

(Smart). These initial eight chapters provide a coherent description and analysis of the major features of parental care in laboratory settings.

The final two chapters both point the way to the future and suggest some limitations on current work in the area. In both the authors seek to integrate laboratory with field studies of rodent parental behavior. Elwood discusses the distribution of paternal care within the order Rodentia. Difficulties in deciding whether behaviors exhibited by male rodents in laboratory settings occur in free-living animals, limitations on generalizations imposed by the very limited number of species that have been extensively studied in the laboratory, and the absence of modern fieldwork with three of the four species most commonly studied in laboratory situations combine to limit integration of the wealth of information available on reproduction in laboratory strains of rat, hamster, and gerbil with ecological and evolutionary concerns.

In a final chapter, Swanson relates laboratory studies of rodent reproduction to questions concerning population regulation in natural circumstances. Steady, coherent progress in understanding intrinsic mechanisms of population control in species such as *Mus musculus*, observed in both laboratory and field situations, clearly reveals the difficulties inherent in understanding the function of potential reproduction-limiting processes in those species that have not been studied under natural conditions. Clearly, as researchers studying reproductive behavior in the laboratory seek to expand their contribution to population ecology and sociobiology, they will have to both increase the range of species they study and select such species on the basis of criteria other than convenience for laboratory work.

Elwood's volume will be of considerable use to those seeking brief descriptive overviews of the literature on parental behavior in laboratory rodents. Unfortunately it covers much the same ground as D. J. Gubernick and P. J. Klopfer's *Parental Care in Mammals*. In general, Gubernick and Klopfer's collection is both richer in theory and more comprehensive in its review of the literature than the present volume. Experts in reproductive behavior may want both in their libraries; those with more casual interests will find the volume edited by Klopfer and Gubernick more rewarding.

BENNETT G. GALEF, JR.

Department of Psychology,
McMaster University,
Hamilton, Ontario L8S 4K1 Canada

Neurotransmitter Receptors

Molecular Pharmacology of Neurotransmitter Receptors. TOMIO SEGAWA, HENRY I. YAMAMURA, and KINYA KURIYAMA, Eds. Raven, New York, 1983. xvi. 304 pp., illus. \$44. *Advances in Biochemical Psychopharmacology*, vol. 36.

The idea that neurotransmitter molecules must bind to specific receptor sites in order to produce their effect gained wide acceptance early in this century. However, until about 10 years ago these receptors were defined solely in a functional sense and their existence as actual entities was only inferred. This situation was dramatically altered with the advent of a radioligand binding technique that has led to the identification and partial characterization of receptor binding sites for most known and many putative neurotransmitters. In the past five years work in this field has focused on what has come to be called the "molecular pharmacology" of these receptors—that is, on the molecular mechanism through which agonist and antagonist interact with their receptor to modify cellular function. *Molecular Pharmacology of Neurotransmitter Receptors*, a compilation of 25 chapters with an introduction, provides a reasonable and representative assessment of the present status of research in this field. Nineteen chapters are reports of radioligand binding studies, which thus constitutes the major theme of the book. Eight chapters are concerned with the interactions of guanine nucleotides (such as guanosine 5'-triphosphate) with receptors for several neurotransmitters, including acetylcholine, norepinephrine, dopamine, serotonin, and the endorphins. As is emphasized, GTP interacts with a protein that permits the receptor to either activate or inhibit the enzyme adenylate cyclase. From binding studies, it is apparent that GTP can decrease the affinity of the receptor for agonists but not for antagonists. These findings have led to the hypothesis that a receptor can exist in two or more interconvertible states, which differ in their affinities for agonists. After reading the pertinent chapters one is struck by the similarity in the proposed models for each of the receptors and by the diversity in the approaches that have been taken. A major strength of the book is that it allows the reader to compare the advances that are being made with various receptors.

Nineteen of the chapters are written in the form of primary reports of research. Several of these chapters have been published in journals, albeit in slightly al-

tered form. It is doubtful that some of the others would have withstood peer review. The remaining six chapters are written in the form of reviews, and they tend to be more informative and provide a better perspective of the field. In about a quarter of the chapters there are no references after 1980. Thus, for a rapidly moving field, the book is not as up to date as one would like.

In addition to accurately assessing the status of the field, the book points out the direction in which the field seems to be moving. In six of the chapters there is an attempt to correlate binding with various functions, such as contraction, adenylate cyclase activity, or behavior. Such studies are crucial in relating radioligand "binding sites" to physiological receptors, and more of them will be needed in the future. Other chapters relate initial progress in understanding the interactions of various receptor systems and in assessing the apparent heterogeneity of many neurotransmitter receptors. In general, the volume fulfills its stated intent to clarify some of the recently discovered receptor complexities. Eventually, an understanding of the molecular pharmacology of neurotransmitter receptors will require the solubilization and purification of each receptor and its reconstitution as a functional unit. But for now we must be content with results obtained from studies of intact membranes.

DAVID B. BYLUND

Department of Pharmacology,
University of Missouri School of
Medicine, Colombia 65212

Books Received

Aging of the Brain. Papers from a meeting, Mantova, Italy, Mar. 1982. David Samuel, Sergio Algeri, Samuel Gershon, V. E. Grimm, and Gino Toffano, Eds. Raven, New York, 1983, xx, 390 pp., illus. \$42. *Aging*, vol. 22.

Air Pollution Modeling and Its Application II. Proceedings of a meeting, Menlo Park, Calif., Aug. 1981. C. De Wispelaere, Ed. Plenum, New York, 1983. xii, 874 pp., illus. \$95. NATO—Challenges of Modern Society, vol. 3.

American Psychology since World War II. A Profile of the Discipline. Albert R. Gilgen. Greenwood, Westport, Conn., 1982. xiv, 274 pp. \$29.95.

City Landscape. A Contribution to the Council of Europe's European Campaign for Urban Renaissance. Papers from a conference, Bath, England, Mar. 1981. A. B. Grove and R. W. Cresswell, Eds. Butterworths, Boston, 1983. xii, 196 pp., illus. \$69.95.

Clinical Uses of Essential Fatty Acids. Proceedings of a symposium, London, Nov. 1981. David F. Horrobin, Ed. Eden Press, St. Albans, Vt., 1983. viii, 214 pp. \$35.

Coal Structure. Robert A. Meyers, Ed. Academic Press, New York, 1982. xiv, 340 pp., illus. \$49.50.

Computed Tomography in Radiation Therapy. Papers from a symposium, Arlington, Va., Sept. 1981. C. Clifton Ling, Charles C. Rogers, and Robert J. Morton, Eds. Raven, New York, 1983. xvi, 268 pp., illus. \$45.

(Continued on page 784)

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BOOKS RECEIVED

(Continued from page 743)

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Data Base Management. Theory and Applications. Proceedings of an institute, Estoril, Portugal, June 1981. Clyde W. Holsapple and Andrew B. Whinston, Eds. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). viii, 392 pp., illus. \$54.50. NATO Advanced Study Institutes Series C, vol. 98.

The Development of Mathematical Thinking. Herbert P. Ginsburg, Ed. Academic Press, New York, 1983. xvi, 390 pp., illus. \$37.50. Developmental Psychology Series.

Encyclopedia of the Alkaloids. Vol. 4. John S. Glasby. Plenum, New York, 1983. viii, 392 pp., illus. \$65.

Environmental Policy. Vol. 3. Water Quality. George S. Tolley, Dan Yaron, and Glenn C. Blomquist, Eds. Ballinger (Harper and Row), Cambridge, Mass., 1983. xviii, 214 pp., illus. \$35.

Epistemology and Inference. Henry E. Kyburg, Jr. University of Minnesota Press, Minneapolis, 1983. xiv, 320 pp. Cloth, \$39.50; paper, \$15.95.

Essays in Biochemistry. Vol. 18. P. N. Campbell and R. D. Marshall, Eds. Published for the Biochemical Society by Academic Press, New York, 1982. x, 130 pp., illus. Paper, \$12.50.

Hormonal Regulation of Mammary Tumors. Benjamin S. Leung, Ed. Eden Press, St. Albans, Vt., and MTP Press, Lancaster, England, 1982. Two volumes. Vol. 1, Steroid Hormones. xii, 308 pp., illus. \$35. Vol. 2, Peptide and Other Hormones. xvi, 284 pp., illus. \$35.

How We Live. Victor R. Fuchs. Harvard University Press, Cambridge, Mass., 1983. xiv, 294 pp. \$17.50.

Human Survival in a Crowded World. Herbert N. Woodward. McFarland, Jefferson, N.C., 1983. 154 pp. Paper, \$9.95.

Information, Uncertainty, Complexity. J. F. Traub, G. W. Wasilkowski, and H. Wozniakowski. Addison-Wesley Advanced Book Program, Reading, Mass., 1983. xii, 176 pp. \$34.95.

L'Interaction Adulte-Enfant et la Construction du Langage. Jean-A. Rondal. Mardaga, Brussels, 1983. 200 pp. Paper, 590 BF. Psychologie et Sciences Humaines, 113.

The Interferon System. A Review to 1982. Samuel Baron, Ferdinando Dianzani, G. John Stanton, and Eleanor Porter, Eds. University of Texas Medical Branch, Galveston, 1982. Two volumes. xxvi, 716 pp., illus. Paper, \$30. Texas Reports on Biology and Medicine, vol. 41.

Introduction to Semimicro Qualitative Analysis. C. H. Sorum and J. J. Lagowski. Prentice-Hall, Englewood Cliffs, N.J., ed. 6, 1983. xii, 340 pp., illus. Paper, \$15.95.

Introduction to the Representation Theory of Compact and Locally Compact Groups. Alain Robert. Cambridge University Press, New York, 1983. x, 206 pp. Paper, \$23.95. London Mathematical Society Lecture Note Series, 80.

Mining Geology. Willard C. Lacy, Ed. Hutchinson Ross, Stroudsburg, Pa., 1983 (distributor, Van Nostrand Reinhold, New York). xiv, 466 pp., illus. \$58. Benchmark Papers in Geology, vol. 69.

Mobility and Function in Proteins and Nucleic Acids. Papers from a symposium, London, Mar. 1982. Pitman, London, 1983 (U.S. distributor, CIBA Pharmaceutical Company, West Caldwell, N.J.). x, 358 pp., illus. \$35. Ciba Foundation symposium 93.

Molecular Light Scattering and Optical Activity. L. D. Barron. Cambridge University Press, New York, 1983. xvi, 408 pp., illus. \$69.50.

Photogeneration of Hydrogen. Proceedings of a symposium, London, Mar. 1982. A. Harriman and M. A. West, Eds. Academic Press, New York, 1982. x, 210 pp., illus. \$22.50.

Phylogenic Aspects of Thyroid Hormone Actions. Papers from a symposium, Maebashi, Japan, Dec. 1981. Center for Academic Publications Japan, Tokyo, 1982 (U.S. distributor, ISBS, Beaverton, Ore.). 200 pp., illus. \$28. Gunma Symposia on Endocrinology, vol. 19.

Physical Acoustics. Principles and Methods. Vol. 16. Warren P. Mason and R. N. Thurston, Eds. Academic Press, New York, 1982. xiv, 482 pp., illus. \$72.

Proceedings of the Vth International Conference on Electrical Bio-Impedance. Tokyo, Aug. 1981. ISBS, Beaverton, Ore., 1982. xii, 418 pp., illus. Paper, \$40.

Proceedings of the International Cryogenic Materials Conference. Kobe, Japan, May 1982. K. Tachikawa and A. Clark, Eds. Butterworths, Boston, 1982. xvi, 502 pp., illus., + index. \$69.95.

Proceedings of the International Symposium on Quantum Biology and Quantum Pharmacology. Palm

Coast, Fla., Mar. 1982. Per-Olov Löwdin and John R. Sabin, Eds. Interscience (Wiley), New York, 1982. xii, 432 pp., illus. Paper, \$64.95. *International Journal of Quantum Chemistry*, Quantum Biology Symposium No. 9.

Proceedings of the 37th Industrial Waste Conference. West Lafayette, Ind., May 1982. Ann Arbor Science (Butterworths), Auburn, Mass., 1983. xii, 952 pp., illus. \$69.95.

The Production of Speech. Papers from a conference, Austin, Tex., Apr. 1981. Peter F. MacNeilage, Ed. Springer-Verlag, New York, 1983. xvi, 302 pp., illus. \$29.95.

Progesterone and Progestins. C. Wayne Bardin, Edwin Milgrom, and Pierre Mauvais-Jarvis, Eds. Raven, New York, 1982. xviii, 462 pp., illus. \$85.56.

