

new knowledge and insights into population regulation. Of special interest are his observations on reproductive suppression at high densities and the resulting hierarchies and on the contributions by nonbreeding females to rearing of the young. Lindström, using some of MacDonald's results, presents a hypothesis to explain population regulation of foxes in Sweden. The essentials of this hypothesis are that a range of regulation exists with food supplies at one end and social factors at the other. In unstable environments where food supplies fluctuate drastically, nutritional factors suppress productivity. In stable environments population density is related to food supply, but the proximate regulating factor is socially induced suppression of reproduction. The theory can also be used to explain variations in sex ratios.

In the introductory chapter the editor points out that the book should not be considered a comprehensive summary of present-day knowledge of the fox but rather a stimulant for further research. The editor is being modest. This book contains exciting information that should be of great interest to students of population ecology, wildlife behavior, and disease relationships. It contains a fairly good summary of fox ecology, but, more important, it presents an excellent approach to the study of population regulation and illustrates the importance of behavior for understanding the ecology of a species.

ERNEST D. ABLES

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## Echolocation

**Animal Sonar Systems.** Papers from a symposium, Jersey, Channel Islands, April 1979. RENÉ-GUY BUSNEL and JAMES F. FISH, Eds. Plenum, New York, 1980. xxiv, 1136 pp., illus. \$75. NATO Advanced Study Institutes Series A, vol. 28.

This volume is the result of a meeting whose participants all work on animal echolocation systems. The papers are much better focused on the subject indicated by the title than is the case with most such volumes, and the overall quality is excellent.

The book is fittingly dedicated to Donald R. Griffin, who, working with bats, pioneered echolocation studies some 45 years ago. Griffin has written the first chapter in the book. It is a revealing and amusing early history of research on an

unknown frontier by two students (Griffin and Robert Galambos). Historical reviews such as this and that by Wood and Evans on echolocation in dolphins serve to remind us that good ideas, persistence, and ingenuity were at one time good substitutes for federal dollars. They also give insight into how discoveries are actually made.

Advances made since a similar group convened in 1966 are summarized, and the literature is brought up to date in a masterly fashion. The Russians are doing a great deal of work in this area, and, though the Russian researchers were unable to attend the conference, one of the major deficiencies in the United States in this field, the lack of examination of the Russian literature, is corrected.

The reports deal primarily with the airborne sonar sounds of bats and the underwater sonar sounds of toothed whales. Other animals that are known to echolocate, such as oil birds and shrews, are dealt with to the extent that they have been studied in this regard. Work on echolocation aids for blind humans is also explored.

One of the more startling chapters is that by Watkins indicating the importance of sperm whale clicks in communication, although clicks are not ruled out as echolocation devices. Recent neurophysiological studies in both bat and cetacean echolocation systems are also of considerable interest. Chapters by McCormick, Wever, Ridgway, and Palin, by Ridgway, by Norris, and by Bullock bring us up to date on auditory processing in toothed whales and indicate kinds of research needed on cetacean brains. Such studies are highly desirable for this group of animals, concerning which myth and fact have become confusingly intermixed. Similar excellent studies of echo-processing in bats are presented by Neuweiler, by Pollack, and by Suga and O'Neill. Sound production mechanisms in odontocete cetaceans have been the subject of much debate and are also handled well.

Throughout the book the reader is confronted with reminders that research on echolocation is much further along with bats than with toothed whales. This is indicative of the higher cost and difficulty of work with marine mammals. For instance, the excellent chapter on ontogeny of echolocation in bats by Brown and Grinnell would probably be impossible to duplicate today for dolphins.

We note that one of the most useful contributions in the book, a bibliography of recent papers in the field, is complicated by the inclusion of some refer-

ences to work on other marine mammals in a section whose heading indicates it is restricted to odontocetes.

The book is large and heavy, and our copy was already coming apart when it arrived. In addition, though it is quite legible, its style and lack of justified margins result in less than excellent visual appeal.

But these are personal preferences, and the book is a necessity to anyone working in the field. Separate indexes by author, species, and subject add much to its usefulness. The editors have done a good job of organizing the papers and getting them into print quickly.

MELBA C. CALDWELL

DAVID K. CALDWELL

*Biocommunication and Marine Mammal  
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St. Augustine 32084*

## Books Received

**Advances in Sex Hormone Research.** Vol. 4. J. A. Thomas and R. L. Singhal, Eds. Urban & Schwarzenberg, Baltimore, 1980. xii, 364 pp., illus. \$32.50.

**Advances in X-Ray Analysis.** Vol. 23. Proceedings of a conference, Denver, July 1979. John R. Rhodes and five others, Eds. Plenum, New York, 1980. xviii, 390 pp., illus. \$45.

**Aggression and Behavior Change.** Biological and Social Processes. Papers from a conference, Warsaw. Seymour Feshbach and Adam Fraczek, Eds. Praeger, New York, 1979. xiv, 302 pp., illus., \$24.95.

**The Aging Nervous System.** Gabe J. Maletta and Francis J. Pirozzolo, Eds. Praeger, New York, 1980. vi, 338 pp. \$27.95. *Advances in Neurogerontology*, vol. 1.

**Algebra.** An Incremental Approach. Vol. 2. John H. Saxon, Jr. Prentice-Hall, Englewood Cliffs, N.J., 1980. xiv, 456 pp., illus. Paper, \$12.95.

**Algebraic Coding Theory and Applications.** Papers from a school, Udine, Italy. July 1978. G. Longo, Ed. Springer-Verlag, New York, 1979. xii, 528 pp. Paper, \$52.60. International Centre for Mechanical Sciences Courses and Lectures, No. 258.

**The Alpine Flora of New Guinea.** Vol. 1, General Part. P. Van Royen. Cramer, Braunschweig, 1980. 318 pp., illus. DM 100.

**Aspects of the Linear and Magnetic Circular Dichroism of Planar Organic Molecules.** Erik Waaben Thulstrup. Springer-Verlag, New York, 1980. vi, 100 pp., illus. Paper, \$14.20. *Lecture Notes in Chemistry*, vol. 14.

**Aspects of Slow and Persistent Virus Infections.** Proceedings of a workshop, London, Apr. 1979. D. A. J. Tyrrell, Ed. Published for the Commission on the European Communities by Nijhoff, The Hague, 1979 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 286 pp., illus. \$42.10. *New Perspectives in Clinical Microbiology*, vol. 2.

**Comparative Psychology.** An Evolutionary Analysis of Animal Behavior. M. Ray Denny, Ed. Wiley, New York, 1980. viii, 496 pp., illus. \$20.95.

**Computer Aided Design and Manufacture.** C. B. Besant. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 170 pp., illus. \$40. Ellis Horwood Series in Engineering Science.

**Computerized Tomography of the Orbit and Sella Turcica.** Lawrence Jacobs, Leon A. Weisberg, and William R. Kinkel in collaboration with Barton L. Hodes. Raven, New York, 1980. xxii, 354 pp., illus. \$85.

**Concepts in Neurophysiology.** William K. Stephenson. Wiley, New York, 1980. viii, 176 pp., illus. Paper, \$9.50.

**Emotion. Theory, Research, and Experience.** Vol. 1, Theories of Emotion. Robert Plutchik and Henry Kellerman, Eds. Academic Press, New York, 1980. xxiv, 400 pp. \$26.

**Energy in Transition.** A Report on Energy Policy and Future Options. Måns Lönnroth, Peter Steen, and Thomas Johansson. University of California Press, Berkeley, 1980. xxvi, 172 pp., illus. \$10.95.

**Energy in Transition, 1985-2010.** Final Report of the Committee on Nuclear and Alternative Energy Systems, National Research Council-National Academy of Sciences, Washington, D.C., 1979. Freeman, San Francisco, 1980. xl, 678 pp. Cloth, \$24.95; paper, \$11.95.

**Environmental Education.** Principles, Methods, and Applications. Proceedings of a symposium, Jerusalem, Sept. 1978. Trilochan S. Bakshi and Zev Naveh, Eds. Plenum, New York, 1980. xiv, 286 pp., illus. \$32.50. Environmental Science Research, vol. 18.

**Epidemiology of Anencephalus and Spina Bifida.** J. Mark Elwood and J. Harold Elwood. Oxford University Press, New York, 1980. x, 414 pp., illus. \$69.50. Oxford Medical Publications.

**Essays in Biochemistry.** Vol. 15. P. N. Campbell and R. D. Marshall, Eds. Published for the Biochemical Society by Academic Press, New York, 1979. x, 130 pp., illus. Paper, \$11.50.

**The Forbidden Experiment.** The Story of the Wild Boy of Aveyron. Roger Shattuck. Farrar Straus Giroux, New York, 1980. xii, 220 pp. + plates. \$10.95.

**Hadronic Matter at Extreme Energy Density.** Proceedings of a workshop, Erice, Italy, Oct. 1978. Nicola Cabibbo and Luigi Sertorio, Eds. Plenum, New York, 1980. x, 358 pp., illus. \$42.50. Ettore Majorana International Science Series, vol. 2.

**Handbook of Lithium Therapy.** F. Neil Johnson, Ed. University Park Press, Baltimore, 1980. xxiv, 454 pp. \$39.50.

**Health Hazards of Asbestos Exposure.** Papers from a conference, June 1978. Irving J. Selikoff and E. Cuyler Hammond, Eds. New York Academy of Sciences, New York, 1979. xvi, 814 pp., illus. \$149. *Annals of the New York Academy of Sciences*, vol. 330.

**Heavy Particle Radiotherapy.** M. R. Raju. Academic Press, New York, 1980. xii, 500 pp., illus. \$36.50.

**Henderson's Dictionary of Biological Terms.** Sandra Holmes. Van Nostrand Reinhold, New York, ed. 9, 1980. xii, 510 pp. \$29.95.

**Heterogeneous Catalysis in Practice.** Charles N. Satterfield. McGraw-Hill, New York, 1980. xvi, 416 pp., illus. \$26.95. McGraw-Hill Chemical Engineering Series.

**Homosexual Behavior.** A Modern Reappraisal. Judd Marmor, Ed. Basic Books, New York, 1980. xvi, 416 pp. \$27.50.

**Human Behavior and Environment.** Advances in Theory and Research. Vol. 4, Envi-

ronment and Culture. Irwin Altman, Amos Rapoport, and Joachim F. Wohlwill, Eds. Plenum, New York, 1980. xvi, 352 pp. \$25.

**Hyperactive Children.** The Social Ecology of Identification and Treatment. Carol K. Whalen and Barbara Henker, Eds. Academic Press, New York, 1980. xxiv, 408 pp. \$25.

**Hypertension.** The Renal Basis. David B. Goode, Ed. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1980 (distributor, Academic Press, New York). xvi, 432 pp., illus. \$45. Benchmark Papers in Human Physiology, vol. 13.

**Introduction to Physical System Modelling.** P. E. Wellstead. Academic Press, New York, 1979. x, 280 pp., illus. \$41.50.

**The Librarian and Reference Queries.** A Systematic Approach. Gerald Jahoda and Judith Schiek Braunagel. Academic Press, New York, 1980. xii, 176 pp. \$12. Library and Information Science.

**Life-Span Developmental Psychology.** Intervention. Papers from a conference, Morgantown, W. Va., May 1978. Ralph R. Turner and Hayne W. Reese, Eds. Academic Press, New York, 1980. xviii, 346 pp., illus. \$24.50.

**Mathematical Modelling and Computers in Endocrinology.** J. E. A. McIntosh and R. P. McIntosh. Springer-Verlag, New York, 1980. xii, 338 pp., illus. \$48.40. Monographs on Endocrinology, vol. 16.

**Methods in Enzymology.** Sidney P. Colowick and Nathan O. Kaplan, Eds. Vol. 65, Nucleic Acids, Part I. Lawrence Grossman and Kivie Moldave, Eds. Vol. 66, Vitamins and Coenzymes, Part E. Vol. 67, Vitamins and Coenzymes, Part F. Donald B. McCormick and Lemuel D. Wright, Eds. Academic Press, New York, 1980. Vol. 65. xxvi, 968 pp., illus. \$57.50. Vol. 66. xxx, 756 pp., illus. \$55. Vol. 67. xxvi, 580 pp., illus. \$49.50.

**New Directions in Childhood Psychopathology.** Vol. 1, Developmental Considerations. Saul I. Harrison and John F. McDermott, Eds. International Universities Press, New York, 1980. xviii, 610 pp., illus. \$35.

**NMR of Chemically Exchanging Systems.** Jerome I. Kaplan and Gideon Fraenkel. Academic Press, New York, 1980. xiv, 166 pp., illus. \$19.50.

**NMR Spectroscopy.** An Introduction. H. Günther. Translated from the German edition (Stuttgart, 1973) by Robert W. Gleason. Wiley, New York, 1980. xiv, 436 pp., illus. \$62.

**Organic Chemistry.** The Basis of Life. Bernard Miller. Benjamin/Cummings, Menlo Park, Calif., 1980. xvi, 472 pp., illus. \$16.95.

**Organometallics in Organic Synthesis.** Vol. 1, General Discussions, Organometallics of Main Group Metals in Organic Synthesis. Eiichi Negishi. Wiley-Interscience, New York, 1980. xvi, 532 pp., illus. \$25.

**Oxford Reviews of Reproductive Biology.** Vol. 1, 1979. C. A. Finn, Ed. Clarendon (Oxford University Press), New York, 1979. viii, 486 pp., illus. + plates. \$67.50.

**Paleobiology of the Invertebrates.** Data Retrieval from the Fossil Record. Paul Tasch. Wiley, New York, ed. 2, 1980. xxiv, 976 pp., illus. \$32.95.

**Patent and Trademark Tactics and Practice.** David A. Burge. Wiley-Interscience, New York, 1980. xviii, 186 pp. \$15.95.

**The Peptides.** Analysis, Synthesis, Biology. Vol. 2, Special Methods in Peptide Synthesis, Part A. Erhard Gross and Johannes Meienhofer, Eds. Academic Press, New York, 1980. xx, 596 pp., illus. \$55.

**The Pocket Guide to Astronomy.** Patrick Moore. Simon and Schuster, New York, 1980. 144 pp., illus. \$5.95.

**Quantum Theory and Gravitation.** Proceedings of a symposium, New Orleans, May 1979. A. R. Marlow, Ed. Academic Press, New York, 1980. xii, 268 pp., illus. \$18.50.

**Radiationless Transitions.** Sheng Hsien Lin, Ed. Academic Press, New York, 1980. xiv, 426 pp., illus. \$48.50.

**Recent Results in Peptide Hormone and Androgenic Steroid Research.** Proceedings of a congress, Szeged, Hungary, July 1979. F. A. László, Ed. Akadémiai Kiadó, Budapest, 1979 (U.S. distributor, Heyden, Philadelphia). 326 pp., illus. \$30.

