge, Mass. 02138.** Applications should be submitted by 13 March 1981. *Harvard is an Equal Opportunity/Affirmative Action Employer.*

ENTOMOLOGIST AND CURATOR

The Biology Department and Museum of Comparative Zoology at Harvard University are seeking to make a joint appointment of an Assistant Professor of Biology and an Assistant Curator of Entomology. Applicants are being sought with demonstrated research and teaching excellence in the broadly defined area of systematic biology of the Coleoptera. The incumbent will be expected to assume responsibility of the Coleoptera collection.

The starting salary for assistant professors in the budget year 1980-1981 is \$18,900 on a 10-month basis.

Applicants should send curriculum vitae, statement of research interests, and three letters of recommendation to: **Professor Karel F. Liem, Museum of Comparative Zoology, Harvard University, Cambridge, Mass. 02138.** Applications should be submitted by 13 March 1981. *Harvard is an Equal Opportunity/Affirmative Action Employer.*

Open Forum

Sponsored by the AAAS Committee on Science, Engineering, and Public Policy

- Major Future Science and Technology Issues
- Policy Directions for Science and Technology Under the New Administration
- Project on NSF's Second Five-Year Outlook
- Current Science Issues as OMB Circular A-21

Representatives of congressional committees concerned with science and technology will participate.

WHEN: Monday, 5 January 1981, 6:00 p.m. to 7:30 p.m.

WHERE: Sheraton Centre/Dufferin Room

No-host Reception Follows

The Open Forum gives members of the science and engineering communities an opportunity to express their views on Public Policy issues to the AAAS.

KING FAISAL UNIVERSITY COLLEGE OF MEDICINE DAMMAN, SAUDI ARABIA FACULTY POSITIONS OPEN 1981-1982

King Faisal University College of Medicine, now in its seventh year, invites applications from qualified men and women for the 1981-1982 academic year in:

CHEMISTRY	PATHOLOGY
BIOLOGY	EPIDEMIOLOGY
PHYSICS	MICROBIOLOGY
BIOCHEMISTRY	PARASITOLOGY
ANATOMY	PHARMACOLOGY
PHYSIOLOGY	COMMUNITY MEDICINE

Doctorate or equivalent degree required. Language of instruction is English. Interviews to be held in London and Houston during February and April 1981.

SALARIES are highly competitive and negotiable; comparable to other Saudi universities.

BENEFITS include free, furnished housing, educational allowances, air tickets to and from Saudi Arabia once each year for a family of four, 60-day paid vacation, liberal overweight allowance. No Saudi income tax.

Send curriculum vitae with current telephone number and the names and addresses of three references to:

Dr. Tawfiq Tamimi
Dean, College of Medicine
King Faisal University
c/o Saudi Arabian
Educational Mission
2425 West Loop South
Houston, Texas 77027
OR
c/o P.O. Box 2
Sunbury-on-Thames
Middlesex TW16 5JR
England

Congressional Science and Engineering Fellowships

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 1981. 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*, 7 November 1980, page 628, 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 1981-82 AAAS Congressional Science and Engineering Fellow will receive a stipend of \$21,000; an additional \$1,500 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 20 February 1981. The award will be announced before 1 May 1981.

POSITIONS OPEN

BIOLOGY FACULTY: For small liberal arts college; tenure-track position to teach ecology, botany, evolutionary biology. Some combination in the following areas is additionally required: microbiology, genetics, comparative anatomy, histology. Ph.D. required. Send letter, résumé, and names of references to: **Dr. Mary F. Guest, Biology Department, Clarke College, Dubuque, Iowa 52001.** Deadline: 15 February 1981. *An Affirmative Action/Equal Opportunity Employer.*

BIOLOGY DEPARTMENT University of Missouri-St. Louis

The Biology Department is expanding and has two tenure-track vacancies at the assistant professor level. Successful applicants will be expected to establish active research programs, to develop advanced courses in their area of specialty, and to direct master's degree candidates.

1) **BIOCHEMIST/MICROBIOLOGIST** with research interests in gene regulation in bacteria or viruses; teaching duties will include courses in biochemistry and/or microbiology to optometry students. Send résumé, representative publications, detailed description of research interests, and names and telephone numbers of three references to: **Dr. Robert Bolla, Department of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 62121** by 14 February 1981.

2) **ANATOMIST/PHYSIOLOGIST:** Teaching duties will include courses in gross anatomy and physiology to optometry students. Send résumé, representative publication, detailed description of research interests, and names and telephone numbers of three references to: **Dr. Donald Grogan, Department of Biology, University of Missouri-St. Louis, 8001 Natural Bridge Road, St. Louis, Missouri 62121** by 14 February 1981.

An Equal Opportunity/Affirmative Action Employer

BIOMEDICAL ENGINEERING—The Biomedical Engineering and Science Institute has an immediate opening for a tenure-track or visiting faculty member. Responsibilities include teaching undergraduate and graduate courses in biomedical engineering and/or electrical engineering. Candidate must have strong training in engineering and experience in computer software and hardware. He or she must have research interests related to the cardiovascular system. Candidate will be expected to take an active role in ongoing team research in the area of control and optimization of cardiac assist devices and to develop independent research interests. Send curriculum vitae and names of three references to: **Dov Jaron, Ph.D., Director, Biomedical Engineering and Science Institute, Drexel University, Philadelphia, Pa. 19104.** *Equal Opportunity/Affirmative Action Employer.*

BIOPHYSICS—BIOCHEMISTRY

Postdoctoral position available immediately. Research involves resonance Raman studies of visual pigments, bacteriorhodopsin, and other biological chromophores in a well-equipped laboratory. This new probe provides a great deal of rich structural information concerning these chromophores and how these proteins work. Send curriculum vitae and letters of reference to: **Dr. R. Callender, Physics, City College of New York, New York, N.Y. 10031.** *An Affirmative Action Employer.*

CYTOGENETICIST, Ph.D.

A tenure-track position will be available beginning April 1981. Responsibilities include directorship of the Cytogenetics Laboratory, research, and teaching in the field of medical genetics. Rank and salary depends on experience. Please submit curriculum vitae, a statement of research and teaching experience, transcripts, and three letters of recommendation to: **Dr. Ian Burr, Acting Director of Genetics, Department of Pediatrics, Vanderbilt Medical Center, Nashville, Tenn. 37232.** *Equal Opportunity Employer.*

CYTOGENETIC TECHNICIAN. Position available immediately for research technician skilled in mammalian chromosome analysis. Experience in cell culture, banding analysis, and photomicroscopy necessary. Position will allow development of research and teaching skills while assisting in cytogenetic study of various human cancers. No routine clinical responsibilities required. Excellent benefits and exceptional climate. Salary negotiable. Contact: **Dr. Jeffrey M. Trent, Cancer, University of Arizona, Tucson, Ariz. 85724.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CHAIRMAN DEPARTMENT OF OPHTHALMOLOGY BAYLOR COLLEGE OF MEDICINE

Applications and nominations are invited for the position of chairman, Department of Ophthalmology. Candidates should have a distinguished record of research, education, and administrative skills in academic medicine.

Dr. C. Eugene Carlton
Chairman, Ophthalmology Search Committee
Baylor College of Medicine
Texas Medical Center
Houston, Texas 77030

An Equal Opportunity/Affirmative Action Employer

BIOLOGY DEPARTMENT CHAIRPERSON. Gonzaga University is seeking a Ph.D. with demonstrated teaching effectiveness at the undergraduate level. Candidates should show ability to provide quality leadership for a four-person department. Preferred background is in biological science, such as cell physiology or molecular biology, with ability to teach genetics and other general courses. Tenure-track position effective 1 September 1981; rank and salary dependent on experience and qualifications. To apply, send résumé, transcripts, and three letters of recommendation to: **James Arenz, S.J., Dean, College of Arts and Sciences, Gonzaga University, Spokane, Wash. 99258** before 25 February 1981. *An Affirmative Action/Equal Opportunity Employer.*

CHAIRPERSON—DEPARTMENT OF BIOLOGICAL SCIENCES

Fordham University invites applications for the position of chairperson at the rank of professor. The department, which has Ph.D., M.S., and B.S. programs, is housed in a newly renovated building.

The candidate must have a commitment to academic excellence, be a nationally recognized scientist with an ongoing funded research program, and have teaching and administrative experience. Send curriculum vitae by 15 March to:

Rev. Richard E. Doyle, S.J., Dean
Graduate School of Arts and Sciences
Chairman, Search Committee
Fordham University
Bronx, N.Y. 10458

An Equal Opportunity/Affirmative Action Employer

DEVELOPMENTAL GENETICIST. Assistant professor position beginning 1 July 1981. The successful applicant will be expected to teach an undergraduate course in general genetics and a graduate course in an area of expertise. Research emphases could include gene expression or regulation during animal or plant development or in lower eukaryotes with relevance to agriculture. Send curriculum vitae including research plans, reprints, and three letters of reference to:

Dr. James W. Frstrom
Department of Genetics
345 Mulford Hall
University of California
Berkeley, California 94720

Deadline for applications is 13 March 1981. *The University of California is an Affirmative Action Employer.*

The UNIVERSITY OF ARIZONA invites applications for the position of **DIRECTOR** of its internationally known and recognized Laboratory of Tree-Ring Research. Founded in 1937, the Laboratory has pioneered in the development of dendrochronology and its application to diverse fields such as archaeology, astronomy, climatology, forestry, geology, and hydrology. Although primarily a research unit, ties are maintained with several affiliated departments to provide formal academic training. As chief administrative officer of the Laboratory, the director has budgetary and personnel responsibilities, and coordinates teaching and research activities. The director of the Laboratory represents its interests within the university and to the general public, funding agencies, and the broader scientific community. Applicants should possess an earned doctorate with a strong record of research and publication. Demonstrated administrative capability is desirable. The position carries full faculty status with academic rank and salary dependent on background and qualifications. Send letter of application and résumé with names of three references to: **Dr. William J. Robinson, Chair, Search Committee, Laboratory of Tree-Ring Research, The University of Arizona, Tucson, Arizona 85721.** Deadline for application is 1 March 1981.

Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

University of California, Los Angeles (UCLA), Neuropsychiatric Institute, seeks **CHIEF NEUROPSYCHOLOGIST** to develop and direct major new training program in neuropsychology. **Qualifications:** clinical and research experience with neurological, neurosurgical, and psychiatric patients, both adults and children, including mental retardation, learning disabilities, and substance abuse; substantial experience in training neuropsychologists; and academic achievements, including publications, sufficient to qualify for senior faculty appointment. Contact: **Peter Tanguary, M.D., Chairman, Neuropsychology Search Committee, 760 Westwood Plaza, Los Angeles, Calif. 90024.** *Equal Opportunity/Affirmative Action Employer.*

DIRECTOR, BASIC RESEARCH PROGRAM, CANCER CENTER OF HAWAII: 100 percent, general funds, tenure-track. **Duties:** Responsible for ongoing basic science activities in the Center. Responsible for planning and development of all new cancer-related research in Basic Science Program. It is expected that the director will also be engaged in independent cancer-related research. **Minimum qualifications:** Ph.D. or M.D. in cancer-related basic science. Director to have been engaged in independent and peer-reviewed and funded cancer-related research for 10 years or more. **Desirable qualifications:** Research experience in carcinogenesis or molecular biology. Salary commensurate with experience and qualifications. **Closing date:** 15 March 1981. Send résumé and three letters of recommendation to: **Dr. L. H. Plette, Executive Director, Cancer Center of Hawaii, 1236 Lauhala Street, Honolulu, Hawaii 96822.** *Equal Opportunity Employer.*

U.S. ENVIRONMENTAL PROTECTION AGENCY

Corvallis Environmental Research Laboratory

The Corvallis Environmental Research Laboratory is currently recruiting for **DIRECTOR** for its Freshwater Division, GS-15 (current salary range \$44,547 to \$50,112.50 per annum). The individual selected will be responsible for managing all of the freshwater research activities of the Laboratory which includes both inhouse and extramural research programs. Programs assigned to the Laboratory include laboratory and field research on effects of toxic pollutants on aquatic species and ecosystems, criteria for water uses, exposure of humans to toxics in aquatic biota, maintenance and restoration of lakes, and economic benefits of water quality improvement. Increased attention is being given in these programs to integration of laboratory and field studies, approaching water quality problems from a watershed management perspective, and the application of ecological principles to EPA problems.

Standard Form 171, Personal Qualifications Statement, should be completed and submitted to: **Las Vegas Personnel Office, P.O. Box 18417, Las Vegas, Nevada 89114**, no later than 1 March 1981 (telephone: 702-595-2411). This application form is available from any federal agency or the Office of Personnel Management.

MONOCLONAL ANTIBODIES/DIRECTOR

Commercial diagnostic immunoassay development with new company in metropolitan New York area. Salary negotiable with equity participation. Confidential.

Box 21, SCIENCE

DIRECTOR OF INSTRUCTIONAL AND RESEARCH COMPUTING SUPPORT SERVICES

Duties include: Management and operation of Computer Terminal Resource and Consulting Centers to support research and instruction; development and offering of seminars and training sessions; representing the campus on University-wide committees; providing consulting support to faculty and staff using the computer for research and instruction.

Qualifications: Several years of supervisory experience in a university computer center; good basic knowledge of support packages available for research and instruction; master's degree in a research-oriented discipline (Ph.D. preferred); and a demonstrable knowledge of operating systems, telecommunications, and networking. Send résumé, including salary requirements, by 6 February 1981 to:

Director of Information Services
University of Maryland Baltimore County
Catonsville, Md. 21228

Affirmative Action/Equal Opportunity Employer



NEUROSCIENTIST Assistant or Associate Professor

The Department of Neurophysiology of the University of Wisconsin Medical School will have an opening for a new faculty member beginning July 1, 1981; rank and salary will depend upon credentials.

In keeping with the department's mission, the individual will be expected to devote primary effort to fundamental research in neuroscience and will participate in the teaching of medical, graduate, and post doctoral students. Preference will be given to candidates with demonstrated productivity in study of the auditory system using techniques that will complement existing faculty strengths in single unit analysis, cochlear mechanics, neuroanatomy, and computer techniques.

Send letter of application, curriculum vitae, and the names of 3 references to:

Dr. J. E. Hind, Chairman
Department of Neurophysiology
Room 283,
Medical Sciences Building
Madison, Wisconsin 53706

Deadline for applications is March 1, 1981.

An Equal Opportunity
Affirmative Action Employer.

Immunologist

San Francisco Bay Area

The Lawrence Livermore National Laboratory is an applied science R & D facility, operated by the University of California for the U.S. Department of Energy, and located in a rural suburb of the San Francisco Bay area. We are seeking a biomedical scientist to lead group research in Immunology and immunofluorescent labeling using monoclonal antibodies against antigens in mammalian cells. This person will create a lab facility for the formation, isolation and propagation of hybridoma cells for producing monoclonal antibodies, and maintain and use this capability for original research in the use of immunofluorescent probes for labeling mammalian cells. Research will include independent projects and collaborative, multidisciplinary projects with other scientists. Lead programs involving immunology as applied to analytical cytology which includes proposing new projects to funding agencies, directing research and reporting results to the scientific community—both in analytical cytology and in immunology.

We require a PhD or MD in Immunology or immunochemistry. Persons with no graduate training in immunology would qualify by post-doctoral training in a hybridoma (immunology) research group.

We invite you to submit your resume in confidence to: Ted Wilson, Employment Division, LAWRENCE LIVERMORE NATIONAL LABORATORY, P.O. Box 808, Dept. KSC-021, Livermore, CA 94550. U.S. Citizenship is required. We are an equal opportunity employer.

University of California

 **Lawrence Livermore
National Laboratory**

BIOCHEMIST

CARDIOVASCULAR DRUG DISCOVERY

Ortho Pharmaceutical Corp., a Johnson & Johnson Company has an opportunity available for an individual interested in joining a progressive expanding research laboratory.

Successful candidate will possess a PhD in biochemistry with 2 years industrial and/or postdoctoral experience in biochemical aspects of cardiovascular disorders. Familiarity with the techniques required to study the role of calcium and effectors of calcium activity in disease states is desirable along with a working knowledge of radioimmunoassays, enzyme analysis and spectrophotometric methods. Primary responsibility will be to establish biochemical assays to evaluate the mechanics of action of cardiovascular compounds.

Ortho is located in central New Jersey and offers competitive salary, bonus, benefits package, coupled with a growth environment that provides opportunities for advancement and personal development.

Send resume to R. T. Elliott
Group Manager-Selection

**ORTHO
PHARMACEUTICAL
CORPORATION**



Route 202, Raritan, New Jersey 08869

A Johnson & Johnson Company

an equal opportunity employer M/F

RESEARCH SCIENTISTS and RESEARCH ENGINEERS

The Amoco Research Center currently requires the immediate staffing of scientists and engineers with Ph.D. degrees and postdoctoral and industrial experience in the following fields of specialization:

- BIOCHEMICAL ENGINEERING
- FERMENTATION TECHNOLOGY
- ENZYME TECHNOLOGY
- ALGAE MASS CULTURE
- IMMUNOCHEMISTRY
- PLANT MOLECULAR BIOLOGY
- PLANT GENETIC ENGINEERING
- FUNGAL MASS CULTURE

The above positions involve research, engineering and market studies toward industrial applications of new biology. Candidates should have recent Ph.D. degrees or up to two (2) years of postdoctoral or equivalent industrial experience.

In addition to professional growth and outstanding opportunities, the AMOCO RESEARCH CENTER offers superior working conditions and is located in a highly desirable community just west of Chicago. An excellent compensation package and a comprehensive benefit package is provided. Please send a resume with a detailed qualifying letter in confidence to:

Professional Recruiting Coordinator



**AMOCO
RESEARCH
CENTER**

P.O. Box 400
Naperville, Illinois 60566

An Equal Opportunity Employer M/F

POSITIONS OPEN

DIRECTOR CENTER FOR ADVANCED MEDICAL TECHNOLOGY SAN FRANCISCO STATE UNIVERSITY

Applications are invited for a tenure-track position as professor of clinical science and administrative director (chair) of this graduate department in the School of Science. The Center offers an M.S. in clinical science and a university-based post-baccalaureate clinical laboratory training program to approximately 150 (70 FTE) graduate students. Ph.D. or M.D., expertise in an area of clinical science (clinical microbiology, clinical immunology, clinical chemistry or hematology) and some teaching required. Preference will be given to applicants with administrative and clinical experience.

ASSISTANT PROFESSOR OF CLINICAL SCIENCE (MICROBIOLOGY-IMMUNOLOGY)

Applications are also invited for a tenure-track teaching-research position in the Center. Ph.D. or M.D., clinical experience and a strong commitment to graduate level teaching and research are required. Please send curriculum vitae and three letters of recommendation by 1 March 1981 to:

Dr. Leo A. Miller, Chair
Clinical Science HTRP Committee
San Francisco State University
1600 Holloway Avenue
San Francisco, Calif. 94132

Equal Opportunity/Affirmative Action Employer. Minority and female applicants are encouraged.

DIRECTOR, JOHN J. SPARKMAN CENTER FOR INTERNATIONAL HEALTH EDUCATION. The University of Alabama in Birmingham, Department of Public Health, an accredited School of Public Health, is seeking a director for newly established Center. The Center is to provide comprehensive, graduate-level training in public health on site to students in developing parts of the world. The director will be responsible for planning, implementing, and coordinating all program activities and must have proven administrative ability, particularly in new program development. Must be qualified for senior, tenured faculty appointment. Fluency in Spanish or French desired; expertise in one of the public health disciplines essential. Salaries and fringe benefits highly competitive. **Application closing date: 15 February 1981.** Send curriculum vitae to: Dr. William F. Bridgers, Chairman, Department of Public Health, University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294. *An Equal Opportunity/Affirmative Action Employer.*

ELECTRON MICROSCOPIST. The Massachusetts Institute of Technology (MIT), Biology Department, has an opening for an electron microscopist. Will perform all electron microscopic duties for a research group of seven postdoctoral researchers and the principal investigator. Requirements include familiarity with all conventional TEM techniques (fixation, staining, embedding, thin sectioning, negative and preferential staining, microscopy); some SEM techniques (CPD, sputter coating); and basic photographic techniques. Must have experience in TEM autoradiography, enzyme cytochemistry, TEM of whole mounts, sectioning parallel and perpendicular to substrates. Advanced degree or 5 years of experience in all of above techniques desirable. Salary range: \$17,000 to \$20,000, depending upon depth of experience. Please submit résumé (referring to Job Number R80-241) to: Professor Sheldon Penman, c/o MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, Mass. 02139. *MIT is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS

McGill University invites applications for tenure-track faculty positions in the Graduate School of Library Science. Required: doctorate or advanced candidacy, with demonstrated competence in teaching and research in at least one of the following areas: management, communications, information technology. Additional required expertise: organization of materials, quantitative methods, scientific and technical information, or academic and research librarianship. Positions available 1 September 1981. Minimum level of appointments and salary: assistant professor at \$25,000.

Apply by 1 March 1981, sending curriculum vitae, statement of research interests, and names of three referees, to: Professor Vivian S. Sessions, Director, Graduate School of Library Science, McGill University, 3459 McTavish Street, Montreal, Quebec, Canada H3A 1Y1.

POSITIONS OPEN

EMBRYOLOGIST

The Department of Biology, University of Texas at Arlington, invites application for a full-time tenure-track appointment at the rank of assistant professor or above, depending on qualifications, beginning September 1981. Candidate's research specialty should be some aspect of vertebrate developmental biology, although individuals whose research involves relevant invertebrate systems will be considered. The Ph.D. and demonstrated research competency are required. Teaching responsibilities will include comparative vertebrate anatomy and introductory vertebrate embryology. Send curriculum vitae, a summary statement of current research, and three letters of reference to: Professor William R. Meacham, Biology Department, University of Texas at Arlington, P.O. Box 19498, Arlington, Texas 76019.