Programming Concepts and Problem Solving. An Introduction to Computer Science Using Pascal. Peter Linz. Benjamin/Cummings, Menlo Park, Calif., 1983. xxiv, 388 pp., illus. \$21.95. Benjamin/Cummings Series in Computing and Information Sciences.

Progress in Botany. Morphology, Physiology, Genetics, Taxonomy, Geobotany. Vol. 44. Heinz Ellenberg, Karl Esser, Klaus Kubitzki, Eberhard Schnepf, and Hubert Ziegler, Eds. Springer-Verlag, New York, 1982. xvi, 450 pp., illus. \$72.40.

Progress in Learning Disabilities. Vol. 5. Helmer R. Myklebust, Ed. Grune and Stratton, New York, 1982. xii, 272 pp., illus. \$29.50.

Progress in Nondifferentiable Optimization. Papers from a meeting, 1978. E. A. Nurminski, Ed. International Institute for Applied Systems Analysis, Laxenburg, Austria, 1982. viii, 258 pp. Paper, \$14. IASA Collaborative Proceedings Series, CP-82-S8.

Promethean Fire. Reflections on the Origin of Mind. Charles J. Lumsden and Edward O. Wilson. Illustrations by Whitney Powell. Harvard University Press, Cambridge, Mass., 1983. viii, 216 pp. \$17.50.

Prospects for Soviet Agriculture in the 1980s. D. Gale Johnson and Karen McConnell Brooks. Published in association with the Center for Strategic and International Studies, Georgetown University, by Indiana University Press, Bloomington, 1983. x, 214 pp. Cloth, \$17.50; paper, \$8.95. CSIS Publication Series on the Soviet Union in the 1980s.

Quantum Structure of Space and Time. Proceedings of a workshop, London, Aug. 1981. M. J. Duff and C. J. Isham, Eds. Cambridge University Press, New York, 1983. xiv, 432 pp., illus. \$49.50.

Recent Advances in Knowledge of the Phytoselidae. Proceedings of a conference, San Diego, Dec. 1981. Marjorie A. Hoy, Ed. Agricultural Sciences Publications, University of California, Berkeley, 1982. vi, 92 pp., illus. Paper, \$8. Division of Agricultural Sciences, University of California, Publication 3284.

Recent Progress in Medico-Social Problems in Juvenile Diabetes. Proceedings of a symposium, Herzliya-on-Sea, Israel, Oct. 1981. Zvi Laron and Avinam Galatzer, Eds. Karger, Basel, 1983. x, 210 pp., illus. \$91.75. Pediatric and Adolescent Endocrinology, vol. 11.

The Soviet Union and The Arms Race. David Holloway. Yale University Press, New Haven, Conn., 1983. x, 212 pp. \$14.95.

Statistics in Medical Research. Methods and Issues, with Applications in Cancer Research. Papers from a conference, New York, June 1981. Valerie Miké and Kenneth E. Stanley, Eds. Wiley, New York, 1983. xxiv, 552 pp., illus. \$34.95. Wiley Series in Probability and Mathematical Statistics.

Stratum Corneum. Papers from a symposium, Cardiff, U.K., Oct. 1981. R. Marks and G. Plewig, Eds. Springer-Verlag, New York, 1983. xii, 266 pp., illus. Paper, \$35.

Topics in Enzyme and Fermentation Biotechnology. 7. Alan Wiseman, Ed. Horwood, Chichester, England, and Halsted (Wiley), New York, 1983. 314 pp., illus. \$79.95.

Tumors of the Head and Neck in Children. Clinicopathologic Perspectives. Robert O. Greer, Jr., Gary W. Mierau, and Blaise E. Favara, Praeger, New York, 1983. xii, 418 pp., illus. \$39.95.

Ultrasonic Tissue Characterization. Proceedings of a workshop, Mijmegen, Netherlands, Nov. 1981. J. M. Thijssen and D. Nicholas, Eds. Published for the Commission of the European Communities by Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). x, 160 pp., illus. \$34.50.

Uncommon Sense. The Life and Thought of Ludwig von Bertalanffy (1901-1972), Father of General Systems Theory. Mark Davidson. Tarcher, Los Angeles, 1983 (distributor, Houghton Mifflin, Boston). 250 pp. \$15.95.

VLSI Fabrication Principles. Silicon and Gallium Arsenide. Sorab K. Ghandhi. Wiley-Interscience, New York, 1983. xiv, 666 pp., illus. \$47.50.

A Wealth of Wild Species. Storehouse for Human Welfare. Norman Myers. Westview, Boulder, Colo., 1983. xiv, 274 pp., illus. Cloth, \$27; paper, \$11.95.

Weathering and Erosion. Stephen T. Trudgill. Butterworths, Boston, 1983. 192 pp., illus. Paper, \$12.50. Sources and Methods in Geography.

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Scientific Computing Specialist/Mathematical Biologist. Ph.D. molecular biology (1977). M.S. computer science (1973). Independent consultant, formerly assistant professor of computer science, seeks position in mathematical modeling and scientific computing in molecular biology, biochemistry, biomedicine. Excellent references. Prefers collaborative research in academia, government, or industry. Consulting contractual arrangements considered also. Larry D. Greller, 1000 Maxwell, Number 16, Boulder, Colo. 80302. Telephone: 303-443-1877. X

Vertebrate Biologist. Ph.D. 1981. Teaching experience: comparative chordate anatomy, human anatomy and physiology, introductory biology, vertebrate ecology. Research interests: physiological ecology, evolutionary biology. Publications, grants, active research program. Position sought: academic-teaching, research. Box 219, SCIENCE. X

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The person holding the position of cardiovascular scientist will have an appointment in an appropriate academic department and the Tobacco and Health Research Institute. The principal responsibility and activity of the faculty member will be to lead and engage in research concerning mechanisms involved in any smoking-related physiologic, pharmacologic, pathologic, or biochemical effects on the cardiovascular system. Although some experience with smoking-related research is desirable, it is not a requirement for this position. In association with the joint appointment, it is anticipated that the faculty member will maintain close contact with his/her academic department and may engage in teaching and/or clinical activities of that department to a limited degree.

It is expected that the faculty member will maintain a vigorous research program as evidenced by quality publications, and participation in appropriate forums at the national and international level with respect to smoke-related investigations. Within the College of Medicine and other Medical Center colleges, the opportunity for collaboration with researchers in cardiovascular pharmacology, cardiovascular physiology, clinical cardiology, cardiovascular surgery, and other investigators involved in smoke-related research is available and will be encouraged.

Applications are invited from established scientists for this position. The thrust of this position will be to engage in basic and/or clinical research related to any effects of tobacco smoke on physiologic, pathologic, pharmacologic, and biochemical aspects of the cardiovascular system. Candidates must have a Ph.D., M.D., or D.V.M. degree and qualifications for appointment at the level of either associate or full professor. Potential long-term financial support for salary and significant investigational funds is included with the position. Please send curriculum vitae, a list of professional references, and an outline of research interests to: **John S. Thompson, M.D., Chairman, Cardiovascular Search Committee, Department of Medicine, University of Kentucky College of Medicine, 800 Rose Street, Lexington, Kentucky 40536-0084. Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

ASSISTANT PROFESSOR—PHARMACOLOGY

The Morehouse School of Medicine (MSM) invites applications for the full-time academic position of assistant professor of pharmacology to be filled by 1 January. MSM is a new, 4-year medical school associated with the Atlanta University Center, a consortium of historically Black universities and colleges. The candidate should present evidence of strong teaching credentials and the ability to initiate or transfer a vigorous and independent research program. Send curriculum vitae, statement of research goals, and three letters of reference by 1 October to: **Dr. David W. Hein, Department of Pharmacology, Morehouse School of Medicine, 720 Westview Drive, SW, Atlanta, Georgia 30310-1495. An Equal Opportunity/Affirmative Action Employer**

ASSISTANT RESEARCH PROFESSOR position, available immediately, to study biochemistry and genetics of cyclic AMP synthesis, using mutant yeast and animal cells and a human mutation of adenylate cyclase, pseudohypoparathyroidism. Goals include isolating and characterizing the genes that encode the protein components of adenylate cyclase in vertebrate and yeast cells, as well as homologous proteins of retinal rod outer segments. Candidates should have an interest in molecular mechanisms of hormone action and expertise in yeast genetics and/or recombinant DNA technology. Salary: \$22,900 (plus fringe benefits) or higher, depending upon past experience. Send letter describing interests, plus curriculum vitae and names and addresses of three referees, to: **Henry R. Bourne, M.D., Room S-1210, University of California, San Francisco, Calif. 94143. The University of California is an Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.**

George Washington University, Department of Medicine. **ASSISTANT RESEARCH PROFESSOR** position available immediately to work on studies of microvascular blood flow of sickle erythrocytes; 1 to 2 years of relevant experience required. Curriculum vitae, bibliography, and references to: **Jorge C. Rios, M.D., 2150 Pennsylvania Avenue, NW, Suite 407, Washington, D.C. 20037. Affirmative Action/Equal Opportunity Employer.**

ASSOCIATE SCIENTIST

The Ames Laboratory is seeking an associate scientist to work with the Spectrochemistry Research Group. The position will be involved in the development of unique analytical concepts requiring a high level of expertise in lasers (YAG and excimer pumped dye lasers), electronics, and optics. Familiarity with software development will be an additional qualification. The successful candidate must possess a Ph.D. or M.S. in physics, physical chemistry, or analytical chemistry with 2 to 5 years of experience in the above defined areas.

The position is available immediately. Salary range is \$22,896 to \$34,020. The deadline for applications is 2 September 1983, or until the position is filled. Those interested in applying should send their curriculum vitae and the names of three references to:

**Personnel Office
Ames Laboratory
Iowa State University
127 Spedding Hall
Ames, Iowa 50011**

*An Equal Opportunity/Affirmative
Action Employer, M/F/V/H*

CHEMIST

Position available for Ph.D. at VA Hospital, Indianapolis, and Department of Medicine, Indiana University School of Medicine, working with Dr. Philip J. Snodgrass on a project concerning the hormonal induction of urea cycle enzymes in rat liver. The long-term goal is to determine whether induction occurs via effects on transcription, processing, or translation of messenger RNA. Write: **Dr. P. J. Snodgrass, VA Medical Center, 1481 West Tenth Street, Indianapolis, Ind. 46202; telephone: 317-635-7401, extension 2501.**

Equal Opportunity Employer

CYTOGENETICS LABORATORY DIRECTOR—

To direct rapidly expanding private diagnostic laboratory adjacent to the Texas Medical Center. Send curriculum vitae to:

**Laboratories For Genetic Services
Medical Towers—Suite 1607
1709 Dryden
Houston, Texas 77030**

POSITIONS OPEN

CELL BIOLOGISTS

Two tenure-track positions at the assistant professor level are to be filled at the University of Pittsburgh School of Medicine, Department of Anatomy and Cell Biology, between September 1983 and July 1984. One position is for a cell biologist with experience in teaching medical histology and graduate cell biology. Preference will be given to candidates who are applying innovative approaches to the study of cell membranes or structural proteins. The second position is for a cell or molecular biologist applying modern approaches to study of the nervous system. Teaching duties will be either histology or neurosciences to medical students, as well as contribution to the graduate program.

Applications accompanied by curriculum vitae and a list of three references should be sent to the following address and received no later than 15 September 1983:

**Dr. Raymond D. Lund, Chairman
Department of Anatomy and Cell Biology
University of Pittsburgh School of Medicine
820 Scaife Hall
3550 Terrace Street
Pittsburgh, Pa. 15261**

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

CEREBROVASCULAR RESEARCH

The Section of Cardiovascular Neurobiology, Division of Research, Cleveland Clinic Foundation, is seeking applicants for a faculty position in the Cerebrovascular Research Laboratory. Applicants must have an M.D. or Ph.D. degree and experience in cerebrovascular research. Individuals with a background in neurochemistry, autoradiography and/or cerebral blood flow measurement are preferred. The position also requires participation in the postgraduate neuroscience education program and an interest in clinical neuroscience.

Candidates should submit their curriculum vitae, bibliography, and three references to: **Carlos M. Ferrario, M.D., Department of Cardiovascular Research, Division of Research, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106.**

CHAIRPERSON DEPARTMENT OF PHARMACOLOGY

The Ohio State University College of Medicine, Columbus, Ohio, is seeking qualified candidates for the position of chairperson, Department of Pharmacology, to begin no later than 1 July 1984. Salary commensurate with qualifications. Qualified persons interested in this position are invited to submit curriculum vitae documenting teaching, research, administrative, and program leadership experiences, postmarked no later than 15 October 1983.