**Rules and Representations.** Noam Chomsky. Columbia University Press, New York, 1980. viii, 300 pp. \$14.95. Woodbridge Lectures Delivered at Columbia University, No. 11.

**Sampling Methods in Soybean Entomology.** M. Kogan and D. C. Herzog, Eds. Springer-Verlag, New York, 1980. xxiv, 588 pp., illus. \$44.80. Springer Series in Experimental Entomology.

**The Scientific Basis of Toxicity Assessment.** Proceedings of a symposium, Gatlinburg, Tenn., Apr. 1979. Elsevier, New York, 1980. viii, 330 pp., illus. \$51.25. Developments in Toxicology and Environmental Science, vol. 6.

**Seafarm.** The Story of Aquaculture. Elisabeth Mann Borgese. Photographs by Robert Ketchum and others. Abrams, New York, 1980. 236 pp. \$35.

**Singular Homology Theory.** William S. Massey. Springer-Verlag, New York, 1980. xii, 266 pp., illus. \$24.80. Graduate Texts in Mathematics, 70.

**Sociology of Science and Research.** Papers from a conference, Budapest, Sept. 1977. János Farkas, Ed. Akadémiai Kiadó, Budapest, 1979 (U.S. distributor, Heyden, Philadelphia). 504 pp., illus. \$58.

**Solar Cell Array Design Handbook.** The Principles and Technology of Photovoltaic Energy Conversion. H. S. Rauschenbach. Van Nostrand Reinhold, New York, 1980. xx, 550 pp., illus. \$42.50.

**Steroids and Peptides.** Selected Chemical Aspects for Biology, Biochemistry, and Medicine. Joseph B. Dence. Wiley-Interscience, New York, 1980. xiv, 418 pp., illus. \$39.50.

**Stratified Flows.** Chia-shun Yih. Academic Press, New York, 1980. xviii, 418 pp., illus. \$29.50. Revision of *Dynamics of Non-homogeneous Fluids* (1965).

**Subcellular Factors in Immunity.** Papers from a conference, Feb. 1979. Herman Friedman, Ed. New York Academy of Sciences, New York, 1979. xii, 626 pp., illus. \$110. *Annals of the New York Academy of Sciences*, vol. 332.

**Theory and Applications of Electron Spin Resonance.** Walter Gordy. Wiley-Interscience, New York, 1980. xii, 626 pp., illus. \$39.95. Techniques of Chemistry, vol. 15.

**Unknown Earth.** A Handbook of Geological Enigmas. Compiled by William R. Corliss. Illustrated by John C. Holden. Sourcebook Project, Glen Arm, Md., 1980. vi, 834 pp. \$19.95.

**Zoonoses and Communicable Diseases Common to Man and Animals.** Pedro N. Acha and Boris Szyfres. Translated from the Spanish edition (1977). Pan American Health Organization, Washington, D.C., 1980. xvi, 702 pp., illus. Paper, \$15. Scientific Publication No. 354.

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**Agricultural/Pesticide Residue Chemist.** Ph.D. Five years of experience in analytical methods. Strong background in instrumentation and modern analytical techniques. Adsorption and characterization studies. Pesticide residue analysis of feed, animal tissue, water, and soils. No agencies. Seeks industrial/academic position. Box 295, SCIENCE. 1/2, 16

**Bacteriologist/Cell Biologist.** Ph.D. (1968). R. M. (AAM). Professor. Seeking academic or laboratory position; rank secondary to reciprocity in skills and ideas. Interested in ecological relationships of *Clostridium perfringens*. Teach general and pathogenic bacteriology, immunology, histology, nutrition. Skills include photomicrography, electron microscopy, writing. Publications. Available July 1981. Box 278, SCIENCE. X

**Biomedical Engineer** (Ph.D. 1977). Electrical engineering background, research experience, publications. Seeks R & D position with university or industry in signal processing, pattern recognition, and computer applications in biomedical research. Box 1, SCIENCE. X

**Immunologist.** Ph.D. 1980. Eight years of university research experience in lymphocyte-mediated target cell destruction. Lymphotoxin, cellular immunity in infectious disease, immunosuppressive effects of endotoxin and bacterial vaccines, and PMN-mediated target cell destruction. Numerous publications. Seeking research position in academia or industry within project investigating cellular and neuro-immunology, DNA processing in lymphocytes, and/or aging research. Box 3, SCIENCE. 1/2, 9, 16

**Lipid Biochemist.** Ph.D. 1979. Experience in lipid enzymology (synthesis/degradation) and analysis of complex lipids. Seeks position, preferably in industry or government. Box 4, SCIENCE. X

**Natural Science Illustrator** desires free-lance assignments (entomology, botany, graphics, and so forth). Published, extensive experience. Slide portfolio/resumé available. C. Kennedy, 439 North Second, Montrose, Colorado 81401. X

## POSITIONS WANTED

**Fisheries/Aquaculture.** B.A. biology, M.S. marine science, Ph.D. fisheries. Experience in curriculum development, personnel administration, financial management; fisheries field sampling and research; aquaculture engineering and extensive finfish culture; academic, private, and government interaction. Seeks position in New England area. Box 2, SCIENCE. X

**Psychopharmacologist.** Ph.D. Highly productive laboratory head wishes to relocate. Seeks own laboratory space in a nonprofit institute, government, or university. No teaching. Will bring grant money to support salary and staff. Box 282, SCIENCE. X

## POSITIONS OPEN

**ANATOMIST:** Tenure-track position at assistant professor level to teach gross anatomy. Active research program essential, grant record desirable, area of research open. Send curriculum vitae, current research and grant status, and names of three potential referees to: **Dr. L. Russell, Search Committee Chairperson, Physiology, Southern Illinois University, Carbondale, Illinois 62901; telephone: 618-536-2033.** Application deadline: 15 February 1981. Appointment date: 15 August 1981. *An Equal Opportunity/Affirmative Action Employer.*

### ANATOMY—ASSISTANT PROFESSOR

Department of Anatomy, University of South Dakota School of Medicine, invites applications from qualified Ph.D. or M.D. for teaching/research position beginning 1 July 1981. Qualifications include broadly based anatomical training/experience for teaching medical and graduate students and an active independent research program. Closing date: 15 March 1981. Send curriculum vitae with list of three references to: **Dr. Wesley W. Parke, Chairman, Department of Anatomy, University of South Dakota School of Medicine, Vermillion, South Dakota 57069.** *Equal Opportunity/Affirmative Action Employer*

**ARTIST/NATURALIST:** 17,000-acre park preservation system near Chicago seeks aggressive, creative person. Position involves interaction with public and natural history professionals and preparation/presentation of displays, projected materials, publications, and interpretive programming. Applicants should hold an advanced degree in a natural science and possess demonstrable graphic skills. Salary: \$13,000 plus. Apply with resumé no later than 20 January to: **R. D. Gooch, Superintendent of Conservation, Forest Preserve District of DuPage County, 881 West St. Charles Road, Lombard, Ill. 60148.**

### ASSISTANT DEAN FOR CURRICULAR AFFAIRS

The assistant dean for curricular affairs provides academic and administrative leadership in educational evaluation, instructional design and development, and research in the allied health sciences. Requirements are an earned doctorate, 3 years of postdoctoral experience in a health science center or allied health setting, and teaching or research experience in interdisciplinary education. Desirable characteristics include administrative experience and skills, evidence of scholarly publication, and success in obtaining grants. Rank, tenure, and salary will be considered with respect to qualifications. Starting date is 1 July 1981. Send, by 15 February 1981, a letter of application, curriculum vitae, three letters of reference, and reprints of recent publications to: **Dr. Bruce R. Niebuhr, Chairman, Search Committee, The School of Allied Health Sciences, The University of Texas Medical Branch, Galveston, Texas 77550.** *The University of Texas Medical Branch is an Equal Opportunity/Affirmative Action Employer, M/F/H.*

**ASSISTANT PROFESSOR.** Tenure-track position beginning 16 August 1981. Ph.D., organic chemistry or biochemistry, able to teach major courses in both fields. Duties will include teaching courses in general chemistry and advanced and elective courses in specialized areas. Opportunities exist for research and directing undergraduate research. ACS-certified department. Civil service fringe benefits. Teaching experience desirable. Send detailed resumé, including copies of maximum of three recent publications, statement of teaching goals and research interests, and letters from three references by 1 February 1981 to: **Dr. Samuel P. Massie, U.S. Naval Academy, Annapolis, Md. 21402.** *Equal Opportunity Employer.*

## POSITIONS OPEN

**ASSISTANT PROFESSOR** position (part-time) in plant anatomy and cytology available for 1981-1982 academic year beginning 16 September 1981, as sabbatical leave replacement. Salary approximately \$10,500 for 0.60 FTE. Send curriculum vitae, transcripts of academic records, and three letters of recommendation by 15 March 1981 to: **Dr. Thomas C. Moore, Chairman, Department of Botany and Plant Pathology, Oregon State University, Corvallis, Oregon 97331.** *Oregon State University is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973.*

### ASSISTANT PROFESSOR POSITIONS (three openings)

The Department of Genetics and Cell Biology of the University of Minnesota plans to recruit up to three tenure-track assistant professors by September 1981. We are particularly interested in persons investigating problems of cell regulation, membrane or chromosome structure and function, the molecular or cellular basis of development, the molecular basis of behavior, or quantitative genetics.

Successful candidates must be well qualified to teach an undergraduate course in cell biology, genetics, or animal biology/physiology and also be willing to offer an advanced course in their area of special interest.

Other qualifications include the Ph.D. degree in an appropriate discipline, at least 1 year of recent postdoctoral experience, and the potential to obtain extramural funds for support of research. Salary is negotiable.

Curriculum vitae, undergraduate and graduate transcripts, a description of research and academic interests, and four letters of reference should be forwarded to: **Chairman, Search Committee, Department of Genetics and Cell Biology, University of Minnesota, 250 BioScience Center, 1445 Gortner Avenue, St. Paul, Minn. 55108.**

Screening of applications will begin 1 February 1981 and continue until suitable individuals are identified.

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

Applications are invited for a faculty position at the beginning **ASSISTANT PROFESSOR** level in the **DEPARTMENT OF BIOCHEMISTRY** of the University of Louisville School of Medicine. The full-time (12-month), tenure-track position is available immediately. Candidates must have a Ph.D. degree and postdoctoral experience in the area of structure-function relationships of macromolecules. Areas of particular interest include, but are not limited to, structure and function of glycoproteins, synthesis and design of molecular probes, and metabolic regulation of protein function. Teaching responsibilities include participation in either the dental or medical biochemistry courses and in graduate courses. Please send curriculum vitae, list of publications, summary of research interests, and the names of at least four individuals who may be contacted for letters of recommendation to: **Dr. Margaret L. Fonda, Chairperson, Search Committee, Department of Biochemistry, University of Louisville School of Medicine, Louisville, Ky. 40292.** Applications will be accepted until 31 January 1981. *The University of Louisville is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR OF PATHOLOGY

The Department of Pathobiology, School of Veterinary Medicine at the University of Pennsylvania, is inviting applications from qualified candidates for the position of **assistant professor of pathology**. The candidate should have a D.V.M. degree and a Ph.D. degree or equivalent documented training with several years of experience in experimental pathology. Teaching experience and training in fetal or neonatal pathology and in the biochemical basis of disease is desirable. The successful candidate will be expected to participate actively in the teaching program of the department and to develop a productive research program. Salary will be commensurate with experience and qualification. Applications should include curriculum vitae, a statement on research and teaching goals, and names and addresses of three persons who will provide letters of reference. Correspondence should be addressed to: **Dr. J. T. McGrath, Chairman, Search Committee, Department of Pathobiology, School of Veterinary Medicine, 3800 Spruce Street, Philadelphia, Pa. 19104.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

Two full-time tenure-track assistant/associate professor positions open in Department of Dairy and Animal Science: **NONRUMINANT NUTRITIONIST AND BIOCHEMICAL/PHYSIOLOGICAL ENDOCRINOLOGIST**. Interest and demonstrated ability in teaching and research required. Nutritionist should have expertise in protein and amino acid nutrition and experience with swine. Endocrinologist should have expertise in areas of isolation and assay of hormones, cell/tissue culture, and whole animal metabolism. Both positions require a Ph.D. in animal science, nutrition, biochemistry, or physiology. By 15 March 1981, send detailed résumé, college transcripts, evaluation of teaching efforts, and arrange for three letters of evaluation to be sent to: Paul J. Wangness, Head, Department of Dairy and Animal Science, 324G Animal Industries, The Pennsylvania State University, University Park, Pa. 16802. Affirmative Action/Equal Opportunity Employer.

### GEORGE MASON UNIVERSITY (GMU)

GMU, the state university in northern Virginia, has a new B.S. in geology program presently directed by four geologists. The university is near the U.S. Geological Survey in Reston and the Smithsonian Institution in Washington. Applications are invited for a tenure-track ASSISTANT PROFESSOR faculty position contingent on funding to begin in September 1981. The applicant must have his Ph.D. by then and should have teaching, research, and/or industrial experience in at least one of the following: geophysics, engineering geology, hydrogeology, and economic geology. An applied field orientation is preferred. The successful candidate will teach both lower- and upper-level undergraduate courses and conduct a research program. Please submit curriculum vitae, statement of research and teaching interests, and names of three references by 1 March 1981 to: Douglas Mose, Associate Professor of Geology, Department of Chemistry, George Mason University, Fairfax, Va. 22030. Affirmative Action/Equal Opportunity Employer.