Closing date for consideration is 1 April 1981. *An Equal Opportunity/Affirmative Action Employer.*

ENVIRONMENTAL POLICY—UCLA

The Urban Planning Program at University of California, Los Angeles (UCLA), is seeking a faculty member in the area of environmental policy and urban environmental problems, beginning fall 1981. We particularly encourage applications from candidates with a broad or interdisciplinary background and with experience in environmental planning or policy. Our program, which offers both M.A. and Ph.D. degrees, has 16 faculty members whose teaching and research activities are related to the following areas: urban and regional development, social policy and public services, natural environment and resources, and the built environment. We have an active program in comparative and international studies, and in critical studies.

This appointment will probably be at the assistant professor level, as a tenure-track position, although a higher rank might be negotiated for an exceptionally qualified candidate. *(UCLA is an Equal Opportunity/Affirmative Action Employer and the Urban Planning Program especially encourages applications from women and members of minority groups.)* Applicants are requested to submit letters of inquiry, including curriculum vitae and the names and addresses of at least three referees, by 15 February 1981 to:

Professor Dolores Hayden, Chair
Staffing Work Group
School of Architecture and Urban Planning
University of California, Los Angeles
Los Angeles, California 90024

ATTENTION: Epidemiologists and Biostatisticians OPPORTUNITY IN CALIFORNIA

Immediate opening as an epidemiologist on an interdisciplinary team carrying out assessment of risk from environmental exposure to hazardous chemicals in the Epidemiological Studies Section California Department of Health Services. We are looking for a Ph.D. in epidemiology, biostatistics, or related fields with at least 1 year of epidemiologic research experience. (Master's degree plus 4 years of experience; baccalaureate degree plus 5 years of experience will also be considered). Candidates should have expertise in epidemiological study design, multivariate data analysis, and familiarity with computer management of large data sets. Interested parties should telephone (collect): Elaine Williams at 415-540-2924 to obtain application forms and information, or may write the director of this team: Raymond Neutra, M.D., Dr. P.H., Epidemiological Studies Section, Room 531, 2151 Berkeley Way, Berkeley, Calif. 94704.

An Equal Opportunity Employer

EXECUTIVE VICE PRESIDENT. The American Board of Medical Specialties is seeking a chief executive officer to replace retiring incumbent. Applicant should be a mature Board-certified physician with a proven record of accomplishment in medical education and administration.

The American Board of Medical Specialties serves and coordinates the activities of its 23-member certifying boards and represents them in a variety of national committees and organizations.

Address applications, nominations, and inquiries to:

Bruce E. Spivey, M.D., President
American Board of Medical Specialties
1603 Orrington Avenue, Suite 1160
Evanston, Illinois 60201

POSITIONS OPEN

University of Oklahoma College of Medicine, University of Oklahoma Health Sciences Center, needs a **FACULTY MEMBER** with a doctorate degree with advanced training and expertise in the areas of exocrine physiology and biochemistry. Individual should have independent research support or be capable of obtaining such support. Responsibilities of individual are to develop a research program in the areas of exocrine secretion and to be involved in the teaching of medical students, house staff officers, and clinical fellows. Speciality training is a doctorate degree (M.D. or Ph.D.) with expertise in secretory physiology and biochemistry. Contact with curriculum vitae: Owen M. Rennert, M.D., P.O. Box 26901, Oklahoma City, Oklahoma 73190. *Equal Opportunity Employer.*

FELLOWS/RESEARCH ASSOCIATES

Seek M.D.'s or Ph.D.'s to study phospholipids/prostaglandins in normal and experimentally altered tissue and cultured cells. Prior experience with tissue culture and mammalian kidneys preferred but not essential. Ongoing studies relate to mechanisms of cell injury and diabetic microangiopathy. Send curriculum vitae, with statement of research interests and names of at least three references, to: Jay H. Stein, M.D., Chairman of Medicine, Program Director, Renal Division, The University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284. *An Equal Opportunity/Affirmative Action Employer.*

GENETICIST to do 75 percent research and 25 percent teaching in an established poultry breeding program with 24 strains. Opportunity to cooperate with allied departments and colleges including Medical School. Ph.D. in poultry or animal genetics required. Tenure-track. Send résumé, including transcripts and names of three references, to: M. L. Sunde, Poultry Department, University of Wisconsin, Madison, Wis. 53706. *An Equal Opportunity/Affirmative Action Employer.*

HEAD—DIVISION OF MICROBIOLOGY AND VETERINARY MEDICINE AND DIRECTOR—WYOMING STATE VETERINARY LABORATORY. Individual to provide quality leadership for the teaching, research, and extension services of the Division and direct the service and off-campus activities of the Wyoming State Veterinary Laboratory. Applicants with a D.V.M. and a Ph.D. in microbiology or related basic science preferred. Equivalence can be recognized. Salary negotiable. Applications (including résumé and three letters of reference) should be received by 1 March 1981. Write to: Dr. Colin Kaltenbach, Chairman, Search Committee, Box 3354, University of Wyoming, Laramie, Wyoming 82071. *The University of Wyoming is an Equal Opportunity/Affirmative Action Employer.*

IMMUNOBIOLOGIST with postdoctoral experience and expertise in hybridoma technology. For exciting new immunotherapeutic project at Baylor College of Medicine, Houston, Texas. Please send curriculum vitae and bibliography to:

Box 306, SCIENCE

X-RAY DIFFRACTION LABORATORY TECHNICIAN

Position of professional technician II for supervision of laboratory for x-ray diffraction and small angle x-ray scattering from polymers. Operation, maintenance, and instruction in use of computerized diffraction equipment. Some experience in electronics, computer programming, and operation desirable. Applications and curriculum vitae should be sent to: Professor R. S. Stein, Polymer Research Institute, University of Massachusetts, Amherst, Mass. 01003. *The University is an Equal Opportunity/Affirmative Action Employer.*

MICROBIOLOGY/ASSISTANT PROFESSOR. Tenure-track position; teach microbiology courses with some responsibility in another area (for example, parasitology, animal physiology, or ecology). Research in an area compatible with ongoing research in physiology or ecology; active graduate program required. Ph.D. required; salary commensurate with qualifications and experience; effective date: August 1981. Résumé, transcripts, and three letters of reference by 1 March 1981. Address inquiries to: Dr. B. A. Foote, Box 1, Department of Biological Sciences, Kent State University, Kent, Ohio 44242. *Equal Opportunity/Affirmative Action Employer.*

CHIEF STATISTICIAN

... with exceptional skills and demonstrated excellence needed to head central statistical policy group for assignment with SES potential at EPA Headquarters, Washington, D.C. Responsible for:

- Defining and implementing statistical policies.
- Setting quality standards for statistical analysis of data supporting EPA regulations, information systems, environmental studies, enforcement actions.
- Advising senior management on statistical issues.
- Minimizing information collection burdens on the public.

Salary from \$48,000. Send application to:

**ENVIRONMENTAL
PROTECTION AGENCY**
N. Phillip Ross (PM-223)
401 M Street, S.W.
Washington, D.C. 20460
An Equal Opportunity Employer

The International Atomic Energy Agency seeks *Safeguards Inspectors* to participate in the execution of the Agency's safeguards programme. Required university degree in nuclear chemistry, nuclear chemical engineering, nuclear electronics/instrumentation or economics. Experience in the processing of nuclear materials, preferably in plant operation or in the instrumental measurements of quantities of nuclear material advantageous. Fixed-term contract for two years with the possibility of further extension if service satisfactory. Tax-free emoluments depending on qualifications and experience, between US\$ 35,000,—and US\$ 37,500,—per annum. Send curriculum vitae under Vacancy Notice No 85/80 to Division of Personnel, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria before 9 March 1981.

KEY OPPORTUNITIES IN RESEARCH & DEVELOPMENT

Abbott Laboratories, a growing, \$2 billion leader in the worldwide health care field, has the following exceptional opportunities available in Research and Development.

RESEARCH LABORATORY HEAD

The qualified candidate will direct basic research activity directed to immunodiagnostic products related to infectious diseases. Acting as the primary contact between our research team and management, you'll propose and investigate new diagnostic opportunities for bacterial and viral diseases. A Ph.D. or M.D. with post-doctoral training will be essential. A documented background of productivity in frontier levels of Immunology/Immunochemistry, Microbiology, Biochemistry or related subdisciplines will be essential.

CELL BIOLOGIST

Position involves the development and implementation of an in-vitro antibody laboratory to conduct monoclonal antibody research. The qualified candidate will supervise a cell biology team in cell hybridization procedures, cloning of antibody-producing cells, and eventual production of high titers of monoclonal antibodies. A Ph.D. and at least 2 years of post-doctoral cell biology research will be essential. Strong experience with in-vitro tissue culture techniques related to the above and extensive exposure to immunoassay methods will also be essential.

These key research positions are accompanied by a superb salary and benefits package including profit sharing and relocation assistance. Please forward your resume with earnings history, in strict confidence to:

Chris Gude
Corporate Placement

 **ABBOTT**
NORTH CHICAGO, ILL. 60064

Abbott is an Affirmative Action Employer

SENIOR RESEARCH MICROBIOLOGIST

Kelco, a leading manufacturer of specialty chemicals located in SAN DIEGO, has an immediate opening for a dedicated professional to participate in a challenging gene cloning program. The successful candidate will have a PhD with 0-3 years' postdoctoral experience or equivalent in microbial genetics or molecular biology. Experience in recombinant DNA and transposon methodology is desirable.

We offer an excellent starting salary and benefits package with potential for professional growth and advancement. Please send detailed resume including salary requirements to:


DIVISION OF MERCK & CO. INC.

