

color to many fruits and flowers (chromoplasts), or to lose pigments (leucoplasts).

As well as being the site of photosynthesis, plastids contain their own DNA and unique prokaryotic-type (70S) ribosomes, a fact that has lent support to the idea that they may be autonomous organelles that are perhaps symbiotic in their relationship to the cells they inhabit. Thus recent research on plastids has been directed toward an understanding of their biology and molecular biology as organelles, whereas earlier studies were limited to describing the physiological function of plastids only in terms of photosynthesis. Our changing thoughts about plastids are reflected in *Chloroplasts*, which is really about plastids.

The volume comprises eight chapters that, in effect, are essays from authors active in their fields. It makes no attempt to cover all aspects of research on chloroplasts, and, refreshingly, some essays represent the subjective views of their authors rather than the dull litany of objectivity many reviewers have adopted in recent times. Plastids are viewed as organelles, as might be expected from a volume in a series on "results and problems in cell differentiation." The first chapter deals comprehensively, but succinctly, with the structural diversity of plastids and highlights their remarkable resiliency, exemplified by an ability to convert to various forms depending upon changing cellular environment. Just as remarkable are the factors controlling the continuity and conservation of plastids from cell to cell and the ways in which the division of cells and plastids is coordinated, particularly in some cases of extreme genetic perturbation. The semiautonomous nature of plastids may provide an explanation for their resiliency and stability, for no qualitative changes in plastid DNA accompany physiological changes, a fact suggesting that the stability resides in the plastid genome. The longest chapter in the book is devoted to plastid DNA. Endonuclease techniques are providing maps of the circular DNA, and studies have shown the nuclear coding of the small subunit of the major soluble chloroplast protein, fraction I, and the plastid DNA coding of the large subunit. Evidence for the collaboration of the two genomes is further developed in a chapter on RNA and protein synthesis in plastid differentiation. Thus this volume succeeds in highlighting the plastid as an organelle and describes the complex interaction between it and plant cells. Yet though chloroplasts have been shown to be capable of surviving in artificial media the

final chapter rightly concludes that any successful culture system will have to include purified macromolecules and cellular membrane components and possibly other organelles in addition to the plastids.

D. J. GOODCHILD

*Division of Plant Industry,
Commonwealth Scientific and
Industrial Research Organisation,
Canberra A.C.T. 2601, Australia*

Books Received

Aboriginal Man Adapting. The Human Biology of Australian Aborigines. R. L. Kirk. Clarendon (Oxford University Press), New York, 1981. xii, 230 pp., illus. \$59. Research Monographs on Human Population Biology.

Ada: An Introduction. Henry Ledgard. *Ada Reference Manual (July 1980)*. Springer-Verlag, New York, 1981. Variously paged. Paper, \$12.95.

Biological Monitoring of Marine Pollutants. Proceedings of a symposium, Milford, Conn., Nov. 1980. F. John Vernberg, Anthony Calbrese, Frederick P. Thurberg, and Winona B. Vernberg, Eds. Academic Press, New York, 1981. xiv, 560 pp., illus. \$34.

Biology of Conidial Fungi. Vol. 2, Garry T. Cole and Bryce Kendrick, Eds. Academic Press, New York, 1981. xx, 660 pp., illus. \$68.50.

Coping with the Common Cold. Wendy Murphy. Time-Life Books, Alexandria, Va., 1981. 176 pp., illus. \$11.95. Library of Health.

Darwin on Man. A Psychological Study of Scientific Creativity. Howard E. Gruber. University of Chicago Press, Chicago, ed. 2, 1981. xxviii, 310 pp., illus. Cloth, \$25; paper, \$7.95.

Diabetes. The GLUCOGRAF™ Method for Normalizing Blood Sugar. Richard K. Bernstein. Crown, New York, 1981. xx, 298 pp. \$14.95.

Environmental Factors in Mammal Reproduction. Desmond Gilmore and Brian Cook, Eds. University Park Press, Baltimore, 1981. x, 330 pp., illus. \$44.50. Biology and Environment.

Environmental Protest and Citizen Politics in Japan. Margaret A. McKean. University of California Press, Berkeley, 1981. xvi, 292 pp., \$28.50.

Enzymes as Drugs. John S. Holcenberg and Joseph Roberts, Eds. Wiley-Interscience, New York, 1981. viii, 456 pp., illus. \$59.50.

How to Plan, Design and Implement a Bad System. Ronald B. Smith. Petrocelli, Princeton, N.J., 1981 (trade distributor, Van Nostrand Reinhold, New York). x, 158 pp. \$14.

Human Adaptability. An Introduction to Ecological Anthropology. Emilio F. Moran. Duxbury, North Scituate, Mass., 1979. xii, 404 pp., illus. \$13.95. Duxbury Press Series in Anthropology.

Mechanics and Wave Forces on Offshore Structures. Turgut Sarpkaya and Michael Isaacson. Van Nostrand Reinhold, New York, 1981. xvi, 652 pp., illus. \$37.50.

Medical Consequences of Alcohol Abuse. P. M. S. Clark and L. J. Kricka. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 282 pp. \$97.95. Ellis Horwood Series in Chemical Science.

Methods in Vitamin B-6 Nutrition. Analysis and Status Assessment. Proceedings of a workshop, Mt. Hood, Ore., June 1980. James E. Leklem and Robert D. Reynolds, Eds. Plenum, New York, 1981. xii, 402 pp., illus. \$49.50.

Mode of Action of Herbicides. Floyd D. Ashton and Alden S. Crafts. Wiley-Interscience, New York, ed. 2, 1981. x, 526 pp., illus. \$42.50.

Neuroreceptors. Basic and Clinical Aspects. Papers from a meeting, Dec. 1979. Earl Usdin, William E. Bunney, Jr., and John M. Davis, Eds. Wiley-Interscience, New York, 1981. xii, 280 pp., illus. \$60.50.

Nitrogen and Carbon Metabolism. Proceedings of a symposium, Calgary, Canada, July 1980. J. Derek Bewley, Ed. Nijhoff/Junk, The Hague, 1981 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 248 pp., illus. \$39.50. Developments in Plants and Soil Sciences, vol. 3.

Nucleic Acids and Proteins. Proceedings of a symposium, Shanghai, Oct. 1979. Shen Zhao-wen, Ed. Science Press, Beijing, China, 1980 (U.S. distributor, Van Nostrand Reinhold, New York). xiv, 662 pp., illus. \$42.

Nutrition and Cancer. Etiology and Treatment.

Guy R. Newell and Neil M. Ellison, Eds. Raven, New York, 1981. xiv, 446 pp., illus. \$49.50. Progress in Cancer Research and Therapy, vol. 17.

Optical Fiber Systems and Their Components. An Introduction. A. B. Sharma, S. J. Halme, and M. M. Butusov. Springer-Verlag, New York, 1981. viii, 248 pp., illus. \$38.35. Springer Series in Optical Sciences, 24.

Paleoecology. Concepts and Applications. J. Robert Dodd and Robert J. Stanton, Jr. Wiley-Interscience, New York, 1981. xvi, 560 pp., illus. \$39.95.

Paranormal Borderlands of Science. Kendrick Frazier, Ed. Prometheus, Buffalo, N.Y., 1981. xiv, 470 pp., illus. Paper, \$12.95.

Proceedings of the Conference on Subretinal Space. Jerusalem, Oct. 1979. H. Zauberman, Ed. Junk, The Hague, 1981 (U.S. distributor, Kluwer Boston, Hingham, Mass.). x, 306 pp., illus. \$71. Documenta Ophthalmologica Proceedings Series, vol. 25.

Proceedings of the Exxon Engineering Symposium 1980. Barry Tarmy, Ed. Exxon Research and Engineering Company, Florham Park, N.J., 1981. xvi, 128 pp., illus. Cloth.

Proceedings of the International Symposium on Atomic, Molecular, and Solid-State Theory, Collision Phenomena, Quantum Statistics, and Computational Methods. Flagler Beach, Fla., Mar. 1980. Per-Olov Löwdin and Yngve Öhrn, Eds. Interscience (Wiley), New York, 1981. xx, 734 pp., illus. \$40. *International Journal of Quantum Chemistry*. Quantum Chemistry Symposium No. 14.

Proceedings of the International Symposium on Quantum Biology and Quantum Pharmacology. Palm Coast, Fla., Mar. 1980. Per-Olov Löwdin and John R. Sabin, Eds. Interscience (Wiley), New York, 1981. xii, 438 pp., illus. Paper, \$70. *International Journal of Quantum Chemistry*. Quantum Biology Symposium No. 7.

Progress in Physical Organic Chemistry. Vol. 13. Robert W. Taft, Ed. Interscience (Wiley), New York, 1981. xii, 638 pp., illus. \$75.

Projection Methods in Constrained Optimisation and Applications to Optimal Policy Decisions. Berc Rustem. Springer-Verlag, New York, 1981. xvi, 316 pp. Paper, \$17.40. Lecture Notes in Control and Information Sciences, vol. 31.

Radiation Protection. A Guide for Scientists and Physicians. Jacob Shapiro. Harvard University Press, Cambridge, Mass., ed. 2, 1981. xxiv, 480 pp., illus. \$25.

Rapid and Automated Methods in Microbiology and Immunology. A Bibliography 1976-1980. Wendy J. Palmer, Ed. Information Retrieval, Washington, D.C., 1981. viii, 266 pp. Paper, \$36.

Readings in Philosophy of Psychology. Vol. 2. Ned Block, Ed. Harvard University Press, Cambridge, Mass., 1981. viii, 366 pp. \$22.50. The Language and Thought Series.

A Sierra Club Naturalist's Guide to the North Atlantic Coast. Cape Cod to Newfoundland. Michael and Deborah Berrill. Illustrations by Rob Tuckerman. Sierra Club Books, San Francisco, 1981 (trade distributor, Scribner, New York). x, 464 pp. + plates. Cloth, \$24.95; paper, \$10.95.

Spoken Language Generation and Understanding. Proceedings of an institute, Bonas, France, June 1979. J. C. Simon, Ed. Reidel, Boston, 1981 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 582 pp., illus. \$68.50. NATO Advanced Study Institutes Series C, vol. 59.

Sun Power. A Bibliography of United States Government Documents on Solar Energy. Compiled by Sandra McAninch. Greenwood, Westport, Conn., 1981. xx, 944 pp. \$75.

Superficial Keratitis. P. C. Maudgal and L. Misstotten, Eds. Junk, The Hague, 1981 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 192 pp., illus. \$45. Monographs in Ophthalmology 1. Reprinted from *Bull. Soc. Belge Ophthalmol.*, 187-1, 1980.

Syntax and Semantics. Vol. 14, Tense and Aspect. Papers from a symposium, Providence, R.I., Jan. 1977. Philip J. Tedeschi and Annie Zaenen, Eds. Academic Press, New York, 1981. xx, 306 pp. \$34.

Tooth Surface Interactions and Preventive Dentistry. Proceedings of a workshop, Oslo, Dec. 1980. Gunnar Rølla, Torleif Sønju, and Graham Embery, Eds. IRL Press, London, 1981. viii, 218 pp., illus. Paper, \$36.

Urolithiasis. Clinical and Basic Research. Proceedings of a symposium, Williamsburg, Va., June 1980. Lynwood H. Smith, William G. Robertson, and Birdwell Finlayson, Eds. Plenum, New York, 1981. xxvi, 1036 pp., illus. \$85.

Water and Related Land Resource Systems. Papers from a symposium, Cleveland, May 1980. Y. Haimes and J. Kindler, Eds. Published for the International Federation of Automatic Control by Pergamon, New York, 1981. xii, 524 pp., illus. \$120.

Water Clarification Processes. Practical Design and Evaluation. Herbert E. Hudson, Jr. Van Nostrand Reinhold, New York, 1981. xiv, 354 pp., illus. \$26.50. Van Nostrand Reinhold Environmental Engineering Series.

Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising closing for a particular Friday issue is Wednesday, 3 1/2 weeks before. Advertising is accepted only in writing, no abbreviations. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, or handicap.