### UNIVERSITY OF CALIFORNIA LOS ANGELES

Applications are invited for a tenure-track position in the Biology Department at the ASSISTANT PROFESSOR level, from qualified persons in entomology/behavior. Preference will be given to candidates with research and teaching interests firmly within the area of terrestrial arthropods, especially entomology, a background of training and research strongly tied to this taxonomic group, and a broad research perspective that encompasses behavior at the whole-organism level or above. Send curriculum vitae, the names (only) of at least three persons willing to write letters of reference, and any other relevant material before the end of January to:

Chair  
Search Committee in Entomology/Behavior  
Department of Biology  
University of California  
Los Angeles, California 90024

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

Department of Pharmacology. ASSISTANT or ASSOCIATE PROFESSOR OF PHARMACOLOGY, Ph.D. Applications are invited for a position at the level of assistant or associate professor. We are interested in candidates with research experience in neurochemistry and toxicology. Teaching areas will include medical, dental, and graduate students. Applicants should send curriculum vitae, including a full list of publications, summary of teaching duties and research experience, and the names of three references to: Arthur H. Briggs, M.D., Chairman, Department of Pharmacology, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, Texas 78284. An Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR—SOCIAL, DEVELOPMENTAL, OR PHYSIOLOGICAL PSYCHOLOGY: At least one tenure-track position to begin 1 July (duties start 1 September) 1981. Duties will include teaching undergraduate- and graduate-level courses in core and specialty areas. Ph.D. required; teaching experience and published research preferred. Salary: \$19,400 to \$21,800 per 9-month academic year. Applications must be received by 31 March 1981. Send curriculum vitae, statement of research and teaching interests, reprints-preprints, and names of three references (letters of recommendation should not be sent at this time) to: Mary Brinton, Department of Psychology, University of California, Davis, Calif. 95616. An Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

ASSISTANT PROFESSOR OF ENTOMOLOGY. Tenure-track position in agricultural entomology with emphasis on research in tobacco and the tobacco cropping system. Incumbent will have opportunity to explore own basic interests (for example, biological control, host-plant resistance, and so forth), but will also be expected to conduct applied research supportive of IPM programs and to interact with extension personnel and U.S. Department of Agriculture tobacco scientists. Participation in the departmental teaching program and graduate student training will be encouraged. Position available immediately. Apply by sending curriculum vitae, transcripts, Ph.D. thesis summary, one set of reprints, and names of three references before 15 March 1981 to: Dr. R. J. Kuhr, Head, Department of Entomology, North Carolina State University, Raleigh, N.C. 27650. Equal Opportunity/Affirmative Action Employer.

Johns Hopkins University: The Department of Geography and Environmental Engineering invites applications at the ASSISTANT PROFESSOR level for a tenure-track position in the area of flow in permeable media. Potential areas of interest include behavior of soil moisture and ground water and related aspects of environmental engineering involving hydrology and surficial earth processes. Candidate's background should include familiarity with modeling techniques as well as appropriate natural sciences. The individual and his/her interests rather than field of specialization are of primary importance. The department is an interdisciplinary one including environmental engineering, earth sciences, and the social sciences related to resource management. It is anticipated that this opening will be filled by 1 July 1981. Applications and names of three references should be sent to: Dr. M. Gordon Wolman, Chairman, Department of Geography and Environmental Engineering, The Johns Hopkins University, Baltimore, Maryland 21218 (Telephone: 301-338-7090). An Equal Opportunity/Affirmative Action Employer.

The Department of Pharmacology invites applications from qualified candidates for a faculty position at the ASSISTANT PROFESSOR rank. A doctoral degree and at least 1 year of postdoctoral training is required, preferably in pharmacology. Preference will be given to applicants with a research background in molecular/membrane or neurochemical pharmacology, but applications from outstanding candidates from all areas of pharmacology are welcomed. All applicants should have demonstrated an outstanding potential for research and teaching. Earliest starting date will be 1 March 1981. To apply, send curriculum vitae, names of three references, and a statement of projected research activities by 16 January 1981 to: Dr. William H. Cline, Jr., Chairman of Search Committee, Department of Pharmacology, Southern Illinois University, School of Medicine, P.O. Box 3926, Springfield, Ill. 62708. An Equal Opportunity/Affirmative Action Employer.

### ASSISTANT PROFESSOR, PHYSIOLOGY WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE

Tenure-track position available 1 July 1981. Candidate must have postdoctoral research experience and be able to develop strong independent research program. Responsibilities include teaching of graduate, medical, and other health science students. Deadline for receipt of all application materials is 6 February 1981. Send curriculum vitae, brief description of research interests, and three letters of reference to: Dr. George A. Hedge, Professor and Chairman, Department of Physiology, West Virginia University Medical Center, Morgantown, W. Va. 26506. West Virginia University is an Equal Opportunity/Affirmative Action Employer.

BIOLOGY DEPARTMENT, vertebrate physiologist/assistant professor. Doctorate in biology. Principal responsibility is to teach vertebrate physiology at a 4-year institution offering baccalaureate and master's degrees. In addition, the candidate must be enthusiastic about teaching introductory biology to majors and nonmajors and willing and able to teach anatomy/physiology to nurses and teach cardiopulmonary subjects to allied health students. A strong supporting academic or teaching background in functional anatomy or cell biology will be considered an asset. Individual research is encouraged. Interested candidates reply by 1 February 1981 to: Dr. William J. Yurkiewicz, Chairperson, Search Committee, Department of Biology, Millersville State College, Millersville, Pa. 17551. Millersville State College earnestly seeks and is eager to receive applications from women and minority candidates.

## POSITIONS OPEN

ASSOCIATE DIRECTOR responsible for original and collaborative basic research in the biochemical and animal laboratories and in the clinical research center setting in the Department of Surgery. Supervision and education of technicians, research fellows, medical students, and surgical residents. Develop and carry out novel research protocols and be capable of independent verbal and written presentation in nationally rated forums. Generate fundable research protocols to produce data which can be applied directly to effective management or solution of clinical problems in critically ill or injured surgery patients. M.D. or equivalent required; must be eligible for Texas license; 5 years of residency training in surgery to include background in basic and clinical nutritional and metabolic investigation. \$60,000 per year; 70 hours per week; 3 years of experience required. Contact: Dr. Stanley Dudrick, The University of Texas School of Medicine, 6431 Fannin Street, Houston, Texas 77025; telephone: 713-792-5400. An Equal Opportunity Employer.

BIOBEHAVIORAL 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

The DEPARTMENT OF BIOCHEMISTRY of the University of Louisville School of Medicine invites applications from qualified individuals with a commitment to excellence in research and training in molecular endocrinology. Responsibilities include participation in the instruction of medical, dental, and graduate students. The individual is expected to develop a vigorous, independent research program related to the department's focus in molecular endocrinology. This full-time (12-month) position is available immediately at the beginning assistant professor level. Candidates for this tenure-track position must have a doctoral degree in biochemistry or related field. Postdoctoral experience is required. Please send curriculum vitae, list of publications, summary of research interests, and the names of at least four references who may be contacted to: Dr. James L. Wittliff, Chairman, Department of Biochemistry, University of Louisville School of Medicine, Health Sciences Center, Louisville, Ky. 40292. Applications will be accepted until 31 January 1981. The University of Louisville is an Equal Opportunity/Affirmative Action Employer.

BIOLOGIST—Vertebrate-zoology-physiology. This position is tenure track and requires the Ph.D. degree. Salary is competitive and based on credentials and experience. St. Andrews Presbyterian College is a 4-year, church-related, coeducational college currently enrolling 750 students. The College expects its faculty to have a strong commitment to teaching undergraduates in strong major programs and to participation in its interdisciplinary core curriculum. Please send résumé and three references by 31 January 1981 to: Dr. Ronald C. Crossley, Dean of the College, St. Andrews Presbyterian College, Laurinburg, North Carolina 28352. Telephone: 919-276-3652. An Equal Opportunity/Affirmative Action Employer and College.

BIOLOGY—Middle Tennessee State University, tenure-track position. Requirements: master's; broadly trained, outstanding teacher with college experience to teach freshman biology. Salary: negotiable. Starting date: 1 August 1981. Deadline for receiving applications, including curriculum vitae (indication of sex and ethnicity for Affirmative Action statistical purposes is requested but not required), three letters of recommendation, and official transcripts is 15 February 1981. Send to: Dr. Marion Wells, Department of Biology, Middle Tennessee State University, Murfreesboro, Tennessee 37132.

MICROBIOLOGIST, Ph.D. required, assistant professor rank, tenure track. Salary negotiable. To teach basic bacteriology, advanced bacteriology and virology, and immunology. Supervision of M.S. research required. Starting date: 1 August 1981. Deadline for receiving applications, including curriculum vitae (indication of sex and ethnicity for Affirmative Action statistical purposes is requested but not required), three letters of recommendation, and official transcripts is 15 February 1981. Send to: Dr. Ralph Sharp, Department of Biology, Middle Tennessee State University, Murfreesboro, Tennessee 37132.

## POSITIONS OPEN

### NIH BIOCHEMIST

A postdoctoral position is available to a non-citizen (of the United States), to participate in research projects relating to microtubules, beginning July 1981. The candidate must have received the doctoral degree not more than 3 years before that date. Inquiries to: **Dr. Martin Flavin, Laboratory of Cell Biology, NHLBI, NIH, Bethesda, Md. 20205.**

### CHAIRPERSON, DEPARTMENT OF PREVENTIVE MEDICINE

The University of Mississippi Medical Center seeks qualified candidates for chairperson of the School of Medicine Department of Preventive Medicine. Duties include providing leadership in building excellence in the teaching, research, and service functions of a department emphasizing epidemiology, health systems, and biometry. The position is available on 1 July 1981. Nominations or applications, including curriculum vitae, list of publications, and three or more references, should be sent before 15 February 1981 to: **Dr. Harold B. White, Jr., Chairman, Preventive Medicine Search Advisory Committee, University of Mississippi Medical Center, 2500 North State Street, Jackson, Miss. 39216. Equal Opportunity Employer. M/F.**

### SEARCH FOR CHAIRPERSON DEPARTMENT OF PHYSICS UNIVERSITY OF DELAWARE

The University is a small (12,000 undergraduates and 3,000 graduate students), state-supported institution located in a town on the eastern seaboard close to Philadelphia, Washington, and New York. The department (18 faculty) is an expanding unit working in close cooperation with Bartol Research Foundation of the Franklin Institute (13 members), with which it shares laboratories, shops, offices, and classrooms on the campus. The appointment will begin 1 September 1981; 1 February 1981 is the terminal date for completion of applications. Please send letters of inquiry, nomination, or application to:

**Professor Richard J. Libera  
Department of Mathematical Sciences  
University of Delaware  
Newark, Delaware 19711**

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

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 substances abuse; substantial experience in training neuropsychologists; and academic achievements, including publications, sufficient to qualify for senior faculty appointment. **Contact:** **Peter Tanguay, M.D., Chairman, Neuropsychology Search Committee, 760 Westwood Plaza, Los Angeles, Calif. 90024. Equal Opportunity/Affirmative Action Employer.**

### THE UNIVERSITY OF TULSA DEAN OF THE COLLEGE OF ARTS & SCIENCES

THE UNIVERSITY OF TULSA, a private university of 6300 students, is accepting applications and nominations for dean of the College of Arts & Sciences. The dean is the chief administrative officer of the College and reports directly to the vice president for academic affairs. The College, with an enrollment of 1569 undergraduate and 200 graduate students, offers a Ph.D. in letters and nine master's programs. The University of Tulsa includes six colleges (Arts and Sciences, Business Administration, Education, Engineering and Physical Sciences, Nursing, and Law), the Graduate School, and the Division of Continuing Education, each headed by a dean.

**QUALIFICATIONS:** Earned doctorate in appropriate field, demonstrated research, and experience in administration. Salary open, dependent on experience and qualifications.

**APPLICANTS:** Processing of applications will begin on 15 January 1981, but applications will be accepted until interviewing starts in February. Position is open as of 1 June 1981. Applicants should send résumé to: **Search Committee for Dean, c/o Vice President for Academic Affairs, The University of Tulsa, 600 South College Avenue, Tulsa, Oklahoma 74104. The University of Tulsa is an Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

### CHAIRPERSON DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY LOUISIANA STATE UNIVERSITY

Louisiana State University (LSU) invites applications and nominations for the position of chairperson of the Department of Zoology and Physiology. The department, consisting of 22 faculty members and 62 graduate students, has Ph.D. programs in zoology and physiology. The candidate must have a distinguished record of scholarly activity, administrative leadership, excellence in teaching, and the ability to interact effectively with faculty and students. An active research program in some area of zoology with demonstrated ability to generate extramural support is expected.

The salary is commensurate with qualifications. The appointment will become effective August 1981. Candidates should submit an application and curriculum vitae, including references, prior to 1 March 1981. Applications and nominations should be sent to: **Chairman, Search Committee, Department of Zoology and Physiology, Life Sciences Building, Louisiana State University, Baton Rouge, Louisiana 70803. LSU is an Equal Opportunity/Affirmative Action Employer.**

### CHAIRMAN DEPARTMENT OF NEUROSCIENCE

The University of Florida College of Medicine seeks a distinguished individual to serve as professor and chairman of the Department of Neuroscience. Applicants should have an M.D. and/or Ph.D., a record of significant accomplishment in research, and a clear commitment to medical and graduate education. Position available after 1 July 1980. Applications, including curriculum vitae, bibliography, and the names of at least four references, should be sent before 1 March 1981 to: **Dr. Allen H. Neims, Chairman, Neuroscience Search Committee, College of Medicine, University of Florida, Box J-267 JHMHC, Gainesville, Florida 32610. Equal Opportunity/Affirmative Action Employer.**

**DIRECTOR OF PUBLICATIONS.** The Institute of Technology of the University of Minnesota includes all engineering and physical science departments, mathematics, computer science, and architecture. The director of publications is responsible for the administration and direction of the total publications efforts of the Institute and its departments and centers. This will include the development of a technical periodical aimed at a broad audience. A B.S. degree and 10 years of experience in science and/or engineering journalism are required, and 5 years in a similar position is desired. Salary open, depending on qualifications and experience. Applications and two letters of recommendation should be sent by 7 February 1980 to: **Dr. E. F. Stueben, Chairman, Search Committee for Director of Publications, 106 Lind Hall, 207 Church Street, SE, University of Minnesota, Minneapolis, Minnesota 55105.**

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

**ECOLOGIST/LIMNOLOGIST:** Responsible for the design and review of research in systems ecology of freshwater ecosystems. Monitors and/or inventories plant and animal life; interprets study results; recommends resource management alternatives for protecting or enhancing environment; provides technical assistance to subordinate personnel on complex problems. Ph.D. preferred or master's with 4 years of experience. Salary is negotiable.