Please submit curriculum vitae to:

**James S. King, Ph.D.
Chairperson, Search Committee
The Ohio State University College of Medicine
370 West Ninth Avenue
Columbus, Ohio 43210**

An Affirmative Action/Equal Opportunity Employer

CHAIRPERSON DEPARTMENT OF PLANT PATHOLOGY University of Missouri—Columbia (UMC)

Applications are solicited for the chair of a 13-member department in the College of Agriculture. We seek a scientist with proven research accomplishment to oversee the replacement of retirees in a few years. Closing date is 15 September 1983. Address inquiries to:

**V. H. Dropkin, Search Committee
Department of Plant Pathology
108 Waters; UMC
Columbia, Mo. 65211**

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

ENVIRONMENTAL RESEARCH

Public interest organization seeks director for major study of toxic waste disposal industry. Must have advanced degree, strong experience in environmental sciences, understanding of finance. Send résumé and writing samples to: **Council on Economic Priorities, 84 Fifth Avenue, New York, N.Y. 10011.**

NO TELEPHONE CALLS, PLEASE

SCIENTIFIC RESEARCH



University Resident Research Program

The Air Force Office of Scientific Research seeks faculty members with unique scientific expertise to carry out challenging research in Air Force laboratories. One Year appointments are available at research organizations located in Arizona, California, Colorado, Florida, Massachusetts, New Mexico, New York, Ohio, Texas and Washington, D.C. Appointment starting date and salary are negotiable.

These areas are of particular interest in Air Force research.

- ★ **Electronic and Materials Sciences**
- ★ **Mathematical and Information Sciences**
- ★ **Physical and Geophysical Sciences**
- ★ **Aerospace Sciences**
- ★ **Chemical and Atmospheric Sciences**
- ★ **Life Sciences**

To be eligible for participation, individuals must be U.S. Citizens currently serving as full time faculty members of U.S. institutions of higher education; have an earned PhD in a scientific discipline or engineering; and have a publication record in their proposed area of research. All qualified applicants will receive consideration without regard to age, color, race, religion, sex or national origin. Successful applicants will require letters of endorsement from the university dean and department chairperson.

Major Amos L. Otis
AFOSR/XOT
Bolling Air Force Base, Washington, D.C. 20332
Phone (202) 767-4971

Interested individuals are requested to send a resume, list of publications, and one page summary of proposed research to:

AIR FORCE OFFICE OF SCIENTIFIC RESEARCH

Air Force Systems Command
Equal Opportunity Employer

Allelix^{INC}

RESEARCH SCIENTISTS FOR NEW HYBRIDOMA DEPARTMENT

Allelix Inc., Canada's first major biotechnology company, is seeking creative scientists to work in a group whose mission is to develop products and processes based on hybridoma and immunoassay technology. Efforts will be directed primarily towards uses in agriculture and industry.

Applications for this ground-floor opportunity are invited for the following posts:

Hybridoma Specialist

- experienced in* hybridoma production, cloning and characterization; antibody screening; tissue culture techniques;
- with knowledge/interest in* large-scale cell culture procedures and in-vitro stimulations procedures.

Enzyme Immunoassay Specialist

- with experience in* enzyme immunoassay procedures and other immunochemical techniques; conjugation procedures to synthesize enzyme-antibody and hapten-carrier conjugates;
- with knowledge/interest in* protein chemistry, antibody purification techniques and organic chemistry.

Protein Chemist

- with experience in* isolation and purification of proteins, especially antibodies; electrophoretic techniques including immunoblotting; HPLC techniques; affinity chromatography, protein modification and cleavage techniques; amino acid analysis;
- with knowledge/interest in* immunochemical procedures.

Peptide Chemist

- with experience in* the synthesis of peptides via solid phase procedures; peptide purification and characterization; antigenicity studies employing synthetic peptides and protein fragments;
- with knowledge/interest in* computing and immunochemical techniques.

Scientists selected for these positions will be provided strong backup assistance by research technicians and will assist in recruiting these technicians.

Allelix has a broad base in all major biotechnology disciplines and is well financed by three large Canadian organizations. Research is conducted in a modern, well-equipped laboratory near Toronto. Salaries and benefits are at fully competitive levels.

Interested candidates are invited to send résumés to: **Dr. D.C. Burke, Scientific Director, Allelix Inc. 6850 Goreway Drive, Mississauga, Ontario L4V 1P1, Canada.** Those who may have already applied for these positions need not reapply since résumés are on file.

INTERNATIONAL CROPS RESEARCH
INSTITUTE FOR THE SEMI-ARID
TROPICS (ICRISAT)

needs
CEREAL MICROBIOLOGIST

To work on improvement of production of millet, sorghum, and possibly groundnut. The position is with the Millet Improvement Program at ICRISAT Center near Hyderabad, India, and the work is oriented to increasing crop production through inoculation, and the selection of cultivars with superior symbiotic performance. To date the work has involved the ecology of N_2 -fixing bacteria associated with the above crops, selection of suitable strains for use in inoculants, inoculum production and use, response to inoculation in the field, measurement of N_2 -fixed by these associations and host genotype manipulation to increase fixation. Mycorrhiza work involves assessment of endophyte status in semi-arid tropical soils, endophyte strain selection for use in inoculants, response to inoculation and interaction with P source, and the selection of hosts with enhanced mycorrhizal colonization.

The research approach is interdisciplinary with close involvement of soil fertility, physiology, and breeding. There are collaborative projects with several institutes. Activities also cover supervision of research scholars and training of national program scientists and technicians.

Qualifications: Ph.D. in microbiology or related subject. Experience in management of a research team, field experimentation familiarity with techniques for use of ^{15}N , identification of bacteria at species and strain level, willingness to travel and the ability to interact with scientists from national programs in semi-arid tropical countries essential. Minimum of 8 years of experience desirable.

Salary at principal staff level according to qualifications and experience; excellent fringe benefits.

Send résumé and names of three referees by 30 September 1983 to: Director General, ICRISAT, ICRISAT Patancheru P.O., Andhra Pradesh 502 324, India.

UNIVERSITY OF CALIFORNIA, SAN DIEGO
(UCSD)

Center for Magnetic Recording Research

The San Diego Campus of the University of California has established the Center for Magnetic Recording Research with substantial support from many leading industries. To augment the efforts of faculty already at UCSD, four new positions have been opened. These FACULTY MEMBERS will be appointed in one of the academic departments, but their research activities will be in a soon-to-be-constructed building for the Center.

Since magnetic recording research spans such a breadth of disciplines, applications will be considered from many areas, for example, electrical engineering, physics, chemistry, mechanical engineering, and so forth. Successful candidates will need to demonstrate contributions in magnetic recording through an established research record in one of the disciplines relating thereto.

These four faculty positions will be endowed chairs. In the University of California, the salary of the occupant of an endowed chair is paid out of normal university funds, and the income from the endowment is used at the discretion of the occupant for research, summer salary, graduate student and secretarial support, professional travel, and so forth. It is expected that chair holders will take a leading role in graduate research and teaching and participate in the undergraduate program as well. One of the chair holders will serve as director of the Center.

The level of the professorship and the length of time for which the initial commitment of a chair is made will be commensurate with the level and qualifications of the candidate chosen. Interested applicants should submit detailed résumés, including the names of at least five references, no later than 1 October 1983 to:

Center for Magnetic Recording Research
Search Committee
attention: K. Morris, Mail Code B-010
University of California, San Diego
La Jolla, California 92093

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

POSITIONS OPEN

BASIC RESEARCH
RELATED TO ARTERIOSCLEROSIS

Postdoctoral positions are available at The Hormel Institute, University of Minnesota, through a training grant awarded by the USPHS National Heart, Lung and Blood Institute. The program is intended to provide research training in areas of lipid biochemistry, membrane biophysics, and cell biology related to cardiovascular disease. Participating faculty members are: Drs. W. J. Baumann, H. L. Brockman, M. P. Cleary, R. T. Holman, H. M. Jenkin, D. R. Pfeiffer, O. S. Privett, H. Schlenk, and H. H. O. Schmid. Applicants select a faculty sponsor specialized in their area of research interest. Collaboration with other faculty members is encouraged. Appointments are annually renewable and currently provide a minimum stipend of \$16,400. Applicants must be U.S. citizens, non-citizen nationals, or permanent U.S. residents with a Ph.D., M.D., or equivalent degree. Applications should include curriculum vitae, list of publications, and the names of three references. Submission deadline: 15 September 1983. For further information or to apply, write to: Dr. R. T. Holman, Professor and Director, The Hormel Institute, University of Minnesota, Austin, Minn. 55912. Telephone: 507-433-8804. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages women and minority applicants.

BIOLOGICAL OCEANOGRAPHY research associate (postdoctorate): Conduct research on the distribution, ecology, and behavior of marine fish larvae. Plan and participate in coastal cruises on small research vessels to study small-scale distribution of larval fishes and their prey; laboratory behavioral research on movements will also be conducted. A Ph.D. in oceanography or biology is required. This appointment will be for 1 year with possibility of extension. Salary: \$22,000 per year. Send résumé and names of three references by 2 September to: G. W. Boehlert, School of Oceanography, Oregon State University Marine Science Center, Newport, Oregon 97365. Affirmative Action/Equal Opportunity Employer.

CHAIRPERSON
DEPARTMENT OF INFECTIOUS
DISEASES (PROPOSED)
COLLEGE OF VETERINARY MEDICINE

Distinguished scientist to assume academic/administrative leadership of proposed new department, currently encompassing disciplines of bacteriology, epidemiology, parasitology, and virology. Requirements include a distinguished academic and research record, the ability to develop/administer both basic and applied programs, and an earned doctorate or equivalent. Either applications (with curriculum vitae and names of three referees) or nominations are invited. Closing deadline is 1 October 1983. Reply to: S. W. Russell, Chairman, Infectious Diseases Search Committee, Department of Comparative and Experimental Pathology, Box J-145, JHMHC, University of Florida, Gainesville, Fla. 32610. An Equal Opportunity/Affirmative Action Employer.

Ph.D. CHEMIST

We are seeking a Ph.D. chemist with expertise in solid phase and solution phase peptide synthesis to work on project to design and synthesize peptide inhibitors of blood clotting enzymes. Peptides, containing arginine analogs, are designed using computer graphics display of peptide-enzyme complex. Experience with NMR, IR, and HPLC required.

Please send résumé to: Hugh Burke, New England Medical Center, 171 Harrison Avenue, Box 795, Boston, Mass. 02111. An Affirmative Action/Equal Opportunity Employer, M/F.

FACULTY POSITION IN PHARMACOLOGY. School of Medicine in the South is seeking to fill a full-time position in pharmacology at the assistant professor level. A Ph.D. in pharmacology from a medical school or M.D. is required. This is a tenure-track position and interest is invited from qualified individuals. The individual will participate in an innovative curriculum based upon problem-solving in small group tutorials. Teaching background in cardiovascular or neuropharmacology is preferred and an active research program is desired. Area of research interest is open. Closing date for application will be 1 October 1983. Forward curriculum vitae and names of three references to: John Cramer, School of Medicine, Mercer University, Macon, Ga. 31207.

POSITIONS OPEN

DIRECTOR/PROFESSOR, DRUG
DEVELOPMENT, SCHOOL OF PHARMACY
and COMPREHENSIVE CANCER CENTER,
UNIVERSITY OF SOUTHERN CALIFORNIA

Applications are invited from senior individuals with outstanding records of research accomplishment. Candidates should be dedicated to the provision of leadership in an expanding drug development program concerned with design of cancer chemotherapeutic agents and their advancement to clinical trial. Applications will be received until the position is filled and should be addressed to: Paul Hochstein, Chairman, Drug Development Search Committee, School of Pharmacy, University of Southern California, 1985 Zonal Avenue, Los Angeles, Calif. 90033-1086. Equal Opportunity Employer.

ELECTRON MICROSCOPIST—A person experienced with transmission and scanning electron microscope techniques is required for a challenging position in biomedical research in an established laboratory in the Department of Anatomy at the Albert Einstein College of Medicine. B.A. or higher degree necessary. Appointment and salary commensurate with qualifications. Excellent benefits. Reply: Dr. Peter Satir, Chairman, Department of Anatomy, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, N.Y. 10461. An Equal Opportunity Employer.

ENTOMOLOGY GROUP LEADER. The College of Agriculture/Agricultural Experiment Station invites nominations/applications for an entomology group leader. The position is a 12-month, tenure-track appointment at the associate or full professor level. The successful candidate must have: (i) a Ph.D. in entomology; (ii) a record of scholarly achievement and distinguished, diversified teaching; (iii) been productive in grantsmanship and research; (iv) demonstrated administrative ability; and (v) preferably, research training or experience in insect vector-plant disease relationships. A detailed job description and qualifications are available upon request. Applications should include a letter of application, professional curriculum vitae, and names, addresses, and telephone numbers of three references, and should be sent to: Dr. D. P. Bartell, Chairman, Search Committee, 215 Linfield Hall, Montana State University, Bozeman, Montana 59717. Deadline for nominations is 1 September 1983; applications accepted until 15 September 1983.