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1515 Massachusetts Ave., NW
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POSITIONS WANTED

Biochemist/Physiologist, Ph.D. 1981. Research background in phospholipid metabolism of phagocytes. Experience in enzyme purification, cell fractionation, cell culture, TLC, and HPLC. One year of postdoctoral experience. Seeks industrial, teaching, or research position. Will relocate. References on request. Box 234, SCIENCE. X

Biochemist, Ph.D. 1980. Experienced in electron spin resonance, circular dichroism, magnetic circular dichroism, protein purification, and anaerobic technique. Some experience with bacterial culture and mutagenesis. Seeking research and development or academic position. Box 247, SCIENCE. 10/2, 16

Biochemist/Cell Physiologist, M.D. Postdoctoral training and independent research in mitochondrial biochemistry. Current work on cellular metabolic status and calcium homeostasis is NIH-funded. Substantial medical center teaching in metabolism. Seeks basic science position with collaborative research opportunities. Box 248, SCIENCE. 10/2, 9

Microbial Physiologist/Soil Microbiologist/Biochemist (Ph.D.). Experience in selection and isolation of specific microorganisms; induction and selection of mutants; degradation of pollutants in soil and water; toxicity of chemicals to microorganisms; microbial synthesis of radiolabeled compounds; plant cell tissue culture; small-scale fermentations; and veterinary pharmaceutical production. Supervisory and management experience. Desires laboratory-oriented or group leader position in industry. Midwest preferred. Box 244, SCIENCE. 10/2, 16

Neurophysiologist, Ph.D. Assistant research professor with teaching experience and good publishing record seeks tenure-track position in university basic science department. Research interest is spinal cord physiology. Methods include electrophysiological studies in tissue culture and slice preparations of vertebrate central nervous system. Box 249, SCIENCE. 10/2, 9, 16

Veterinary Pathologist, Ph.D., Board-certified (ACVP), 15 years of experience in diagnostic and laboratory animal pathology, including toxicology. Box 246, SCIENCE. 10/2, 16, 30

POSITIONS OPEN

UNIVERSITY OF WISCONSIN-MADISON AQUATIC BIOLOGY

One **RESEARCH ASSOCIATE** (postdoctoral) and one **SPECIALIST** (B.S. or M.S. level) positions available immediately. Project involves the microbiological and integrated control of Eurasian water-milfoil and the impact of these strategies on water quality. Experience in plant pathology, microbiology, water chemistry, aquatic botany, or limnology desirable. Funding for at least 2 years. Salaries commensurate with qualifications. Send résumé, transcripts, and three letters of recommendation to: **Dr. J. H. Andrews, Department of Plant Pathology, University of Wisconsin-Madison, 1630 Linden Drive, Madison, Wisc. 53706. An Affirmative Action/Equal Opportunity Employer.**

UNIVERSITY OF WISCONSIN-MADISON MICROBIAL ECOLOGY

RESEARCH ASSOCIATE (postdoctoral) position in population dynamics of phytoplankton microbial antagonists to a foliar plant pathogen. Experience in plant pathology, microbial ecology, microbiology, or mycology desirable. Funding for at least 16 months. Salary commensurate with qualifications. Send résumé, transcripts, and three letters of recommendation to: **Dr. J. H. Andrews, Department of Plant Pathology, University of Wisconsin-Madison, 1630 Linden Drive, Madison, Wisc. 53706. An Affirmative Action/Equal Opportunity Employer.**

DEPARTMENT OF ASTRONOMY UNIVERSITY OF MINNESOTA

Applications are invited for one or two tenure-track assistant professorships available for September 1982. We seek candidates whose research interests will complement the current activities in the department. Current research emphasizes optical, infrared, and radio astronomy, infrared and optical instrumentation, theoretical astrophysics, radio interferometry and image processing techniques, studies of normal and active galaxies, galactic structure, and stars and stellar evolution. Candidates are invited to address applications (including curriculum vitae and bibliography) and to arrange for three letters of recommendation to be sent to: **Dr. T. W. Jones, Acting Chairman, Department of Astronomy, School of Physics and Astronomy, University of Minnesota, 116 Church Street, SE, Minneapolis, Minn. 55455. Application deadline is 1 December 1981. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.**

DEPARTMENT OF ASTRONOMY UNIVERSITY OF MINNESOTA

Applications are invited for the position of **chairman** of the department starting in September 1982. Preference will be given to senior scientists with a strong record of creative research. Current research in the department emphasizes optical, infrared, and radio astronomy, infrared and optical instrumentation, theoretical astrophysics, radio interferometry and image processing techniques, studies of normal and active galaxies, galactic structure, and stars and stellar evolution. Candidates should send applications to: **Chairman of the Search Committee, Department of Astronomy, School of Physics and Astronomy, University of Minnesota, 116 Church Street, SE, Minneapolis, Minnesota 55455. Application deadline is 1 December 1981. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.**

ASSISTANT PROFESSOR IN EUKARYOTIC MOLECULAR BIOLOGY

The Department of Biological Sciences will make a tenure-track appointment for fall 1982. Candidates must have postdoctoral training in recombinant DNA technology. Appointee is expected to continue a productive research program in a eukaryotic system and to teach at the graduate and undergraduate levels. The department contains an active group of molecular and cellular biologists. Funds provided to initiate research. Send curriculum vitae, future research interests, and names of three referees to:

**Professor Paul S. Lovett
Department of Biological Sciences
University of Maryland Baltimore County (UMBC)
Catonsville, Maryland 21228**

UMBC is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSORS OF BIOCHEMISTRY. The Department of Biochemistry and Molecular Biology, Louisiana State University (LSU) Medical Center in Shreveport, invites applications for three tenure-track positions at the assistant professor level. Candidates with a strong background in molecular biology are especially encouraged to apply but outstanding candidates in other areas will definitely be considered. Applicants should submit complete curriculum vitae and description of future research program and have three letters of reference sent by 15 November 1981 to: **Dr. Guilford Rudolph, Department of Biochemistry, LSU Medical Center, Box 33932, Shreveport, La. 71130. Equal Opportunity Employer.**

Harvard University ASSISTANT PROFESSOR CELLULAR AND DEVELOPMENTAL BIOLOGY

The new CDB Department at Harvard University will be making an appointment at the assistant professor level during the coming academic year. The specific area of specialization within the area of cellular and developmental biology is less important than the candidate's excellence. Salaries for assistant professors in the 1981-1982 budget year range from \$20,600 to \$24,000. Complete applications and three letters of recommendation should be sent by 1 November 1981 to:

**Chairperson, CDB Search Committee
The Biological Laboratories
Harvard University
16 Divinity Avenue
Cambridge, Mass. 02138**

Harvard University is an Equal Opportunity Employer.

A tenure-track position for an **ASSISTANT PROFESSOR OF NEUROLOGY** (neuroscience) is available in the Department of Neurology, Stanford University School of Medicine, beginning 1 July 1982. Qualifications should include skills as a teacher, at least 2 years of postdoctoral training and experience, a significant record of research accomplishment, and the capacity to function as an independent investigator. Interests and skills in membrane biophysics, or cellular neurophysiology and neuroanatomy with developmental emphasis, or cellular neuropharmacology are preferred. Space and start-up support are available to interact in programs dealing with cortical development, epilepsy, neuronal structure, and membrane physiology. Candidates should send curriculum vitae and names of three referees to: **David A. Prince, M.D., Professor and Chairman, Department of Neurology, Stanford Medical Center, Stanford, California 94305.**

Stanford University is an Equal Opportunity Employer and welcomes nominations of women and minority group members and applications from them.

The Department of Chemistry, University of Notre Dame, invites applications for a tenure-track position, starting September 1982, in the area of **BIOCHEMISTRY**. The appointment is expected to be made at the assistant professor level, but exceptional applicants at other levels will be considered. A strong interest and potential of excellence in both teaching and research are expected. Areas of research are not specified, but preference will be given to candidates whose research interests are best suited to existing programs and to expanding physical facilities, including a new research building, of the department. Teaching responsibilities will be at both the undergraduate and graduate levels. Send résumé, three letters of recommendation, and summary of research plans to: **Dr. R. K. Bretthauer, Department of Chemistry, University of Notre Dame, Notre Dame, Ind. 46556. The University of Notre Dame is an Equal Opportunity/Affirmative Action Employer.**

INORGANIC CHEMISTRY. A tenure-track position is available for September 1982. The appointment is expected to be made at the assistant professor level, but exceptional candidates at other levels will be considered. Preference will be given to candidates in the fields of organometallic and analytical chemistry. Strong interests and potential of excellence in both teaching and research are expected. Applications will be accepted up to 1 December 1981. Send résumé, three letters of recommendation, and summary of research plans to: **Dr. R. K. Bretthauer, Department of Chemistry, University of Notre Dame, Notre Dame, Ind. 46556. The University of Notre Dame is an Equal Opportunity/Affirmative Action Employer.**

IMMUNO SYSTEMS RESEARCH

Abbott Laboratories currently has a position available in our Diagnostics Division for an individual to participate in the identification and design of immunoassays that are adaptable for use with an automated instrument system.

Qualified candidates should have a Ph.D. in Immunology or Biochemistry with at least 2 years of post-doctoral or industrial research experience. Background in analytical chemistry and/or cell biology is desirable. Familiarity with clinical instrumentation would be a definite plus.

Abbott is an international health care leader offering an excellent salary, full benefits including cash profit sharing and relocation assistance. For consideration, send a resume in complete confidence to:

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MOLECULAR BIOLOGISTS

Openings are available at New England Biolabs' new laboratory in Beverly, Massachusetts, USA.

Ph.D. level: Experience in cloning eukaryotic DNA, *in vitro* transition and other recombinant DNA techniques is essential.

MS or BS level: Minimum of two years experience in recombinant DNA methods, especially *in vitro* translation systems, electrophoretic analyses of proteins and DNA fragments, cloning of cDNA, and hybridization techniques.

New England Biolabs, Inc. is a small group of microbiologists and molecular biologists involved in the production of restriction endonucleases and other enzymes useful for DNA research. New programs are being initiated to use genetic engineering for the production of proteins applicable to world health problems.

Send curriculum vitae to N.E. Biolabs, Inc., 32 Tozer Road, Beverly, MA 01915, USA.



NEW ENGLAND

32 Tozer Road
Beverly, MA 01915

AUSTRALIA

OFFICE OF THE SUPERVISING SCIENTIST

ASSISTANT RESEARCH DIRECTOR

ENVIRONMENTAL RADIATION SCIENTIST

The Office of the Supervising Scientist is a statutory authority of the Australian commonwealth government. The Supervising Scientist is responsible directly to the Minister for Home Affairs and Environment for co-ordinating and supervising activities concerned with the protection of the environment from the effects of uranium mining operations in the Alligator Rivers region of the northern territory. He also carries out research to assist in the formulation of standards and protection measures and to define practical and effective programs to measure the environmental impact of uranium mining operations.

The focus of the research activities is the Alligator Rivers Region Research Institute which will comprise a laboratory located in the region at Jabiru, about 260 km east of Darwin, supported by administrative and other research facilities in Sydney. A temporary laboratory and accommodation is currently established at the Ranger Mine Site near Jabiru.

The Institute's Director is responsible to the supervising scientist for providing scientific leadership and management of the Institute's multidisciplinary research program. Research activities include aquatic and terrestrial ecology, bioassay, water quality, surface and ground water ecology, hydrogeochemistry, dispersion, mesometeorology, geomorphology, mathematical modelling and radiometric studies.

Applications are invited from persons suitably qualified to participate in the work of the Institute in the following capacities:

ASSISTANT RESEARCH DIRECTOR

DUTIES: The Assistant Research Director will direct and carry out research in a specialised area of aquatic biology. In addition he will assist the Director in the planning and management of the Institute's research programs including its resources, both human and physical at the Jabiru Laboratory where he or she will be supported by a small administrative team. Preference will be given to applicants with a distinguished research career in ecology, an emphasis on aquatic ecology being desirable. He or she will also be required to represent the Institute at scientific meetings and to develop and maintain close contacts with appropriate researchers and their institutions. The Assistant Research Director may also be required to consult with mining companies and liaise with government organisations on scientific and technical matters.