Apply to: **Lee Payton, Jr., Employee Relations Officer, St. Johns River Water Management District, P.O. Box 1429, Palatka, Fla. 32077. We are 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

The Deep Sea Drilling Project, Scripps Institution of Oceanography, University of California, San Diego, is currently seeking to fill position for qualified **EARTH SCIENTIST** as section manager of an ongoing scientific program. Appointment as associate chief scientist for science services will be in the academic administrator series; salary commensurate with experience. Ph.D. in earth sciences required. Demonstrated ability in research and research planning required. Experience in research management desirable. Emphasis of position will be in information management as service to scientific community, maximizing the use of a largely computerized established and growing data base, publication series, and core collection. Direct management of approximately 30 employees in data processing and retrieval, reports production, and curatorial activities. Please send complete résumé and names of at least five references to: **Dr. M. N. A. Peterson, Deep Sea Drilling Project, Mail Code A-031, University of California, San Diego, La Jolla, California 92098.**

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

**ETHOLOGICAL/PHYSIOLOGICAL PSYCHOLOGIST:** Possible opening for tenure-leading assistant professor in Psychology Department, August 1981. Position may be cross-listed in School of Life Sciences. Must qualify to teach undergraduate and graduate courses in biopsychology with emphasis in physiological, genetic, developmental, and ecological mechanisms controlling behavior. Proven teaching and research ability required. Send curriculum vitae and three recommendation letters by 1 March 1981 to: **Donald Jensen, Psychology Department, The University of Nebraska-Lincoln, Lincoln, Nebraska 68588. Affirmative Action/Equal Opportunity Employer.**

### EXPERIMENTAL BIOLOGIST—ASSISTANT PROFESSOR

Second biologist at college of engineering and science (member Claremont Colleges). Teach novel biology courses to undergraduates in physics, chemistry, mathematics, and engineering. Maintain research program, involving undergraduates. Some type of animal physiologist preferred. Ph.D. required; must have defined interest in interaction with engineers, mathematicians or physicists. Send curriculum vitae and names/addresses of three referees by 1 February 1981 to: **William K. Purves, Harvey Mudd College, Claremont, California 91711.**

*Equal Opportunity Employer*

### EXPERIMENTAL PSYCHOLOGIST

The State University of New York (SUNY), College at Purchase, anticipates an opening at the **assistant professor** level for a tenure-track position in human experimental psychology, with specialization in perception, cognitive processes, or psycholinguistics. SUNY at Purchase is an undergraduate liberal arts college which emphasizes interdisciplinary teaching and scholarship. Candidate should have a Ph.D. and be prepared to teach a laboratory course in human experimental psychology and statistics as well as an upper-level seminar in his/her area of specialization. We have extensive laboratory facilities and expect the successful candidate to maintain an active research program in which students, especially seniors engaged in thesis projects, can be involved. The appointment begins 1 September 1981. Send curriculum vitae and three letters of reference to: **Deanne Molinari, Affirmative Action Officer, SUNY, College at Purchase, Purchase, New York 10577. Application deadline: 15 February 1981.**

*An Affirmative Action/Equal Opportunity Employer*

### FACULTY POSITION IN ENVIRONMENTAL ENGINEERING AND SCIENCE

The Stanford University Department of Civil Engineering is soliciting applications for a tenure-track assistant/associate professor position now available in the Environmental Engineering and Science Program. Expertise is sought in either environmental chemistry or environmental microbiology. Responsibilities will be primarily for graduate-level teaching and research in a developed program with well-equipped laboratories. Demonstrated achievement or exceptional potential for high-level competence in teaching and research is requisite. *Applications from women and minority candidates are especially sought.* Interested persons should send a résumé to: **Professor James O. Leckie, Environmental Engineering and Science, Department of Civil Engineering, Stanford University, Stanford, California 94305. by 1 March 1981.**



## POSITIONS OPEN

### FACULTY APPOINTMENTS IN CELL BIOLOGY/BIOCHEMISTRY

The Department of Biology and Chemistry at the University of Oregon intend, pending final budgetary approval, to appoint two new faculty members working on the molecular basis of cellular regulation. Applicants should send curriculum vitae, names of three references, and a brief description of research goals and accomplishments by 15 January 1981 to: **Cell Search, Department of Biology, University of Oregon, Eugene, Oregon 97403. Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITION IN INDUSTRIAL MICROBIOLOGY

The Department of Botany and Microbiology at The University of Oklahoma is pleased to announce a new assistant professor, tenure-track position in industrial microbiology, beginning in September 1981. The successful candidate must have a Ph.D. in microbiology or a directly related field and be able to teach an introductory course in microbiology as well as an advanced course in a specialty area. Preferences will be given to those with postdoctoral experience. Applicants capable of developing an active research program emphasizing recombinant DNA, industrial mycology, biomass utilization, or geomicrobiology as these fields apply to energy, environmental, or agricultural problems will be given particularly strong consideration. Please send curriculum vitae, graduate transcripts, three reference letters, and a statement of projected research activities to:

**Dr. Doug Munnecke, Chair of Search Committee  
Department of Botany and Microbiology  
The University of Oklahoma  
Norman, Oklahoma 73019**

Deadline for receiving completed applications is 1 February 1981. *The University is an Equal Opportunity/Affirmative Action Employer.*

### UNIVERSITY OF MISSOURI ST. LOUIS FACULTY POSITION SCHOOL OF OPTOMETRY



The University of Missouri-St. Louis, School of Optometry, is seeking a faculty member with a Ph.D. working in the area of vision, particularly in human psychophysics or retinal neurophysiology.

Specific responsibilities will include teaching courses in visual science and perception to optometry students and conducting vision research.

Evidence of scholarly research activities, in the form of published articles in refereed journals and papers presented at professional meetings, will be heavily weighted, as will evidence of teaching ability. Postdoctoral research experience is desirable.

The appointment will be at the assistant or associate professor level and the salary will be commensurate with experience. The date of appointment is negotiable. Letters of application with current résumés, including names of three references, should be submitted no later than 31 January 1981 to:

**Dr. Jerry L. Christensen  
Dean, School of Optometry  
University of Missouri-St. Louis  
8001 Natural Bridge Road  
St. Louis, Missouri 63017**

*The University of Missouri is an Equal Employment and Education Opportunity Institution.*

### FISHERIES BIOLOGIST

The Department of Forestry and Wildlife Management, University of Massachusetts-Amherst, is seeking candidates for a 9-month, tenure track appointment at the assistant professor level in its Fisheries Biology Program; probable starting date: 1 September 1981. Ph.D. required, salary commensurate with experience. Preference will be given to candidates who can demonstrate potential for developing a strong coastal-marine fisheries research program by attraction of external funds, and who have a strong quantitative background. Responsibilities will include teaching courses in marine fisheries and population dynamics to undergraduate and graduate students. Application deadline is 15 February 1981. Applicants should send a résumé and a statement of research interests, and arrange to have three letters of reference sent to: **Dr. Michael R. Ross, Chairman-Search Committee, Department of Forestry and Wildlife Management, Holdsworth Hall, University of Massachusetts, Amherst, Mass. 01003.**

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

## POSITIONS OPEN

### TWO FACULTY POSITIONS IN BIOCHEMISTRY

Two positions for tenure-track biochemists at the assistant professor level are open. Candidates must have a Ph.D. or M.D. and a minimum of 2 years of postdoctoral training. One of these positions is in the area of gene action in eukaryotic cells with emphasis on regulation of expression of genetic material (including synthesis and action of hormones) or membrane assembly and function. The second position is in the area of membrane recognition sites for information transfer including actions via transmembrane signaling. In both cases preference will be given to candidates working in areas which complement programs of existing faculty. Candidates must be able to establish an independent research program with external funding and participate in the teaching of medical, graduate, and undergraduate students. Please send curriculum vitae, copies of the three most significant publications, bibliography, a brief description of research interests and career objectives, and three letters of recommendation by 15 February 1981 to: **Dr. Albert E. Dahlberg** (for the first position) and **Dr. John N. Fain** (for the second position), c/o Gerlinde Celona, Secretary of Search Committee, Section of Physiological Chemistry, Division of Biology and Medicine, Box G, Brown University, Providence, Rhode Island 02912.

*Brown University is a nondiscriminatory, Affirmative Action Employer and welcomes applications from all qualified individuals, in particular women and members of minority groups.*

### FACULTY POSITION IN MEDICAL BIOCHEMISTRY

Applications are sought for a faculty appointment to be filled September 1981 probably at the assistant professor level. Persons with applications on file should not reapply, but may update their application if they wish. Candidates will be expected to carry out an independent research program and to participate in teaching medical students in new and expanding medical school. Department moves into new Basic Medical Sciences Building (presently under construction) late in 1982. Sunbelt climate in College Station, Texas, located near Houston and Austin. Send curriculum vitae and names of references to: **Dr. Garret M. Ihler, M.D., Ph.D., Head, Department of Medical Biochemistry, College of Medicine, Texas A & M University, College Station, Texas 77843.**

*Equal Opportunity through Affirmative Action*

### FACULTY POSITION, ASSISTANT OR ASSOCIATE PROFESSOR, BIOLOGY DEPARTMENT, California State University, Los Angeles (CSULA).

A tenure-track faculty position is available in vertebrate systems physiology with expertise in cardiovascular or renal physiology. Experience in operation of electronic equipment. Ph.D. required. Level of appointment will be determined by the qualifications of the applicant. Salary range starts at \$17,964. Send completed résumés and names of three references by 1 February 1981 to: **Dr. R. R. Bowers, Search Committee, Biology Department, CSULA, 5151 State University Drive, Los Angeles, Calif. 90032. An Equal Opportunity/Affirmative Action/Handicapped/Title IX Employer.**

### IMMUNOCHEMISTRY— BIOLOGICAL CHEMISTRY

Immediate openings for recent Ph.D. graduates to join a strong group involved in the analysis of monoclonal antibody defined human tumor antigens. Experience in protein and/or glycolipid chemistry are preferred. Send curriculum vitae and references to:

**Dr. Zenon Steplewski  
The Wistar Institute  
36th and Spruce Streets  
Philadelphia, Pa. 19104**

*We are an Equal Opportunity Employer, M/F.*

**IMMUNOLOGIST.** Assistant Professor. Tenure-track position available September 1981. Must establish strong research program, teach undergraduate/graduate immunology, and/or other microbiology courses. Prefer postdoctoral experience, demonstrated teaching ability, publications, and potential to secure grants. Send curriculum vitae, bibliography, statement of research and teaching interest, and names of three referees by 15 February to: **Search Committee, Department of Biological Sciences, North Texas State University, Denton, Texas 76203. An Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

### GENETICIST/PLANT BREEDER

The Department of Botany and Plant Sciences, University of California, Riverside, announces a position at the assistant professor level, with both an Experiment Station and an academic title, available 1 July 1981. The position is a tenure-track, 11-month appointment in the College of Natural and Agricultural Sciences and in the Agricultural Experiment Station. A Ph.D. is required; postdoctoral experience is preferred, but all qualified candidates will be considered. A quantitative background is desirable, with emphasis in the genetics of tree, agricultural, or horticultural crops preferred, but candidates with other backgrounds are encouraged to apply. The appointee must assume responsibility for an ongoing breeding program in citrus, with emphasis in developing rootstocks. A secondary program in the breeding and genetics of an annual crop is desirable. Opportunities exist for interaction with research workers in pathology, virology, entomology, nematology, plant physiology, biochemistry, soil and environmental sciences, and statistics. The appointee is expected to teach advanced courses in genetics and plant breeding. Must be willing to serve as major professor to M.S. and Ph.D. students.

Send curriculum vitae and official transcripts, and arrange to have at least three letters of recommendation sent to: **Dr. Giles Waines, Search Committee Chairman, Department of Botany and Plant Sciences, University of California, Riverside, California 92521.** Application deadline is 16 February 1981, or later if a suitable applicant has not been selected.

*An Affirmative Action/Equal Opportunity Employer*

**GENETICIST:** Carleton College has an opening for a eukaryotic geneticist at the assistant professor level, effective September 1981. The candidate must be knowledgeable in the areas of developmental and molecular genetics of the eukaryotes with a strong background in microbial genetics. Responsibilities include teaching an undergraduate course in genetics, developing a course in general microbiology, and involvement in the team-taught introductory courses for the major and nonmajor. Maintenance of an active research program and leading occasional seminars in his/her discipline is also expected. Applications, including curriculum vitae, undergraduate and graduate transcripts, a summary of research goals, and three letters of professional recommendation should be sent to: **Professor G. J. C. Hill, Chairman, Biology Department, Carleton College, Northfield, Minn. 55057.** Closing date is 15 February 1981. *Carleton College is an Equal Opportunity/Affirmative Action Employer. Qualified women and members of minority groups are strongly urged to apply.*

### GENETICIST DEPARTMENT OF BIOLOGY UCLA

Applications are invited for a tenure-track, ASSISTANT PROFESSOR position in the area of genetics. The new faculty member will join the Division of Cell, Molecular, and Developmental Biology within our department. While the specific research specialty is open, the candidate is expected to carry out a vigorous research program and contribute to our undergraduate and graduate teaching programs. Applicants should send curriculum vitae, a summary of research objectives, and the names of three references to:

**Chairman  
Search Committee for Genetics  
University of California  
Los Angeles, California 90024**

The deadline for receiving applications is 1 February 1981.

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

### LABORATORY MICROBIOLOGY FELLOW

The University of California, Irvine, Department of Pathology, is recruiting a 1- to 2-year laboratory microbiology fellowship position at the clinical instructor level beginning 1 July 1981. Required: M.D., Board-eligible in anatomic and/or clinical pathology. Position consists of 50 percent clinical laboratory work and 50 percent research. Post-residency training in diagnostic bacteriology, mycology, serology, parasitology, and virology. Research in the areas of molecular pathology and viral oncology is available for interested candidates. *An Affirmative Action employer.* Send curriculum vitae and three references to: **Luis M. de la Maza, M.D., Ph.D., Director, Division of Microbiology, University of California Medical Center, Orange, Calif. 92668,** by 16 February 1981.

## POSITIONS OPEN

### GEOPHYSICIST University of South Carolina

The University of South Carolina anticipates a new faculty appointment in geophysics for 1981, subject to adequate legislative funding. We are especially interested in individuals having expertise in the fields of exploration geophysics, seismic interpretation or solid earth geophysics. This would be a 9-month, tenure-track position at the assistant or associate professor level beginning August 1981. Some start-up funds are available for major equipment purchases. The individual who fills this position would join the growing geophysical component of the Geology Department which currently emphasizes seismology, regional tectonics, and paleomagnetism, and would develop an aggressive research program in his or her specialty.

Please send curriculum vitae and names and phone numbers of three individuals we may contact for references to: Willard S. Moore, Chairman, Search Committee for Geophysics, University of South Carolina, Columbia, South Carolina 29208.

Closing date for this announcement is 15 March 1981.