RUTH MARQUIS
Personnel Dept.
8355 Aero Drive
San Diego, CA 92123
*An Equal Opportunity
Employer (Male/Female)*

POSITIONS OPEN

IMMUNOLOGY/CELL PHYSIOLOGY

A tenure-track opening is available for an immunologist/cell physiologist at the assistant professor level. The successful candidate should have appropriate postdoctoral training and will to develop an active research program. The individual should be able to function in a department with a distinct molecular, biochemical, and physiological approach. Primary teaching responsibility will include teaching an introductory course in immunology for advanced undergraduate and beginning graduate students. The department consists of seven full-time faculty and has a Ph.D. granting program with the Department of Medical Microbiology and Immunology, Southern Illinois University (SIU), School of Medicine. Submit curriculum vitae, summary of research plans, and three letters of recommendation by 15 March 1981 to: **Chairman, Immunology Search Committee, Southern Illinois University, Department of Microbiology, Carbondale, Ill. 62901. SIU is an Affirmative Action/Equal Opportunity Employer.**

IMMUNOLOGIST. Position open for a research associate professor, Georgetown University, Schools of Medicine and Dentistry. We seek a Ph.D. with proven research capabilities to lead a vigorous research project on the gene products and definition of hepatitis viral antigens. Applicants must be capable of innovative research and have a strong background in immunochemistry and protein chemistry. Academic appointment, salary, and technical support will be commensurate with the qualifications of the applicant. Please send letters of application, curriculum vitae, representative reprints, and three professional letters of recommendation to:

**John L. Gerin, Ph.D.,
Georgetown University
Division of Molecular Virology and Immunology
5640 Fishers Lane
Rockville, Md. 20852**

Equal Opportunity/Affirmative Action Employer

NMR LABORATORY TECHNICIAN

Applications are invited from suitably qualified persons for the position of a professional technician II. Major responsibilities will be operation, instructions, and maintenance of ^1H and ^{13}C spectrometers. Interested persons should send their application and curriculum vitae to: **Professor Otto Vogl, Department of Polymer Science and Engineering, University of Massachusetts, Amherst, Mass. 01003, by 28 February 1981. The University is an Equal Opportunity/Affirmative Action Employer.**

MOLECULAR BIOLOGISTS BIOCHEMISTS ORGANIC CHEMISTS

SYNERGEN, a creative biotechnology firm with laboratories in Boulder, Colorado, conducts basic research with commercial applications. We are recruiting organic chemists with expertise in nucleic acid synthesis, molecular biologists, and biochemists.

Energetic persons with broad interests are encouraged to apply. We offer competitive salaries and other benefits, as well as opportunities for original work.

To apply in strictest confidence, please send a résumé, statement of your interests, references, and reprints to:

**Search Committee
SYNERGEN
1885 Thirty-Third Street
Boulder, Colorado 80301**
An Equal Opportunity/Affirmative Action Employer

PLANT ECOLOGY. Applications are sought from individuals interested in establishing an outstanding teaching and research program in plant ecology. Preference will be given to individuals specializing in population, community, or ecosystem ecology. We will consider candidates at any rank. Teaching will include advanced undergraduate plant ecology plus other courses to be negotiated. Résumé and names and addresses of references should be sent to: **Brian F. Chabot, Chairman, Section of Ecology and Systematics, Langmuir Laboratory, Cornell University, Ithaca, New York 14850.** Closing date for applications will be 28 February 1981.

Cornell University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

LAND RESOURCES BEHAVIORAL DESIGN

Assistant or associate professors (two or more positions, number and level dependent upon availability of funding). Teaching, at both undergraduate and graduate levels, and professional practice, scholarly work, or problem focused research in one of the two areas of graduate specialization within the Department of Landscape Architecture—land resource analysis or design/behavior interaction; active participation in continuing development and implementation of undergraduate and graduate curricula, student advising, and master's thesis supervision. Possible teaching responsibilities include site analysis, environmental impact assessment, land use ecology, land resource analysis workshop; design responses to human behavior, design/behavior workshop. Requirements: applicants should have a strong knowledge base, professional or problem-oriented research experience, and an educational background appropriate to their discipline (Ph.D., M.L.A., or equivalent). Continuing 9-month academic appointment. Salary competitive, dependent on rank and experience. Starting date: 21 August 1981. For full consideration, apply by 15 February. Applications should be sent to: **Robert B. Riley, Department of Landscape Architecture, 214 Mumford Hall, University of Illinois, Urbana, Illinois 61801; telephone 217-333-0175. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.**

UNIVERSITY OF STRATHCLYDE UNITED KINGDOM

Applications are invited for a **LECTURESHP** in the **DEPARTMENT OF APPLIED PHYSICS**, from experimental physicists, biophysicists, and engineers, preferably with industrial experience.

The lecturer will have responsibilities in the development and teaching of the Applied Physics B.Sc. Course, in postgraduate studies, and in teaching physics to students from other disciplines.

Preference will be given to candidates interested in research on small-scale **RENEWABLE-ENERGY TECHNOLOGY** (especially for rural Scotland and the Third World), or in **ENVIRONMENTAL PHYSICS** (water purification; hydrometeorology). However, outstanding candidates with experience in the department's other research fields will be considered (superconducting devices; photophysics; population dynamics).

Salary scale: £5505 to £11,575 per annum (under review), with placing according to qualifications and experience. Superannuation benefit.

Application forms and further particulars can be obtained (quoting 1/81 and enclosing a 9 by 4 inch self-addressed envelope) from: **Academic Appointments Officer, University of Strathclyde, Royal College Building, 204 George Street, Glasgow, G1 1XW, U.K.,** with whom applications from the U.K. should be lodged by 16 February 1981, and from anywhere else by 2 March 1981.

Ph.D. NEUROPSYCHOLOGIST. For research assistant professor (nontenure-track) in the Division of Neurosurgery and the Head Injury Clinical Research Center, University of Pennsylvania. Two or more years of experience in the neuropsychological assessment of head trauma patients is required. Candidates must have an understanding of diagnostic neuroradiology and be able to provide adjustment counseling. Send curriculum vitae and three references to: **Division of Neurosurgery, attention E. Fillman, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa. 19104. Equal Opportunity/Affirmative Action Employer.**

PEDIATRICS RESEARCH POSITION. We are recruiting a new full-time, permanent member for our research staff with a Ph.D. or M.D. and demonstrated ability to develop a vigorous, independent, externally funded research program in an area related to pediatrics. Special consideration will be given to those using molecular, cellular, or genetic approaches which would complement and expand our current areas of clinical and basic research. These include sickle cell anemia, cystic fibrosis, pulmonary disease, diabetes, developmental biology, breast milk production, breast cancer, cardiovascular physiology, fatty acid and prostaglandin metabolism, and cellular immunology. The position is available immediately and support is assured for 2 years. Rank and salary commensurate with qualifications. Applicants should send résumé and summary of research interests to: **Bertram Lubin, M.D., Director of Medical Research, Children's Hospital Medical Center, 51st and Grove Streets, Oakland, Calif. 94609. We are an Equal Opportunity Employer.**

POSITIONS OPEN

MICROBIOLOGY

A tenure-track opening is available for a microbial physiologist/biochemist at the assistant professor level, effective 16 August 1981. The successful candidate should have appropriate postdoctoral training and will be expected to develop an active research program. The department consists of seven full-time faculty and a Ph.D. granting program. Primary teaching responsibility will include teaching a course in microbial physiology for advanced undergraduate and beginning graduate students. Applications must be received by 15 March 1981. Submit curriculum vitae, summary of research plans, and three letters of recommendation to: **Chairman, Microbiology Search Committee, Southern Illinois University, Carbondale, Ill. 62901. An Affirmative Action/Equal Opportunity Employer.**

MOLECULAR BIOLOGY—MICROBIOLOGIST

With interest in environmental studies. Tenure-track assistant professor (entry level) position commencing with the 1981-1982 academic year. Ph.D. degree required at the time of employment. Teaching responsibilities will include an undergraduate course in cell biology and participation in the undergraduate microbiology course. Establishment of an active research program is expected. Deadline for receipt of applications is 15 March 1981. Send résumé, transcripts, statement of future research plans, and three letters of reference to:

**Chairman, Search Committee
Department of Biological Sciences
Murray State University
Murray, Ky. 42071**

Murray State University is an Equal Opportunity/Affirmative Action Employer.

University of Oklahoma College of Medicine. University of Oklahoma Health Sciences Center needs a **PEDIATRICIAN**, Board-certified. Must have completed 2-year fellowship in pulmonary medicine. Must have expertise and evidence of productivity in the area of clinical investigation and research in pulmonary diseases. Individual will head the section of Pediatric Pulmonary Medicine within Department of Pediatrics and Oklahoma Children's Memorial Hospital. Individual will develop an active research program in the area of pulmonary diseases and physiology and develop a training program in that area. Will be involved in the teaching of house officers, medical students, and postgraduate fellows. Excellent salary and benefits. Send curriculum vitae to: **Owen M. Rennert, M.D., P.O. Box 26901, Oklahoma City, Oklahoma 73190. Equal Opportunity Employer.**

PHYSICAL SCIENTIST/ENGINEER. The Applied Physics Laboratory (APL), University of Washington, invites applications for a research position in underwater acoustics. The appointee will conduct an analytical study of acoustic scattering from the sea surface and sea floor, working closely with experimental groups within the University. This study is part of a joint project involving APL and the Department of Electrical Engineering. The candidate will be considered for a joint appointment with the Department of Electrical Engineering at an appropriate research faculty level. A Ph.D. in physics, engineering, applied mathematics, or equivalent is required. Experience in wave propagation or scattering theory is desirable. Send résumé to: **R. M. Bratager, Applied Physics Laboratory, University of Washington, 1013 North East 40 Street, Seattle, Washington 98105. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL ELECTROPHYSIOLOGIST

Experienced in intracellular microelectrode recordings in cardiac muscle and/or vascular smooth muscle. Available immediately. Write to:

**Dr. Nick Sperelakis
Department of Physiology
University of Virginia School of Medicine
Charlottesville, Virginia 22908**

POSTDOCTORAL FELLOW in reproductive biochemistry to study the role of cyclic nucleotides in sperm maturation. Ph.D. in biochemistry or biophysics preferred. Beginning date: 1 January 1982. Salary: \$13,380. Period of support: 2 years. Before 15 April 1981, send curriculum vitae and names of two references to:

**Dr. Dale D. Hoskins
Department of Reproductive Physiology
Oregon Regional Primate Research Center
505 Northwest 185 Avenue
Beaverton, Oregon 97006**

An Equal Opportunity/Affirmative Action Employer

PHARMACOKINETICIST.

The Chemistry and Life Sciences Group of the Research Triangle Institute has a permanent staff opening for a pharmacokineticist. An appropriate Ph.D. degree is required with specialized predoctoral or at least two years of postdoctoral training in pharmacokinetics. Experience in development and use of modern chemical analytical techniques for pharmacokinetic/metabolism/toxicology studies would be desirable as would be training or experience in pharmacology and/or toxicology. The successful applicant will be expected to collaborate on existing programs in metabolism and pharmacokinetics of xenobiotic compounds and to eventually develop her/his own research programs.

Applications should include curriculum vitae and names of at least three professional references.

Send applications to: **Dr. C.E. Cook, Director for Bioorganic Chemistry, Research Triangle Institute, P.O. Box 12194, Research Triangle Park, NC 27709.**

Research Triangle Institute is an Equal Opportunity/Affirmative Action Employer.

RTI

NRL

SCIENTIFIC TECHNICAL WRITERS

GS-9 — \$18,585 to \$24,165

GS-11 — \$22,486 to \$29,236

The NAVAL RESEARCH LABORATORY has two (2) vacancies in its SCIENTIFIC TECHNICAL WRITING CAREER INTERN PROGRAM. Participants in this program will help establish a group of highly qualified individuals capable of professional level scientific and technical writing.

To qualify you must have a B.S. Degree plus 2 years technical writing experience or 3 years of technical writing experience.