FACULTY POSITION—CELL
BIOLOGIST/MOLECULAR GENETICIST

The Division of Biomedical Sciences, School of Graduate Studies, Meharry Medical College, has a tenure-track position available at the assistant or associate professor level. We are seeking an individual with research interest in regulation of eukaryotic gene expression and are particularly interested in a person with expertise in recombinant DNA and/or monoclonal antibody technologies. Applications are invited from persons with a Ph.D. or M.D. degree and relevant postdoctoral experience, who are available for appointment during the 1983-1984 academic year. The successful applicant will be expected to contribute to graduate and medical student teaching, to develop a strong independent research program, and to contribute to interdisciplinary training and research programs in cell biology.

The Division of Biomedical Sciences provides training for graduate students who are studying to receive their Ph.D. or M.D./Ph.D. at Meharry Medical College. Salary is negotiable.

Applicants should submit curriculum vitae and brief description of their teaching interests and proposed research by 1 October 1983, and should arrange to have three letters of recommendation sent to: Dr. George C. Hill, Director, Division of Biomedical Sciences, Meharry Medical College, 1005 D. B. Todd, Jr., Boulevard, Nashville, Tenn. 37208. An Equal Opportunity/Affirmative Action Employer.

MOLECULAR GENETICS:
POSTDOCTORAL RESEARCH ASSISTANT

Position is available immediately on an NIH sponsored, 4-year grant to study the transcriptional regulation of human metallothionein gene expression [see *Nature* 299, 797 (1982); *PNAS* 80, 4040 (1983)]. Research experience in molecular and cellular biology, nucleic acid enzymology, molecular genetics, and protein-nucleic acid interaction is sought. Please send curriculum vitae and names of three references to: Dr. Michael Karin, Department of Microbiology, HMR 401, University of Southern California School of Medicine, 2011 Zonal Avenue, Los Angeles, Calif. 90033.

POSTDOCTORAL POSITIONS

AVAILABLE AT WYETH LABORATORIES

Three postdoctoral fellows positions are immediately available at our headquarters facility in Radnor, PA, an attractive Main Line suburb of Philadelphia. Specific areas of study and investigation are as follows:

Postdoctoral position #1 is available to study the mechanism of bacterial resistance to antimicrobial agents and to identify and evaluate biochemical targets directed against clinical pathogens. Candidates should have expertise in biochemical isolation, purification and characterization techniques for enzymes and biologically active proteins. Experience in enzyme/inhibitor interaction is desirable. Applicant should have a degree in microbiology and a strong background in biochemistry.

Postdoctoral position #2 is available in bacterial vaccine research and development. Candidates should have expertise in recombinant DNA technology and experience with fermentors and/or protein purification. Applicant should have a degree in molecular biology, microbiology or biochemistry.

Postdoctoral position #3 is available for an individual interested in antiinflammatory and cytoprotective mechanisms in the lower gastrointestinal tract; background in smooth muscle biochemistry and physiology desirable.

These positions, which are immediately available for a one year appointment and can be renewed for another year, offer an attractive salary and benefits.

Qualified candidates are invited to submit curriculum vitae to:
John W. Pinkerton - Personnel Department

Wyeth Laboratories

P.O. Box 8299, Philadelphia, PA 19101
Equal Opportunity Employer, M/F/H

Carolina Conference 1983

Gene Transfer And. Expression

Carolina Conference 1983 will be held October 16 through 19 at the Quail Roost Conference Center, North Carolina. The chairs will be George Scangos (DNA Mediated Transformation), John Carbon (Cis-acting Elements), Joe Sambrook (Vectors), Phillip Bassford (Protein Secretion), plus a

session on gene amplification. The total cost for room, board and registration is \$250. Apply by August 30 to Diane Lawton, Program in Molecular Biology and Biotechnology, 125 MacNider Building 202H, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27514.



University of
North Carolina
at Chapel Hill

Program in Molecular Biology & Biotechnology

DIRECTOR OF TECHNOLOGY

San Francisco Bay Area

Siltec, one of the leading manufacturers of silicon products for the semiconductor industry, has maintained its effort to improve standards of excellence and consistency. Today, our products compete with the best that any of our competition can produce.

The position of Director of Technology has been created to bring organizational focus to Siltec's commitment to the future of technology development.

The thrust of this position will be to lead research and development efforts in our comprehensively equipped, state-of-the-art Technology Center. This facility — with its prime location — will be used as a resource for Siltec, our customers and the scientific community in areas of common technical interest. This will create an environment that is conducive to a high level of involvement.

Your recognized and practical experience, combined with a strong orientation toward the future and commitment to excellence within our industry, will be fully utilized in leading projects relative to materials development, semiconductor device processes and evaluation methods. You'll be relied upon further to provide technical forums for our customers, academia and various technical media.

This endeavor — unique in its scope — offers a truly rare growth opportunity for the scientist who has a minimum of 10 years experience within the semiconductor or materials industry, and a Ph.D. in Materials Science, Chemistry, Physics or related field.

Qualified applicants are invited to submit a curriculum vitae, in confidence, to Jim Robertson, Corporate Director of Personnel, Siltec, 3717 Haven Avenue, Menlo Park, CA 94025. We are an equal opportunity employer m/f/h.



POSTDOCTORAL POSITIONS
in
ANALYTICAL CHEMISTRY
and
BIOENGINEERING

Battelle Columbus Laboratories, a world leader in research and development, is searching for postdoctoral candidates to fill challenging positions in our new National Center for Biomedical Infrared Spectroscopy. This Center is being created through NIH funding from the Division of Research Resources, and will offer exciting new opportunities for research. Specifically, we are seeking individuals for the following positions:

ANALYTICAL CHEMIST/SOFTWARE POSTDOCTORAL—Ph.D. or equivalent in chemistry with experience in computer science required, FT-IR desirable. Will conduct a core research program involving development of a user friendly system, support a protein interpretation research program, and provide general support to Center staff. Experience with Data General or Digital minicomputers would be a plus. Salary range \$19,000 to \$25,000 for first year (postdoctoral).

POSTDOCTORALS—Ph.D. or equivalent in area related to bioengineering-biomaterials, classical biochemistry, and protein chemistry. Skills in FT-IR spectral interpretation, search system design and computer programming desirable. Salary range: \$18,000 to \$20,000 per year.

The above positions are for a 1-year initial appointment with possibilities for permanent positions with Battelle's multidisciplinary research operations in biotechnology. *U.S. citizenship or permanent residency required for all positions.* Interested individuals should send résumé with references to: **Richard C. Needles, Employment, Department G-2,**



Battelle

Columbus Laboratories
505 King Avenue
Columbus, Ohio 43201

BIOCHEMICAL ENGINEER

**Want to help establish
a pharmacy in space?**

McDonnell Douglas Astronautics Company, St. Louis has challenging opportunities for Biochemical Engineers to work on our EOS (Electrophoresis Operations in Space) project.

Responsibilities will involve scale up and fermentation of cell culture processes from laboratory to pilot plant and production scale operations. Requirements include an MS or PhD, with a strong background in basic Biochemical Engineering principles and experience in cell culture at the laboratory or pilot plant scale. Knowledge of equipment design and operation is mandatory.

To take part in this exciting venture, send your resume in confidence to:

Manager, Professional Employment
McDonnell Douglas Corporation
P.O. Box 516
Department 62-121
St. Louis, MO 63166

**MCDONNELL
DOUGLAS**

An Equal Opportunity Employer • U.S. Citizenship Required

POSITIONS OPEN

FACULTY POSITION AVAILABLE

The Department of Medical Microbiology and Immunology, University of South Florida, seeks to appoint a professor to a tenure-track position effective 1 September 1983. Applicant must be an internationally recognized authority on various aspects of interferon research from molecular biology/virology to clinical applications. Must have extensive research and publications in the field, and must have administrative experience in directing research group. Letters of recommendation and applications should be sent to:

Herman Friedman, Ph.D.
Professor and Chairman
Department of Medical Microbiology
and Immunology
University of South Florida College of Medicine
MDC Box 10, 12901 North 30 Street
Tampa, Fla. 33612

Faculty Position in Neuropsychology: The City College of City University of New York (CUNY)

The Department of Psychology invites applications for an anticipated (1 February 1984 or 1 September 1984) tenure-track position. Applicants will be considered for an assistant, associate, or full professorship depending upon the research credentials of the individual. We are particularly interested in a person with a strong background in clinical research in neuropsychology together with commensurate knowledge in cognitive psychology and/or physiological psychology.

Send curriculum vitae, a description of future research plans, and three letters of recommendation by 15 November 1983 to:

Dr. William King, Chairperson
Department of Psychology
The City College of CUNY
Convent Avenue at 138th Street
New York, N.Y. 10031
*An Equal Opportunity/Affirmative
Action Employer M/F/V/H*

UNIVERSITY OF CALIFORNIA Farm Adviser—Agronomy/Range Location: Los Angeles County (Headquarters: Antelope Valley Office)

Three-year position with option for renewal in Cooperative Extension; to plan, implement, and evaluate educational program in field crops, range management, tree and vegetable crops in Los Angeles and San Bernardino Counties. Assure Affirmative Action in development and delivery of programs. A master's degree in plant science and related experience are preferred; B.S. degree is required. Contact: **Cooperative Extension Personnel, 2120 University Avenue, University of California, Berkeley, Calif. 94720. Telephone: 415-644-4320. Closes: 30 September 1983. Refer to Number 8216-R.**

*Affirmative Action/Equal Opportunity
Employer, M/H/F*

MOLECULAR BIOLOGIST/BIOCHEMIST MOLECULAR/BIOCHEMICAL PARASITOLOGY POSITION

The Division of Biomedical Sciences, School of Graduate Studies, Meharry Medical College, has a tenure-track position available at the assistant or associate professor level, for an individual with research interest in the area of molecular biology or biochemistry of malarial parasites or other parasitic systems. Applications are invited from persons with a Ph.D. or M.D. degree and relevant postdoctoral experience, who are available for appointment during the 1983-1984 academic year. The appointee will be expected to maintain an active externally funded research program, contribute to graduate and medical student teaching, and participate in an interdisciplinary program of predoctoral and postdoctoral training in tropical diseases.

The Division of Biomedical Sciences provides training for graduate students who are studying to receive their Ph.D. or M.D./Ph.D. at Meharry Medical College. Salary is negotiable.

Applicants should submit curriculum vitae and a brief description of their teaching interests and proposed research by 1 October 1983, and should arrange to have three letters of recommendation sent to: **Dr. George C. Hill, Director, Division of Biomedical Sciences, Meharry Medical College, 1005 D. B. Todd, Jr., Boulevard, Nashville, Tenn. 37208. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

DEAN—School of Dentistry. Creighton University invites nominations and applications for the position of dean, Boyne School of Dental Science. Creighton University is a private Catholic and Jesuit institution located in Omaha, Nebraska. The Dental School is part of the Creighton Health Sciences Complex, enrolls approximately 300 dental students, and is oriented toward predoctoral education with a heavy emphasis on clinical excellence. Desired qualifications for the position include earned doctoral degree, leadership capability, a background in professional dental education, research, and academic administration. Candidates should submit curriculum vitae and the names of three references. Nominations and applications will be accepted until 1 December 1983. *Creighton University is an Affirmative Action/Equal Opportunity Employer.* Address all correspondence to: **John J. Butkus, D.D.S., Chairman, Dental Dean Search Committee, Creighton University, 2500 California Street, Omaha, Nebraska 68178.**

FOUR TENURE-TRACK FACULTY POSITIONS are available for the 1984-1985 academic year. Applications will be considered for all academic levels, including named professorships. The successful applicants will be chosen from among:

MOLECULAR BIOLOGY OF GENE EXPRESSION OF METAZOANS

POPULATION GENETICS AND MATHEMATICAL ECOLOGY

or outstanding candidates in related areas. Coordinated applications are encouraged. Successful candidates will be expected to have demonstrated commitment to quality teaching and a vigorous, independent research program. Please submit curriculum vitae (including biographic data), short statement of research objectives, names of at least five referees, and selected reprints to: **The Chairman, Department of Zoology, University of Texas at Austin, Austin, Texas 78712, before 1 November 1983.**

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

BERKELEY Head, Science Libraries

Administer 14 life and physical science branch libraries in the General Library system, University of California, Berkeley, with responsibility for personnel and fiscal management including a \$1 million acquisition budget. Supervise public service, technical processing, and collection development. Responsible for development of automated programs, faculty relations, and outside funding sources.