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

### ESTABLISHED IMMUNOBIOLOGIST

The University of Arizona, College of Medicine, is interested in filling a new faculty position with a qualified candidate with expertise in the area of immunobiology. This is a special position given by the president to the college of medicine. Rank dependent on qualifications. Applicants with active independent research programs only will be considered. Opportunities for interactions with a number of research programs in immunology, microbiology, and biochemistry are available at the University of Arizona. Applicants should send curriculum vitae and the names of references to: Professor Herbert Carter, Chairman, Search Committee for Immunologist, Department of Biochemistry, University of Arizona, College of Medicine, Tucson, Arizona 85724. An Equal Opportunity/Affirmative Action/Title IX/Section 504 Employer

### Faculty position available: IMMUNOLOGIST

Applications are invited for a research position in immunobiology starting in fall 1981. Applicants should have postdoctoral experience in cellular and humoral immunology including immunogenetics. Experience in teaching is desirable. The salary level is dependent on experience. Send letters of inquiry to: Dr. E. G. Reisner, Box 3010, Division of Immunology, Duke University Medical Center, Durham, N.C. 27710

An Equal Opportunity/Affirmative Action Employer

Wanted: **JUNIOR LEVEL Ph.D.** with experience in tissue culture and/or hormone receptor assay, to work in well-equipped cancer research laboratory in Long Island (N.Y.) teaching hospital with academic affiliation (State University of New York-Stony Brook). Please send curriculum vitae and three references to: Larry Nathanson, M.D., Director, Oncology-Hematology Division, Nassau Hospital, Mineola, Long Island, New York 11501. Telephone: 516-663-2336.

### MASS SPECTROSCOPIST RICE UNIVERSITY

The Department of Biochemistry of Rice University announces the availability of a staff position for an experienced bioorganic mass spectroscopist to operate GC-MS unit and to participate in research on sterol biosynthesis and chemistry of complex lipids. Additional experience in IR and NMR desired but not essential. Salary dependent on qualifications and experience. Position available immediately. Interested persons should send résumé and the names of three references to: G. J. Schroepfer, Jr., Biochemistry Department, Rice University, Houston, Texas 77001. An Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**INSTRUCTOR—ASSISTANT PROFESSOR OF PHARMACOLOGY** available 1 July 1981. Starting rank and salary dependent on qualifications. Candidates must have Ph.D. in pharmacology or toxicology, or an M.D. degree, and minimum of 1 year of postdoctoral experience. Duties include development of independent, funded research program, and teaching pharmacology to medical, nursing, and graduate students. All areas of research interest will be considered. Applications, including résumé and three references, must be received by 31 January 1981, and sent to: Dr. Hall Downes, Chairman, Search Committee, Department of Pharmacology, School of Medicine, University of Oregon Health Sciences Center, 3181 Southwest Sam Jackson Park Road, Portland, Oregon 97201. The University of Oregon Health Sciences Center is an Equal Opportunity/Affirmative Action Employer.

The University of Michigan Medical School, Department of Internal Medicine, has an academic appointment available for an **INSTRUCTOR OF NEUROLOGY**. Applicant must be Board-certified and -eligible. He/she will be responsible for care of patients with neurological disorders on the Neurology Service (also reading EMG's and EEG's), and will instruct house officers and students. Duties are to be performed at a University of Michigan affiliated hospital. Send curriculum vitae (first inquiry) to: R. R. Joseph, M.D., Professor and Director, Department of Internal Medicine, Wayne County General Hospital, 2345 Merriam, Westland, Michigan 48185. A Non-discriminatory, Affirmative Action Employer. Code 34HO.

**MARINE SCIENTIST.** The Louisiana Universities Marine Consortium (LUMCON) is seeking an accomplished research scientist to fill a permanent, state-funded position at its Marine Research and Education Center at Cocodrie, near Houma, Louisiana. Applicants should be involved in active research in one of the following fields: **sedimentation processes** (emphasis in the physical processes of modern sediment transport and deposition); **marine toxicology** (emphasis in biological mechanisms) or **plankton dynamics** (emphasis in zooplankton populations and food chains). The incumbent is expected to develop a research program relevant to Louisiana's coastal and continental shelf environments and to interact with other LUMCON staff and faculty of affiliated universities. Adjunct faculty appointment and participation in graduate programs at one or more of the affiliated universities is expected. Candidates must have a Ph.D. and postdoctoral experience. Salary will be commensurate with experience.

LUMCON is an organization of the thirteen state universities in Louisiana. Construction of major research facilities at Cocodrie and vessels is planned to commence in 1981. Applicants should send curriculum vitae, a statement of their research interests and objectives, and the names and addresses of at least three references prior to 23 January 1981 to: Dr. Donald F. Boesch, Executive Director, Louisiana Universities Marine Consortium, Star Route Box 541, Chauvin, Louisiana 70344.

An Equal Opportunity/Affirmative Action Employer

### MICROBIOLOGIST/MYCOLOGIST

Department of Biology, is seeking applications, Ph.D. level, for a tenure-track position as assistant professor. Salary negotiable. Position available August 1981. Selectee to teach general microbiology and advanced course in specialty. Successful candidate expected to develop active research program and direct graduate student research at the M.S. level. Send curriculum vitae and three letters of reference to: Dr. Julian E. Thomas, Department of Biology, Tuskegee Institute, Tuskegee Institute, Ala. 36088. Deadline: 1 March 1981. Tuskegee Institute is an Equal Opportunity/Affirmative Action Employer.

### PLANT CELL BIOLOGIST/BOTANIST

Department of Biology is seeking applications, Ph.D. level, for a tenure-track position as assistant professor. Salary negotiable. Position available August 1981. Selectee to teach general botany, a course in plant physiology, and develop an attractive advanced course in an area of own expertise. Successful candidate expected to develop an active research program and graduate student research at the M.S. level. Send curriculum vitae and three letters of reference to: Dr. Julian E. Thomas, Department of Biology, Tuskegee Institute, Tuskegee Institute, Ala. 36088. Deadline: 1 March 1981. Tuskegee Institute is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**MARINE BIOLOGIST—BIOCHEMIST.** The Biology Department invites application from individuals committed to undergraduate teaching for a tenure-track faculty position at the assistant professor level in the area of marine botany or zoology with emphasis in physiology and biochemistry. Candidates will teach an introductory marine biology course, an advanced course in their specialty, and take part in general biology offerings. The individual will participate in a new biochemistry major offered jointly with the Chemistry Department and develop an active research program involving undergraduate students. Submit curriculum vitae, statement of teaching and research goals, undergraduate and graduate transcripts, and three letters of recommendation by 1 February 1981 to: M. A. Leck, Biology Department, Rider College, P.O. Box 6400, Lawrenceville, N.J. 08648. Rider College is an Equal Opportunity/Affirmative Action Employer.

**MATHEMATICAL ECOLOGIST**—Applications are invited for an appointment to the resident scientific staff in the biology department at the assistant or associate scientist level. The candidate should have a strong background in mathematics with experience in biology and demonstrated capability in marine food chain research, population dynamics, and theoretical modeling. Teaching experience and interest in graduate student training desirable. Appointee will be expected to have an interest in marine policy and ocean management. Persons selected for similar positions at the Institution have had a Ph.D. and 1 to 6 years of subsequent experience. Send detailed résumés, reprints of publications, and names of references to: Personnel Manager, Woods Hole Oceanographic Institution, Woods Hole, Mass. 02543. Salary range: \$22,100 to \$29,600. An Equal Opportunity Employer, M/F/H.

**MEDICINAL CHEMISTRY—ASSISTANT PROFESSOR TO FULL PROFESSOR**—The Department of Pharmaceutical Chemistry, University of California, has a tenure-track vacancy in the area of medicinal chemistry. Level could be from assistant professor to fill professor as determined by applicant's experience. Candidates must have a solid chemistry background, postdoctoral experience, a strong commitment to research and to undergraduate and graduate education, and demonstrated excellence in their fields. Research interests may be in any aspect of medicinal chemistry or in areas of pharmacology or biochemistry relevant to modern medicinal chemistry. Interest and competence in the teaching of medicinal chemistry is essential. The salary will be in the range of \$25,000 to \$51,000 consistent with the level of the 11-month appointment. Candidates should request letters from three referees and send curriculum vitae, a list of publications, a brief summary of research accomplishments, and a brief outline of proposed research to: Professor M. E. Wolff, Chairman, Department of Pharmaceutical Chemistry, School of Pharmacy, 926-S, University of California, San Francisco, Calif. 94143. Applications will be accepted until 1 February 1981 for a 1 July starting date. The University of California is an Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.

### MICROBIOLOGIST

Applications are invited for an appointment as microbiologist with rank open starting fall 1981. Teaching responsibilities include immunology, introductory and advanced microbiology for science majors, and microbiology for prenursing students, all at the undergraduate level. Ph.D., teaching ability, and active research record in these or related areas required. Experience and knowledge of clinical microbiology essential. Applicants with credentials suitable for appointment at advanced rank will be considered for department chairmanship.

The University of Michigan-Flint, established in 1956, is an urban regional unit of The University of Michigan, located on a new campus which is being built in the city. Enrollment is approximately 4500 undergraduate and graduate students in the College of Arts and Sciences, School of Management, and program in Nursing.

Salary is commensurate with experience.

Deadline for receipt of completed applications is 15 February, 1981. Send curriculum vitae, copies of representative publications, and three letters of recommendation to: Dr. Richard Dapson, Department of Biology, The University of Michigan-Flint, Flint, Michigan 48503. Final offer is subject to funding. The University is a nondiscriminatory, Affirmative Action Employer.

## POSITIONS OPEN

### MINERAL/ENERGY RESOURCES PROJECT OFFICER

Immediate opportunity with a national nonprofit institution located in Washington, D.C., for a **project officer** to perform liaison with external agencies, assist with planning, provide administrative support for workshops, and assist with report writing for an 18-month study on estimating nonfuel minerals demand relationships. Applicants must have a Ph.D. or equivalent in mineral economics, materials science/engineering, economic geology, or an M.A. with approximately 4 years of experience. Minimum experience preferred for applicants with a Ph.D. is 1 to 2 years of academic or other experience with economic modeling. Annual salary in the mid-twenties. Send résumé to: **Box 6, SCIENCE, An Equal Opportunity Employer.**

**MOLECULAR VIROLOGIST.** Assistant professor. Applications are invited for a tenure-track position in the Department of Microbiology-Immunology. The position will allow maximum opportunity to initiate an independent research program while providing teaching opportunities in the graduate and medical-dental programs. Applicants should send curriculum vitae, a summary of research interests, and the names of three references to: **Dr. H. Kuramitsu, Search Committee, Department of Microbiology-Immunology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611.**

### NEUROANATOMIST

Applications are invited for a faculty position at the level of assistant professor in the Department of Anatomy at Wright State University (WSU). Applicants should hold the Ph.D. or M.D. degree and preference will be given to those with postdoctoral training. Candidates should be strongly committed to research in neuroanatomy and special consideration will be given to those with experience in immunocytochemistry. Primary teaching responsibilities include participation in neuroanatomy courses for medical and graduate students. The successful applicant will be appointed to the faculty of the School of Medicine and the College of Science and Engineering. The position will be available in spring 1981. Send curriculum vitae and three letters of recommendation to: **Dr. Joseph Zambernart, Chairman, Department of Anatomy, Wright State University, Dayton, Ohio 45435. WSU is an Equal Opportunity/Affirmative Action Employer.**

**TWO POSITIONS: PHYSIOLOGY and ENDOCRINOLOGY.** The Department of Zoology, Iowa State University, wishes to strengthen the areas of endocrinology and systems physiology. Applicants will be expected to develop a research program in an area of special interest (for example, environmental, organismic, cellular, molecular, immunological) and teach at the graduate and undergraduate levels. Applicants should have the Ph.D., postdoctoral experience, and strong prospects for funding of the research program. Appointments will be at the **ASSISTANT PROFESSOR** level (tenure-track). Starting salary: \$19,000 minimum, depending upon qualifications. Send curriculum vitae, three letters of recommendation, and description of research interests by 15 February to: **Chairman, Search Committee, Zoology Department, Iowa State University, Ames, Iowa 50011. Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITIONS (two)—Neurophysiologist/neuropharmacologist** to study (i) role of neuropeptides in spinal cord injury, and (ii) neural control of the circulation, with emphasis on the role of neuropeptides. Applicants should have a Ph.D. degree, with research experience in the neuropeptide area. Send curriculum vitae and names of three references to: **Director of Research, attention: Personnel, Department of Neurology, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20014. Equal Opportunity Employer.**

### POSTDOCTORAL POSITIONS

Veterans Administration Medical Center is inviting applications from postdoctoral-level scientists to assist with research programs in the areas of: (i) molecular mechanisms of chemical mutagenesis and carcinogenesis, and (ii) metabolism of chemical toxicants. Applicants should have training in chemistry, pharmacology, or biochemistry. Interested persons should send curriculum vitae and three names for reference to: **Carl B. Ferrell, Administrative Officer for Medical Research, VA Medical Center, 300 East Roosevelt Road, Little Rock, Ark. 72206.**

## POSITIONS OPEN

**PLANT ECOLOGIST.** Research and teaching in the general area of community or population ecology of plants, broadly enough defined to include a person interested in plant-animal interactions. Strong emphasis on field-based research and teaching. Tenure-track position; level commensurate with experience.

Please send curriculum vitae, description of research and teaching interests, and the names and addresses of three referees to:

**Dr. Robert K. Vickery, Jr.  
Department of Biology  
University of Utah  
Salt Lake City, Utah 84112**

Deadline: 1 February 1981.

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

### PLANT PHYSIOLOGIST

The Department of Botany and Plant Sciences, University of California, Riverside, announces a position at the assistant professor-level, with both an Experiment Station and academic title, available 1 July 1981. The position is a tenure-track, 11-month appointment in the College of Natural and Agricultural Sciences and the Agricultural Experiment Station. A Ph.D. is required; postdoctoral experience is preferred, but all qualified candidates will be considered. The appointee must develop a research program in weed science regarding the physiology of weeds or herbicide action as related to weed-crop interactions in annual crops. Candidates with strong plant physiology or biochemical training will be given preference. The appointee is expected to teach upper division and graduate level courses and serve as major professor to M.S. and Ph.D. students. Opportunity exists for participation in interdepartmental pest management program.

Send curriculum vitae and official transcripts and arrange to have at least three confidential letters of recommendation sent to: **Dr. L. S. Jordan, Search Committee Chairman, Department of Botany and Plant Sciences, University of California, Riverside, Calif. 92521.** Application deadline is 16 February 1981, or later if a suitable applicant has not been selected.