QUALIFICATIONS: Applicants should possess a Ph.D or equivalent qualifications and would be expected to have a minimum of 15-20 years postdoctoral experience. A broad based competence in ecological research, including studies of fresh water aquatic ecosystems, is considered important. Applicants should also have an international reputation of a high order, with extensive publications in the scientific literature, and several years of scientific management experience preferably in multidisciplinary environmental research. Ability to maintain and inspire mission oriented research in a remote locality where tropical extremes are common, will be an important attribute.

SALARY: The engagement will be within the salary range—DLRS A.35429-38921 P.A. depending on qualifications and experience (DLRS A.1.00; US.1.12 or pounds STG 0.57 approximately).

LOCATION: Jabiru

ENVIRONMENTAL RADIATION SCIENTIST/ RESEARCH SCIENTIST OR SENIOR RESEARCH SCIENTIST DLLRS19662-DLLRS28564 P.A.

DUTIES: The Institute is seeking an appropriately qualified scientist to study naturally occurring radiation and radionuclides in the environment of the uranium mining and milling operations. Emphasis will be on the establishment of laboratory low-level counting and spectrometer systems, with appropriate data handling and reduction facilities, and the development of instrumentation and techniques for specialised environmental and occupational radiological studies, e.g. the characterisation of radon daughter aerosols in the mine environment, the determination of thorium, radium and radon daughters in environmental samples.

QUALIFICATIONS: Applicants should possess a Ph.D or equivalent qualifications and appropriate research experience. A thorough knowledge of radiation detection, counting techniques and experience in natural environmental radioactivity studies is considered important.

SALARY: The engagement will be within the salary range DLRS A.19662-28564 P.A. depending on qualifications and experience. A higher salary could be considered for an extremely well qualified and experienced research scientist.

LOCATION: May be either Jabiru or Sydney, but it will be necessary to spend extensive periods in the region.

SUMMARY OF CONDITIONS: The successful applicants, subject to eligibility criteria, may be appointed as a permanent officer of the Australian Public Service; alternatively, a fixed term employment arrangement may be negotiated. Secondment from other government instrumentalities will, if necessary, be considered. Australian Public Service conditions of employment apply including 4 weeks annual leave, annual leave bonus and accumulative sick leave. Fares and removal expenses to take up duty and short term accommodation allowance may also be payable in some circumstances. At Jabiru, 6 weeks annual leave, a district allowance (currently DLRS 1430 or DLRS 2420 to an employee with dependents), biennial leave fare assistance and a taxation zone allowance may also apply, and subsidised government accommodation is also available. As Jabiru is an isolated community in a tropical environment the ability to live and contribute to the life of such a community is an important consideration.

Applications (including curriculum vitae and nominated professional referees) should reach the Supervising Scientist, P.O. Box 387, Bondi Junction, N.S.W. 2022, Australia. United Kingdom and European applicants should also forward a copy of their application direct to Recruitment Officer Public Service Board, Australian High Commission, Australia House, The Strand, London WC2R 4LA (Telephone: 01-438 8000). Those from North America, to Counsellor (Administration), Australian Embassy, 1601 Massachusetts Avenue, Washington, D.C. 20036 (Telephone: 202 797 3000). This copy should reach the appropriate location by 23 October 1981.

POSITIONS OPEN

NATIONAL SCIENCE FOUNDATION (NSF)

NSF, Division of Ocean Sciences, is seeking qualified applicants for the position of **ASSISTANT PROGRAM DIRECTOR FOR BIOLOGICAL OCEANOGRAPHY**. This position will be filled on a rotational basis (1 to 2 years) EC-12/13 (equivalent to the GS-12/13 level) \$26,951 to \$41,660 per annum, depending on qualifications and experience. The Program provides support for scientists primarily from academic institutions to pursue fundamental and applied research in the biological aspects of marine science. The selected candidate will carry out program planning, proposal evaluation, administration of research grants, and liaison with other federal agencies. Candidates should have a Ph.D. in biological oceanography, a related biological science, or equivalent experience. Field experience in academic institutional program is highly desirable. Those interested in being considered for the position should send letters of interest and SF-171 or current résumé by 31 October 1981 to: **National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglio, EX 81-49**. For further information, telephone: 202-357-7841. *NSF is an Equal Opportunity Employer.*

BEHAVIORAL NEUROSCIENTIST—Two-year postdoctoral research associateship available in September 1982. Salary range: \$12,500 to \$15,000, depending on experience. Ongoing work involves the study of animal models of brain damage or drug-induced movement disorders including akinesia, hyperkinesia, catalepsy, and drug-induced stereotypies in rats and cats, using EEG, EMG, and movement notation analysis to augment direct observations and films. Please write, preferably before 15 March 1982, including curriculum vitae and three letters of reference, to: **Dr. Philip Teitelbaum, Psychology Department, University of Illinois, 603 East Daniel, Champaign, Ill. 61820 (telephone: 217-333-0979)**. *The University of Illinois is an Equal Opportunity/Affirmative Action Employer.*

BIOLOGY. Liberal arts college for women has tenure-track position at the **assistant professor** level, available August 1982. Ph.D. required and establishment of research program in animal behavior expected. Applicant will be responsible for teaching one semester of general biology for science majors (with responsibility for laboratory) and a course in animal behavior. Send transcripts, curriculum vitae, statement of research and teaching goals, and three letters of recommendation by 2 November to: **Dr. Eric Mould, Department of Biology, Saint Mary's College, Notre Dame, Ind. 46556**. *An Equal Opportunity/Affirmative Action Employer.*

BIOMEDICAL RESEARCH. A new staff scientist position is available in the Biology and Medicine Division of the Lawrence Berkeley Laboratory, beginning 1 November 1981. The appointee will be expected to perform research on magnetic field interactions with biological systems. The research program includes automated recording and computer analysis of physiological variables and circadian rhythms in laboratory animals, using biotelemetry and specialized transducer techniques. A Ph.D. in bioengineering or biophysics and postdoctoral experience are preferred. Extensive laboratory experience with electrophysiological recording techniques and a thorough knowledge of computers (including FORTRAN and Basic languages) are required. Prior experience with biotelemetry techniques is desirable. Salary commensurate with experience. Submit curriculum vitae, accompanied by a statement of research experience, reprints of published papers, and the names of three references, to: **Dr. Tom Tenforde, Biology and Medicine Division, c/o Ronald Lowder, Personnel Department, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, Calif. 94720**. *An Affirmative Action/Equal Opportunity Employer, M/F/H.*

CHEMIST/BIOCHEMIST. A position is immediately available for a **staff research associate** to work on a collaborative project in which the structure of Na/K-ATPase will be investigated by neutron diffraction. The applicant should be proficient in organic chemical synthesis, preferably the microscale preparation of isotopically labeled molecules, and have an interest in membrane biochemistry. A Ph.D. in chemistry is preferred. Please send curriculum vitae and the names of two referees to: **Dr. Hagan Bayley, Department of Biochemistry, College of Physicians & Surgeons, Columbia University, 630 West 168 Street, New York, N.Y. 10032**.

Columbia University 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 positions and 60 graduate students, has Ph.D. programs in zoology and physiology. The new chairperson will aid in developing the future direction of the department with new faculty appointments. 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 may become effective for 1982-1983. Candidates should submit an application and curriculum vitae, including a list of referees. Preference will be given to applications received by 31 October 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 70803-1725**. *LSU is an Equal Opportunity/Affirmative Action Employer.*

Southern Illinois University School of Medicine is seeking a **CHAIR** for its Department of Pharmacology. Candidates will have demonstrated excellence in research and teaching and will have administrative experience. An earned Ph.D. and/or M.D. degree with significant research experience in pharmacology or related scientific discipline is required. Candidates should be able to provide academic leadership for an aggressive and well established faculty which has been productive in research and has established a strong undergraduate medical training program. Southern Illinois University School of Medicine has well-equipped, modern research facilities, and excellent research and teaching support services.

Interested candidates should submit curriculum vitae and names of three references before 15 November 1981 to: **Dr. Edward J. Moticka, Chair of Pharmacology Search Committee, Department of Medical Microbiology and Immunology, Southern Illinois University School of Medicine, P.O. Box 3926, Springfield, Illinois 62708**. *Southern Illinois University is an Affirmative Action/Equal Opportunity Employer.*

TEXAS—CHAIRMAN, Department of Physiology. Responsibilities include management of the personnel and the financial and physical resources of the department. Must coordinate research, instructional, and service activities of the department consistent with policies and goals of the college. Candidate must have a record of excellence in research, demonstrated competence in teaching, and proven administrative ability. Must have, or be eligible for, membership in the American Physiological Society, and be able to provide academic leadership in the department. Send curriculum vitae and letter of application, including names and addresses of three references, to: **C. W. Berry, Ph.D., Chairman, Physiology Search Committee, Baylor College of Dentistry, 3302 Gaston Avenue, Dallas, Texas 75246**. Applications accepted through 30 November 1981. *Equal Opportunity/Affirmative Action Employer.*

The Cleveland Clinic Foundation is offering a position as a **CLINICAL ASSOCIATE** in the Department of Cardiothoracic Anesthesiology. The position emphasizes cardiothoracic anesthesia and postoperative care of cardiovascular patients. The employee will be required to assume clinical responsibility of patients and to participate in teaching programs of the department. Experience with various anesthetic gas machines and various medical devices required. Working conditions in hospital setting, approximately 7:30 a.m. to 5:00 p.m., Monday through Friday. Salary: \$80,000 per annum. Contact: **Office of Professional Affairs, The Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106**.

DEVELOPMENTAL BIOLOGISTS. Major teaching institution seeks two developmental biologists at Ph.D. level in new Developmental Biology Section. Varied opportunities for research. Send résumé only (no telephone calls, please) to: **Dr. Nathan G. Kase, Chairman, Department of Obstetrics/Gynecology, MOUNT SINAI SCHOOL OF MEDICINE, 1 Gustave L. Levy Place, New York, N.Y. 10029**. *An Equal Opportunity Employer.*

POSITIONS OPEN

DEAN, SCHOOL OF MEDICINE LOUISIANA STATE UNIVERSITY (LSU) SHREVEPORT, LOUISIANA

The LSU School of Medicine in Shreveport invites nominations and applications for the position of **DEAN** of the School of Medicine. Candidates must have sufficient academic, investigative, and administrative experience to lead a large medical school responsible for 1280 beds distributed among a university hospital, a Dean's Committee Veterans Administration Hospital, and an outlying hospital. Curriculum vitae must accompany all nominations and applications. Submit nominations and applications to:

**Dr. Michael S. Rohr, Chairman
Search Committee for Dean
LSU School of Medicine in Shreveport
P.O. Box 33932
Shreveport, La. 71130
Equal Opportunity Employer**

DIRECTOR AGRICULTURAL RESEARCH AND EDUCATION CENTER

Applicants are invited to apply for the position of center director at the Agricultural Research and Education Center, Lake Alfred, Fla., a large multidisciplinary unit of the University of Florida, Institute of Food and Agricultural Sciences. The director must provide effective leadership in: (i) planning and implementing mission-oriented research and education programs of national excellence for citrus, (ii) assisting faculty in professional development, (iii) administering budgetary and personnel management, and (iv) working with other university administrators and state and federal agencies in the development and coordination of research, extension, and teaching programs. Qualifications include an earned doctorate in agriculture or biological sciences and demonstrated accomplishment in administration and research of the highest quality. Some tree fruit crop experience in research, extension, teaching or industry relations is desirable but not essential. Salary commensurate with qualifications and experience. Position open to 15 November 1981.