Requires M.L.S. degree; extensive and increasingly responsible experience in a scientific, biomedical, or engineering academic library; and demonstrated effective management skills. Experience with library instructional programs, computer literature searching, automated catalog processing, and experience in collective bargaining highly desirable.

Full job description mailed on request. Salary range from \$26,608 per annum to start, depending on qualifications. Starting date: 1 November 1983, or as soon thereafter as possible. To apply, send résumé, including names and addresses of three professional references, by 30 September 1983 to:

William E. Wenz, Library Personnel Officer
Room 447 General Library
University of California
Berkeley, Calif. 94720

An Equal Opportunity/Affirmative Action Employer

HEAD, DEPARTMENT OF ENTOMOLOGY, UNIVERSITY OF ARIZONA. Tucson, to assume leadership in teaching, research, extension; serve as administrative head. Accept challenge to develop department outstanding in Southwest, nationally recognized. Must address both agricultural and urban problems; encourage research on rich arthropod fauna from low desert to alpine summits. Strong commitment to excellence in teaching. Closing date: 1 November 1983. Available: 1 December 1983, or until filled. Submit curriculum vitae, academic transcripts, statement of qualifications and goals for this position, names, addresses, and telephone numbers of six references to: **W. L. Nutting, Department of Entomology, University of Arizona, Tucson, Arizona 85721. An Equal Opportunity/Affirmative Action Employer.**

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of providing the healthcare
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Research Department and
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Sr. Biochemist (PhD)

We have an opening for a PhD
in biochemistry and 2-3 years'
postdoctoral experience in
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Synthetic Chemist (BS/MS)

We're seeking an individual
with a BS/MS plus 2-4 years
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synthesis of organic com-
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benefits package that includes
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Please send your resume to:
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CETUS CORPORATION, a leader in biotechnology, has newly created scientific positions available in our research and development groups.

Senior Scientist — Molecular Biology

Positions are available for Ph.D.'s with outstanding research and publication records to direct research programs in: 1.) cDNA cloning and mRNA isolation, and 2.) gene expression in heterologous host systems, e.g., mammalian cells, E. coli, B. subtilis, streptomyces, yeast or other fungi. Extensive knowledge and experience in two or more of the following areas is essential: molecular cloning of cDNA, gene regulation at the transcriptional or translational level, gene cloning and nucleic acid manipulations, microbial genetics, or protein secretion. Reply to Box SC/DM.

Senior Scientist — Cell Biology

A position is available for a Ph.D. with 5-10 years' experience in cell biology, virology or cellular immunology to join a team of scientists in our lymphokine program. The candidate should have an extensive research and publication record; experience in directing a laboratory staff of 10-30 people is desirable. Reply to Box MK.

Protein Biochemist

A position at the postdoctoral or M.S. level is available for persons with experience in: protein isolation using modern techniques, chemical modifications, protein sequencing and amino acid analysis. Micro-methodology experience is highly desirable. Reply to Box KW.

Interested candidates should send a resume or C.V. in confidence to the appropriate box:

Cetus Corporation
1400 Fifty-third Street
Emeryville, CA 94608

We are an Equal Opportunity
Employer, M/F/Handicapped



Request for Proposals

University Genetics Co. (UGEN), a public technology development company, has invested nearly \$2 million in university based projects and inventions in the past year and expects to continue such investments in the coming years. The Company has licensed or represents over 100 genetic technologies worldwide.

Currently, UGEN and its industrial affiliates are looking to expand activities in certain areas of genetic engineering and biotechnology. We invite submission of short proposals for development of innovative work in all areas of genetic engineering but particularly related to plant growth and protection (diseases and pathogen resistance, herbicides, growth regulators, pesticides, biological controls, etc.), animal husbandry (vaccines, growth regulators, feed products, etc.), human health, gene probes (viral, bacterial, mammalian), monoclonals, production of pharmaceutical and industrial products, novel industrial chemistry, purification or scale-up processes and inventions pertaining to the aforementioned.

Additional information may be obtained by writing to:

Dr. Thomas J. Monahan
Vice President for Research
University Genetics Co.
537 Newtown Avenue, P.O. Box 6080
Norwalk, CT 06852

POSITIONS OPEN

INSTRUCTOR IN MEDICINE to plan, initiate, and direct a multidisciplinary research program, supervise a scientific and technical staff, and conduct personal research in the area of human apolipoprotein metabolism. Primary goal of project will be the analysis of the apolipoprotein polymorphism in populations of normal and dyslipoproteinemic subjects, the production and utilization of monoclonal antibodies in the analysis of apolipoprotein and lipoprotein heterogeneity, and the isolation and quantitation of the apolipoprotein isoforms and the analysis of their metabolic behavior in vivo in man and in experimental animals. Must have Ph.D. in physiology, protein chemistry, or related biological science with 2 years of postdoctoral training and 1 year of experience in apolipoprotein lipoprotein research field as independent research with consistent publication record; 40 hours per week, \$27,560 per year. Apply at: **The Texas Employment Commission, Houston, Texas**, or send résumé to: **Texas Employment Commission, TEC Building, Austin, Texas 78778, Job Order Number 2810554. Ad paid by an Equal Opportunity Employer.**

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for **LECTURER IN ZOOLOGY, FACULTY OF SCIENCE**. The successful applicant will be expected to establish an undergraduate course in behavioural ecology and assist in the teaching of other areas of general zoology. He or she will also be expected to assist in the supervision of graduate students and to develop a research programme in behavioural ecology. An active interest in ethology, ecology, and evolutionary theory would be preferred, and experience in lecturing and tutorial work an advantage. Salary in accordance with qualifications and experience within the range: lecturer A\$22,430-A\$29,467 per annum. Current exchange rates: A\$1 = U.S.\$87 = U.K.£57p. Appointment will be for 4 years in the first instance with the possibility after review, of reappointment to retiring age. Grants are provided towards travel and removal; assistance with housing; superannuation. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, The Australian National University, G.P.O. Box 4, Canberra, ACT, Australia**, with whom applications close on 2 September 1983.

MOLECULAR MICROBIOLOGIST

Tenure-track position as assistant professor of medical microbiology and immunology. Applicants must have Ph.D. or M.D. in microbiology, molecular biology, or related areas with relevant postdoctoral experience preferred. The successful candidate should have the capability of teaching microbial and molecular genetics to medical and graduate students, and an active competitive research program relating to molecular genetics of infectious agents. Submit curriculum vitae and three letters of reference to: **Richard J. Ziegler, Ph.D., Medical Microbiology and Immunology, University of Minnesota, Duluth, School of Medicine, Duluth, Minn. 55812**. Closing date is 1 October 1983. *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

THE DEPARTMENT OF PATHOLOGY OF THE UNIVERSITY OF ILLINOIS has an immediate opening for an academically oriented **SURGICAL PATHOLOGIST/HEMATOPATHOLOGIST**. Qualifications include an earned M.D. degree and Board certification in anatomic pathology with 5 years of service experience afterwards. The appointee is expected to share in teaching and service duties while continuing research activities. This is an excellent opportunity within the nation's largest medical school system. Salary and rank dependent on experience and credentials. For fullest consideration, applications should be received by 15 September 1983. *An Equal Opportunity/Affirmative Action Employer.* Direct inquiries and submit curriculum vitae to: **Jose R. Manaligod, M.D., Ph.D., Department of Pathology, University of Illinois Medical Center, 1853 West Polk Street, Chicago, Illinois 60612.**

POSTDOCTORAL POSITION available immediately to work on development of retina. Experience in biochemical or immunological techniques desirable. U.S. citizenship or permanent residence required. Send curriculum vitae and references to:

**P. Vijay Sarthy, Ph.D.
Department of Ophthalmology, RJ-10
University of Washington
Seattle, Wash. 98195**

An Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

The Department of Pathology of the University of Illinois has an immediate opening for a Board-certified or Board-eligible **PATHOLOGIST** to be **HEAD** of the Chemical Pathology Laboratories in the Division of Clinical Pathology. Salary and rank dependent upon experience and credentials. The Chemical Pathology Laboratories consist of General, Special and Stat Chemistry Laboratories, RIA, Toxicology/Pharmacometrics and Electrophoresis. Inquiries, which should include curriculum vitae, synopsis of current research interests, list of publications, reprints of selected publications, and the names of three references, should be sent by 15 September 1983 to: **Egil Fosslie, M.D., Chairman of the Search Committee, Department of Pathology, University of Illinois Health Sciences Center, 840 South Wood Street, Chicago, Illinois 60612. An Equal Opportunity/Affirmative Action Employer.**

THE DEPARTMENT OF PATHOLOGY OF THE UNIVERSITY OF ILLINOIS has an immediate opening for an academically oriented **SURGICAL PATHOLOGIST/OB-GYN PATHOLOGIST**. Qualifications include an earned M.D. degree and Board certification in anatomic pathology. The appointee is expected to share in teaching and service duties while continuing research activities. This is an excellent opportunity within the nation's largest medical school system. Salary and rank dependent on experience and credentials. For fullest consideration, applications should be received by 15 September 1983. *An Equal Opportunity/Affirmative Action Employer.* Direct inquiries and submit curriculum vitae to: **Jose R. Manaligod, M.D., Ph.D., Department of Pathology, University of Illinois Medical Center, 1853 West Polk Street, Chicago, Illinois 60612.**

PHARMACOLOGY ASSOCIATE POSITIONS are available for individuals with Ph.D. degree and interest in pursuing postdoctoral research in membrane pharmacology or CNS pharmacology. Submit résumé and references to:

**H. Lal, Professor and Chairman
Department of Pharmacology
Texas College of Osteopathic Medicine (TCOM)
Fort Worth, Texas 76107**

TCOM is a state medical school and Equal Opportunity/Affirmative Action Employer and is located in Dallas/Fort Worth metroplex.

PLANT SCIENTIST—TISSUE CULTURIST

A position is available at the Tissue Culture Laboratory of a horticultural company in West Chicago, Illinois. The qualifications for the position are: Ph.D. or experienced M.S. in horticulture or related area with a strong background and interest in plant physiology; tissue, cell, and protoplast culture; and plant regeneration. Send résumé to:

**Dr. Irwin Chu
George J. Ball, Inc.
P.O. Box 335
West Chicago, Ill. 60185**

POSTDOCTORAL ASSOCIATE

To study **MEMBRANE LIPID AND LIPID-PROTEIN INTERACTIONS** using **MULTINUCLEI NMR TECHNIQUES**. Experience in membrane biophysics and/or FT-NMR is desirable. Annual stipend (\$16,400 minimum) and position (Hormel fellow, research associate) dependent upon previous experience. Submit before 30 September 1983, curriculum vitae, names of three references, research summary, and a brief outline of research goals to: **Dr. Wolfgang J. Baumann, The Hormel Institute, University of Minnesota, Austin, Minn. 55912. Telephone: 507-433-8804. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages women and minority applicants.**

POSTDOCTORAL ASSOCIATE available immediately; screening will begin immediately. Position will collaborate on an NIA/NIH grant studying age related changes in oral mucosa and skin. Requires Ph.D. and a background in biochemical metabolism with experience in the use of radioactive isotopes, determination of rates of protein synthesis, extraction and identification of lipids using thin layer chromatography and assay to determine binding affinity. Experience in tissue culture helpful but not necessary. Salary will be consistent with NIH postdoctoral salary scale. Send curriculum vitae, official transcripts, and names of two referees to: **Dr. Murray Hill, Dows Institute for Dental Research, College of Dentistry, University of Iowa, Iowa City, Iowa 52242.**

POSITIONS OPEN

PHYSIOLOGY

Assistant or associate professor, initially a term appointment, renewable with prospects for a career position. The successful candidate will be expected to develop his/her own research projects, in coordination with an already established group studying the short- and medium-term effects of ionizing radiation. *This advertisement is directed to Canadian citizens and permanent residents.* Respond with curriculum vitae and names of two references by 15 November 1983 to: **Chairman, Department of Physiology, University of Ottawa, Ottawa, Ontario, Canada K1H 8M5.**

POSITION IN PLANT GENETICS HARVARD UNIVERSITY

The Department of Organismic and Evolutionary Biology invites applications and nominations for a position in the genetics of plants at either the assistant or associate professor level. The position involves both teaching and research.

We welcome applications from persons working at the cellular, organelle, and molecular levels as well as the organismic, and on basic mechanisms. Irrespective of the level at which the research is being carried out, the primary interest of the candidate must be in comparative or evolutionary biology. Appropriate subjects include gene-cytoplasmic interactions, the genetics of cellular organelles, and genome structure. Some preference will be given to candidates with postdoctoral experience.