These are career Civil Service positions with all normal fringe benefits. Interested applicants should submit a Personal Qualifications Statement (SF-171) or resume by 1 February 1981 to:

**NAVAL RESEARCH LABORATORY
Civilian Personnel Office
Attention Code: 26-202-13 S
4555 Overlook Avenue, S.W.
Washington, D.C. 20375**

An Equal Opportunity Employer

U.S. Citizenship Required

ETH ZÜRICH

Applications are invited for the position of a

Professor of Physical Chemistry

at the Chemistry Department of the Swiss Federal Institute of Technology in Zurich. This position is presently held by Prof. Hs.H. Günthard who retires April 1, 1982. Duties of this professorship include teaching and research.

The applicant should have a broad background in modern experimental and theoretical methods of physical chemistry. He should have several years of qualified research experience and a proven ability for original research in the field of physical chemistry. He is expected to perform and to direct experimental research and to teach at both undergraduate and graduate levels. Teaching obligations include chemical, engineering and theoretical aspects of physical chemistry.

Applications should be submitted with curriculum vitae and list of publications before February 28, 1981, to Prof. H. Ursprung, President, Swiss Federal Institute of Technology, CH-8092 Zurich, Switzerland.

ARL Director, Research Laboratory

**DIRECTOR
APPLIED RESEARCH LABORATORY
THE PENNSYLVANIA STATE UNIVERSITY**

The Applied Research Laboratory (ARL) is the largest organized research unit located on the University Park campus. Research areas encompass acoustics and signal processing, high-energy-density propulsion systems, vehicle noise control, undersea guidance systems, hydrodynamics of submerged bodies and propulsors, applied oceanography, and engineering systems. The primary sponsor for ARL research is the United States Navy.

The Director is responsible for the operation of the Laboratory, including ensuring the technical performance of the research and development programs; must strive to maintain close interaction between the Laboratory and other University programs of research, instruction, graduate-student training and public service; is responsible for maintaining technical competencies and resources, the appropriate organizational and management support, and the appropriateness and quality of research and development activities.

Preference to candidate with administrative experience with industrial, governmental, and/or university organizations with knowledge and research-management experience in one or more of the fields of acoustics, hydrodynamics, signal processing, engineering systems, systems analysis, or modern electronic and computational techniques. Requirements: U.S. citizenship; doctoral degree in physical science or engineering.

Respond by April 1, 1981, to:

Chairman, ARL Director Search Committee
207 Old Main, Box E
The Pennsylvania State University
University Park, PA 16802

An Affirmative Action/Equal Opportunity Employer

PSU

POSITIONS OPEN

POPULATION BIOLOGIST. Applications are invited for a tenure-track faculty position in population biology at the assistant professor level starting 17 August 1981. Salary: mid-teens, commensurate with qualifications. Requirements: Ph.D. in biology with competence in population biology and biostatistics. Teaching duties include participation in introductory biology program as well as in undergraduate and graduate courses appropriate to the individual's area of interest and departmental needs. Successful applicant will be expected to direct master's degree students and to establish an active research program. Send complete credentials and three letters of recommendation by 23 February 1981 to: **Dr. Thomas B. Bragg, Department of Biology, University of Nebraska at Omaha, Omaha, Neb. 68182.** *The University of Nebraska at Omaha is an Equal Opportunity/Affirmative Action Employer. Minorities, women, handicapped, and Vietnam-era veterans are encouraged to apply.*

POSTDOCTORAL FELLOW. Immediate opening in active, well-equipped laboratory for individual with training in cell biology and/or biochemistry to work in the field of photoreceptor membrane biochemistry and biophysics or vitamin A transport, utilization, and metabolism. Apply with curriculum vitae, three references, and statement of interests to: **Dr. C. David Bridges, Professor of Ophthalmology, Department of Ophthalmology, Baylor College of Medicine, Houston, Texas 77030.**

POSTDOCTORAL FELLOW (postgraduate researcher), MOLECULAR BIOLOGY-CELL CULTURE. The Department of Pediatrics, University of California, San Diego, has an opening for a postdoctoral fellow with Dr. Robert Hoffman and Dr. Stephen Jacobsen. Ph.D. or M.D. training in cell and molecular biology required. Applicants will be working on the assay, isolation, and methylation of human oncogenes. Position could begin as early as 23 February 1981. Salary is contingent upon experience. *The University of California is an Equal Opportunity/Affirmative Action Employer.* Inquiries should be directed to: **Dr. Robert Hoffman or Stephen Jacobsen, Department of Pediatrics, M-009, The University of California, San Diego, School of Medicine, La Jolla, California 92093; telephone: 714-452-4158.**

La Jolla Cancer Research Foundation. **POSTDOCTORAL FELLOW** to work (starting February) on growth factor receptors on embryonal mouse tissues and cells. Experience in tissue culture and biochemical techniques needed. Knowledge of mammalian embryology and procedures an advantage. Apply, enclosing curriculum vitae, names of two referees, and summary of past and present research interests, to: **Dr. Eileen Adamson, 2945 Science Park Road, La Jolla, Calif. 92038.**

POSTDOCTORAL POSITIONS

The Department of Physiology at Northwestern University Medical School, in collaboration with the Rehabilitation Institute of Chicago, has established a laboratory directed toward the study of sensorimotor performance in normal and disordered human subjects. Investigators attached to this laboratory are Dr. B. Peterson (vestibular function), Dr. J. C. Houk (limb movement control), and Dr. W. Z. Rymer (spasticity and Parkinson's disease). Postdoctoral positions are being offered to allow fellows to work in collaboration with one or more of these investigators, in the stated areas of interest. Training and experience with the use of related animal models is also available. Salary commensurate with experience. Send résumé, statement of scientific interests, and names of three referees to: **Dr. W. Z. Rymer, Department of Physiology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611.**

POSTDOCTORAL POSITIONS. Cellular and/or renal physiologists to study the mechanism and hormonal regulation of ionic transport across epithelial cells and tissues, using: (i) isolated perfused renal tubules or micropuncture with electron probe microanalysis (elements) and new ultramicrofluorescence analysis (organic compounds) in picoliter volume samples; (ii) electron probe microanalysis to measure the extra- and intracellular elemental composition in epithelial samples maintained frozen hydrated at -190°C to avoid ionic translocation; and (iii) electron probe and microfluorescence techniques on isolated epithelial cells grown in culture and on isolated cell organelles. Send curriculum vitae to: **Dr. Claude Lechene, Harvard Medical School, 45 Shattuck Street, Boston, Mass. 02115.**

POSITIONS OPEN

POSTDOCTORAL POSITION available immediately to study the structure of ethanolamine ammonia-lyase, a large multimeric cobalamin-dependent enzyme which is easily purified and is available in large quantities. Experience in protein structure determination is required. Salary is competitive. Please send curriculum vitae and three references to: **Dr. Bernard M. Babor, Tufts-New England Medical Center Hospital, Department of Hematology, 171 Harrison Avenue, Boston, Mass. 02111.**

POSTDOCTORAL POSITION in medical mycology available immediately for an electron microscopist with a strong interest in ultrastructural studies of fungi. Our laboratory has been studying the cellular and molecular events that occur during the morphologic transformations of the dimorphic pathogenic fungus, *Histoplasma capsulatum*. We are interested in correlating the biochemical events with changes in ultrastructure. The period of appointment is for 2 to 3 years. Interested applicants should send curriculum vitae and names of two references to:

**George S. Kobayashi, Ph.D.
Department of Internal Medicine
Division of Dermatology
Box 8123
Washington University Medical School
St. Louis, Mo. 63110**

POSTDOCTORAL POSITION available immediately to study chemical carcinogen metabolism, mutagenesis, and carcinogenesis. Send curriculum vitae and names of three references to: **Personnel/Manpower Directorate, Dr. S. K. Yang, Department of Pharmacology, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Md. 20014.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION— MOLECULAR BIOLOGICAL STUDIES ON AVIAN TUMOR VIRUSES

Opening for Ph.D. with background in molecular biology, biochemistry, and genetics. Position involves studies on the mechanism of transformation by Rous sarcoma virus, and functional mapping of novel mutant lesions on domains of the *src* gene and its product. Send curriculum vitae, statement of research interests, and names of references to: **Dr. D. J. Fujita, Cancer Research Laboratory, The University of Western Ontario, London, Ontario, Canada N6A 5B7.**

POSTDOCTORAL POSITION available immediately for studies concerning biochemical and physiological mechanisms underlying exocytosis from primary dissociated cultures of bovine adrenal medulla. Research includes the role of specific protein phosphorylation and the role of chemiosmotic mechanisms in secretion. A biochemical background is desired. The position is NIH-funded. Please send curriculum vitae, bibliography, and the names of three references to: **Dr. Ronald Holz, Department of Pharmacology, University of Michigan Medical School, Ann Arbor, Mich. 48109.** *A nondiscriminatory, Affirmative Action Employer.*

POSTDOCTORAL RESEARCHERS. The Department of Physiology and Biophysics, University of California, Irvine, is developing a postdoctoral candidate pool for possible openings during the 1981 year. Openings may be available in the following research areas: ion channels in lipid bilayers, physical chemistry of membranes, mechanisms and regulation of steroid hormone biosynthesis, exercise physiology; in situ electrophoresis of membrane proteins; molecular properties of ion channels in excitable cell membranes. Salary is in accordance with current NIH, NSF postdoctoral stipends which are based upon qualifications and years of prior, relevant postdoctoral experience. *Minorities and women are encouraged to apply.* Send curriculum vitae and names of three references to: **Professor Stephen H. White, Chairman, Department of Physiology and Biophysics, University of California, Irvine, California 92717.**

POSTDOCTORAL RESEARCH ASSOCIATE

Applications are invited from candidates with experience in polydeoxynucleotide synthesis. Other useful background would be molecular genetics, chemistry, or biophysics. Research areas actively pursued are: (i) molecular mechanisms of mutation, (ii) the alteration of gene expression by carcinogens and mutagens, and (iii) physical interactions between planar hydrocarbons and DNA. Send curriculum vitae to: **Personnel Officer, Michigan Molecular Institute, 1910 West St. Andrews Road, Midland, Michigan 48640.** *An Equal Opportunity Employer.*

POSITIONS OPEN

A POSTDOCTORAL OR RESEARCH FACULTY POSITION (nontenure-track) is available to study atmospheric transformations of polycyclic aromatic hydrocarbons and implications to mutagenic activity. Prefer organic chemist with experience in GS-MS, HPLC, and other spectroscopic and separation techniques. Some background in photochemistry desirable. Position available 1 May 1981. Salary range: \$17,112 to \$21,600. Please send current résumé and publication list to: **James N. Pitts, Jr., Director, Statewide Air Pollution Research Center, University of California, Riverside, Calif. 92521.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE (Marshall University School of Medicine). Salary: negotiable. Available immediately for a period of 2 years to study the role of DNA repair in the chemotherapeutic response of tumor cells. Application deadline: 20 February 1981. Send résumé and two references to: **Helene Z. Hill, Ph.D., Department of Biochemistry, Marshall University, School of Medicine, Huntington, W.Va. 25701.** *An Equal Opportunity Employer.*