Applicants must submit a formal letter of application, a complete biographical résumé, chronological list of professional experience, list of personal publications, and three letters of recommendation to: **Dr. C. W. McCoy, Chairman, Agricultural Research and Education Center, 700 Experiment Station Road, Lake Alfred, Florida 33850**.

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

FACULTY POSITION IN BIOCHEMISTRY. Applications are invited for a tenure-track appointment at the assistant professor level. Candidates should have two or more years of postdoctoral experience and a strong commitment to the development of an independent research program. Consideration will be given to applicants with interests in any area of biochemistry/cell biology/molecular biology. Please send curriculum vitae and a summary of research plans, and arrange to have three letters of recommendation forwarded to: **Search Committee, Department of Biochemistry, Dartmouth Medical School, Hanover, N.H. 03755**. *Dartmouth Medical School is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION IN ENVIRONMENTAL ENGINEERING AND SCIENCE

The Stanford University Department of Civil Engineering is soliciting applications for a tenure-track assistant professor position now available in the Environmental Engineering and Science Program. Expertise is sought in environmental microbiology/microbial ecology. Candidates should have an interest in problem-oriented research and be able to demonstrate aptitude for working productively in an engineering-oriented program. Responsibilities will be primarily for graduate level teaching and research in a developed program with well-equipped laboratories for trace organic, trace metal, microbiological, and process research. Demonstrated achievement or exceptional potential for excellence in teaching and research is requisite. *Applications from women and minority candidates are especially sought.* Interested persons should send a detailed résumé together with the names of references to: **Professor James O. Leckie, Environmental Engineering and Science, Department of Civil Engineering, Stanford University, Stanford, California 94305**, by 1 December 1981.

Stanford is an Affirmative Action Employer.

MANAGER, ENVIRONMENTAL SCIENCES

Diamond Shamrock, a recognized leader in chemicals and energy, has a career opportunity for a Manager of Pesticidal Residues and Environmental Fate in the Corporate Department of Safety Assessment.

Preferred candidates would have a Ph.D. or equivalent in analytical chemistry. Experience should consist of 10 years in the environmental fate and residue aspects of environmental science including 5 years as a supervisor or manager. Good human relations and organizational skills are essential.

The position is responsible for managing the environmental sciences personnel and resources to generate safety data on new and existing products. It includes responsibility for review and approval of protocol and test reports, communication with regulatory agencies regarding product registration, as well as budget preparation.

Employees enjoy challenging research-oriented work and excellent compensation and benefit programs. Interested applicants may send résumé and salary history to:



Diamond Shamrock

Human Resource Department
Diamond Shamrock Corporation
T. R. Evans Research Center
P.O. Box 348
Painesville, Ohio 44077

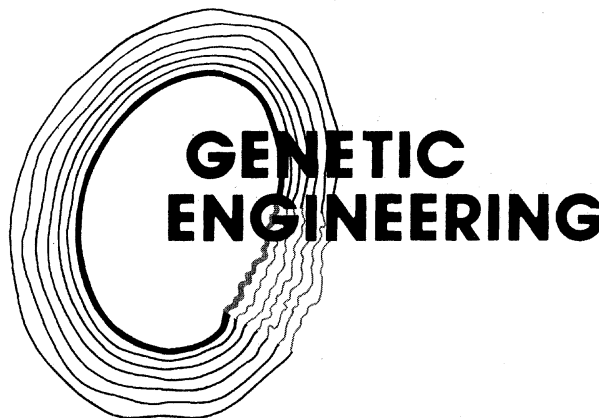
Equal Opportunity Employer, M/F/H/V

RESEARCH DIRECTOR (CREW TECHNOLOGY)

The U.S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas, invites applications from interested individuals for the position of Research Director (Crew Technology). The position provides a research director with demonstrated technical and administrative competence to plan, direct, and coordinate Air Force research and exploratory development on advanced crew technology, including air and ground crew equipment, utilization, and readiness. It is multidisciplinary and the incumbent must have a high degree of competency and intensity of knowledge in one or more of the disciplines represented in the organization, to include physiology, psychology, biology, chemistry, engineering (or biomedical engineering), mathematics, physics, or medicine. Conventional health care delivery experience, working with patients is excluded. An earned Ph.D. and/or M.D. is highly desirable. Candidates are required to submit a separate statement, on bond paper, entitled "Supplemental Candidate Statement," addressing management/executive qualifications in the following areas: (i) direction and guidance of programs, projects, or policy development, (ii) acquisition and administration of resources, (iii) utilization of human resources, (iv) integration of internal and external program/policy issues, (v) organizational representation and liaison, and (vi) methods and techniques of program review and evaluation. The position is in the Senior Executive Service, with a salary range of ES-1 (\$52,247) to ES-4 (\$57,673), subject to the current \$50,112.50 statutory salary ceiling. No prior government service is required. Send SF-171 "Personal Qualifications Statement," and "Supplemental Candidate Statement" referred to above to: Civilian Personnel Office, 6570 ABG/DPC, Brooks AFB, Texas 78235. Refer to Announcement Number SES-1-81 (G). Applications may be submitted through 27 October 1981. Civilian Personnel contact is: Bess Timmons, telephone: 512-536-3353/3706. Material submitted will not be returned.

Equal Opportunity Employer

Ph.D. & M.S./B.S Opportunities



Abbott Laboratories is currently building a state-of-the-art Genetic Engineering Program. With a strong corporate financial commitment, this highly visible research group will explore the applications of Recombinant DNA technology in the areas of pharmaceutical, diagnostic, agricultural and nutritional products. We are especially interested in individuals with experience in nucleic acid sequencing and synthesis, antibiotics biosynthesis, virology, mammalian cell genetics, and immunoregulation.

Due to the expansive nature of our projected programs, we have positions available requiring varying levels of education and experience.

PROJECT LEADER

Researchers with a Ph.D., approximately 5 years experience as an independent investigator, and a strong publication record will assume the role of Project Leaders. These positions involve heading up a research team of 8-10 people including 2-3 Ph.D.'s.

RESEARCH BIOLOGIST

Ph.D.'s with 0-4 years experience will join one of our research teams as individual contributors. Rapidly increasing levels of responsibility will be available due to the developing nature of our program.

ASSISTANT BIOLOGIST

These junior level professional positions are available for M.S. or B.S. level candidates with experience in the field of Molecular Biology.

We offer an excellent salary, commensurate with experience, and comprehensive benefits including profit sharing and stock retirement plan. Abbott provides exceptional career potential to individuals who seek the challenge of a \$2 billion+ professional environment. For consideration, send a resume with salary history, in complete confidence to:

Chris Gude
Corporate Placement

ABBOTT
NORTH CHICAGO, ILL. 60064

Abbott is an Affirmative Action Employer

POSITIONS OPEN

DIRECTOR, AIR RESOURCES LABORATORY

The Desert Research Institute is seeking a senior research scientist to head its Air Resources Laboratory, one of five laboratories within the Atmospheric Sciences Center. Requires Ph.D. in appropriate field or equivalent work experience, leadership qualities, and demonstrated success in securing research grants and contracts. The candidate should have a broad spectrum of experience related to air quality research: air quality monitoring, deposition, meteorology, data processing, quality assurance, computer modeling, and climatological analysis. Salary commensurate with experience and qualifications. Send résumé and letter of application, postmarked by 31 October 1981, to: **Personnel Department, Desert Research Institute, University of Nevada System, P.O. Box 60220, Reno, Nevada 89506. Affirmative Action/Equal Opportunity Employer.**

EXECUTIVE DIRECTOR Vancouver General Hospital Research Institute

The Board of Directors invites applications for the position of executive director, Vancouver General Hospital (VGH) Research Institute. The VGH is the major tertiary referral hospital in the province and is the primary clinical teaching resource for the University of British Columbia's Faculty of Medicine. The institute is in the planning stage and will have approximately 70,000 sq. ft. of research space.

Basic qualifications include: the M.D. or Ph.D. degree, or both; an established reputation as an investigator in a field of biomedical research; leadership experience in planning and developing hospital-connected biomedical research facilities with a number of other investigators; and proven administrative and communication skills.

The executive director will serve as the chief executive officer of the institute and through the president will advise the board on matters of fund-raising, functional program development, establishment of institute policies, research program priorities, administrative organization, and interagency and user liaison.

This full-time position is available immediately. Salary will be commensurate with qualifications and experience. Send letter of interest, curriculum vitae, and the names and telephone numbers of three references to:

**James B. Flett, President
Vancouver General Hospital
855 West 12 Avenue
Vancouver, British Columbia, Canada V5Z 1M9
Deadline: 31 October 1981.**

EXECUTIVE OFFICER American Association of Physics Teachers

The American Association of Physics Teachers (AAPT) seeks a physicist with teaching experience to serve as its executive officer. The executive office is currently located on the campus of the State University of New York at Stony Brook, New York. The initial appointment to this position may be for a term of up to 3 years. The person named to this position is expected to take office no later than September 1982. During the first year the executive officer will be expected to serve the Association full-time and at its offices at Stony Brook. While it is expected that these conditions of employment will continue beyond the first year, the Executive Board will consider modifications in these terms in subsequent years of the appointment if they appear to be mutually desirable.

Request application forms from the chairman of the Search Committee at the following address: **Dr. E. Leonard Jossem, AAPT Search Committee, Department of Physics, The Ohio State University, 174 West 17 Avenue, Columbus, Ohio 43210. AAPT is an Equal Opportunity/Affirmative Action Employer.**

IMMUNOLOGIST, Ph.D. A nontenured research assistant or associate professor in the Department of Biology with a designated research assignment in the Exceptional Child Center. The candidate, in addition to outlined research responsibilities, will have the opportunity to develop an independent research program or collaborate with existing investigations. The appointee may be given the opportunity to teach a course in immunology. Experience in cellular immunology, hybridoma technology, or genetics of immune responsiveness would be helpful. Closing date is 15 November 1981. Interested individuals should submit résumé and have three letters of reference sent to: **Dr. Paul B. Carter, Department of Biology, UMC 55, Utah State University, Logan, Utah 84322.**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

FACULTY POSITIONS IN PHYSIOLOGY

Applications are invited for nontenure faculty positions at the associate (instructor) level. Send curriculum vitae, with research interests, teaching experience, career objectives, and names of three references, to: **Dr. Robert E. Fellows, Department of Physiology and Biophysics, The University of Iowa College of Medicine, Iowa City, Iowa 52242. The University of Iowa is an Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITIONS IN PATHOLOGY

The Uniformed Services University School of Medicine invites applications for tenured or tenure-track faculty appointments in the Department of Pathology at the levels of **professor, associate professor, or assistant professor.** Levels of appointment and salaries will be commensurate with training and experience. Candidates should have M.D., Ph.D., or related professional degrees, appropriate postdoctoral training or experience, teaching abilities, and demonstrated excellence in research. Interested candidates should submit curriculum vitae, bibliography, and names of three professional references by 1 November 1981 to: **Dr. Robert Friedman, Chairman, Department of Pathology, c/o Personnel/Manpower Division, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814. The Uniformed Services University is an Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITIONS. Duke University School of Forestry and Environmental Studies is expanding its programs in natural resources science/ecology, systems science, and economics/policy. Applications are invited for faculty positions in four areas: **forest ecology, environmental toxicology, watershed hydrology, and forest and natural resources management systems.** Emphasis in all areas is on quantitative methods. Both tenure-track and research appointments of up to 3 years will be made. Applicants must hold a doctoral degree with at least one degree in a natural resource area. Write for position announcement or submit curriculum vitae, representative publications, and three references by 15 December to: **Chairman, Faculty Council, School of Forestry and Environmental Studies, Box SA, Duke University, Durham, N.C. 27706.** Recent Ph.D.'s submit transcripts. *Duke University is an Equal Opportunity/Affirmative Action Employer.*

University of Michigan Medical School, Department of Biological Chemistry, is seeking applicants for a tenure-track **FACULTY POSITION.** Candidates should have interest and research experience in eukaryotic gene expression, an area which has been selected for special emphasis by the University of Michigan. An interest in teaching biochemistry and molecular biology is required. Please send résumé to: **Chairman, Search Committee, Department of Biological Chemistry, University of Michigan, Ann Arbor, Michigan 48109. A nondiscriminatory, Affirmative Action Employer. Code 37FO.**

GENETICIST (anticipated vacancy, January 1982). Tenure-track, assistant professor position involving teaching and research duties. Teaching in general, medical, and microbial genetics. Prefer research interest in area of microbial or biochemical genetics. Ph.D. required. Send curriculum vitae and letters of reference to: **Karen M. Yarbrough, Ph.D., Institute of Genetics, University of Southern Mississippi, Southern Station, Box 8421, Hattiesburg, Miss. 39406-8421.**

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

MOLECULAR BIOLOGISTS—GENETICISTS

Tenure-track, 12-month faculty appointments at junior-to-senior levels. Candidates must be capable of establishing strong and independent research programs utilizing the most recent molecular biology—recombinant DNA technologies to examine the control of gene expression. Preferred areas of interest are the molecular basis of genetic diseases, molecular immunology-immunogenetics, and developmental biology-differentiation.