*An Affirmative Action/Equal Opportunity Employer*

Queen's University, Kingston, Ontario, Canada. **PLANT SCIENTIST.** Research and teaching position for a scientist with active research program. Preference will be given to areas of plant or algal physiology. Appointment by 1 September 1981 at assistant professor level. *Candidates of either sex are equally encouraged to apply.* Those interested should send a detailed résumé with names of three referees to: **D. T. Canvin, Head, Department of Biology, Queen's University, Kingston, Ontario, Canada K7L 3N6.**

**POSTDOCTORAL POSITION—POPULATION BIOLOGY OF APHIDS.** Available immediately. To study the genetic basis of insecticide resistance in aphids using ecological and biochemical-genetic approaches. Preference for candidates with experience in insect ecology and taxonomy. Salary: Canadian \$13,000 to 14,000. Appointment initially for 1 year with possible extension for an additional year. Send résumé and two letters of recommendation to: **R. S. Singh, Department of Biology, McMaster University, Hamilton, Ontario, Canada L8S 4K1.**

**POSTDOCTORAL POSITION** for 2 years starting 1 February 1981 for cardiovascular research in ion transport across subcellular membranes. Recent Ph.D. in biochemistry preferred. U.S. citizenship required. Send résumé and names of three references to: **Dr. M. Kirchberger, Department of Physiology and Biophysics, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, N.Y. 10029.**

**POSTDOCTORAL RESEARCH ASSOCIATE POSITIONS** in tumor immunology/membrane biochemistry. Three positions available: (i) develop monoclonal antibodies to melanoma associated tumor antigens, (ii) study the turnover of membrane macromolecules and tumor antigens on human melanoma cells, and (iii) isolate and study the biological properties of tissue-specific surface antigens of human keratinocytes involved in auto-immune blistering diseases, and cell-cell adhesions. If interested, please send curriculum vitae and names of three references to: **Jean-Claude Bystry, Department of Dermatology, NEW YORK UNIVERSITY SCHOOL OF MEDICINE, 560 First Avenue, New York, N.Y. 10016. Telephone: 212-340-5243. An Equal Opportunity/Affirmative Action Employer, M/F.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available for Ph.D. in physiology, pharmacology, or anatomy to study CNS control of CHO metabolism. Expertise in stereotaxic lesioning (rat) and routine histology required; experience in radioautography desirable, but not essential. Salary: \$17,000 to 19,000. Available 1 March 1981. Send curriculum vitae and two references to: **A. J. Szabo, M.D., Department of Medicine, New York Medical College, Lincoln Hospital Affiliation, 234 East 149 Street, Bronx, New York 10451.**

Three **POSTDOCTORAL POSITIONS** are available at the Cullen Eye Institute and Program in Neuroscience, Baylor College of Medicine. One will be involved in a study of specific membrane properties and transmitter channels of isolated retinal cells and will be a collaborative project between the laboratories of Dominic M. K. Lam and Daniel Johnston. Candidates for this position should have experience with intracellular recordings. The second position will be involved in ongoing work on the production of monoclonal antibodies against neurotransmitter-related macromolecules and retinal immunocytochemistry. Experience in tissue-culture and immunology is desired. The third position will be involved in studies of retinal development and regeneration using neurotransmitters as physiological probes. Experience in electron microscopy is desired. Send inquiries to: **Dominic Man-Kit Lam, Cullen Eye Institute, Baylor College of Medicine, Houston, Texas 77030**

**POSTDOCTORAL POSITION** with one of several faculty members performing hematology research. Research areas include erythropoietin (R. Lange); biochemistry (H. Kitchen); protein synthesis and hemoglobinopathies (J. Fuhr); thrombopoietin and platelet physiology (T. P. McDonald); canine cyclic hematopoiesis (J. B. Jones); and fibrinogen split products and coagulation (J. Chen). Two-year appointments; \$14,000 to \$16,000. Send curriculum vitae including research goals and names of three referees to:

**Robert D. Lange, M.D.  
Department of Medical Biology  
University of Tennessee  
College of Medicine/Knoxville  
1924 Alcoa Highway  
Knoxville, Tenn. 37920  
Telephone: 615-971-3165**

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**POSTDOCTORAL POSITIONS** are available in the Department of Biological Chemistry at the University of California, Irvine. These positions are available for 1 or 2 years studying under the sponsorship of the following faculty members:

**Kivie Moldave:** genetic and metabolic regulation of translation in eukaryotes; **Calvin S. McLaughlin:** biochemical genetics of RNA and protein synthesis; **Stuart M. Arfin:** genetic and biochemical regulatory mechanisms in mammalian systems; and **John Wasmuth:** biochemical genetics of cultured somatic mammalian cells; cloning eukaryotic genes involved in protein synthesis.

For further information, contact the individual faculty member at: **Department of Biological Chemistry, University of California, Irvine, Irvine, California 92717. The University of California is an Equal Opportunity/Affirmative Action Employer.**

**UNIVERSITY OF CALIFORNIA, POSTDOCTORAL POSITION** for organic geochemist or biochemist with background in HPLC amino acid instrumentation. Project involves study of problems in sample preparation of bone and other organics for  $^{14}\text{C}$  and amino acid racemization measurements. Send curriculum vitae, letter stating interests, and names of three references to: **Dr. R. E. Taylor, Radiocarbon Laboratory, Department of Anthropology, Institute of Geophysics and Planetary Physics, University of California, Riverside, Calif. 92521. The University of California is an Affirmative Action/Equal Opportunity Employer.**

### COGNITIVE SCIENCE POSTDOCTORAL RESEARCH FELLOWS

Interdisciplinary postdoctoral positions available 1981-1982. Acceptable specialties include linguistics, artificial intelligence, brain theory, cognitive psychology, philosophy of cognition. Send résumé, statement of purpose, and three letters of recommendation to: **Professor Barbara Partee, Linguistics, South College, University of Massachusetts, Amherst, Mass. 01003. Application deadline: 1 March 1981. An Affirmative Action/Equal Opportunity Employer.**



**The Department of Biological Chemistry  
The University of Maryland Medical School**

**ASSISTANT PROFESSORS**

Applications are invited for the position of assistant professor of biochemistry for fall 1981, a tenure-track position in two areas:

1) **MOLECULAR BIOLOGY:** Persons with a background and future research interests in eukaryotic or prokaryotic molecular biology, especially DNA sequencing, and the use of complementary DNA for protein sequencing and recombinant DNA sequencing, are preferred. The applicant must have a Ph.D. or M.D. degree and postdoctoral training. The successful applicant will be expected to maintain an independent research program and cooperate with other members of the department with similar interests as well as to participate in medical and graduate education. Curriculum vitae, a description of research background and future research plans, and four letters of reference should be sent by 16 January 1981 to: Department of Biological Chemistry, Molecular Biology Search Committee, University of Maryland School of Medicine, 660 West Redwood Street, Baltimore, Maryland 21201.

2) **HORMONAL REGULATIONS OF CARDIAC CALCIUM METABOLISM:** Persons with a background and future research interests in the hormonal regulation of cardiac calcium at the molecular level are preferred. The applicant must have a Ph.D. or M.D. degree and postdoctoral training. The successful applicant will be expected to maintain an independent research program and assist and contribute in directing a large program on skeletal and cardiac  $Ca^{2+}$  regulation currently active in the department. Curriculum vitae, a description of research plans, and four letters of reference should be sent by 16 January 1981 to: Dr. Adil E. Shamoo, Professor and Chairman, Department of Biological Chemistry, University of Maryland School of Medicine, 660 West Redwood Street, Baltimore, Maryland 21201.

*Equal Opportunity Employer*

**FACULTY POSITIONS OPEN  
COLLEGE OF AGRICULTURAL SCIENCES  
AND FOODS**

**KING FAISAL UNIVERSITY  
HOFUF, SAUDI ARABIA  
Academic Year 1981-1982**

The expanding College of Agricultural Sciences and Foods of King Faisal University invites inquiries from qualified applicants for the 1981-1982 academic year in the following fields:

<b>Biology</b>	<b>Plant Pathology</b>
<b>Chemistry</b>	<b>Agricultural</b>
<b>Physics</b>	<b>Economics</b>
<b>Biochemistry</b>	<b>Animal Science</b>
<b>Agronomy</b>	<b>Animal Ecology</b>
<b>Horticulture</b>	<b>Dairy Science</b>
<b>Bee Keeping</b>	<b>Agricultural Engineering</b>
<b>Poultry Science</b>	<b>Water Resources and</b>
<b>Home Economics</b>	<b>Climatology</b>
<b>Agricultural Extension</b>	<b>Aquatic Wealth</b>

**PREREQUISITES:** Ph.D. or master's or equivalent degrees, practical and/or teaching experience. Knowledge of Arabic helpful, but not required.

Language of instruction is English.

Positions available September 1981; interviews scheduled with the dean in Houston and London in April/May 1981.

**SALARY RANGES** (approximate annual U.S. dollars):

Professor—\$25,469 to \$33,965  
Associate professor—\$22,779 to \$28,973  
Assistant professor—\$18,570 to \$27,487  
Lecturer—\$11,611 to \$16,035

Salaries are paid monthly in Saudi riyals.

**BENEFITS:** Free furnished accommodations; substantial educational allowance for up to four children. Air tickets to and from Saudi Arabia once per year for family of four. Sixty-day paid summer holiday, overweight allowance. No Saudi income tax. Contracts are for 1 year and renewable.

Send curriculum vitae with current telephone number, and the names, addresses and telephone numbers of three references to: Dr. Abdul Mannan Turjoman, Dean, College of Agricultural Sciences and Foods, King Faisal University, c/o Saudi Arabian Educational Mission, 2425 West Loop South, Houston, Texas 77027, OR c/o P.O. Box 2, Sudbury-on-Thames, Middlesex, TW16 5JP, England.

# MOLECULAR BIOLOGIST

Excellent opportunity for PhD Microbiologist (or Biochemist with experience in microbiology) to pursue basic and applied research in bioconversion of biomass, xenobiotic biodegradation, and pathway evolution. Applicants should have experience in recombinant DNA technology and molecular genetics or enzymology. Candidate should have strong academic achievement record, ability to initiate and pursue original research projects, and to contribute to ongoing interdisciplinary life science research programs. We offer a professionally stimulating research environment at an attractive Northeastern location, excellent salary, and benefit plan. Please submit your curriculum vitae and a brief summary of research interests to: **Box 7, SCIENCE.**

An Equal Opportunity Employer



National Research  
Council Canada

Conseil national  
de recherches Canada

## RESEARCH SCIENTIST Spectroscopy

The Spectroscopy Section of the Herzberg Institute of Astrophysics requires a Research Scientist to undertake independent experimental studies of the spectra and related properties of atoms and simple molecules.

Candidates must have a Ph.D., preferably with several years' experience in experimental studies of atomic and molecular spectra, or closely related fields.

Salary will depend on qualifications.

Apply in writing to the Employment Officer, National Research Council of Canada, Ottawa, Ontario, K1A 0R6. In reply, please quote HIA-84-S.

# NRC

### ANNOUNCEMENT OF OPPORTUNITY MARINE POLLUTION RESEARCH

The National Oceanic and Atmospheric Administration (NOAA) through its Office of Marine Pollution Assessment, announces programs of financial assistance for research related to: (i) long-term effects of pollution and man-induced changes of marine ecosystems (for the purposes of this program the Great Lakes are considered "marine") under Section 202 of Public Law 92-532 (Marine Protection Research and Sanctuaries Act of 1972), and (ii) for research and development and monitoring projects needed to meet priorities set forth by section 6 of Public Law 95-273 (National Ocean Pollution Research and Development Monitoring Planning Act of 1978).

Some of the general areas of research for which proposals are being requested include the following: fates and effects of synthetic organics, petroleum products, metallo-organics; role of resuspended particulates in marine ecosystems; coastal land use practices; municipal sewage disposal; development of risk analysis methods; ecosystem processes and living marine resources. Although most of the efforts supported will have an applied orientation, research of a more basic nature may also be addressed, especially in regard to ecosystem function and stability.

Individuals, corporations, educational institutions and others, including local, state, and federal agencies, are eligible to submit proposals.

Additional information on proposal preparation, and evaluation and FY 81 priorities and funding levels are obtainable from:

**Long Range Effects Research Program  
Office of Marine Pollution Assessment  
(RD/MP2)  
325 South Broadway  
Boulder, Colorado 80303**

The American Society for Pharmacology and Experimental Therapeutics Seeks Nominations for the **Theodore Weicker Memorial Award** which consists of a \$10 000 prize and certificate for an outstanding contribution to the science of pharmacology which has led to new concepts or knowledge in pharmacology, to the development of new drugs useful in the treatment of human disease, to improved drug therapy, or decreased toxicity of drugs. Send a letter describing the nominee's specific work that merits the award to **ASPET, 9650 Rockville Pike, Bethesda MD 20014.**

## POSITIONS OPEN

### POSTDOCTORAL POSITION

Available to study the biochemistry of arachidonic acid metabolites, particularly the leukotriene family, utilizing mass spectrometry and stable isotope techniques. Applicants with experience in biochemistry or organic chemistry desired. Available immediately.

Send curriculum vitae and names of two references to:

**Dr. R. C. Murphy**  
Department of Pharmacology (C 236)  
University of Colorado Health Sciences Center  
4200 East 9th Avenue  
Denver, Colo. 80262

by 20 January 1981.