Massachusetts Institute of Technology (MIT), **POSTDOCTORAL RESEARCH ASSOCIATE** (molecular biology). MIT, Department of Biology, is seeking a postdoctoral research associate in molecular biology to study the mechanisms of protein folding and subunit assembly of structural proteins of bacteriophage, taking advantage of mutants specifically blocked in these processes. Opportunity also available to study the assembly of proteins into larger structures, in particular the interaction of the coat and scaffolding protein of phage P22 [see M. T. Fuller and J. King, *Biophys. J.*, 32, 381-402]. Prefer an individual with training in protein biochemistry, in vitro protein synthesis, or related areas. Send curriculum vitae and three references to: **Professor Jonathan King, c/o MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, Mass 02139.** (Please refer to Job Number C80-28.) *MIT is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE POSITION in genetics, available immediately for 1 to 2 years to study cytoplasmic genetics and to apply molecular genetic techniques to the analysis of somatic hybrid plants. Experience in the area of plasmid genetics is required. Rutgers University-Campbell Institute for Research and Technology, Somatic Cell Genetics Program. Send curriculum vitae and three letters of recommendation to: **David A. Evans, 2611 Branch Pike, Cinnaminson, New Jersey 08077.**

POSTDOCTORAL RESEARCH ASSOCIATE IN BIOCHEMISTRY to study function and regulation of the pyruvate and α -ketoglutarate dehydrogenase complexes from mammalian tissues. Available now or sometime in next 9 months for period of at least 2 years. Background in enzymology or organic chemistry desirable. Send inquiries or curriculum vitae and three references to: **Dr. Thomas E. Roche, Biochemistry Department, Kansas State University, Manhattan, Kans. 66506.**

POSTDOCTORAL RESEARCH ASSOCIATES

Two recent Ph.D.'s. **Organic chemist** to prepare and label new sterols; **biochemist** to study their activity with a hepatic hydroxylase. Complete modern instrumentation available for work on NIH-supported project. Send résumé and three letters to: **Dr. William H. Elliott, E. A. Dolsy Department of Biochemistry, St. Louis University Medical Center, 1402 South Grand, St. Louis, Mo. 63104.** *An Equal Opportunity/Affirmative Action Employer, M/F/H.*

POSTDOCTORAL RESEARCH POSITION

Available beginning 1 July 1981. Applicant with experience in reproductive biology to carry out studies of subcellular action of gonadotropins. Send résumé and two letters of reference to: **Dr. Judith Vaitukaitis, Boston University School of Medicine, 818 Harrison Avenue, Boston, Mass. 02118.**

An Equal Opportunity Employer, M/F

POSTDOCTORAL RESEARCH POSITION

Postdoctoral research position, M.D. or Ph.D. for studies on the biochemical genetics of abnormal human hemoglobins and thalassemia using recombinant DNA techniques. Send curriculum vitae to: **Dr. Donald L. Rucknagel, M.D., Ph.D., Department of Human Genetics, University of Michigan Medical School, Box 15, 1137 East Catherine Street, Ann Arbor, Mich. 48109.**

A nondiscriminatory, Affirmative Action Employer

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE to study plasmalemma structure, zymogen granules, and membrane fusion phenomena in pancreatic exocrine cells. Expertise with freeze-fracture, TEM, and SEM required. Position renewable for a second year. Applications due by 30 March 1981. Appointment begins about 1 June 1981. Send curriculum vitae, a brief description of research experience and interests, and names of three references to: **Dr. Paul L. Fletcher, Department of Microbiology, School of Medicine, East Carolina University, Greenville, N.C. 27834.** An Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSISTANT—NUTRITIONIST. To isolate and characterize the different electrophoretic forms of trypsin inhibitor and study the chemical structure and stability of different fatty acids present in the soybean. M.S. degree in biochemistry or nutrition with progressively responsible experience involving the performance of biochemical analysis, \$12,000 to \$15,000 annually, depending on qualifications and experience. Send complete résumé with names of three references to: **Dr. Y. S. Hafez, Nutrition Laboratories, University of Maryland Eastern Shore, Princess Anne, Md. 21853.** An Equal Opportunity/Affirmative Action Employer. Application deadline is 16 February 1981.

RESEARCH ASSOCIATE positions are currently available for Ph.D.'s in chemistry, biochemistry, or physics. One position is to study the role of particulate matter in the membrane uptake and metabolism of polynuclear aromatic hydrocarbons. Additional positions are available for individuals interested in: (i) the development and application of novel fluorescence spectroscopic methods, (ii) pressure effects on membranes, (iii) transport of chlorinated hydrocarbons, and (iv) investigations of cell membranes from individuals with Huntington's disease. Send curriculum vitae and three letters of recommendation to: **Dr. Joseph R. Lakowicz, University of Maryland School of Medicine, Department of Biological Chemistry, 660 West Redwood Street, Baltimore, Maryland 21201.** Equal Opportunity Employer.

POSITIONS OPEN

POSTDOCTORAL APPOINTMENT in membrane biophysics. Emphasis on optical measurements using fluorescent probes, including energy transfer, temperature jump and stopped flow kinetics as well as permeability studies by NMR T₁. Requires strong physical chemistry/physics background, computer experience. Opportunity to gain experience in basic membrane biophysics. Contact: **Dr. A. K. Solomon, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITIONS. Traineeships available immediately in tumor virology program which includes research in areas of avian and murine retroviruses. Interests include cellular transformation, viral replication, and regulation of gene expression. Investigators: **R. Eisenman, M. Linial, P. Neiman, R. Nowinski, L. Rohrschneider, and F. Yoshimura.** Send résumé, indicating area of interest, and two letters of recommendation to one of the above at: **Fred Hutchinson Cancer Research Center, Seattle, Washington 98104.** Equal Opportunity/Affirmative Action Employer.

REPRODUCTIVE ENDOCRINOLOGIST faculty position available. The Department of Obstetrics and Gynecology of the University of Pittsburgh School of Medicine seeks a reproductive endocrinologist for a full-time, tenure-stream, assistant or associate professorship. Applicant must be ABOG-certified and Board-certified or Board-eligible in gynecologic endocrinology subspecialty. Applicant expected to develop an active research program and to provide patient care and meet teaching obligations. Interested and qualified applicants should submit curriculum vitae to:

T. Terry Hayashi, M.D.
Professor and Chairman
Department of Obstetrics and Gynecology
University of Pittsburgh School of Medicine
Magee-Womens Hospital
Pittsburgh, Pa. 15213

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

VISITING PROFESSOR GROSS ANATOMY

The Harvard-Massachusetts Institute of Technology (MIT), Division of Health Sciences and Technology (HST), seeks to appoint a visiting professor of anatomy for the fall semester of academic year 1981-1982. The appointee will serve as a member of the instructional staff in the gross anatomy course (September-December 1981). The course is designed to provide a thorough grounding in the structure of the human body and to develop analytical approaches to understanding normal and abnormal function. Consistent with the aims of the division, the course attempts to exemplify the productive interactions between medicine, biology, biomedical engineering, and other disciplines that are vital to advances in health science technology. Salary will be commensurate with experience. Applicants should submit curriculum vitae and the names/addresses of three references to: **Professor Farish A. Jenkins, Jr., c/o Office of the HST Curriculum Committee Chairman, Harvard Medical School, Building E2-437, 25 Shattuck Street, Boston, Mass. 02215.**

Harvard and MIT are Equal Opportunity Employers.

UNIVERSITY OF MASSACHUSETTS/AMHERST Professor, UM/Department Head

Administrative experience desirable. Must have leadership ability and be able to effectively interact with agricultural commodity groups, University administration, and active young faculty. Salary and rank commensurate with experience. *Women and members of minority groups are encouraged to apply.* Applications accepted to 15 February 1981, or until suitable candidate is found. Inquiries should be addressed to:

Dr. John G. Stoffolano, Jr.
Chairman of Search Committee
Department of Entomology
University of Massachusetts
Amherst, Mass. 01003

An Equal Opportunity/Affirmative Action Employer

Program For Doctor of Philosophy in Pathology

The Department of Pathology, Wayne State University School of Medicine, offers a new graduate program leading to the degree of Doctor of Philosophy in Experimental Pathology and Clinical Laboratory Sciences. It is a full three to four year program requiring students to complete a major core curriculum in modern cellular and molecular pathology, related minor courses, appropriate comprehensive examinations, and research leading to a final dissertation. The Department offers diverse research opportunities, especially in experimental cardiovascular, renal, pulmonary and neuropathology; immunopathology, cytogenetics, tumor biology and immunology, tissue culture, environmental pathology, teratology, and comparative pathology. Graduate students emphasizing the clinical laboratory sciences may investigate basic or applied problems in analytical clinical biochemistry, clinical microbiology, hematopathology, blood coagulation, immunopathology and toxicology. Students may qualify for teaching assistantships or other forms of financial aid. For consideration, applicants must have a bachelor's degree and a composite record of academic excellence; advanced standing may be given in special cases.

For detailed information about this program write: Graduate Officer
Department of Pathology
Wayne State University School of Medicine
540 East Canfield
Detroit, MI 48201

Sr Scientist/ Toxicologist

Sandoz, Inc., acknowledged internationally as a vital force in the scientific community, seeks an R&D professional with 1-5 years toxicology experience in the chemical or pharmaceutical industry. PhD in Pharmacology or Toxicology required.

Qualified candidate will assume responsibility for acute, subacute, and chronic toxicity studies prepared in support of pesticide registrations and drug submissions. Implementation of in vitro mutagenicity testing is an additional function of the position.

We offer competitive salary, full complement of company paid benefits, relocation, a pleasant central New Jersey setting, within easy reach of recreational areas and New York City, and a thoroughly professional environment.

Please send detailed resume including salary requirements in confidence to: J. O'Hagan



SANDOZ, INC.

RESEARCH and DEVELOPMENT
Route 10, East Hanover, NJ 07936

An Equal Opportunity Employer M/F

POSITIONS OPEN

NATIONAL SCIENCE FOUNDATION (NSF)

NSF, Directorate for Scientific, Technological and International Affairs, Office of Special Projects, is seeking candidates for the position of **PROJECT MANAGER** for the Five-Year Outlook on Science and Technology. The position will be filled on a 2-year rotational assignment and is excepted from the competitive civil service at the EC-14/EP level (equivalent to GS-14/15), \$37,871 to \$50,112.50 per annum. The incumbent will be responsible for coordinating all aspects of the design, preparation, and publication of the Five-Year Outlook on science and technology, a major, periodic report required by the Congress. Candidates must have a Ph.D. or equivalent degree in one of the physical, mathematical, engineering, life or social sciences, at least 3 years of postdoctoral research experience in one or more of those fields, demonstrated interest in science and technology policy, and program management experience. Candidates must also have the ability to comprehend scientific and technical developments across broad fields; to plan, coordinate, and integrate written contributions on such developments and to understand and analyze the relationships between such developments and public policy. Demonstrated skills in technical writing and in editing and production are also required. Candidates should submit their SF-171, Personal Qualifications Statement, or résumé to: **National Science Foundation, Room 212, 1800 G Street, NW, Washington, D.C. 20550; Attention: E. Paul Broglie, EX 81-18.**

NSF is an Equal Opportunity Employer

QUANTITATIVE ECOLOGIST (MARINE BIOLOGIST OR OCEANOGRAPHER)

A University of California research position available starting spring 1981. Successful applicant will be responsible for ongoing analysis and evaluation of ecological research on the effects of a power plant on the California marine ecosystem. The research, done by teams of biologists and oceanographers, is supported and overseen by the Marine Review Committee (MRC), a committee of three scientists who act on behalf of the California Coastal Commission. The successful applicant will be given the opportunity of employment by the committee, rather than the University, if this seems appropriate.