This is an exceptional opportunity to join an expanding Department of Microbiology committed to excellence in research and teaching and located in a desirable health science center environment. Send curriculum vitae, three letters of reference, and a statement of current and future research plans by 31 December 1981 to: **Joel B. Baseman, Ph.D., Chairman, Department of Microbiology, University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

FACULTY POSITION. The Department of Microbiology, College of Medicine, has an opening for an assistant or associate professor. Primary responsibilities include teaching medical students and serving as director for a course in medical microbiology. Preference will be given to individuals with a research program in the molecular biology of pathogenic agents, including animal viruses, bacteria, antibiotic resistance, or microbial toxins. Use of recombinant DNA techniques is desirable. Send curriculum vitae and three letters of reference to: **Chairman, Medical Microbiology Search Committee, Department of Microbiology, University of California, Irvine, Calif. 92717. An Affirmative Action/Equal Opportunity Employer.**

FACULTY POSITIONS IN CELL/DEVELOPMENTAL BIOLOGY

Applications are invited for two tenure-track faculty positions, one of which will be at a senior professorial level and the other one at the rank of assistant professor. These positions will be available in summer 1982. We encourage applications from candidates with strong credentials in the areas of cell biology and cellular development. Faculty members are expected to develop strong, independent research programs in addition to instructing undergraduate and graduate students in the areas of cell and developmental biology. Applicants for the position of assistant professor must have a Ph.D. with postdoctoral training. Send curriculum vitae, a concise description of proposed research program, and arrange to have three letters of recommendation sent directly by the referees to: **Dr. Chien Ho, Department of Biological Sciences, Carnegie-Mellon University, 4400 Fifth Avenue, Pittsburgh, Pa. 15213.** Inquiries, applications, or nominations of candidates for the senior appointment should also be directed to the above address. Review of applications will begin on 1 November 1981. *Carnegie-Mellon University is an Equal Opportunity/Affirmative Action Employer and encourages women and members of minority groups to apply for these positions.*

IMMUNOBIOLOGIST GEORGETOWN UNIVERSITY DEPARTMENT OF BIOLOGY

Applications are invited for a tenure-track appointment at the rank of assistant professor, effective 1 September 1982. Duties include teaching, each year, a one-semester undergraduate course in immunobiology and a one-semester graduate course in an area of immunobiology, and mentoring undergraduate and graduate Ph.D. and M.S. thesis research. The successful candidate will be expected to conduct a productive research program. Please send curriculum vitae, reprints, and a statement of research plans, and arrange for three letters of recommendation to be sent to: **Dr. Otto E. Landman, Chairman, Search Committee, Department of Biology, Georgetown University, Washington, D.C. 20057. Georgetown University is an Equal Opportunity/Affirmative Action Employer.**

INORGANIC CHEMISTRY. Brandeis University seeks a talented, enthusiastic, and motivated chemist to join the faculty in a tenure-track, assistant professor position, and to pursue a strong research and teaching program in inorganic chemistry starting fall semester 1982. Preference in the areas of: (i) energy-related research, (ii) nonmolecular solids, (iii) heterogeneous catalysis, (iv) electrochemistry, and (v) modern coordination chemistry. Applicants should respond with résumé, transcripts, description of research plans, and three letters of recommendation by 1 December 1981 to: **Professor Bruce M. Foxman, Chairman, Inorganic Search Committee, Department of Chemistry, Brandeis University, Waltham, Massachusetts 02254. Brandeis University is an Affirmative Action/Equal Opportunity Employer.**

LIFE SCIENCE RESEARCH POSITIONS Agricultural Research Service

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

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

Veterinary Pathologist

The Medical Department of Brookhaven National Laboratory has an immediate opening for a veterinary pathologist to work in the Inhalation Toxicology Group. The applicant must have MD/PhD in pathology or related discipline; a DVM with ACVP board certification or eligibility is desirable. The successful candidate will join a multi-disciplinary team, and duties will include both service pathology for ongoing projects within the group, and collaborative development of new research projects. A major interest in the lung is essential. Salary is commensurate with experience. For more information contact Dr. Robert T. Drew, Medical Department, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, N.Y. 11973. An Equal Opportunity Employer m/f

**BROOKHAVEN
NATIONAL
LABORATORY**



YALE UNIVERSITY

Department of Biology

Yale University's Department of Biology seeks applications for tenured positions in the following areas during 1981-82: Developmental Genetics, Cell Biology of the Nucleus and Plant Systematics.

Duties for the positions include participation in both undergraduate and graduate teaching and management of a strong research program.

Send c.v., resume of past and present research and the names of three referees to: **Executive Secretary, Department of Biology, Yale University, P.O. Box 6666, New Haven, CT 06511.** Deadline for applications—January 1, 1982. Yale University is an equal opportunity affirmative action employer.

The Department of Psychology at the University of Illinois at Urbana-Champaign is seeking, contingent on availability of funds, **THREE CLINICAL PSYCHOLOGISTS** to fill tenure-track positions at the assistant professor level. The Ph.D. is required. Preference will be given to individuals with some postdoctoral experience and a record of research accomplishments. Appointments are to begin on 21 August 1982, though later, or earlier, appointment dates may be negotiated. Salary is dependent upon experience and qualifications. While we are seeking assistant professors, individuals with truly exceptional records of accomplishment who wish to apply for more senior appointments will be given consideration. Applicants must be active scholars with innovative research programs, committed to excellence in undergraduate and graduate teaching. Preference will be given to individuals who can participate in clinical supervision and training.

Candidates are being sought in two priority areas: **psychopathology and clinical-child/adolescent psychology.** The scope of the search in the psychopathology area is fairly broad. However, we are especially interested in individuals concerned with the biological underpinnings of, or interrelationship with, psychopathology. Preference will be given to individuals labeled variously as neuropsychologists, psychopharmacologists, and cognitive psychopathologists. Nevertheless, psychologists interested in social and/or development antecedents of and interrelationships with behavior pathology are also encouraged to apply.

The scope of the search for a child/adolescent clinical psychologist is also broad. The candidates' research interests may focus on assessment, on understanding the phenomena of behavioral disorders, on treatment, or on prevention of behavior pathology. Outstanding "Boulder-model" clinical psychologists with clinical/research interests falling outside the domain of these two priority areas are also welcome to apply.

Send curriculum vitae, statement of interests, names and addresses of at least three references, and copies of reprints and/or reprints to: **Dr. Edward Seidman, Chairperson, Clinical Search Committee, Department of Psychology, University of Illinois, 603 East Daniel Street, Champaign, Ill. 61820 (telephone: 217-333-0040).** In order to ensure full consideration, applications should be received as soon as possible but not later than 1 December 1981.

An Affirmative Action/Equal Opportunity Employer

International Genetic Sciences, Inc. is organizing an annual conference on INTRODUCTION OF GENETIC MATERIALS INTO EUCARYOTIC CELLS: PRESENT STATE AND FUTURE PROSPECTS

Keynote address by: **Prof. Ephraim Katzir**
Weizmann Inst. of Science & The Biotechnology Center, Tel Aviv University, Israel
on **Biotechnology in Israel: Present and Future**

Speakers for the conference

Dr. F. Ausubel: Harvard University
Molecular Biology Of Nitrogen Fixation
Dr. H. Goodman: University of California, S.F.
Structure and Evolution of Mammalian Human Genes
Dr. A. Graessmann: Free University of Berlin
Microinjection Turns A Cell To A Test Tube
Dr. S. Izhar: Volcani Center, Israel
Transfer of Cytoplasmic Genetic Elements in Plants
Via Somatic Cell Fusion
Dr. A. Loyter: Hebrew University
Use of Sendai Virus Envelopes As A Vehicle To
Introduce DNA Molecules To Living Cells.
Dr. D. Papahadjopoulos: University of California, S.F.
Liposomes As A System For Delivering DNA To Cells
Dr. R. Rott: Institute of Virology, W. Germany
Fusion Of Influenza Virus Envelopes With Cell
Membranes

Dr. F. A. Ruddle: Yale University
Gene Transfer In Mouse Embryos
Dr. W. Rutter: University of California, S.F.
Expression Of Eucaryotic Genes In Foreign Host
Dr. J. Schell: Max Planck Institute, W. Germany
Ti Plasmids As Experimental Gene Vectors For Plants
Dr. R. Shimke: Stanford University
Gene Amplification As A Means Of Obtaining DNA
Synthesis
Dr. D. N. Stacy: Roche Inst. of Molecular Biology
Use Of Microinjection To Determine Structure-
Function Relationship In Retroviral Oligonucleotides
Dr. T. Wagner: Ohio University
The Mammalian Male Pronucleus As A Vehicle For
Embryo Transformation

Cost of \$450 includes room and meals. No registration fees. Number of participants limited to sixty. The conference to be held at the **Harrison Conference Center, Glen Cove, L.I., N.Y. NOVEMBER 22-25, 1981**

Interested scientists, please send as soon as possible information including name, address, phone, present position and areas of interest. Send to:



International Genetic Sciences, Inc.
155-25 Styler Road • Jamaica, NY USA 11433
or call (212) 526-0400

POSITIONS OPEN

IMMUNOLOGISTS

Tenure-track 12-month faculty appointments at junior-to-senior levels. Candidates must be capable of establishing strong and independent research programs in areas of molecular immunology, immunogenetics, developmental immunobiology, cellular immunology, or immunochemistry. Expertise in hybridoma and/or cell sorting and/or recombinant DNA technologies is desirable.