Letters of application, curriculum vitae, and names and addresses of three references should be sent by 30 September 1983 to: **Professor Peter S. Ashton, Harvard University Herbaria, 22 Divinity Avenue, Cambridge, Massachusetts 02138.**

Harvard is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL FELLOW. A position is available for an immunologist to study and culture T cells involved in the pathogenesis of the autoimmune diabetes of the BB/W rat. Submit curriculum vitae and the names of three references to: **Bruce A. Woda, M.D., Department of Pathology, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, Mass. 01605. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL FELLOW. Position available in atherosclerosis research with Dr. Beverly Paigen. Will examine the role of high density lipoproteins utilizing genetic variants in inbred strains of mice. Doctorate and research experience in biochemistry, molecular biology, or genetics. Salary: \$1646 to \$1811 per month. Send résumé and names of three references to: **CHILDREN'S HOSPITAL MEDICAL CENTER, Personnel Department, 51st and Grove Streets, Oakland, Calif. 94609.**

Equal Opportunity Employer, M/F

POSTDOCTORAL POSITION in immunology for individual with expertise in membrane biochemistry to study antigen-induced membrane events and differentiation of murine and human B cell lines. Send letter and curriculum vitae to: **Dr. R. B. Bankert, Department of Molecular Immunology, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, N.Y. 14263. An Equal Opportunity Employer, M/F.**

POSTDOCTORAL POSITION available immediately to study neurochemistry and neuropharmacology of brain serotonergic systems in relation to motor function. Please send curriculum vitae and names of three references to: **L. Tarallo, Personnel Department, THE MOUNT SINAI MEDICAL CENTER, 19 East 98 Street, New York, N.Y. 10029. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION—MOLECULAR PARASITOLOGY. Two postdoctoral research associate positions are available immediately for 2 years in order to participate in a research group investigating the structure and function of mitochondrial genes in African trypanosomes. These recombinant DNA studies are involved in identifying and characterizing developmentally regulated clones. A candidate with previous experience in recombinant DNA technology is desired but not required. A stipend of \$16,000 to \$17,000 is available for the first year. Applicants should submit curriculum vitae and the names of three references to:

**Dr. George C. Hill, Director
Division of Biomedical Sciences
Meharry Medical College
1005 D. B. Todd, Jr., Boulevard
Nashville, Tenn. 37208**

An Equal Opportunity/Affirmative Action Employer

RESEARCH ECONOMIC GEOLOGIST

The Department of Mineral Sciences at The American Museum of Natural History is seeking applicants for a curatorial research position in Economic Geology. Major responsibility is to carry out a vigorous research program involving field and laboratory studies on the origin and development of ore deposits anywhere in the world. Close working relationships with other researchers to broaden the scope of the work are encouraged. Involvement with graduate students, if desired, is also possible. Minor responsibilities include some collections development and public programs (symposium or exhibition). The position offers the freedom and support to carry out major research projects on a large scale, unfettered by major administrative or academic responsibilities.

The Department has excellent laboratory facilities including an automated electron microprobe, X-ray facilities, sample preparation laboratory, photographic and graphic support, and computers. A PhD in Economic Geology is required and the position is open to persons of any rank, with salary negotiable.

Candidates should submit a resume (including a statement of research interest), salary requirements, and the names of three references by October 15, 1983 to:

**Dr. Martin Prinz
Search Committee**

**THE AMERICAN MUSEUM
OF NATURAL HISTORY
79th Street at Central Park West
New York, N.Y. 10024**

An equal opportunity (M/F/H) affirmative action employer

RESEARCH POSITIONS

Zymos is a genetic engineering company with a focus on:

- Yeast molecular genetics and its use in production of genetically engineered proteins;
- Human serum proteins, including those involved in blood clotting and fibrinolysis.

Zymos provides opportunities in basic and applied research for Ph.D. level staff scientists and postdoctoral fellows. Applications are invited from individuals with expertise in:

- Protein chemistry
- Immunochemistry
- Nucleic acid chemistry, including oligonucleotide synthesis
- Large-scale cell culture
- Genetics and molecular biology of lower eukaryotes, particularly yeast

Zymos offers excellent research facilities, attractive salaries, opportunities for equity participation in the company, and full benefits. To apply please send your *curriculum vitae*, the names of three references, and a brief statement of your professional goals to Vickie Clark at:

**ZYMOS CORPORATION
2121 North 35th Street
Seattle, Washington 98103**

DEAN

COLLEGE OF LIBERAL ARTS ARIZONA STATE UNIVERSITY

Arizona State University seeks a person to provide vigorous academic leadership and direction for the faculty of the College of Liberal Arts. The College consists of 21 departments and 10 research centers representing the Humanities, Social Sciences, and Natural Sciences and offers programs leading to Bachelor, Master, and Doctoral degrees.

The Dean of the College of Liberal Arts reports to the Vice President for Academic Affairs but has primary responsibility for developing and administering degree programs, recruiting faculty, planning budgets, evaluating faculty, coordinating curricula, representing the College in the larger university and community, and stimulating faculty development in an institution committed to excellence in research, scholarship, and teaching. The Dean must take seriously an obligation to consult with faculty in the College and must be committed to Equal Opportunity and Affirmative Action.

Candidates should be persons with a national and international reputation for accomplishments in research and other scholarly activities and should clearly merit appointment as a Professor with tenure in the appropriate academic department at Arizona State University. (A colloquium or public lecture of a substantive scholarly nature will be expected of each candidate invited to campus for an interview.) Candidates also should have demonstrated administrative skills and abilities and have an understanding of the nature of a large college committed to continued improvement toward excellence. It is expected that the starting date for the new Dean will be July 1, 1984, but an earlier starting date is preferable.

Applications should consist of a letter of application, a professional resume, and three letters of recommendation. Letters of reference should comment upon both scholarly accomplishment and administrative ability. Applications or inquiries should be sent to:

**Jeffrie G. Murphy, Chair
Search Committee for Dean of College of Liberal Arts
Department of Philosophy
Arizona State University
Tempe, Arizona 85287
(602) 965-3703**

CLOSING DATE: October 15, 1983

Arizona State University is an Equal Opportunity, Affirmative Action Employer.

Center for X-Ray Optics

Applications are being accepted for positions at the newly formed Center for X-Ray Optics at Lawrence Berkeley Laboratory (LBL). The Center will provide specialized expertise on XUV (broadly, 30 eV to tens of keV) radiation techniques and their general applications to science and industry; and it will emphasize the emerging technologies required for the efficient transport, dispersion, focusing, and detection of XUV radiation from synchrotron light and other sources of radiation. The Center, which will consist of a core group at LBL and affiliated Research Associates from the scientific and industrial community throughout the country, will develop new XUV techniques for scientific applications in physics, chemistry, materials science and the life sciences. It will be closely associated with the new synchrotron radiation source—the Advanced Light Source (ALS)—currently being planned at LBL.

Positions are available for Ph.D. Physicists or Electronics Engineers with expertise in the following areas:

- General X-ray instrumentation,
- Multilayer coatings for X-ray optics,
- Monochromator design,
- Reflective X-ray optics (configured mirrors),
- X-ray detectors.

For further information, contact Dr. David Attwood at (415) 486-4463.

Send two copies of resumé to: J. Schilling, Lawrence Berkeley Laboratory, Employment Office, Building 65, #1 Cyclotron Road, Berkeley, CA 94720. Equal opportunity employer, m/f/h.

**LB
LAWRENCE
BERKELEY
LABORATORY**

PUBLIC HEARINGS ON THE ORGANIZATIONAL STRUCTURE OF THE NATIONAL INSTITUTES OF HEALTH

The National Academy of Sciences, Institute of Medicine, is beginning a study of the organizational structure of the National Institutes of Health (NIH). The purpose of this study is to develop rationale and criteria to be met in determining the need to change, in any substantial manner, the current organizational structure of the NIH, and determine possible alternative structures for the NIH. To aid the committee for this study in its investigations, the Institute of Medicine will hold two days of public hearings and discussions. These will take place on 26 and 27 September 1983, starting at 9 a.m., in the Lecture Room of the National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20418. In particular, the committee wishes to discuss:

- 1) The effect of organizational changes in the last 15 years on the flow of funds into various fields, on the management and coordination of biomedical research, and on the comprehensiveness and quality of research in the affected fields;
- 2) The strengths and weaknesses of the current organizational structure of categorical institutes, advisory councils, peer-review groups, and so on, for managing and ensuring high quality and relevant biomedical research; and
- 3) The strengths and weaknesses of possible alternative organizational structures, particularly as exemplified by existing research organizations.

To facilitate a focused discussion, we invite all interested parties to submit brief written statements of their views. Based on the written statements, we will choose a small number of speakers to lead a panel discussion on each of the above topics. Others will be welcome to participate in the discussions from the floor. Both the written comments and a summary of the panel discussions will form an important part of the information base for the committee. Because they ensure an accurate representation of your views, the committee especially values written comments.

In order to be considered for leading one of the panel discussions, or to be a participant, please send written comments to: **Michael A. Stoto, Ph.D.**, the study director, by 6 September. Other written comments should be received by 1 October to get the full consideration of the committee. Please telephone: **Dr. Stoto or Cindy Howe at 202-334-2268** if you plan to attend, or for further information.

POSITIONS OPEN

IMMUNOLOGIST—REF. SC/L4/83/4

ILRAD wishes to recruit a senior immunologist to strengthen the Laboratory's research programme on the immune systems of ruminants and their responses to trypanosomiasis and theileriosis.

The successful candidate is expected to lead a research group, including postdoctoral fellows and doctoral students, in the application of current immunological knowledge to the analysis of the ruminant immune system and relate such research to elucidation of immune responses to trypanosomiasis and theileriosis.

Candidates should have at least 5 years of postdoctoral experience in relevant areas of immunology research, proven leadership ability, and an interest in host-parasite interactions. Prior experience of research in ruminant immunology or parasitic disease would be advantageous, but is not essential.

This is an international staff position and the salary will be paid in U.S. dollars. Initial salary level will be determined by qualifications and experience. Moving, housing, commutation, and education allowances are paid and there are medical and retirement benefits. Applications should include current curriculum vitae and the names and addresses of three referees. Applications, citing the position reference number, should be sent by 15 October 1983 to:

Chief Personnel Officer
ILRAD, P.O. Box 30709
Nairobi, Kenya

MOLECULAR GENETICIST. Ph.D., at least 3 years of postdoctoral experience with recombinant DNA technology and immunological techniques. Responsibilities include development of a research program, providing some genetic services and teaching. Assistant professor level. Salary commensurate with experience. Send curriculum vitae and names of three references to: **Aubrey Milunsky, M.D., D.Sc., Professor of Pediatrics, Center for Human Genetics, Boston University School of Medicine, Boston, Mass. 02118.** *An Equal Opportunity/Affirmative Action Employer, M/F.*

POSTDOCTORAL POSITION (biochemistry/molecular biology) available immediately in the Department of Chemistry for recent Ph.D. for 1 to 3 years to study mechanism of translation in prokaryotes or eukaryotes. This research will involve tRNA-ribosome-structure/function relationships. Stipend: \$15,200 per annum. Interested candidates should forward curriculum vitae and names of three references to: **Dr. S. Chladek, Michigan Cancer Foundation, 110 East Warren Avenue, Detroit, Mich. 48201.** *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION (RESEARCH ASSOCIATE) immediately available for studies on the mechanisms of carcinogenicity of nitroaromatics and nitroso compounds, including metabolism, DNA adduct formation, and cellular biochemical alterations. Salary: \$19,000. Send curriculum vitae and names of three references to: **Dr. Samuel M. Cohen, Department of Pathology and Laboratory Medicine, University of Nebraska Medical Center, Omaha, Neb. 68105.** *An Equal Opportunity/Affirmative Action Employer.*

The Department of Pathology of the University of Illinois College of Medicine at Chicago has an immediate opening for an academic researcher at the level of **RESEARCH ASSOCIATE PROFESSOR.** Qualifications include an earned M.D. degree with at least 5 years of research experience in immunology and cytochemistry. The applicant must also be qualified to do independent research in vascular diseases utilizing organs and cell and tissue culture techniques, and supervise a laboratory engaged in bulk mammalian cell cultivation. The appointee is expected to share in teaching and service duties while continuing research activities. This is an excellent opportunity within the nation's largest medical school system. Salary dependent on experience and credentials. For fullest consideration, applications should be received by 15 September 1983. *An Equal Opportunity/Affirmative Action Employer.* Direct inquiries and submit curriculum vitae to: **Abel L. Robertson, Jr., M.D., Ph.D., Department of Pathology, University of Illinois Medical Center, 840 South Wood Street, Chicago, Illinois 60612.**