*Equal Opportunity/Affirmative Action Employer*

### POSTDOCTORAL POSITION

Drug transport and cellular biotransformation of drugs. Background in pharmacology, chemistry, and/or biophysics. Position available 1 June 1981. Please send résumé and two letters of reference to:

**Dr. Victor Levin**  
Department of Pharmaceutical Chemistry  
S-926  
University of California  
San Francisco, California 94143

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

### POSTDOCTORAL PROJECT ASSOCIATE

Position available immediately at High Voltage Electron Microscope Facility, University of Wisconsin, Madison. (i) Ph.D. in biological sciences with special interest in immunocytochemistry, to develop methods for selective contrasting of specific cellular components in whole mounts and thick sections, or (ii) Ph.D. in physics or engineering interested in instrumental development, biological electron microscopy. Appointment is for 1 year renewable up to 3 years. Submit curriculum vitae and three letters of recommendation to: **Hans Ris, High Voltage Electron Microscope Facility, University of Wisconsin, Animal Science Building, Madison, Wis. 53706.** *An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL RESEARCH ASSOCIATE-BIOPHARMACEUTICS/PHARMACOKINETICS

Available immediately. A biopharmacy/pharmaceutics background is desired. Send curriculum vitae and three references to: **Richard P. Miller, Ph.D., School of Pharmacy, West Virginia University, Morgantown, W. Va. 26506.** *West Virginia University is an Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL RESEARCH OPPORTUNITIES

**Stanford Medical Center.** Available in the Division of Ophthalmology for research into various aspects of cell biology and transport physiology in the retina and cornea. Demonstrated creativity and competence more important than training in specific areas. Inquiries and curriculum vitae to: **Drs. M. Marmor or D. Maurice, Room A227, Stanford Medical Center, Stanford, Calif. 94305.** *Stanford University is an Equal Opportunity Employer.*

**POST-HARVEST PHYSIOLOGIST.** A 12-month tenure-track position in the Horticulture Department, Purdue University, West Lafayette, Indiana, at the assistant or associate professor level. The appointment is 70% research and 30% teaching. The applicant should have a Ph.D. and a strong background in biochemistry, biology, or botany and plant physiology with an interest in the knowledge of post-harvest problems of horticultural crops. The appointee is expected to conduct imaginative research leading to improved longevity of harvested horticultural crops. The individual will teach a course in post-harvest physiology and participate in a second team-taught course. Applicants should submit curriculum vitae with a list of reprints of pertinent publications, thesis summary, undergraduate and graduate transcripts, and names and addresses of three references to:

**Dr. Joe H. Cherry, Chairperson**  
Search Committee  
Horticulture Department  
Purdue University  
West Lafayette, Ind. 47907

Applications will be accepted through 1 March 1981 or until the position is filled.  
*An Equal Opportunity/Affirmative Action Employer*

## POSITIONS OPEN

### POSTDOCTORAL TRAINING IN VETERINARY ANATOMIC AND CLINICAL PATHOLOGY

Positions are available in a 3-year training program funded by the National Cancer Institute in veterinary anatomic and clinical pathology with some emphasis on understanding the potential hazards of toxic agents in the environment. Successful completion of the program can lead to an M.S. degree and, for holders of the D.V.M. degree, eligibility for examination and certification by the American College of Veterinary Pathologists. Graduate research programs leading to candidacy for the Ph.D. degree are also available in the department. Applicants must have a D.V.M., M.D., Ph.D., or equivalent degree, and, preferably, should have at least 1 year of postdoctoral experience. Minimum requirements for those not holding a D.V.M. or M.D. degree will be the completion of basic medical sciences courses equivalent to those given in the first 2 years of a medical or veterinary medical curriculum.

Interested individuals should contact: **Dr. Stephen A. Benjamin, Department of Pathology, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, Colo. 80523.**

*Colorado State University is an Equal Opportunity/Title IX Employer. Equal Opportunity Office: 314 Student Services Building.*

**POSTGRADUATE RESEARCH VIROLOGIST**—Position available immediately for studies on characterization of cellular receptors for arboviruses on mosquito membranes. Ph.D. degree with training and experience in molecular biology and cell biology required. Training in electron microscopy desirable. Appointment for 1 year at \$15,600, with possibility of renewal for one or two additional years. *The University of California, Berkeley, is an Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae, transcripts, pertinent publications, and three letters of reference by 31 January 1981 to: **Dr. James L. Hardy, Department of Biomedical and Environmental Health Sciences, Earl Warren Hall, Berkeley, Calif. 94720.**

### POSTGRADUATE RESEARCH DEPARTMENT OF BIOLOGY PRINCETON UNIVERSITY

NIH postdoctoral training grant positions for recent Ph.D.'s in the areas of biochemical and genetic aspects of cell differentiation (Drs. T. Cline, E. Cox, A. Newton, and P. Schedl), cell biology and development (Drs. J. Bonner and M. Steinberg), and behavioral and population genetics (Drs. J. Gould, R. May, and W. Quinn) are available beginning June 1981 or earlier. Applications should include curriculum vitae and summary of research interest. Closing date: 31 January 1981. Inquiries or applications should be sent to: **Dr. E. C. Cox, Chairman, Department of Biology, Princeton University, Princeton, New Jersey 08544.** *Princeton University is an Equal Opportunity/Affirmative Action Employer.*

**DISTINGUISHED VISITING PROFESSOR OF BIOLOGY.** The University of Miami invites applications and nominations for the position of **DISTINGUISHED VISITING PROFESSOR OF BIOLOGY** for the 1981-1982 academic year. We seek individuals at the rank of associate or full professor with an outstanding record of research. Those appointed are expected to offer a short lecture series in their area of expertise and to utilize departmental resources for continuing research. Salaries will be commensurate with experience and qualifications; appointments will ordinarily be made for one or both semesters. Submit names and backgrounds of nominees by 16 January or a letter of application with curriculum vitae and representative reprints by 13 February to: **Visiting Professor Search Committee, Department of Biology, University of Miami, P.O. Box 249118, Coral Gables, Florida 33124.** *An Equal Opportunity/Affirmative Action Employer.*

### VISITING PROFESSOR BIOPSYCHOLOGY

The Psychology Department at Wesleyan University is seeking a part-time visiting professor for 1981-1982. We prefer someone already established in the field, perhaps on sabbatical, who could teach an introductory level brain and behavior course and a small research-oriented course. Research, particularly involving students, will be encouraged by the provision of laboratory space, rats, and moderate financial support. Please send inquiries to: **Karl E. Scheibe, Chairman, Department of Psychology, Wesleyan University, Middletown, Conn. 06457.**

*An Affirmative Action/Equal Opportunity Employer*

## POSITIONS OPEN

### DISTINGUISHED PROFESSOR OF RENEWABLE ENERGY RESOURCES UNIVERSITY OF HAWAII AT MANOA

This endowed chair was made possible through a generous gift from Coral Industries, Inc. to provide leadership and expertise in establishing and maintaining academic and research programs of excellence in renewable energy resources. The recipient of this appointment will assist in the development and instruction of new energy courses and programs; engage in research on Hawaii's indigenous energy resources; guide thesis projects; attract extramural research support; interact with both on and off campus groups in furthering knowledge on renewable energy; and provide visibility at both the local and national levels on UHM's quest for excellence in renewable energy instruction and research. The scientist or engineer selected for this position must be a recognized national authority on one of the renewable energy resources indigenous to Hawaii—direct solar, biomass, wind, ocean thermal, geothermal—and his/her experience and qualifications, which should include a doctoral degree in an appropriate discipline, must demonstrate this stature. This will be a joint appointment in the Hawaii Natural Energy Institute and in one of the seven academic colleges on the Manoa Campus. In addition to a salary commensurate with a distinguished professorship, a stipend will be provided for research-related travel and other support services. Closing date for nominations and applications is 1 March, with the position to be filled by 1 July 1981. Inquiries regarding this position may be directed to:

**Dr. John W. Shupe**  
Energy Research Coordinator  
University of Hawaii at Manoa  
2540 Dole Street  
Honolulu, Hawaii 96822

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

Am Institut für Klinische Virologie der Universität Erlangen-Nürnberg, Medizinische Fakultät, ist ab sofort die Stelle eines

**Professors der BesGr. C 2**  
für Virologie

zu besetzen.

Der Stelleninhaber hat sein Fachgebiet in Forschung und Lehre angemessen zu vertreten. Zu seinen Aufgaben gehört der Aufbau eines Forschungsprogrammes im molekularen Virus-Onkologie sowie die Mitwirkung im Sonderforschungsbereich 118 (Grundlagen der Früherkennung und Verlaufsbeurteilung des Krebses).

Bewerbungen werden bis zum 1. Februar 1981 erbeten an den **Dekan der Medizinischen Fakultät, Universitätsstrasse 40, 8520 Erlangen, West Germany.** Weitere Einzelheiten sind der Ausschreibung in Heft 24/1980 der Deutschen Universitätszeitung (DUZ) zu entnehmen.

**THE PSYCHOLOGY DEPARTMENT, UNIVERSITY OF MASSACHUSETTS AT BOSTON,** expects two or more tenure-track openings in the areas of personality, social, developmental, or psychobiology. Ph.D. required. Applicants are expected to teach undergraduate courses, including at least one of the following: introductory, testing, research methods, social, comparative, personality, and an advanced course in specialty, and to contribute to the development of graduate programs and the research environment on campus. Evidence of excellence in teaching and an active research program are expected. Facilities include well-equipped laboratories with computer system and technical staff. Appointments are expected to be at the assistant professor rank, although higher ranks will be considered. Salary competitive. Please send letter, curriculum vitae, and three letters of reference to: **Celia Moore, Chairperson, Psychology Department, University of Massachusetts/Boston, Boston, Mass. 02125** by 1 March 1981. *An Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE**—A position is available for a research associate to study regulation of nucleotide metabolism and antitumor effects of nucleoside analogs. The research will involve HPLC, tissue culture, enzyme purifications and experimental chemotherapy in rats. Ph.D. degree in biochemistry or pharmacology required. Salary: \$14,000 to \$16,000. Send curriculum vitae and names of three references to: **R. C. Jackson, Laboratory for Experimental Oncology, Indiana University, School of Medicine, Indianapolis, Indiana 46223.** *Indiana University is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

The Department of Geosciences at The University of Arizona invites applications for two tenure-track academic positions in **QUATERNARY STUDIES**. The department desires one person to conduct research and teaching in palynology-paleoclimatology. The second person should have suitable experience and breadth of interests to teach a graduate-level introductory course in Quaternary geology, and may do research and teach in the field of study such as geopedology, glacial geology, paleobotany, paleoecology. Quaternary marine studies, or tephrochronology. Candidates for both positions should expect to advise and supervise students and to produce independent research. Rank and salary will be commensurate with experience and qualifications. Both positions become effective in August 1981. Application deadline is 28 February 1981. Applicants should send curriculum vitae, bibliography and statement of research interests, with the names of four professional references to: **Edgar J. McCullough, Jr., Head, Department of Geosciences, The University of Arizona, Tucson, Arizona 85721. The University of Arizona is an Equal Opportunity/Affirmative Action/Title IX/Section 504 Employer.**

**RESEARCH ASSISTANT PROFESSOR**—The Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, invites applications for a research assistant professor within the Biological Sciences Section. Applicants should have a Ph.D. degree in pharmacology or physiology with emphasis on pharmacology. Applications and résumés should be directed to: **Dr. James C. Murphy, Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, University, Miss. 38677, by 1 February 1981, to ensure consideration. Equal Opportunity Employer.**

**RESEARCH ASSISTANT**—Immediate opening for individual with graduate training in biochemistry or related fields. Experience in cell culture is required. Responsibilities include participation in research projects and running of diagnostic tissue culture laboratory. Send letter and résumé to: **Owen M. Rennert, M.D., Department of Pediatrics, University of Oklahoma, P.O. Box 26901, Oklahoma City, Oklahoma 73190.**

## POSITIONS OPEN

### UNIVERSITY OF CALIFORNIA, BERKELEY

One or two positions as **RESEARCH ASSOCIATE AND LECTURER (or VISITING PROFESSOR)** are available, starting September 1981, in the Graduate Group in Science and Mathematics Education, an interdisciplinary academic unit offering the Ph.D. degree. Applicants should have a Ph.D. degree and substantial training in the natural, social, or engineering sciences. Their research interests should lie in a field such as educational applications of technology, curriculum development, cognitive science, or analyses of problem solving. For further details about application procedures and the position, contact: **Marian Golden, SESAME, c/o Physics Department, University of California, Berkeley, Calif. 94720.** Applications, including three letters of reference, must be received by 15 February. *The University of California is an Affirmative Action/Equal Opportunity Employer.*

### SABBATICAL REPLACEMENT

Physiological plant ecologist or plant geneticist with background in cell biology and plant systematics for 1-year replacement. Courses include field botany, seminar in area specialization, and team-teaching in ecology and cell biology. Position may be extended to 2 years. Research encouraged. Résumé and names of references to: **Dr. William H. Harvey, Convener, Biology Department, Earlham College, Richmond, Ind. 47374, by 9 February 1981. Earlham College is an Equal Opportunity/Affirmative Action Employer.**

**TEACHING POSITIONS.** Small private south-eastern college has openings for two instructors or assistant professors in the following specialties: (i) invertebrate zoology/mollusk culture, and (ii) chemical oceanography/environmental science. Both positions involve an average of 15 classroom hours per week. Qualifications include master's degree and teaching experience. Both would begin September 1981. Closing date for applications is 28 February 1981. Send letter, résumé, and three letters of reference to: **Box 5, SCIENCE.**

## POSITIONS OPEN

**POSTDOCTORAL POSITIONS** in molecular biology, available immediately, to study gene structure, expression, and regulation in various eukaryotic systems. Experience in DNA manipulation and genetic engineering would be advantageous.

Send résumés and names (plus telephone numbers) of two references to: **J. Martial, Laboratoire de génie génétique, Université de Liège au Sart Tilman, B-4000 LIEGE, Belgium.** Further details can be obtained from Dr. J. Martial, telephone: 041/56 13 11.

**RESEARCH ASSOCIATE.** Ph.D. in pharmacokinetics, clinical biochemistry, pharmaceutical analysis, or related field, with experience in analytical method development, to participate in human clinical pharmacokinetic studies. Twelve-month position available February 1981. Send résumé to: **Dr. P. G. Welling, School of Pharmacy, University of Wisconsin, 425 North Charter Street, Madison, Wis. 53706. An Equal Opportunity/Affirmative Action Employer.**

### ANTICIPATED ZOOLOGIST—HISTOLOGY and ULTRASTRUCTURE

Assistant professor (tenure-track) with research interest in structural and functional ultrastructure is sought for fall 1981. Excellent EM facilities (including JEOL 100 CX TEM and Hitachi S500 SEM) are available; major instruments are under service contract and maintained by our technical staff. A Ph.D. is required. Postdoctoral experience and ability to attract extramural funding are desirable. Major teaching responsibility in histology or may alternatively include participation in general zoology. Establishment of a strong research program and instruction of graduate students are expected. Curriculum vitae, statement of research interests, and three letters of recommendation should be sent to: **Dr. Walter J. Harman, Department of Zoology and Physiology, Louisiana State University, Baton Rouge, La. 70803 by March 1981. An Equal Opportunity/Affirmative Action Employer, M/F.**

## UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applicants are solicited for **faculty positions** in the following departments:

**MICROBIOLOGY (Number 265)—Medical microbiologist:** Adjunct assistant or associate professor. A temporary 12- to 18-month position beginning immediately. Ph.D. with teaching experience essential. Postdoctoral experience desirable. Primary responsibilities: graduate, medical, and dental student instruction. Research opportunities available. Salary and rank commensurate with ability and experience. Application accepted until 31 January 1981. **PATHOLOGY (Number 270)—Assistant professor.** The individual filling this position will be appointed as assistant pathologist in Oklahoma Memorial Hospital, and will function primarily in a service capacity but the position requires teaching and research responsibility. Doctoral degree (M.D. or equivalent) with certification in anatomic pathology by American Board of Pathology or equivalent is required. Closing date for application: 31 January 1981. **(Number 271)—Associate professor.** The individual filling this position will be appointed as associate pathologist in O.M.H. and will function primarily in a service capacity but the position required teaching and research responsibility. Doctoral degree (M.D. or equivalent) with demonstrable experience of at least 4 years in anatomic pathology is required. Closing date 31 January 1981. **(Number 272)—Assistant professor.** The individual filling this position will be appointed as anatomic pathologist in Veterans Administration Medical Center and will function primarily in a service capacity but the position requires teaching and research responsibility. Doctoral degree (M.D. or equivalent) with certification in anatomic pathology by American Board of Pathology or equivalent. Closing date: 31 January 1981. **PSYCHIATRY (Number 273)—Associate professor of research.** This individual is expected to teach graduate level courses, conduct biological research program in areas such as steroid hormones and brain morphology. The individual should have a history of research productivity and extramural funding support. Ph.D. in physiological psychology or equivalent.