This is an exceptional opportunity to join an expanding Department of Microbiology committed to excellence in research and teaching and located in a desirable health science center environment. Send curriculum vitae, three letters of reference, and a statement of current and future research plans by 31 December 1981 to: **Joel B. Baseman, Ph.D., Chairman, Department of Microbiology, University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284. An Equal Opportunity/Affirmative Action Employer.**

THE DIVISION OF SURGICAL ONCOLOGY, UNIVERSITY OF VIRGINIA Medical Center, is seeking an **EXPERIENCED IMMUNOLOGIST** with a good background in tumor immunology who is well versed in classic and contemporary serology. This person should be knowledgeable in the area of tumor antigen solubilization and preparation and experienced in serologic analysis of antigens. We prefer a person with experience in some of the various techniques of demonstrating cell-surface antigens and internal antigens (fluorescence, mixed hemadsorption, immune adherence, radionuclear antibody labeling) and in other techniques showing antigen-antibody interactions (enzyme-linked immune assays, use of immunosorbent columns, and so forth). Experience with monoclonal antibody techniques is desirable but not essential. We are primarily interested in persons who have completed postdoctoral training and who have had a special interest in human tumor immunology. Please forward curriculum vitae and the names of three references to: **Harold J. Wanebo, M.D., Division of Surgical Oncology, Department of Surgery, University of Virginia Medical Center, Charlottesville, Virginia 22908. Equal Opportunity/Affirmative Action Employer.**

INSECT TOXICOLOGIST. Tenure-track position for an insect toxicologist with specialization in the mode of action and comparative metabolism of chemicals in pest and nontarget species. Available after 1 March 1982. A Ph.D. or equivalent degree, with research training in toxicology and biochemistry/physiology is required. Appointment at the assistant professor level; 11-month position approximately 90 percent research, 10 percent teaching. Activities include development of research program, supervision of graduate students, and course instruction. Submit curriculum vitae, transcripts of all university work, reprints, and names and addresses of four referees to: **Chairman, Search Committee, Division of Toxicology and Physiology, Department of Entomology, University of California, Riverside, Calif. 92521.** Applications accepted until 15 December 1981 or until a suitable candidate is selected. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

THE UNIVERSITY OF ALABAMA IN BIRMINGHAM DEPARTMENT OF PATHOLOGY

INSTRUCTOR/MEMBRANE RESEARCH. Experience required: advanced degree in organic chemistry with postdoctoral training in protein-lipid interactions. Interested persons should send their curriculum vitae and three letters of recommendation no later than 31 October 1981 to: **Jere P. Segrest, M.D., Ph.D., Department of Pathology, Volker Hall-GO18, University of Alabama in Birmingham, Birmingham, Ala. 35294. The University of Alabama in Birmingham is an Affirmative Action/Equal Opportunity Employer and welcomes applications from females and minorities.**

The Department of Neurology, University of California, Irvine, seeks a **POSTDOCTORAL FELLOW** to train in human-evoked potentials related to motor functions in a newly established laboratory of motor control. Prior experience in neurophysiology, evoked potentials, and motor systems theory would be advantageous for the successful candidate. Position available immediately. Send curriculum vitae to and request three letters of reference be sent to: **Arnold Starr, M.D., and Gideon Ariel, Ph.D., Department of Neurology, Room 144/Med Surge I/California College of Medicine/University of California, Irvine, Calif. 92717. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

The position of **HEAD** of the Department of Agronomy, University of Arkansas, is open until 20 October or until a suitable applicant is found. Responsible for statewide agronomic research programs, resident instruction programs, and some responsibility for extension programs. Resident faculty of 24 professionals. Program includes crop, soil, and weed sciences. Ph.D. degree and demonstration of excellence in one of the areas of responsibility required. Send nominations or résumé, transcripts, and five letters of reference to: **Glenn Hardy, Chairman, Agronomy Head Search Committee, Agri 205, University of Arkansas, Fayetteville, Ark. 72701. An Equal Opportunity/Affirmative Action Employer.**

HISTOLOGIST—PHYSIOLOGIST

A tenure-track position at the assistant professor rank (salary range: \$17,600 to \$19,000 depending on qualifications and experience) is open for January 1982. Qualifications include earned Ph.D.; ability to teach electron microscopy, histology, and mammalian physiology; and ability to provide routine maintenance in transmission electron microscopy. The successful candidate will be expected to maintain an active research program and to participate in the graduate program leading to the M.S. in biology. Applicants should submit curriculum vitae, copies of representative publications, and three letters of reference to: **Dr. Jacobo Ortega, Chairman, Search Committee, Department of Biology, Pan American University, Edinburg, Texas 78539, by 30 October 1981.**

Pan American University is an Affirmative Action/Equal Opportunity Employer.

MOLECULAR BIOLOGY MICHIGAN STATE UNIVERSITY (MSU)

The Department of Biochemistry invites applications for one or more tenure-track appointments at the assistant professor level. Applicants must have a Ph.D. or M.D. degree, postdoctoral training, and experience in areas of eukaryotic molecular biology such as regulation of gene expression, recombinant DNA technology, or nucleic acid chemistry. Responsibilities include development of a strong and creative research program and participation in teaching at the undergraduate, graduate, and professional levels. Please submit curriculum vitae, reprints, in-press manuscripts, a statement of professional goals and expected areas of future independent research, and written recommendations from three references by 1 December 1981 to: **Dr. Charles C. Sweeley, Department of Biochemistry, Michigan State University, East Lansing, Michigan 48824.**

MSU is an Affirmative Action/Equal Opportunity Institution.

NEUROBIOLOGIST. A tenure-track faculty position is available at the **assistant or associate professor** level in the Department of Anatomy and Neurobiology. Applicants should have Ph.D. and/or M.D. degree and at least 2 years of postdoctoral training. Candidates must have a strong record of research productivity and potential to establish an independent research program meritorious of extramural support. Preference will be given to applicants whose research interests concern developmental neurobiology or neurochemistry. Teaching duties include lectures in medical histology and neuroscience and participation in a multidisciplinary neuroscience graduate program. Send curriculum vitae, description of research interests, and summary of teaching experience with names of three references by 16 October 1981 to: **Dr. Rodney Parsons, Chairman, Department of Anatomy and Neurobiology, College of Medicine, The University of Vermont, Burlington, Vermont 05405.**

An Equal Opportunity/Affirmative Action Employer

POSTGRADUATE RESEARCH DEPARTMENT OF BIOLOGY PRINCETON UNIVERSITY

NIH postdoctoral training grant positions for recent Ph.D.'s in the area of biochemical and genetic aspects of cell differentiation (Drs. T. Cline, E. Cox, A. Newton, P. Schedl, and E. Wieschaus), cell biology and development (Drs. J. Bonner, E. Luna, and M. Steinberg), and behavioral and population genetics (Drs. J. Gould, J. Hoogland, R. May, W. Quinn, and D. Ready) are available. Applications should include curriculum vitae, references, and summary of research interest. Closing date: 31 October 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.**

POSITIONS OPEN

NEURONAL CELL BIOLOGIST. The Department of Biology at Rice University invites applications for the position of assistant professor to begin in or before August 1982. Applicants must have Ph.D. and postdoctoral research experience is preferred. The candidate should be prepared to teach undergraduate and graduate courses and to initiate a strong research program. Preference will be given to applicants with background and training in neurodevelopment, neuroendocrinology, immunology, synaptology, or membrane biology. Applicants should submit curriculum vitae, including a list of publications and three letters of recommendation, to: **Ronald L. Sass, Chairman, Department of Biology, Rice University, Houston, Texas 77001. An Equal Opportunity/Affirmative Action Employer.**

NEUROSCIENTIST ASSISTANT PROFESSOR

The Department of Anatomical Sciences and School of Basic Medical Sciences seek an individual to teach in the neuroscience curriculum to medical students and in the graduate programs within the School of Life Sciences. Candidates must have a Ph.D. and/or M.D. degree with formal training in neuroscience and postdoctoral experience. Quality and potential of research program are more important than the specific area, but interests in neurochemistry are preferred. The successful candidate will also be expected to participate in a campuswide Neural and Behavioral Biology Program. The position is available 21 August 1982, and is a permanent full-time faculty appointment. To ensure full consideration, applicants should submit curriculum vitae, a summary of future research plans, and at least three letters of reference by 15 December 1981 to:

**Dr. C. Roland Leeson
Chairperson, Search Committee
506 South Mathews Avenue
University of Illinois
Urbana, Illinois 61801
Telephone: 217-333-6181**

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

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Maryland, is seeking applicants for the following position:

PARASITOLOGIST

Minimum qualifications are a Ph.D. degree in parasitology with substantial experience in teaching, personnel management, and research and development. Expertise should be reflected by a significant number of publications in scientific journals, presentations at scholarly meetings, and active membership in scholarly scientific societies. Responsibilities will include teaching, research, curriculum development, and supervision of medical students, graduate students, and postdoctoral assistants at the tutorial level.

The position is in the Division of Tropical Public Health. Academic rank will depend on qualifications. Deadline for receipt of applications is 1 January 1982. The position will be available around 1 October 1982.

Contact: **Chairman, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, Md. 20014. Telephone: 202-295-3170.** Applications will not be returned.

The Uniformed Services University of the Health Sciences is an Equal Opportunity Employer.

PLANT ECOLOGIST University of California, Davis

Applications are invited for a tenure-track faculty position at the assistant professor and assistant botanist levels, available 1 July 1982. The individual selected will be expected to develop a vigorous research program in plant population and community ecology, to teach undergraduate and graduate courses in botany and plant ecology, and develop a strong graduate training program. The appointment is split between the College of Letters and Science (.6) and the Agricultural Experiment Station (.4), and has a salary commensurate with the assistant professor range (11-month appointment) at the University of California. Send applications with curriculum vitae, statement of research and teaching interests and long-term goals, and transcripts and request that three letters of recommendation be sent to: **Dr. R. W. Pearcy, Chairperson of the Search Committee, Department of Botany, University of California, Davis, Calif. 95616.** Applications must be postmarked by 1 January 1982. *The University of California is an Affirmative Action/Equal Opportunity Employer.*

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Maryland, is seeking applicants for the following positions:

**PROFESSOR OR ASSOCIATE PROFESSOR AND DIRECTOR,
DIVISION OF HEALTH SERVICES ADMINISTRATION**

**ASSISTANT OR ASSOCIATE PROFESSOR
OF HEALTH SERVICES ADMINISTRATION**

Qualifications for the position of director are an M.D. or Ph.D. degree with substantial experience in teaching health services administration, educational administration, personnel management, and research and development. Expertise should be reflected by a significant number of publications in critically reviewed scientific journals and active membership in scholarly societies. Priority will be given to candidates with prior experience in health services administration, particularly in the administration of military health care programs. Responsibilities will include teaching, research, curriculum development, and supervision of medical students, graduate students, and postdoctoral assistants at the tutorial level. Academic rank will depend on qualifications. Salary is competitive and negotiable.

Qualifications for the position of assistant or associate professor of health services administration are a Ph.D. in an appropriate discipline with experience in health services administration and research. Knowledge of the Uniformed Services health care systems is desirable. Teaching and research experience in a medical school or in a graduate program in health services administration is required. Expertise should be reflected by a significant number of publications in scientific journals, active membership in scholarly societies, and experience in public health administration and public health education. The incumbent will participate in continuing education activities for health professionals employed in the Uniformed Services. Responsibilities will include teaching, research, curriculum development, and supervision of medical students, graduate students, and postdoctoral assistants at the tutorial level. Salary is competitive and negotiable.

Deadline for receipt of applications is 1 January 1982. Positions will be available beginning 1 July 1982.

Contact: **Chairman, Department of Preventive Medicine and Biometrics, Uniformed Services University of the Health Sciences, Bethesda, Md. 20014. Telephone: 202-295-3170.** Applications will not be returned.

The Uniformed Services University of the Health Sciences is an Equal Opportunity Employer.

Research Scientists

Recombinant DNA

The Connaught Research Institute is the research arm of Connaught Laboratories Limited, a major producer of Biological products for human and animal use. The Institute, located in suburban Toronto, is expanding its efforts in recombinant DNA technology and is seeking Research Scientists and Post-doctoral fellows to join teams of scientists in other disciplines to produce materials of biologic and medical significance.

Candidates should have a successful research record in the field of molecular biology, with considerable experience in recombinant DNA, and a record of productivity. Experience in bacteriology, biochemistry and fermentation or protein chemistry will be a recommendation.

Salaries and benefits are highly competitive. Curriculum vitae and reprints should be sent, in confidence, to: **Linda L. Bell, Director of Personnel, Connaught Laboratories Limited, 1755 Steeles Avenue West, Willowdale, Ontario, Canada M2R 3T4.**

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If you or one of your acquaintances would be interested in a preliminary exchange of information, please contact

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Complete professional discretion is, of course, guaranteed. You may feel free to contact us via third parties, if you so prefer.

POSITIONS OPEN

PLANT BIOLOGY

The Department of Biology at the University of Pennsylvania expects authorization for a tenure-track assistant professorship available 1 September 1982, to join an emerging group of plant scientists. While preference will be given to candidates whose interests include plant biochemistry, genetics, or cell/molecular biology, outstanding applications in related areas of plant science will also be considered. Applicants should be prepared to teach plant biology at the undergraduate introductory level as well as upperclass- or graduate-level courses in their area of expertise. Send curriculum vitae and three letters of reference to: **Professor Ralph Erickson, Plant Biology Search Committee, Department of Biology, University of Pennsylvania, Philadelphia, Pa. 19104.** Applications will be accepted until 15 November 1981.