POSITIONS OPEN

POSTDOCTORAL POSITION IN ASTRONOMY

We are inviting applicants for a postdoctoral appointment. The selected applicant will be participating in an experiment in very narrow band speckle interferometry and speckle spectroscopy using the MMT and other telescopes at the University of Arizona to study millisecond of arc phenomena on bright stellar objects. The applicant should have an interest and background in experimental astrophysics, preferably in the areas of image detection, image reconstruction, and/or computer image analysis. This appointment will be subject to the renewal of a proposal to the NSF. Applications, including résumé, should be submitted before 15 September 1983 to: **Dr. J. M. Beckers, Multiple Mirror Telescope Observatory, University of Arizona, Tucson, Arizona 85721.** For more information, telephone: **J. M. Beckers, 602-621-1812, or E. K. Hege, 602-621-1049.** *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available 15 September 1983 for individual interested in cell adhesion proteins and/or recombinant DNA technology. Experience in cell biology or molecular cloning and related techniques desirable. Send curriculum vitae and names of three references to: **Dr. Robert J. Klebe, Department of Anatomy, University of Texas Health Science Center, San Antonio, Texas 78284.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS IN IMMUNOLOGY/CELL BIOLOGY available 1 October to study the functional development of neonatal alveolar macrophages or the immune response to a syngeneic B cell leukemia. Please send curriculum vitae and three letters of reference by 9 September to: **Dr. M. J. Ricardo, Microbiology/Immunology, Bowman Gray School of Medicine, 300 South Hawthorne Road, Winston-Salem, N.C. 27103.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE position available immediately to study: (i) enzymology of active oxygen generation in neutrophils, or (ii) enzymology and control of adrenal steroid hormone biosynthesis. Experience in enzyme purification and kinetics preferred. Salary: \$15,000 to \$18,000, depending on experience. Send three reference letters and curriculum vitae to: **Dr. J. David Lambeth, Department of Biochemistry, Emory University School of Medicine, Atlanta, Georgia 30322.**

POSTDOCTORAL SCIENTISTS. Two positions are available in The Behavioral Medicine Laboratory of our Department of Cardiopulmonary Diseases, sponsored by a National Research Service Award. The program provides postdoctoral research training and experience for graduates from biobehavioral, biomedical, and veterinary sciences. These positions provide an opportunity to acquire essential skills in several aspects of quantitative behavioral medicine as it applies to atherosclerosis research in socially living nonhuman primates. The annual stipends are set by the NIH schedule and include provisions for previous years of postdoctoral experience. Interested candidates should respond to: **Personnel Manager, Southwest Foundation for Research and Education, P.O. Box 28147, San Antonio, Texas 78284.** Please include curriculum vitae and three references, including supervisory professor. *An Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE position available immediately for research investigations of neural control of the renin-angiotensin system in the conscious canine preparation. Responsibilities of the position include training, surgical preparation and long-term management of dogs with chronically implanted catheters and flow probes, conduct of conscious animal experiments, renal renin content determination, and data analysis. Applicant must have a Ph.D. in physiology, with strong background in cardiovascular physiology, renal physiology, and neuropharmacology. Technical expertise is required in surgical procedures, management of chronically implanted flow probes and vascular catheters, animal handling, and basic biochemical methodology. Salary: \$15,500 per year. Apply with résumé before 10 September 1983 to:

Dr. Martha L. Blair
Department of Physiology
Box 642
University of Rochester Medical Center
Rochester, New York 14642

POSITIONS OPEN

MENTAL RETARDATION RESEARCH CENTER AT UNIVERSITY OF CALIFORNIA, LOS ANGELES (UCLA)

Postdoctoral research positions are available to join a multidisciplinary group studying neurophysiology, neuroanatomy, neuropharmacology, and neurobehavioral relationships in developing and adult mammalian CNS under the supervision of Nathaniel Buchwald, Chester Hull, Michael Levine, Anthony Adinolfi, Jennifer Buchwald, John Garcia, Meyer Jackson, Charles Woody, Jaime Villablanca, and Stefan Soltysik.

Neurobiochemistry postdoctoral research positions available for studies on brain cell development-interaction, function and metabolic substrates, cell organelle biogenesis, and characterization and diagnosis of human enzyme deficiencies under the supervision of Jean deVellis, John Edmond, Stephan Cederbaum, and Leonard Rome.

Developmental biology, neuropharmacology, and genetics postdoctoral research positions available for studies of laboratory and/or computer analyses of human gene mapping, somatic cell genetics, gene regulation and expression, and cytogenetic research under the supervision of Anne Spence, Barbara Crandall, Robert Sparkes, James McGinnis, Susan Hodge, and Sherrel Howard.

Stipends consistent with NIH guidelines. Send curriculum vitae and three letters of reference to: **Director of Training, Mental Retardation Research Center, UCLA, 760 Westwood Plaza, Los Angeles, Calif. 90024.** *UCLA is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE

Position available immediately in male reproductive biology for research on gamete interaction and the biochemistry of sperm adhesion. Experience in carbohydrate and protein biochemistry or cell biology and electron microscopy desirable. Support available for at least 2 years. Send curriculum vitae and three letters of reference to: **Dr. Charles Glabe, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

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RESEARCH ASSOCIATE. Department of Obstetrics and Gynecology, Section of Reproductive Genetics. To establish restriction endonuclease techniques for providing the in utero diagnosis of genetic defects. Candidates must have Ph.D. in biochemistry or cell biology and experience in restriction endonuclease and DNA biochemistry. Full-time position. Starting immediately. Interested applicants should send their résumé and three references to: **Dr. Mitchell Golbus, Department of Obstetrics and Gynecology, University of California, San Francisco, Calif. 94143.** *Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE to use monoclonal antibodies to study the differentiation of the myoblast membrane and biochemistry of cell interactions during skeletal muscle development. Ph.D. required and experience in immunology, membrane biochemistry, and cell culture preferred. Opportunity to participate in teaching immunology to first-year medical students, if desired. Two-year initial appointment to start after 1 September 1983, with potential for extended academic appointment. Academic rank and salary commensurate with experience. Send curriculum vitae and the names of three references to: **Dr. Stephen Kaufman, Department of Microbiology, University of Illinois, 131 Burrill Hall, 407 South Goodwin, Urbana, Illinois 61801.** *An Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSOCIATE—Conduct research in the area of the neural and pharmacological basis of circadian timekeeping in human and nonhuman primates. Design, conduct, and analyze experiments on the timing of sleep-wake cycles, and thermoregulatory and neuroendocrine rhythms. Use microprocessor data collectors, polygraphs, and minicomputers to measure and analyze physiological variables and investigate the effects of circadian phase resetting agents.

M.D. required with strong background in thermoregulation, sleep physiology, endocrinology, pharmacology, primate research, and hypothalamic implantation techniques acquired during degree program.

Thirty-five hours per week, \$16,000 per year.

Send résumé to: **Job Order Number 3528M, Division of Employment Security, Hurley Building, Government Center, Boston, Mass. 02114.**

Genex Corp., an innovative biotechnology firm located in Gaithersburg, Md., is seeking scientists who possess a Ph.D. to fill the following positions:

Molecular Geneticist/Biochemist with a strong background of independent research on control of transcription and/or translation in *E. coli*. Candidates should be qualified to design and carry out research on regulation of gene expression with applications to construction of gram-negative bacterial strains of commercial importance. Applications are invited from senior investigators as well as from candidates with recent postdoctoral experience.

Molecular Biologist to lead a research group in the cloning of eukaryotic genes. Applicants must have at least five years direct experience with techniques for cDNA synthesis and cloning and a variety of methods used for identification of specific cDNA clones. Experience with M13 cloning, in vitro mutagenesis, oocyte injection techniques, and expression of eukaryotic genes desirable.

Industrial Microbial Physiologist to supervise researchers conducting fermentation experiments and computer interfacing with fermentors, and lead studies in process design and development. Applicants must have 5 years industrial experience and be capable of operating a variety of different fermentors and experience in conducting multi-variant experiments.

Microbial Biochemists with experience in molecular biology, biochemistry, or microbiology. Candidates should be skilled in either selection and characterization of microorganisms with unique biochemical properties or in molecular genetic manipulations necessary for increased chemical production. Applicants must have postdoctoral experience and the ability to work independently and/or administrative and supervisory experience with demonstrated productivity.

Genex offers a stimulating, cooperative research and business environment, competitive salaries and fringe benefits and excellent research facilities. A curriculum vitae describing your scientific background, publications and containing three professional references should be submitted by September 1 to:

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Rockville, Md. 20852

Research Scientists

Integrated Genetics, a growing biotechnology/recombinant DNA company, is seeking highly qualified scientists to join our Research and Development staff in the Boston area. These scientists will participate in our ongoing programs in the production of therapeutically active proteins and molecular diagnostic tests utilizing recombinant DNA technologies.

Microbiologist/Molecular Biologists

Four positions are available for scientists with experience in molecular biology, bacterial genetics, virology and nucleic acid chemistry. A Ph.D. is required; postdoctoral experience is preferred. The successful candidates will participate in and will design research programs for the development of innovative diagnostic tests for infectious diseases.

Two positions are available for research technicians with experience in molecular biology or microbiology. M.S. preferred but not required.

Nucleic Acid Chemistry

A position is available for a qualified candidate to assist in the development of reagents for diagnostic kits. The selected candidate will have a Ph.D. in biochemistry, clinical chemistry or related area and

have experience in the synthesis of enzyme-labeled reagents. Nucleic acid background is desirable but not necessary.

A position is available for a nucleic acid/organic chemist. The selected candidate will have a Ph.D. and be experienced in nucleic acid modification.

Protein Chemistry

Positions are available for protein/peptide chemists. The selected candidates will have a Ph.D. in biochemistry or related area and extensive experience in protein/peptide purification and characterization. Experience in process development is desirable but not necessary.

Integrated Genetics offers an attractive compensation and benefits package as well as a stimulating and rewarding research environment. Please forward your resume in confidence to: Charlotte Gregory, 51 New York Avenue, Framingham, Mass. 01701.

 **INTEGRATED
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POSITIONS OPEN

POSTDOCTORAL POSITION for a Ph.D. (2 to 3 years in length). Available immediately to study messenger RNA splicing and gene expression of oncogenic viruses. Background in molecular biology, recombinant DNA technology, and/or some experience with protein fractionation and enzymes required. Send curriculum vitae and references to: **Dr. C. J. Goldenberg, Washington University School of Medicine, Department of Pathology, 660 South Euclid, St. Louis, Mo. 63110.**

POSTDOCTORAL POSITION available for 1 to 3 years to study protein phosphorylation during early stages in the development of lung tumors. Precursor cell populations will be isolated for analysis at different times after carcinogen treatment of mice. See *Cancer Res.* 41, 1334 (1981) and *JNCI* 70, 981 (1983) for description of system. Strong biochemical and cell biology background desirable. Salary: \$15,000 to \$18,000 per year, depending on experience. Send curriculum vitae and two letters of reference to: **Dr. A. M. Malkinson, School of Pharmacy, University of Colorado, Boulder, Colo. 80309.** *The University of Colorado is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS (two) available fall 1983 to study the endocrine regulation and biochemistry of sex pheromones or enzymology of fatty acid and hydrocarbon synthesis in insects. Background in lipid biochemistry, enzymology, or insect physiology desirable. Send résumé and three letters of reference to: **Dr. Gary Blomquist, Biochemistry, University of Nevada, Reno, Nevada 89557.** Telephone: 702-784-4104. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION IN BIOCHEMISTRY is available beginning 1 September 1983, for a 1- to 2-year appointment. Our laboratory is interested in the regulation of lipid metabolism in cell lines from ocular tissues. Techniques in enzymology, immunochromatography, and lipoprotein chemistry will be utilized. A background in tissue culture is essential and experience or interest in lipid metabolism is important. The position offers training in lipid biochemistry. The stipend is \$20,000 per year. Please send curriculum vitae, a brief description of your research background, and the names of three references to:

Richard J. Cenedella, Ph.D.
Chairman, Department of Biochemistry
Kirkville College of Osteopathic Medicine
Kirkville, Mo. 63501

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITION available immediately in Division of Gastroenterology to conduct studies of cholesterol and bile acid metabolism by perfused liver. Strong research group. Submit résumé, statement of research interests, and names of three references to: **Dr. Fred Kern, Jr., Division of Gastroenterology, University of Colorado Health Sciences Center, 4200 East 9th Avenue, Denver, Colorado 80262.** *Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE, MICROBIOLOGIST. U.S. Department of Agriculture, Arthropod-Borne Animal Disease Research Laboratory, Denver, Colorado, is seeking a research scientist skilled in immunological and biochemical procedures to characterize monoclonal antibodies and to isolate and purify specific viral polypeptides. Must be U.S. citizen; \$24,508; 2-year appointment. For application/qualification requirements, contact: **Rita Millard, telephone: 415-273-4281,** by 21 September. *Equal Opportunity Employer.*

RESEARCH PHARMACOLOGISTS

Pharmacologists sought for challenging position in newly created pharmacological institute (or laboratory) located near Tokyo, Japan. Experience in cardiovascular, biochemical, or immuno-pharmacology desirable.