Requires Ph.D. or equivalent; extensive background in data analysis and use of computers is required. Background in statistical methods sufficient for performing testing of multivariate hypotheses and constructing statistical models is essential, and experience in modeling and scientific writing would be an advantage. The successful candidate is likely to be either a marine biologist with extensive training and experience in quantitative methods, or a statistician or data analyst with experience in ecological problems.

Send curriculum vitae and three letters of recommendation to: **Professor W. Murdoch, Department of Biological Sciences, University of California, Santa Barbara, California 93106**, by 28 February 1981. Salary competitive, and commensurate with qualifications and experience. Duration of appointment expected to be more than 3 years. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE—Position available for research concerning biochemical aspects of leukocyte chemotaxis. Strong background in receptors, transduction mechanisms, or membrane function is essential. Stipend depends on background. Send curriculum vitae and bibliography to: **Dr. Ralph Snyderman, Box 3892, Duke University Medical Center, Durham, N.C. 27710.**

VERTEBRATE BIOLOGIST and MICROBIAL GENETICIST. Two tenure-track positions open in fall 1981 in a six-member undergraduate Biology Department of a small liberal arts college. Applicants should have a Ph.D. and a strong commitment to undergraduate teaching. Course responsibilities include: **vertebrate biologist**—comparative vertebrate anatomy, vertebrate biology, and general biology; **microbial geneticist**—microbiology, genetics, biochemistry, and general biology. Twelve contact hours per semester; salary range: \$15,000 to \$17,000. Send curriculum vitae, three letters of reference, and brief description of research goals to: **Dr. Harry Shealy (microbial geneticist position), or Dr. Harold Ornes (vertebrate biologist position), Division of Science and Mathematics, University of South Carolina at Aiken, Aiken, S.C. 29801.** Closing date: 23 February 1981. *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR. The Department of Neurology, University of Alabama in Birmingham, has an immediate opening for a clinical or experimental neuropsychologist interested in cerebral blood flow research. Research activities may be combined with clinical service depending on the individual's qualifications and interests. The clinical service component will include supervision of psychology interns and graduate students in both assessment and therapy experiences. Clinical applicants should have a Ph.D. in clinical psychology from an APA approved program and completed an APA approved internship. Applicants with experience in cerebral blood flow or neurophysiology are preferred though individuals with research experience in other areas of neuropsychology are encouraged to apply. Send curriculum vitae and three letters of recommendation to: **Dano A. Leli, Ph.D., Department of Neurology, University of Alabama in Birmingham, Birmingham, Ala. 35294.** *An Equal Opportunity Employer.*

RESEARCH ASSOCIATE/POSTDOCTORAL FELLOW. Research in genetics and molecular biology of *B. subtilis* phages. Part of a vigorous and growing group of molecular biologists. Opportunity for recombinant DNA experience. Minimum: 2 years; possibility of long-term position, with increased responsibilities. Send curriculum vitae and names of three references to: **Charles Stewart, Department of Biology, Rice University, Houston, Texas 77001.** *Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE for studies on isolation of nucleic acids involved in the synthesis of collagens. Ph.D. required with experience in isolation and identification of nucleic acids coding for specific proteins. Send résumé to: **Dr. N. A. Kefalides, Director, Connective Tissue Research Institute, University of Pennsylvania, 3624 Market Street, Philadelphia, Pa. 19104.** *An Equal Opportunity Employer.*

RESEARCH PHYSICIST, biomedical spectroscopy. Minimum of 3 years of experience in Raman and infrared spectroscopic analyses of biopolymers. Knowledge of NMR spectroscopy and experience in force field calculations on biopolymers and Ph.D. in physics required. Salary: \$17,000 per year; 40 hours per week. Résumés to: **Professor H. E. Stanley, Director, Center for Polymer Studies, Boston University, Boston, Mass. 02215.** *An Equal Opportunity/Affirmative Action Employer, M/F.*

SENIOR LEVEL POSITION(S) AVAILABLE

The Department of Biology at Brooklyn College of The City University of New York (CUNY) is pleased to announce the possibility of several senior level appointments for the 1981-1982 academic year. These are tenure-track positions offered to attract individuals with outstanding records of professional accomplishment. Candidates should be involved in active research programs with significant funding from public or private sources. The area of research is open. Those interested should send their curriculum vitae, statement of research plans, and the names of three references by 23 February 1981 to:

**Dr. Ronald A. Eckhardt
Department of Biology
Brooklyn College—CUNY
Bedford Avenue and Avenue H
Brooklyn, New York 11210**

Brooklyn College is an Equal Opportunity/Affirmative Action Employer.

SENIOR RESEARCH ASSOCIATE

Applications are invited for a senior research associate to undertake long-term advanced research projects in the area of reaction dynamics, provide continuity and coordination of the total research effort, supervise members of a research group, and assist in preparing research proposals and presentations. Applicants must have a Ph.D. in chemistry or physics; five or more years of experience in molecular beams and laser spectroscopy; demonstrated ability to work independently; proven record of publications; good communication skills; and ability to manage research group and work harmoniously with others. The salary range is \$29,000 to \$34,000, depending upon experience. Send résumé to: **Professor R. N. Zare, Department of Chemistry, Stanford University, Stanford, Calif. 94305.** *Stanford is committed to Equal Opportunity through Affirmative Action in Employment, and we are especially eager to identify minority persons and women with appropriate qualifications.* The deadline for receipt of applications is 9 February 1981.

POSITIONS OPEN

SCIENCE RESEARCH ASSOCIATE

A membrane-enzyme biochemistry Ph.D. is sought to pursue collaborative research in our Laboratory of Molecular Neurobiology. We are pursuing enzymes causing identified alterations in plasma membrane glycoproteins and gangliosides in differentiating neuroblastoma transport mutants grown in cell culture. We will emphasize the fractionation and quantitation of lysosomal, golgi and plasma membrane associated protein kinases, ATPases, glycosidases, and glycosyltransferases. An outstanding person would be offered a long-term position leading potentially to a **faculty appointment.** We have an outstanding group of scientists in our laboratory and offer an immediate opportunity for career development in molecular neurobiology.

Telephone: (collect) **214-688-3356**, or send curriculum vitae to: **Fred Baskin, Ph.D., Department of Neurology, University of Texas Health Science Center, 5323 Harry Hines Boulevard, Dallas, Texas 75235.**

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

RESEARCH ASSOCIATE (POSTDOCTORAL)

Positions available for studies of the biochemistry of *Plasmodium falciparum*, including studies of nucleotide metabolism and parasite-specific proteases. Strong background in enzymology is preferred. Salary: \$13,000 to \$16,000, depending on experience and qualifications. Send curriculum vitae and three references to: **Dr. P. Reyes or Dr. D. L. Vander Jack, Department of Biochemistry, University of New Mexico School of Medicine, Albuquerque, N.M. 87131; telephone: 505-277-3333.** *Equal Opportunity Employer.*

VERTEBRATE PHYSIOLOGIST

The Department of Biology, The American University, Washington, D.C., invites applications for an anticipated tenure-track position at the assistant professor level to begin September 1981, subject to University administrative and budgetary approvals. Applicants must have the Ph.D. with demonstrated competence in college teaching in the discipline of vertebrate physiology. Responsibilities include: teaching four laboratory courses per academic year; student counseling; participation in departmental and university governance, the development of an individual research program, and guidance of master's-level thesis research.

Salary is in the mid-teens on a 9-month basis. Summer teaching and external consulting opportunities may be available. TIAA-CREF and other benefits.

Applicants are requested to submit complete curriculum vitae, transcripts, and three letters of reference by 6 February 1981 to:

**Dr. Richard Anderson
Chairman, Search Committee
Department of Biology
The American University
Washington, D.C. 20016**

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VERTEBRATE ZOOLOGIST. A tenure-track position at the assistant professor level will be available beginning late August 1981. The applicant should be able to teach at the graduate and undergraduate level in vertebrate area and eventually assume genetics responsibility. Send résumé to: **Dr. M. Warren, Department of Biology, P.O. Box 10037, Lamar University, Beaumont, Texas 77710.**

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VETERINARY ANATOMISTS

The Department of Veterinary Anatomy at Iowa State University has openings for a gross anatomist and an applied anatomist. Applicants should have a Ph.D. or D.V.M. Primary responsibility will be teaching in the professional curriculum. The candidate will also be expected to participate in research, either in an ongoing program in the department or college or in a basic, applied, or educational area of his or her choice. Salary will be commensurate with qualifications; minimum of \$24,000. Send résumé and three letters of recommendation to: **Dr. Jeanine Carithers, Department of Veterinary Anatomy, Iowa State University, Ames, Iowa 50011.** Closing date for applications is 1 April 1980. *Iowa State University is an Equal Opportunity/Affirmative Action Employer.*

INTERNATIONAL SYMPOSIUM ON SALT AND HYPERTENSION

Medical Research Center

Brookhaven National Laboratory
Upton, L.I., New York 11973 U.S.A.

May 7 and 8, 1981

A two-day Symposium will be held at the Brookhaven National Laboratory, covering various aspects of clinical and experimental salt hypertension. This first Lewis K. Dahl International Symposium will include speakers from Europe, Japan, and the United States.

A fee of \$125.00, payable in advance, will be charged each participant. This fee includes living accommodations on the Brookhaven National Laboratory site, and the official symposium banquet. Registration must be limited to the first 130 applicants.

For application and further information, contact:

Dr. J. Iwai
Medical Department
Brookhaven National Laboratory
Associated Universities, Inc.
Upton, L.I., N.Y. 11973, U.S.A.
Tel: (516) 345-3619

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RESEARCH MICROBIOLOGIST Ph.D.

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Dr. Wayne N. Millar
Eli Lilly and Company
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Indianapolis, IN 46285



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POSITIONS OPEN

VIRAL BIOCHEMIST

Postdoctoral position. Mapping of herpesviral DNA and DNA sequences in tumor cells. Prefer viral biochemist or biochemist with experience in DNA mapping and hybridization techniques. Send curriculum vitae to: Dr. O'Callaghan, Department of Microbiology, University of Mississippi Medical Center, 2500 North State Street, Jackson, Miss. 39216, or telephone: 601-987-5607. An Equal Opportunity Employer, M/F.