Applicants should send curriculum vitae **identifying vacancy number** for which they are applying to: **Thomas N. Lynn, M.D., Dean, College of Medicine, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Okla. 73190. We are an Equal Opportunity Employer.**

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## POSITIONS OPEN

**STATE EXTENSION ENTOMOLOGIST, ASSISTANT PROFESSOR.** Conduct field testing research emphasizing insect pests of forage crops. Submit résumé, transcripts, and three letters of recommendation to: Dr. W. S. Craig, Entomology, 1-87 Agriculture Building, University of Missouri, Columbia, Mo. 65211, by 16 January 1981 (or until filled).

*Equal Opportunity/Affirmative Action Employer*

## TEACHING POSITIONS IN NICARAGUAN UNIVERSITIES

The Latin American Scholarship Program of American Universities (LASPAU), acting on behalf of the Universidad Nacional Autónoma de Nicaragua (UNAN) and the Universidad Centroamericana (UCA) of Nicaragua, is pleased to announce a program funded by USAID/Nicaragua which will bring ten U.S. university instructors to teach at these Nicaraguan institutions beginning in March or July 1981, on a 1-year renewable basis. This program will respond to a critical shortage of teachers in Nicaragua resulting from new open enrollment policies in that country's institutions of higher education.

Positions are available in: MATHEMATICS, PHYSICS, BIOLOGY, CHEMISTRY, COMPUTER SCIENCES, HYDROLOGY, FORESTRY, ECOLOGY, AQUACULTURE AND FISHERIES, NUTRITION, AND EDUCATIONAL EVALUATION AND RESEARCH.

Requirements: Master's degree in field; relevant teaching experience; and ability to teach in Spanish. Teaching load: 12 to 18 hours per week.

Compensation package: Monthly salary of \$900 (equivalent to highest Nicaraguan university professor salary), plus additional allowances and benefits of approximately \$15,000. Spouse allowances also provided.

FOR FURTHER INFORMATION AND AN APPLICATION FORM, PLEASE CONTACT:

Nicaragua Project Coordinator  
LASPAU  
25 Mt. Auburn Street  
Cambridge, Mass. 02138

DEADLINE FOR RECEIPT OF COMPLETED APPLICATIONS: 31 January 1981.

## MEETING

### AMERICAN MALACOLOGICAL UNION

The American Malacological Union will conduct its 50th Anniversary Meeting in Ft. Lauderdale, Florida, 19 to 25 July 1981. The meeting will include the regular sessions of scientific papers, lectures, and exhibits on molluscan subjects. Field trips encompass freshwater, terrestrial, and fossil habitats. A special symposium will be conducted: "Functional Morphology and Ontogeny of Mollusca as applied to Higher Category Systematics," organized and chaired by Richard S. Houbick. Results of the symposium will be published in a prominent malacological journal. In addition to the major symposium there will be another symposium on endangered mollusca organized and chaired by Arthur Clarke. There will be an award for the best student paper presented at the meetings.

Additional information and registration forms are available from:

Richard S. Houbick  
Department of Invertebrate Zoology  
National Museum of Natural History  
Smithsonian Institution  
Washington, D.C. 20560  
Telephone: 202-347-2019

## PROGRAM

### THE MOUNT DESERT ISLAND BIOLOGICAL LABORATORY SALSBURY COVE, MAINE 04672

Announces 16 February 1981 as the deadline for applications for research space for the summer season of 1981. Facilities for 30 research groups during the summer, and additional groups in fall and spring are available. Research is limited to flora and fauna of the region. For further information about facilities and fees, write:

Jonathan S. Gormley  
Executive Secretary  
Mount Desert Island Biological Laboratory  
Salsbury Cove, Maine 04672

or telephone: 207-288-3605.

## GRADUATE STUDY

**GRADUATE STUDY.** The Department of Microbiology-Immunology at Northwestern University has openings for students seeking the Ph.D. degree. Graduate training is available in the fields of immunology, virology, and microbial biochemistry and pathogenicity. All students admitted to the department receive competitive stipends. For further information, write: Dr. Charles A. Plate, Department of Microbiology-Immunology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Ill. 60611.

### CELLULAR AND MOLECULAR BIOLOGY

Applications are invited for **PREDOCTORAL FELLOWSHIPS** in an interdisciplinary program leading to the degree of Ph.D. in cellular and molecular biology and supported by the Departments of Anatomy, Biochemistry, Pharmacology, and Physiology and Biophysics of the University of Miami School of Medicine. Funded by an NIH training grant, the program offers suitably qualified students stipends of \$7500 plus full remission of tuition. Areas of research specialization include: Cellular Metabolism • Membrane Biology • Molecular Enzymology • Developmental Biology • Protein Structure and Function • Neurobiology • Cancer • Molecular Genetics • Cardiovascular Pharmacology • Bioenergetics • Nucleic Acids • Hormones and Cyclic Nucleotides • Cell Communication • Drug Mechanisms • Carbohydrate Metabolism • Muscle Physiology • Computer Applications to Structure and Mechanism • X-ray Crystallography • Electrophysiology • Membrane Biophysics.

For further information, write: Dr. W. J. Whelan, Program in Cellular and Molecular Biology, University of Miami School of Medicine, P.O. Box 016129, Miami, Florida 33101. An Equal Opportunity/Affirmative Action Employer.

### GRADUATE STUDIES IN CELL AND DEVELOPMENTAL BIOLOGY

Several teaching and research assistantships are available in the Biology Department of Wesleyan University for highly qualified applicants with interests in cell and developmental biology. Research areas include mechanisms of cell recognition, adhesion and communication, cell growth and division, genome organization and the regulation of gene expression, cellular differentiation and the molecular biology of embryonic development, neurophysiology, and neuroendocrinology. The 12-month stipend for 1981-1982 is expected to be approximately \$5500 in addition to full tuition remission and a dependency allowance (if applicable). For further information, write: Director of Graduate Admissions, Department of Biology, Wesleyan University, Middletown, Conn. 06567.

## FELLOWSHIPS

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

*Equal Opportunity Employer, M/F/H*

**PREDOCTORAL FELLOWSHIPS IN PHARMACOLOGY.** Available immediately, student fellowships for predoctoral study in the Pharmacology Graduate Program of the Grace Cancer Drug Center, Roswell Park Memorial Institute. Stipends average \$5,000 plus tuition waiver. The program offers diversified training related to the pharmacological and biochemical basis for drug action with emphasis on cancer therapeutics; inhibition of nucleic acid, protein and membrane components, enzyme activity regulation, coenzyme action and inhibition, basis for selective toxicity, pharmacokinetics and drug metabolism in animals and cells, medicinal chemistry of nucleosides, carbohydrates and antifolates, immunotherapy, immunosuppression, experimental chemotherapy, molecular pharmacology, endocrine pharmacology and metabolic regulators, hematology, preclinical and clinical pharmacology. Send applications to: Dr. E. Mihich, M.D., Chairman, Graduate Pharmacology Program, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, New York 14263. An Equal Opportunity Employer, M/F.

## FELLOWSHIPS

**GRADUATE FELLOWSHIPS IN THE NEUROSCIENCES** are available for fall 1981. Stipends are approximately \$6000 for 12-month appointments. Send letters of inquiry to:

Dr. Vernon Pegrum  
Director, Neurosciences Program  
University of Alabama in Birmingham  
Birmingham, Alabama 35204

*Equal Opportunity/Affirmative Action Employer*

**PREDOCTORAL FELLOWSHIPS IN PHYSIOLOGY.** Training in cardiovascular, cell, endocrine, muscle, neuro-, renal, and respiratory physiology. Applicants must submit GRE scores (verbal, quantitative, and one advanced test). Deadline for application is 15 April 1981. For application materials, write: Department of Physiology, West Virginia University Medical Center, Morgantown, W. Va. 26506.

Applications are invited for **FELLOWSHIP AWARDS** in NICHD-supported interdisciplinary training programs in immunology. The program provides a core curriculum of interdepartmental training in basic and clinical immunology with an emphasis on developmental processes. Research opportunities are available in the basic science disciplines of immunobiology, immunochemistry, immunogenetics, immunopathology, and immunopharmacology, and the clinical disciplines of allergy and immunology, infectious disease, disorders of immune regulation, and respiratory diseases. Applicants should have a Ph.D., M.D., or equivalent degree and be interested in a career in academic medicine. Positions available immediately. The award for first year fellows ranges from \$14,000 to \$16,000, depending on prior training of the candidates. U.S. citizenship or permanent residency is required. Send curriculum vitae and three letters of reference, as well as other supporting documents to: Dr. L. Nerurkar, Gorman Building, Room 130, 3800 Reservoir Road, NW, Washington, D.C. 20007. Georgetown University is an Equal Opportunity/Affirmative Action Employer. Applications from women and minorities are encouraged.

**POSTDOCTORAL FELLOWSHIPS** at Duke University Center for the Study of Aging and Human Development in adult development and/or aging. Research training in most biomedical, behavioral, and social science fields. Reply, with curriculum vitae and brief description of area of proposed research, to: Dr. Ilene C. Siegler, Box 3003, Duke Medical Center, Durham, North Carolina 27710. Completed applications must be received by 1 May 1981 for positions during the 1981-82 academic year. An Equal Opportunity/Affirmative Action Employer.

**DOCTOR OF ARTS IN BIOLOGY: FELLOWSHIPS** are available for qualified persons interested in the D.A. degree in biology. The program stresses preparation for undergraduate teaching at colleges and universities. Applicants should hold a master's degree in some area of biology. Deadline for receipt of application is 1 March 1981. For more information contact: Dr. Donald P. Streubel, Chairman, D.A. Committee, Department of Biology, Idaho State University, Pocatello, Idaho 83209. An Equal Opportunity Employer.

**POSTDOCTORAL FELLOWSHIP** available beginning July or September 1981. Membrane molecular biology: the role of membranes in bacterial cell division. Send curriculum vitae and names of several references to:

Dr. Lawrence Rothfield  
Department of Microbiology L-2034  
University of Connecticut Health Center  
Farmington, Conn. 06032

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## TRAINEESHIPS

**POSTDOCTORAL TRAINEESHIP** in environmental toxicology. Comparative metabolism, genotoxicity, cell culture, and mechanism-of-action studies to be conducted by a recent Ph.D. in biochemistry or similar discipline. Opportunity to obtain broad training in environmental toxicology. U.S. citizenship or permanent residency required. Candidates should send curriculum vitae, transcripts, and names of three references to: J. L. Byard, Department of Environmental Toxicology, University of California, Davis, Calif. 95616. An Equal Opportunity/Affirmative Action Employer.



# Director, Institute of Biological Sciences

SYNTEX, a research-minded Multinational Pharmaceutical Corporation, is located in the hills of Palo Alto, California, adjacent to Stanford University.

Applications are now being accepted for the position of Director of our Institute of Biological Sciences from individuals with broad research experience in biological sciences with emphasis on immunology/cell biology and drug development.

The individual selected will help ensure the highest quality of research in the Institute and will contribute directly to the long range success of the Company.

Responsibilities include directing the efforts of a number of groups of Biological and Biochemical Scientists working in the areas of inflammation, immunology, thrombosis and atherosclerosis, dermatology and reproductive physiology. Projects involve drug testing, study of mechanism of action of therapeutic agents and basic biology of diseases.

Your broad overview of the Biomedical Sciences and your interdisciplinary approach to problem solving are key qualifications for this position. You will function in close collaboration with other Syntex Institutes (e.g., Clinical Medicine and Pharmacology) and will exercise your strong managerial and motivational skills. Experience in the Pharmaceutical Industry highly desirable.

This executive-level position offers a most attractive salary and compensation package along with continued professional recognition and challenge.

Please address your resume, in confidence, to John H. Hudson, Director of Staffing, SYNTEX, 3401 Hillview Avenue, Palo Alto, CA 94304. We are an equal opportunity employer.



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## Research Scientists Molecular/Cellular Genetics—Agriculture

AGRIGENETICS CORPORATION is a vigorous medium-sized seed and genetic research company enjoying rapid growth, with excellent base-line positions in most major crops and in bacterial inoculants. The company has broadened its existing plant breeding and research activities to include programs in cell biology, microbiology, and the molecular genetics of higher plants. Accordingly, it is inviting applications for newly created research positions.

**Biochemists and biologists holding a Ph.D. and having research experience in molecular, cellular and microbial studies are sought.**

Research groups in these fields will interact with geneticists and plant breeders towards the development of enhanced crop plants, symbionts, and biochemicals.

Innovative projects include:

- Isolation and characterization of plant genes
- Modification and expression of plant genes
- Culture, fusion, and regeneration of plant protoplasts and cells
- Function and modification of plant organelles
- Plasmid recombination
- Interactions of bacteria, fungi, viruses and their metabolites with higher plants

Strong technical support groups are being established in connection with the above programs. Individuals with relevant training to the **M.S.** or **B.S.** level, with enthusiasm for helping in all aspects of the above-mentioned topics, are also sought.

Interaction with academic institutions is expected and the decorous presentation of appropriate research data in scientific meetings and publications will be supported.

Applicants confident of their superior practical abilities and capacity for original thought should submit, in confidence, their resumes together with publications, salary history, and career expectations.

Write to:  
Vice President  
for Advanced Research  
AGRIGENETICS CORPORATION  
Agrigenetics Research Park  
5649 East Buckeye Road  
Madison, Wisconsin 53716

# Toronto Tapes

Annual Meeting  
Toronto  
3 - 8 January 1981

For a list of those sessions taped  
at this year's Annual Meeting,  
visit the  
Mobiltape Sales Desk,  
AAAS Registration Area  
Sheraton Centre  
(Program abstract included  
with each title)