Candidates must be M.D.'s or Ph.D.'s. Submit your résumé, complete with salary history/requirements, in confidence to:

University of Hawaii
School of Medicine
Biomedical Sciences Building, Room T411
1960 East West Road
Honolulu, Hawaii 96822

POSITIONS OPEN

The School of Natural Resources, Center for Strategic Wildland Management Studies, University of Michigan, is seeking a full-time nontenure-track research and teaching position (**RESEARCH SCIENTIST AND ASSOCIATE PROFESSOR**) for a period of 3 years. Substantial amount of field experience and demonstrated research ability required. Ph.D. in ecology/biology/forestry highly desirable. Applications should be sent by 2 September to: **David F. Hales, Director, Center for Strategic Wildland Management Studies, University of Michigan, School of Natural Resources, Ann Arbor, Mich. 48109.**

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IMREG, INC., a biotechnology company engaged in R & D of immunoregulators affecting the human immune system, is currently expanding its **SCIENTIFIC STAFF** and is looking for two well-qualified Ph.D.-level scientists with postdoctoral training and experience in cell-mediated immunity. These are intellectually challenging positions at the advancing edge of the rapidly developing field of human lymphokines.

We offer competitive salary and benefits in an attractive, well-equipped setting with linkages to the academic immunologic community. Send curriculum vitae and names of three references in confidence to: **John L. Carlton, Vice President, IMREG, INC., P.O. Box 56643, New Orleans, La. 70156.**

STAFF SCIENTIST II: The Applied Science Division of Lawrence Berkeley Laboratory is seeking a professional to work with the Passive Solar Project. Your duties will be: (i) to perform building energy simulations using detailed building energy analysis computer programs to determine the heating, cooling, and lighting impacts of solar apertures; (ii) to conduct experiments to measure illumination distributions and radiation gains in scale models of buildings; and (iii) to assist in the planning of future solar water heater studies and in writing of related proposals. Requires: (i) experience using detailed building energy analysis computer programs (BLAST experience preferred); (ii) background in fluid mechanics and heat transfer; and (iii) an ability to write computer programs for analysis and data reduction. In addition, experience in solar water heater experimentation desirable. Ph.D. degree in science preferred. Please send two copies of résumé to: **Employment Office, Building 65, Lawrence Berkeley Laboratory, Berkeley, Calif. 94720.** Please specify **Job Number A/2148.** *An Equal Opportunity Employer, M/F/H.*

CONFERENCE

National Research Council/National Academy of Sciences **CONFERENCE ON BIOMATERIALS**, 19 and 20 September 1983, Cambridge, Massachusetts. Four sessions: (i) genetic engineering, (ii) proteins; polysaccharides, (iii) membranes; interactions between biological and nonbiological materials, and (iv) the future. For information, contact: **Dr. David Policansky, National Research Council, Washington, D.C. 20418;** telephone: 202-334-2233 or -2234, by 5 September.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP POSITIONS AVAILABLE in cardiovascular pharmacology in the Department of Pharmacology at the University of Michigan Medical School. Candidates must have: (i) a Ph.D. in pharmacology, (ii) an ability to interact or collaborate with other investigators in areas of common interest, (iii) demonstrated evidence to communicate scientific results in writing, (iv) experience in investigative techniques in cardiovascular physiology and/or cardiovascular pharmacology, and (v) a knowledge of computer applications to cardiovascular research. Applicants must be either citizens of the United States or be permanent residents. Research studies involve electrophysiologic mechanisms of cardiac rhythm disorders and antiarrhythmic drug action; pharmacologic control of the coronary circulation and mechanisms of myocardial cell injury. Persons interested in applying should send their curriculum vitae by 1 September 1983 to: **Benedict R. Lucchesi, Ph.D., M.D., Department of Pharmacology, M6322 Medical Science Building I, The University of Michigan Medical School, Ann Arbor, Mich. 48109.** *The University of Michigan is an Equal Opportunity/Affirmative Action Employer.*

TRAINING PROGRAMS

POSTDOCTORAL TRAINING PROGRAM IN REPRODUCTIVE ENDOCRINOLOGY

NIH-supported, interdepartmental training program for those wishing to obtain experience in application of biochemical techniques to the study of reproductive hormones and diseases. Special areas of faculty interest include mechanisms of action of peptide hormones, receptor biochemistry, structure-function studies on glycoprotein hormones, hormonal regulation of human endometrium, effects of prolactin, and related topics. Candidates with doctoral degrees (M.D., Ph.D., D.V.M.) and a strong preparation in biochemistry preferred. Applicants (U.S. citizen or permanent residents only) should submit résumé, graduate transcript, and three letters of recommendation to: **Dr. L. E. Reichert, Director, Training Program in Reproductive Endocrinology, Department of Biochemistry, Albany Medical College, Albany, New York 12208.**

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL TRAINING PROGRAM IN IMMUNOLOGY

Two postdoctoral positions available 1 September 1983, to study structural, functional, and genetic aspects of the human HLA complex. Experience in membrane biochemistry or somatic cell hybridization would be desirable. Send curriculum vitae and names and telephone numbers of three references to: **Dr. Frances E. Ward or Dr. Peter Cresswell, Division of Immunology, Box 3010, Duke University Medical Center, Durham, North Carolina 27710.** *Duke University is an Equal Opportunity Employer.*

GRADUATE STUDY

GRADUATE TRAINING IN BIOMEDICAL RESEARCH

Several openings for outstanding graduate students will become available in September 1984. Advanced medically oriented research training is offered in the following areas: cell biology, embryology, reproductive endocrinology, and calcified tissue biology. The department is located within the new Health Sciences Center facility on the Texas Tech University campus. Minimum entry requirements are a GRE score of 1100 and a GPA of 3.0. Teaching assistantships are available at \$7000 per year. Application materials and further information may be obtained by contacting: **Dr. James C. Hutson, Department of Anatomy, Texas Tech University Health Sciences Center, Lubbock, Texas 79430.** *An Equal Opportunity/Affirmative Action Employer.*

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Scientists

BioTechnica International, Inc., an innovative biotechnology company located in Cambridge, Massachusetts, has openings for highly motivated scientists at the Ph.D. level in the areas of:

- **Molecular Biology;** with experience in recombinant DNA technology for either gram-negative or gram-positive bacteria.
- **Microbial Genetics, Plasmid Construction, and DNA Sequencing;** to work on expression of genes from lower eukaryotes.
- **Enzymology;** with experience in the isolation and characterization of enzymes from a variety of sources, to establish their suitability in industrial processes.
- **Fermentation Technology;** with a familiarity of both fermentation microbiology and biochemical engineering, for the development of new processes and technologies and the improvement of established processes.

BTI offers excellent compensation, a full benefits program, and opportunities for professional growth. Please send a letter of application, curriculum vitae, and names of three references by October 1, 1983 to:

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85 Bolton Street
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Powerful text editing. High-speed graphics. Color copies. The new desktop family from Tek!

VT100 text editing and PLOT 10 color graphics are now packaged as basic desktop units and priced from \$3995 complete.

Tek's new 4100 Series desktop terminals answer a range of resolution, screen size, color palette and local intelligence needs. All three feature outstanding 60 Hz non-interlaced displays and rapid 16-bit graphic processing speeds.

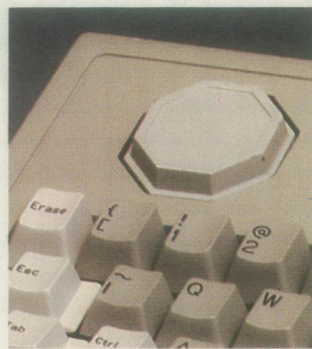


As simulated, Tek's 60 Hz refresh rate and bright phosphors result in a flicker-free image with perceivably better definition than that provided by 30 Hz terminals quoting greater pixel densities.

Standard capabilities include 38.4K baud communications; easy color selection from the keyboard; 4096 x 4096 addressable display space; a separate display surface for alphanumerics or communications dialog; and compatibility with ANSI X3.64 screen editors, including DEC VT100 extensions.

Each offers an unconditional, one-year on-site warranty. Tek Warranty-Plus extends this coverage two additional years at minimal cost.

For less than \$1,600, you can add Tek's compact, plug-compatible 4695 Color Graphics Copier. With a palette of up to 125 shades, the 4695 lets you reproduce graphic and alphanumeric displays on report-size paper or transparency film at the push of a button.



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provides up to 886K RAM for standalone programming and pre- or post-processing—to help you conserve host power while you build upon a central data base.

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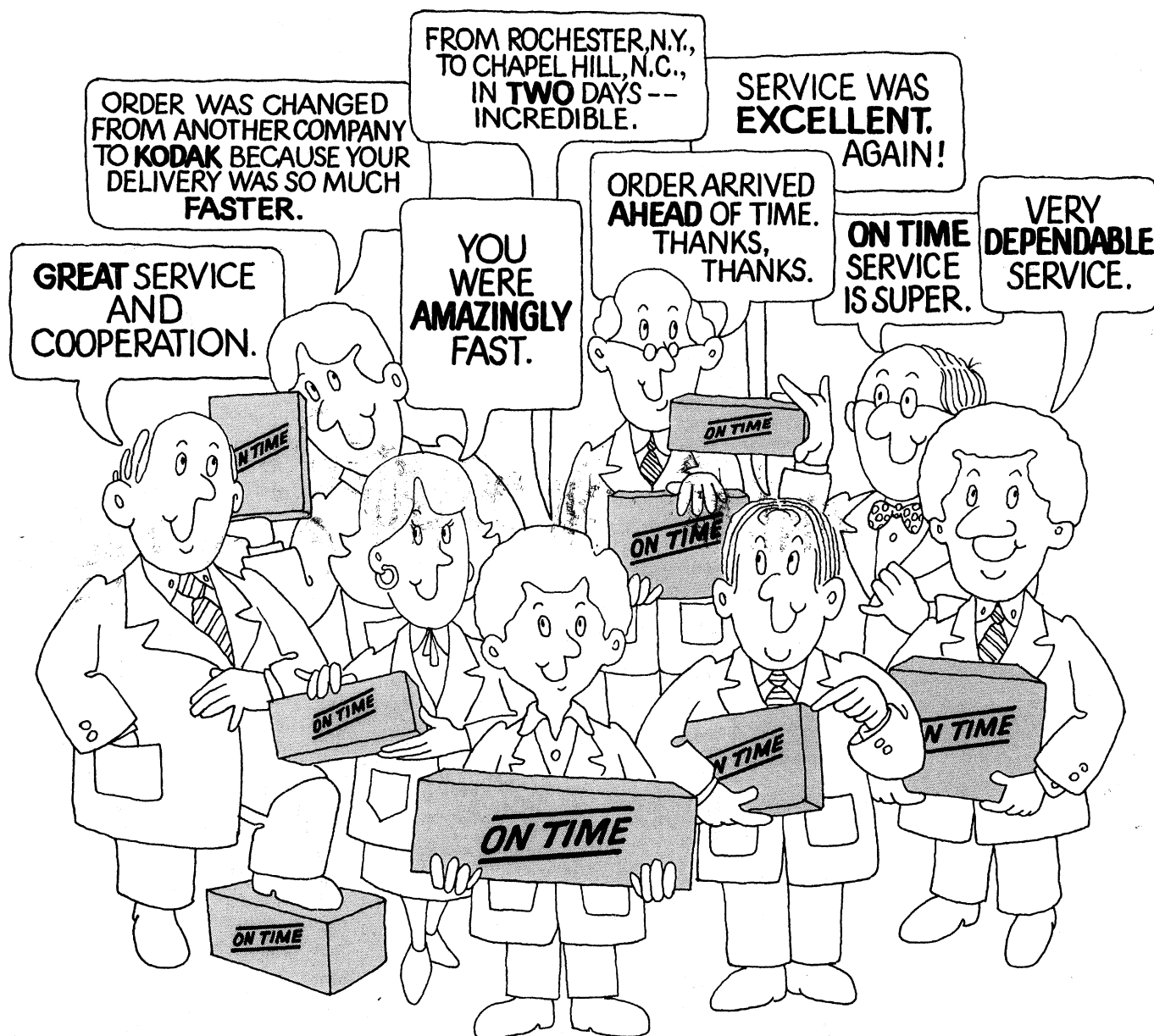
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