REQUEST FOR PROPOSALS

NRRFSS

NATIONAL RESEARCH AND RESOURCE FACILITY FOR SUBMICRON STRUCTURES

Proposals are now being accepted for research to be carried out at NRRFSS, the National Research and Resource Facility at Cornell University, Ithaca, New York. This facility has been established to promote research in submicron fabrication, to provide a resource for the fabrication of advanced devices and research structures requiring submicron dimensions, and to stimulate innovative research in areas of science outside the electronic device field by providing access to advanced submicron technology.

Research at the facility is expected to explore advanced areas which go beyond current integrated circuit practice and which depend intimately on submicrometer dimensions. To be appropriate, proposed projects should substantially further the art of submicron technology or its applications to science and engineering. Proposed projects should not be of a service nature where such services are commercially available and should be of a nature that centrally depends on the specialized equipment and expertise of the facility.

Most approved projects will be expected to begin after the completion of the new laboratory, summer 1981. Some projects can, however, be initiated earlier.

For a copy of a users manual which contains information on available instruments and proposal submission forms, write or telephone: NRRFSS, Phillips Hall, Cornell University, Cornell University, Ithaca, New York 14853; telephone: 607-256-2329.

CONFERENCE

Conference on the Rheologic Contributions to Thrombosis and Hemostasis

A conference sponsored by the NHLBI, NIH will be held on 4 and 5 June 1981. Topics will include the effects of fluid flow on the formation and stabilization of arterial and venous thrombi and the rheologic evaluation of hemostatic mechanisms. For further information, contact: Dr. J. L. Wyatt, Room 5C10, Federal Building, NIH, Bethesda, Md. 20205 or telephone: 301-496-5911.

PROGRAMS

PREDOCTORAL AND POSTDOCTORAL NUTRITION EMPHASIS PROGRAMS

Available in nine different Health and Social Science Departments. Brochures are available through: Multidisciplinary Graduate Group in Nutritional Sciences, Biochemistry Department, Cary Hall, State University of New York at Buffalo, Buffalo, N.Y. 14214.

PRE- AND POSTDOCTORAL TRAINEESHIPS AND FELLOWSHIPS in an interdepartmental program in **EXPERIMENTAL PARASITOLOGY** are available, as of 1 June 1981, at the University of Massachusetts/Amherst. Traineeships in biology, immunology, physiology, and biochemistry of zooparasites are limited to U.S. citizens or permanent residents; fellowships to those with research experience in salivarian trypanosomes or trichomonads. Write to: Dr. B. M. Honigberg, Parasitology Program, Department of Zoology, University of Massachusetts, Amherst, Mass. 01003. An Affirmative Action/Equal Opportunity Employer.

FELLOWSHIPS

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 FELLOWSHIP IN TUMOR IMMUNOLOGY (1 to 2 years): Immediate opening to perform research in tumor antigenicity. Grant-supported projects involve isolation and characterization of murine tumor-specific transplantation antigens, immunotherapy models, and isolation of genetically uniform tumor sublines. Experience in the production of monoclonal antibodies is desired but not essential. Salary: \$13,000 per annum. Send curriculum vitae, graduate transcripts, and three letters of reference to: Dr. Neal R. Pellis, Division of Organ Transplantation, Department of Surgery, University of Texas Medical School, Houston, Texas 77030.

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Postdoctoral Fellowships in Medical Genetics for M.D. or Ph.D. This program offers a variety of full-time basic research opportunities. Clinical research opportunities and training in biochemical genetic or cytogenetic diagnostic laboratories are available. Participating faculty include members of the Departments of Biochemistry, Cell Biology, Pediatrics, Internal Medicine, Neurology, and Obstetrics/Gynecology. Write for further information or apply by submitting curriculum vitae and letters or recommendation. Correspondent: Arthur L. Beaudet, M.D., Department of Pediatrics, Baylor College of Medicine, Houston, Texas 77030.

POSTDOCTORAL FELLOWSHIP. Immediate openings in organic chemistry, physics (x-ray, NMR), and biochemistry or physiology of lipid metabolism in a multidisciplinary environment at a major medical center. Fellows will participate in an NIH-funded program project to study lipid physical chemistry and metabolism. Some positions are subject to the National Research Service Act (Public Law 93-348). Qualified persons should send curriculum vitae, names of three references, and a statement of research interest and experience to: Donald M. Small, M.D., Biophysics Institute, Boston University School of Medicine, 80 East Concord Street, Boston, Mass. 02118.

Combined research/clinical fellowship in endocrinology. Unanticipated opening for July 1981. Areas of research interest include neuroendocrinology, pituitary and thyroid physiology, mechanism of hormone action, regulation of hormone receptors, hypothalamic peptides and catecholamines, and prolactin physiology. Apply by sending curriculum vitae and two letters of recommendation to: Dr. Marvin C. Gershengorn, Department of Medicine, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016.

BIOMEDICAL ENGINEERING AND SCIENCE INSTITUTE ERNEST N. CALHOUN GRADUATE FELLOWSHIPS

Drexel University is pleased to announce competition for **CALHOUN GRADUATE RESEARCH FELLOWSHIPS** in Biomedical Engineering and Science. Supported by the Calhoun endowment to Drexel University, each fellowship provides a minimum of \$6000 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 1981. Deadline for completed application is 20 March 1981. For applications, please write:

Dov Jaron, Ph.D., Director
Biomedical Engineering and Science Institute
Drexel University
Philadelphia, Pennsylvania 19104

FELLOWSHIPS

CARDIOVASCULAR RESEARCH FELLOWSHIP. Postdoctoral fellowship position for research training in:

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- 2) Reflex control of circulation,
- 3) Ultrasound—clinical and basic.
- 4) X-ray videometry; three-dimensional reconstruction,
- 5) Atherosclerosis; platelet inhibitors; hypertension, and
- 6) Computer applications in clinical cardiology.

Position available immediately, with additional positions opening in July 1981, for candidates with M.D. or Ph.D.; competitive stipend. May combine with advanced clinical training in cardiovascular medicine. Contact: Robert G. Tancredi, M.D., Director, Cardiovascular Research Training Program, Mayo Clinic, Rochester, Minn. 55901.

An Equal Opportunity/Affirmative Action Institution

POSTDOCTORAL FELLOWSHIPS IN BIOMEDICAL COMPUTING AT THE OHIO STATE UNIVERSITY (OSU). Applications are invited for two National Library of Medicine sponsored postdoctoral fellowships for M.D.'s or biological sciences Ph.D.'s interested in computer applications in biomedicine. Programs will be individually tailored to cover the basics of computer science and to involve participation in projects in computer applications, such as artificial intelligence in clinical medicine, distributed processing in medical environments, and medical data bases. Fellowships are in the range of \$13,500 to \$17,000, and may start any time after 1 July 1981. Opportunities are available for obtaining graduate degree in biomedical computing and for new M.D.'s to combine residency at OSU hospitals with fellowship work. For further information, write, enclosing a resume and a statement of interest, to: Dr. Gregory L. Trzebiatowski, Associate Dean for Medical and Graduate Education, The Ohio State University, 254 Medical Administration Center, 370 West 9 Avenue, Columbus, Ohio 43210.

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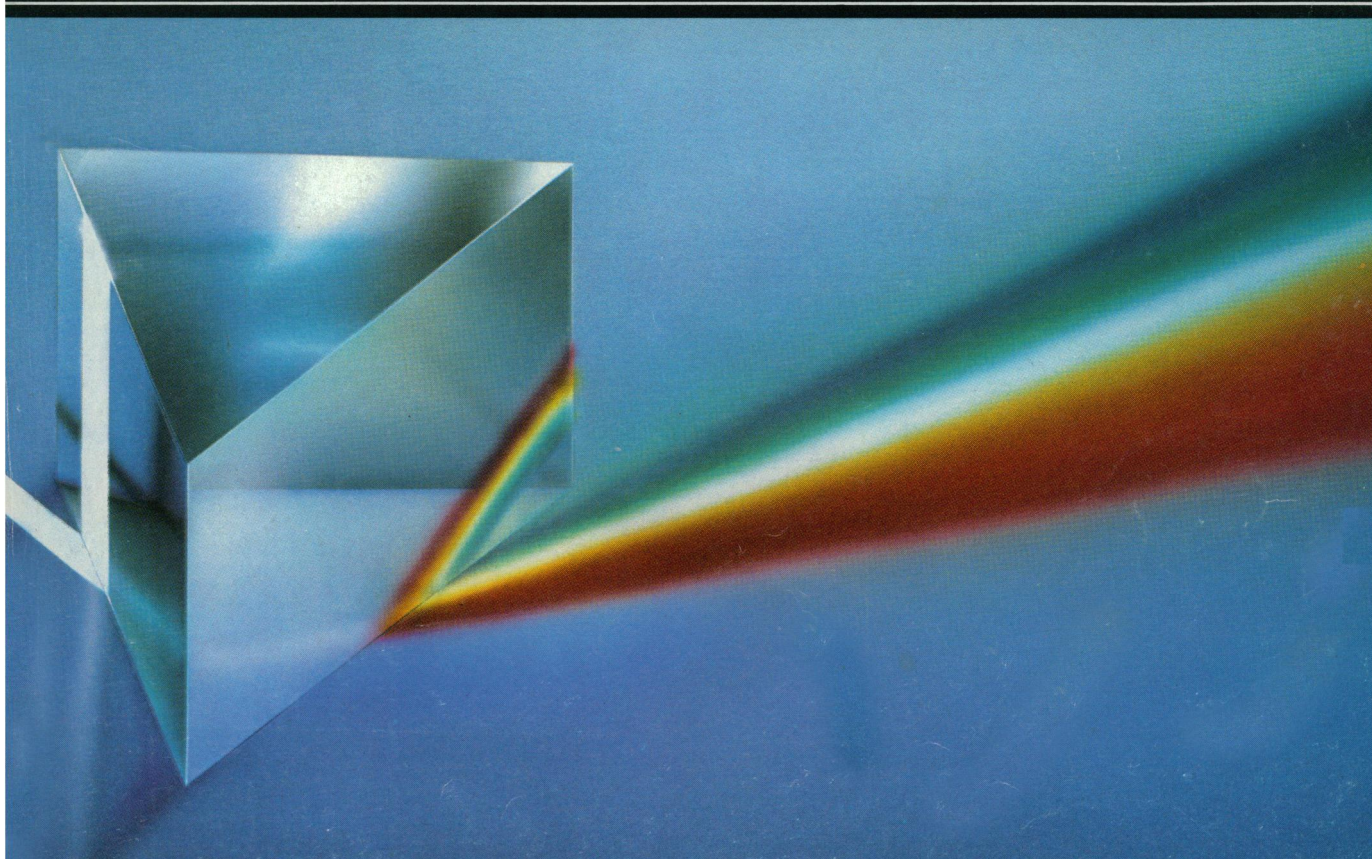
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