An Equal Opportunity/Affirmative Action Employer

PLANT ECOLOGY

The Department of Biology of the University of Pennsylvania expects authorization for a tenure-track assistant professorship available 1 September 1982. Applications will be considered from individuals conducting experimental research on physiological, population, community, or evolutionary ecology of natural populations. Applicants should be able to teach a field-oriented plant ecology course, contribute to general biology and ecology courses at the undergraduate level, and interact with a growing group of plant biologists. Send curriculum vitae and statement of research and teaching interests and have three letters of recommendation sent to: **Professor Robert Ricklefs, Chairperson, Plant Ecology Search Committee, Department of Biology, University of Pennsylvania, Philadelphia, Pa. 19104.** Applications will be accepted until 15 November 1981.

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POSTDOCTORAL FELLOW to participate in a program investigating the barrier and transport properties of neural capillary endothelial cells in culture. Areas of interest include transcellular transport and tight junction formation. Send curriculum vitae and three letters of recommendation to: **Gary Goldstein, M.D., University of Michigan Medical Center, Ann Arbor, Michigan 48109.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS. Ph.D. in biochemistry or microbiology. Experience with protein purification and/or cell biology (immunobiology would be very helpful). To study factors which regulate hemopoiesis in a virus-induced leukemia. *Affirmative Action/Equal Opportunity Employer.* Send résumé to:

Box 231, SCIENCE

A **POSTDOCTORAL POSITION** is available for a recent Ph.D. with interests in cancer chemotherapy. Study will involve examination of drug uptake, binding, and isolation of bound species in childhood rhabdomyosarcomas. Candidates with training in biochemistry/pharmacology with experience using cell culture preferred. Send curriculum vitae and three letters of reference to: **Dr. Peter Houghton, Division of Biochemical and Clinical Pharmacology, St. Jude Children's Research Hospital, Memphis, Tenn. 38101.**

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UNIVERSITY OF CALIFORNIA, IRVINE POSTDOCTORAL RESEARCH IN PSYCHOBIOLOGY

The Department of Psychobiology, University of California, Irvine (UCI), anticipates filling several postdoctoral research positions in the laboratories of the faculty with starting dates between 1 April 1981 and 1 March 1982. The current faculty and their research interests are: D. Aswad (neurochemistry); C. Cotman (synaptic growth and plasticity); R. Josephson (comparative physiology of muscles); H. Killackey (developmental neuroanatomy); M. Leon (developmental psychobiology); G. Lynch (neuroanatomy); J. Marshall (neural plasticity of catecholamines); J. McGaugh (memory storage processes); A. Starr (cognition, sensation, and evoked potential); N. Weinberger (neural mechanisms of learning); and P. Yahr (neuroendocrinology and behavior).

Candidates should address inquiries to: **Postdoctoral Research Advisor, Department of Psychobiology, University of California, Irvine, Calif. 92717.**

UCI

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POSITIONS OPEN

POSITION IN A NEW PRIVATE RESEARCH LABORATORY for a **PHARMACOLOGIST** with experience in pharmaceuticals. Experience with aerosols and animal testing helpful. Highly desirable physical and intellectual environment in Princeton, New Jersey. Competitive salary and benefits. Applicants must have Ph.D. or equivalent degree with relevant academic or industrial experience. Send curriculum vitae and a list of three references to:

**Scientific Director
P.O. Box 1425
Princeton, New Jersey 08540
*An Equal Opportunity Employer***

POSTDOCTORAL POSITIONS available immediately in *Rhizobium*-and-plant cell molecular genetics and in physiology/biochemistry of *Rhizobium*-legume interaction. Please send curriculum vitae and three letters of reference to: **Dr. Aladar A. Szalay (Molecular Genetics) and Dr. Allan R. J. Eaglesham (Physiology/Biochemistry), Boyce Thompson Institute, Cornell University, Tower Road, Ithaca, New York 14853.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION. Immediate opening for a Ph.D. in biochemistry or endocrinology to study the molecular basis of steroid sensitivity and resistance at the chromatin level in unique animal tumor models (mammary, prostate, lymphosarcoma). Experience in molecular biology desired, but not essential. Please send curriculum vitae and names of three references to: **Dr. M. Ip, Grace Cancer Drug Center, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, New York 14263.** *An Equal Opportunity Employer, M/F.*

POSTDOCTORAL POSITION to study human leukotrienes and other cellular mediators of anaphylaxis. Methodological expertise in clinical cellular immunology and in vitro techniques of measurement of smooth muscle contraction is necessary. Please submit résumé with references, publications, and salary requirements to: **Clinical Immunopharmacology, Allergy and Asthma-P.C., 11750 West Colfax Avenue, Denver, Colorado 80215.**

POSTDOCTORAL POSITION IN BIOCHEMISTRY/MOLECULAR GENETICS, available December 1981, to study developmental regulation of rabbit globin genes. Projects include gene isolation, sequence determination, transcription mapping, and in vitro transcription. Send curriculum vitae and names of three references to: **Dr. Ross C. Hardison, Department of Microbiology, Cell Biology, Biochemistry and Biophysics, Althouse Laboratory, The Pennsylvania State University, University Park, Pa. 16802.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION IN CHEMICAL CARCINOGENESIS available for research on mechanism of tumor induction by nitrosamines. Experience in drug metabolism and/or tissue culture techniques desirable. Send curriculum vitae and references to: **Dr. Michael C. Archer, Department of Medical Biophysics, University of Toronto, Ontario Cancer Institute, 500 Sherbourne Street, Toronto, Ontario, Canada M4X 1K9.**

POSTDOCTORAL POSITION IN MOLECULAR GENETICS to study genetic mechanisms of chemical carcinogenesis in cultured rat cells. Available immediately. Ph.D. required and background in molecular genetics, mammalian cell culture, or tumor virology is desirable. Ongoing research involves gene cloning and sequencing. Salary commensurate with experience. Send curriculum vitae, letter describing research interests, and references to: **Dr. Paul C. Kimball, The Ohio State University Comprehensive Cancer Center, 410 West 12 Avenue, Columbus, Ohio 43210.** *The Ohio State University is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE and POSTDOCTORAL FELLOWS

Positions immediately available to investigate monoclonal phagocyte biology as part of an active research group devoted to this area. Emphasis on monoclonal antibodies as probes of function and differentiation. Ph.D. in immunology, biochemistry, or pharmacology preferred. Salary commensurate with experience. Send curriculum vitae and three references to: **Dr. Stephen W. Russell, Director, Comparative and Experimental Pathology, Box J-145, JHMC, University of Florida, Gainesville, Fla. 32610.** Closing deadline for applications is 16 October 1981. *The University of Florida is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION—Biochemist—Available 1 January 1982, to study the mechanism of cholesterol side chain cleavage using purified cytochrome P450_{cc} and electron transfer proteins. The position requires a strong background in enzymology and experience in biophysical techniques. Salary from \$15,000, depending on experience. Send curriculum vitae and two letters of recommendation to: **Dr. Colin Jefcoate, Department of Pharmacology, University of Wisconsin Medical School, 426 North Charter Street, Madison, Wisc. 53706.**

POSTDOCTORAL RESEARCH ASSOCIATE

Two openings are immediately available in the laboratory of Dr. Eliahu Caspi at the Worcester Foundation to work on biosynthesis of polyprenoids and hormones. Please submit résumé and three letters of reference to: **Dr. Eliahu Caspi, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

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POSTDOCTORAL RESEARCH POSITION for studies related to the bovine immune response to *Brucella abortus* antigens. Opportunities for interdisciplinary collaboration with investigators in other colleges. A background in immunology with experience in macromolecular purification is desirable. Send résumé and three letters of reference to: **Dr. Edward Hoffmann, Department of Microbiology and Cell Science, University of Florida, 1059 McCarty Hall, Gainesville, Florida 32611.**

RESEARCH ASSOCIATE

Postdoctoral research position for the study of the enzymology of chlorophyll biosynthesis. Applications will be accepted until 15 November 1981 or until a satisfactory candidate is selected. Address curriculum vitae and three letters of reference to: **Professor C. A. Rebeiz, University of Illinois, Laboratory of Plant Pigment Biochemistry and Photobiology, 1103 West Dorner Drive, Urbana, Ill. 61801.**

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

RESEARCH ASSOCIATE POSITION available immediately to study species differences in carcinogen metabolism. Ph.D. in organic chemistry, biochemistry, toxicology, or pharmacology and previous research experience in drug metabolism desirable. Appointment initially for 1 year, renewable. Send curriculum vitae and names of three references to: **Dr. Thomas J. Curphey, Department of Pathology, Dartmouth Medical School, Hanover, New Hampshire 03755.**

RESEARCH ASSOCIATE/INSTRUCTOR position available immediately for a candidate with a Ph.D. in physiology/pharmacology and research experience in gastrointestinal motility. Current research projects include the study of myogenic, neural, and hormonal control systems for gastrointestinal motility. Send curriculum vitae and names of three references to: **Dr. S. K. Sarna, Department of Surgery, Medical College of Wisconsin, 8700 West Wisconsin Avenue, Milwaukee, Wisc. 53226.** *An Affirmative Action/Equal Opportunity Employer.*

RESEARCH SCIENTIST with background in biochemistry, cell biology, or biophysics is sought immediately to study membrane microdomain organization and dynamics in reconstituted membranes and cell surfaces. Applicants (Ph.D.) with knowledge in freeze-fracture electron microscopy, cell surface labeling, and lipid-protein interactions preferred. Research interests of the group include membrane structure and biochemistry and the role of membrane in carcinogenesis. Contact: **Dr. S. W. Hui, Department of Biophysics, Roswell Park Memorial Institute, 666 Elm Street, Buffalo New York 14263.** *An Equal Opportunity Employer, M/F.*

SCIENCE ASSOCIATE—Ph.D. in biochemistry at an annual salary commensurate with experience. The position involves assisting in the biochemistry teaching program of first- and second-year osteopathic medical students and participation in a research program with other faculty in the department. Curriculum vitae and a list of references should be sent to: **R. W. Gracy, Ph.D., Professor and Chairman, Department of Biochemistry, Texas College of Osteopathic Medicine, Camp Bowie at Montgomery, Fort Worth, Texas 76107.** *An Equal Opportunity/Affirmative Action Employer.*

DIRECTOR

Laboratory of Clinical Pathology

The University of Chicago Pritzker School of Medicine

Applications are invited for the position of director of the clinical pathology laboratories at the University of Chicago-Pritzker School of Medicine. Send letter of application and supporting information to:

Peter J. Dawson, M.D.
Chairman of the Search Committee
Laboratory of Surgical Pathology

The University of Chicago
Pritzker School of Medicine
950 E. 59th Street
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Chicago, Illinois 60637

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- Analyze data and report results

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- Demonstrated professional ability to perform and publish original high quality experimental research
- Demonstrated aptitude for original approaches to scientific research
- Record of publications will be considered in evaluation

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For further information, call Dr. Sidney Singer at (505) 667-3643 and/or contact our representatives attending the APS Plasma Physics Division meeting in New York beginning on October 10, 1981.

Send complete resume, in confidence, to: Nancy Kimerly
DIV 81-CE

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The selected candidate will have a medical degree with post-graduate specialization in bacteriology and virology, and considerable experience as public health laboratory administrator including experience in at least one important field of health laboratory services. Familiarity with communicable disease problems in tropical and sub-tropical areas is required.

Excellent English essential, knowledge of French or Arabic desirable.

Annual net salary depending on present earnings but not less than US\$35,863, plus dependents and assignment allowances, education grant for children, health and accident insurance, pension, home leave travel and other benefits.

Please send your detailed bio-data, not later than three weeks after the publication date, quoting SC/P81/94, to:

World Health Organization
Personnel (MPR)
CH-1211 Geneva 27
Switzerland

POSITIONS OPEN

PROTEIN STRUCTURE. Full-time research position available immediately for studies on the structure of Na,K-ATPase. Experience in amino acid sequencing desired. Rank and salary negotiable. Position funded for 5 years. Send curriculum vitae and three letters of reference to: **Dr. John H. Collins, Department of Pharmacology and Cell Biophysics, University of Cincinnati College of Medicine, Cincinnati, Ohio 45267.** An Equal Opportunity/Affirmative Action Employer.

QUANTITATIVE PSYCHOLOGIST—DEPARTMENT OF PSYCHOLOGY, THE UNIVERSITY OF ILLINOIS at Urbana-Champaign, is seeking a quantitative psychologist with research and teaching interests in social or behavioral statistics, mathematical models, evaluation research methodology, or measurement. Candidates with interests in any substantive area of psychology or related fields who have a strong background in mathematics or statistics and who, for their level, have an outstanding record of research and scholarship in quantitative approaches, will be considered.

The position is tenure-track at the assistant professor level and is contingent upon availability of funds. Preference will be given to individuals with some postdoctoral experience and a record of research and teaching accomplishment. The appointment would begin on 21 August 1982. Salary is dependent upon experience and qualifications. While we are seeking an assistant professor, individuals with truly exceptional records of accomplishment who wish to apply for more senior appointments will be given consideration.

All inquiries and nominations, as well as complete applications (curriculum vitae, statement of interests, at least three letters of reference, and preprints or reprints of publications) should be sent to: **Lawrence E. Jones, Chairman, Quantitative Search Committee, University of Illinois, Department of Psychology, 603 East Daniel, Champaign, Illinois 61820 (telephone: 217-333-3457).** In order to ensure full consideration, applications should be received as soon as possible, but no later than 1 December 1981.

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A tenure-track **TEACHING POSITION** to teach general biology and chemistry in an open admission college with a diversified program of general education, career development, basic skill instruction, counseling and individual help, and individualized baccalaureate degrees.

Deadlines—Application: 10 November 1981; complete file: 20 November 1981.

Inquire: **Douglas Dearden, General College, 106 Nicholson, 216 Pillsbury Drive, SE, Minneapolis, Minnesota 55455.**

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

VIROLOGY FACULTY POSITION

The Department of Microbiology of the Boston University School of Medicine is seeking a virologist at the assistant or associate professor level. The position will be available after 1 July 1982.

Applicants for this position should be interested in joining a multidisciplinary department dedicated to excellence in teaching and research. The candidate should be engaged in a vigorous and creative research program and should have demonstrated independence as a laboratory investigator. Additionally, the applicant should also be an effective teacher and be able to direct graduate students. Shared teaching responsibilities involve instructing medical and graduate students.

Applicants should provide curriculum vitae, a short statement of research interests and accomplishments, and the names of three scientists willing to write letters of recommendation. Salary will be commensurate with experience. For prompt consideration, applicants are encouraged to reply before 1 December 1981 to: **Paul H. Black, M.D., Chairman, Department of Microbiology, Boston University School of Medicine, 80 East Concord Street, Boston, Massachusetts 02118.**

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POSITIONS OPEN

SCIENTISTS FOR IRAQ

Histopathologists, hematologists, cytologists, geneticists, endocrinologists, clinical chemists, and immunologists are needed to work in the laboratories of the Ministry of Health. We need a specialist in each of the above fields and two technicians. Salaries, benefits, and work conditions are very lucrative. Please send résumé and two letters of recommendation to: **Box 243, SCIENCE.**

SYMPOSIUM

GENETIC TOXICOLOGY: AN AGRICULTURAL PERSPECTIVE. A symposium sponsored by the Associated Universities, Inc., Council for Research Planning in Biological Sciences, to be held at the University of California, Davis, from 1 to 5 November 1981. Refer to advertisement in *Science*, 18 September 1981, page 1419. For program and registration information: **Raymond A. Fleck, Food Protection and Toxicology Center, University of California, Davis, Calif. 95616, or telephone: 916-752-1142.**

CALL FOR PAPERS

CALL FOR PAPERS FOURTH INTERNATIONAL CONFERENCE ON RESOURCE-CONSERVING, ENVIRONMENTALLY SOUND AGRICULTURAL ALTERNATIVES

18 to 20 August 1982, Massachusetts Institute of Technology, Cambridge, Mass. Sponsored by International Federation of Organic Agriculture Movements.

Papers are invited on significantly innovative alternatives in nonchemical pest control, organic waste utilization, energy production and conservation, and soil-conserving cropping systems. Abstracts (300 to 500 words) should be submitted by 4 January 1982 to: **William Lockeretz, School of Nutrition, Tufts University, Medford, Mass. 02155.**

CONFERENCE

CIIT CONFERENCE ON TOXICOLOGY: TOXICITY OF NITROAROMATIC COMPOUNDS

Conference to be held 28 and 29 January in Raleigh, North Carolina. Topics to be covered include environmental distribution and fate, acute and chronic toxicity, metabolism, genotoxicity and human toxicity of nitroaromatic compounds. Registration fee is \$100. Contact:

**Dr. D. E. Rickert
Chemical Industry Institute of Toxicology
P.O. Box 12137
Research Triangle Park, N.C. 27709**

FELLOWSHIPS

POSTDOCTORAL POSITION in cardiopulmonary physiology now available. Two years. Recent Ph.D. Areas available include myocardial oxygen uptake, regional flow and metabolism, respiratory gas exchange. Send curriculum vitae, your letter stating career goals, and letters directly from three references to: **Dr. S. F. Sullivan, School of Medicine, University of California, Los Angeles, Calif. 90024.** Equal Opportunity/Affirmative Action Employer.

FELLOWSHIPS

Postdoctoral fellowship in neural control of the cardiovascular system. A limited number of fellowship positions are available, funded by an NIH training grant. Clinical and basic scientists participate in the program with major emphasis on neural pathways, hypertension, cardiovascular pharmacology, exercise, electrophysiology, cardiac biochemistry, and biofeedback. The positions are open to U.S. citizens and permanent residents who have Ph.D., M.D., or equivalent degrees in a basic biomedical discipline.

Applicants should send curriculum vitae with three references and specific area of interest to: **Dr. H. Lowell Stone, Department of Physiology and Biophysics, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190.** We are an Equal Opportunity Employer.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS IN REPRODUCTIVE BIOLOGY. Applications are invited for postdoctoral fellowships in the Laboratory of Human Reproduction and Reproductive Biology of Harvard Medical School. The laboratory is an interdisciplinary center for research on biological problems in reproduction. The laboratory provides research opportunities in the anatomical, physiological, endocrinological, and biochemical approaches to ovarian testicular function, cytokinesis, and molecular biology, fertilization, the preimplantation mammalian embryo, neuroendocrine physiology, behavioral endocrinology, and contraceptive development. Send complete curriculum vitae including a statement of research interests and names of at least three references to: **Kenneth J. Ryan, M.D., Director, Laboratory of Human Reproduction and Reproductive Biology, Harvard Medical School, 45 Shattuck Street, Boston, Mass. 02115.** Harvard is an Equal Opportunity Employer.

Predoctoral/Postdoctoral Fellowships in American history and material culture, anthropology, biological sciences, earth sciences, history of art, history of technology and science. Tenable at Smithsonian's museum, laboratory, field and research facilities for 6 to 12 months. Deadline: 15 January 1982. Contact: **Office of Fellowships and Grants, Smithsonian Institution, L'Enfant Plaza 3300, Washington, D.C. 20560.** Awards are based upon merit, without regard to race, color, religion, sex, national origin, age, or condition of handicap of any applicant.

C. H. BEST FOUNDATION POSTDOCTORAL FELLOWSHIP

In diabetes research, molecular endocrinology, molecular biology, differentiation, immunology, structure and function of membrane, or lipid metabolism. Tenable for 2 years after 1 July 1982 with a competitive stipend plus travel allowance. Available to new Ph.D.'s or candidates with less than 2 years of postdoctoral training by 30 June 1982. Send curriculum vitae, transcripts, and three letters of reference, preferably before 15 November 1981, to: **Dr. C.-H. Siu, Search Committee Chairman, Banting and Best Department of Medical Research, University of Toronto, Toronto, Ontario, Canada M5G 1L6.**

STUDENT RESEARCH FELLOWSHIPS. The School of Forestry and Environmental Studies at Duke University invites applications from superior students for graduate research fellowships in environmental science. Potential research areas: forest and wetlands ecology, water quality modeling, population biology, forest micrometeorology, silviculture, and soil science. Preference given to students with strong backgrounds in quantitative methods. Send curriculum vitae to: **Dr. K. H. Reckhow, School of Forestry and Environmental Studies, Box SA, Duke University, Durham, N.C. 27706.** Duke University is an Equal Access Institution.

GRADUATE STUDY

PREDOCTORAL RESEARCH ASSOCIATESHIP—GENETICS

The interdepartmental predoctoral Genetics Training Program at Arizona State University offers a graduate research associateship on a competitive basis to an outstanding student entering the program through one of its participating departments, Anthropology, Botany/Microbiology, Chemistry, or Zoology. An award is available beginning fall semester 1982. Faculty interests include biochemical, molecular, developmental, population, behavior, human, and cellular genetics. For inquiries, contact: **Dr. W. W. Doane, Department of Zoology, Arizona State University, Tempe, Ariz. 85281.** Arizona State University is an Equal Opportunity/Affirmative Action Employer.

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TOXICOLOGISTS

The Life Sciences Division of IIT Research Institute, a leading multi-disciplinary research and development organization, seeks well-qualified individuals in the field of Toxicology.

TOXICOLOGIST — Candidates must have a Ph.D. in Toxicology or related discipline with 3–5 years of toxicology research experience. Responsibilities include planning and directing project activities as well as participation in proposal preparation and other promotional activities. Experience in inhalation toxicology is of interest.

TOXICOLOGIST — Candidates must have a Ph.D. in Toxicology or related field with 0–2 years experience. Individuals will aid in planning, conducting and reporting of toxicology and will supervise pre-professional personnel.

REPRODUCTIVE TOXICOLOGIST/TERATOLOGIST — Candidates must have a Ph.D. in an appropriate discipline. Responsibilities will include planning and conducting studies, supervision of pre-professional personnel and report writing.

In all positions, the opportunity is available to develop research program in own area of interest.

Please send resumes, in confidence, including salary history and requirements, to:

Lucy Amft
Employment Representative

**IITRI IIT
Research
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MARINE BIOLOGICAL LABORATORY Woods Hole, Massachusetts 02543

announces JANUARY COURSES, 1982

Behavior

(Jelle Atema, Boston U., Instructor in Chief)

Comparative Pathology of Marine Invertebrates

(Frederik B. Bang, Johns Hopkins U.)

Developmental Biology

(Kenneth Edds, SUNY, Buffalo)

Neurobiology

(Daniel Alkon, National Institutes of Health & MBL)

For the ninth consecutive January, MBL will offer intensive courses with emphasis on laboratory work, intended primarily for graduate and advanced undergraduate students. The courses last four weeks (January 3-29, 1982) and are conducted concurrently. The opportunity for an extended research tutorial in the Neurobiology Course will be available by invitation.

Tuition is \$550; room and board is approximately \$300. Limited financial aid is available.

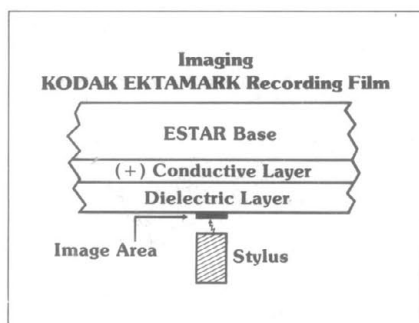
Completed applications must be received at MBL by NOVEMBER 16.

Additional information on course content and application materials may be obtained from the Admissions Office, Marine Biological Laboratory, Woods Hole, Massachusetts 02543; telephone 617-548-3705. MBL is an Equal Opportunity/Affirmative Action institution.



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