



Manfred Schroeder's collaborators K. F. Siebrasse (left) and D. Gottlob (right) and the dummy head through which they recorded the sounds of 20 European concert halls. [Photo courtesy of M. Schroeder; from *The Science of Musical Sound*]

only one illustrative example. Manfred Schroeder (who divides his time between the Bell Laboratories and his own institute at the University of Göttingen) together with two collaborators, D. Gottlob and K. F. Siebrasse, assessed the musical qualities of 20 major European concert halls by the following ingenious steps: In each hall they acoustically broadcast the same high-fidelity multi-channel tape of Mozart's *Jupiter* Symphony previously recorded by the BBC orchestra in an anechoic chamber. They rerecorded the music through two small microphones inserted in the ear canals of a dummy human head variously situated in each hall. In an anechoic chamber back in their own laboratory they then reproduced the signals, as picked up at the dummy's ears, at the ears of a listener who could switch back and forth at will between what the *Jupiter* Symphony would be sounding like in one hall or another. They submitted listeners' preference ratings for the alternative sounds to a technique of multidimensional scaling (also perfected at the Bell Laboratories), which represented these sounds as points in a two-dimensional psychological space. They then established that the direction through this space that corresponded to greatest average preference also corresponded to the physically identifiable factors of a moderately long reverberation time of the hall and the lowest correlation between the early echoes incident at the two ears.

The correlational result was a major discovery. Old halls and churches, constrained to the short horizontal spans achievable in wood or stone, are narrow with high ceilings. The first echoes received by the two ears are therefore from

opposite walls, yielding decorrelated signals and a desirably spacious sound. Modern steel-spanned halls, designed to accommodate large audiences at low cost, are wide with low ceilings. The first echoes to reach both ears are therefore from the ceiling above, yielding highly correlated signals and a disappointing lack of spaciousness. In a final brilliant stroke, Schroeder and his colleagues used "quadratic residues" of number theory to design a textured surface, with optimally scaled protrusions and depressions, that can be applied to a low ceiling to scatter the soundwaves laterally, yielding the desirable decorrelation.

Focusing as it does on the science of musical sound, this book does not concern itself much with what might be called the science of musical structure—a science that is just now burgeoning within the corner of cognitive psychology that adjoins music theory. When Pierce does touch on such matters as tonality, mode, and harmony, he notes that he is "wandering a little beyond the science of musical sound into the territory of music itself." He acknowledges that "of the harmonic language of music this book has little to say" and rightly notes that "there is more to harmony than avoidance of dissonance."

As a supplemental text, the book could nicely fill either of two pressing needs: for an exposure to relevant musical matters in a course on physical acoustics or auditory perception or for a non-mathematical grounding in relevant acoustical matters in a course on music theory or music cognition.

ROGER N. SHEPARD

Department of Psychology, Stanford University, Stanford, California 94305

Books Received

American Strategic Minerals. Gerard J. Mangone, Ed. Crane Russak, New York, 1984. xvi, 153 pp., illus. \$19.50. From a conference, Wilmington, Del., Dec. 1982.

The American Survival Guide. How to Survive in Your Toxic Environment. Edward J. Bergin with Ronald E. Grandon. Avon, New York, 1984. xx, 505 pp. Paper, \$11.95.

Amino Acids. Biosynthesis and Genetic Regulation. Klaus M. Herrman and Ronald L. Somerville, Eds. Addison-Wesley Advanced Book Program, Reading, Mass., 1983. xxii, 453 pp., illus. \$41.95. Biotechnology Series, 3.

Analysis and Design of Bridges. Cetin Yilmaz and S. Tanvir Wasti, Eds. Nijhoff, The Hague, 1984 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 450 pp., illus. \$57. NATO ASI Series E, No. 74. From an institute, Çeşme and Izmir, Turkey, June 1982.

Beyond the Standard Model. J. Tran Thanh Van, Ed. Editions Frontières, Gif-sur-Yvette, France, 1983. 502 pp., illus. \$55. Moriond Series, 39. From a meeting, La Plagne, Savoie, France, March 1983.

Bilinguisme et Bilinguisme. Josiane F. Hamers and Michel Blanc, Mardaga, Brussels, 1984. 502 pp. Paper, 1350 BF. Psychologie et Sciences Humaines.

Biochemical and Clinical Aspects of Neuropeptides. Synthesis, Processing, and Gene Structure. Gebhard Koch and Dietmar Richter, Eds. Academic Press, Orlando, Fla., 1983. xiv, 316 pp., illus. \$32. From a conference, Hamburg-Blankenese, Germany, May 1983.

Classgroups of Group Rings. Martin Taylor. Cambridge University Press, New York, 1984. xiv, 119 pp. Paper, \$17.95. London Mathematical Society Lecture Note Series, 91.

Clinical Aspects of Life-Threatening Arrhythmias. H. M. Greenberg et al., Eds. New York Academy of Sciences, New York, 1984. xiv, 326 pp., illus. Paper, \$75. Annals of the New York Academy of Sciences, vol. 427. From a conference, Florence, Italy, June 1983.

Colloquium on Atomic Spectra and Oscillator Strengths for Astrophysics and Fusion Research. (Lund, Sweden, Aug. 1983.) U. Litzen, Ed. Royal Swedish Academy of Sciences, Stockholm, 1984. 145 pp., illus. Paper, \$64. *Physica Scripta*, vol. T8, 1984.

The Dawn of Animal Life. A Biohistorical Study. Martin F. Glaessner. Cambridge University Press, New York, 1984. xii, 244 pp., illus. \$49.50. Cambridge Earth Sciences Series.

Determinants of Fertility in Developing Countries. Rodolfo A. Bulatao and Ronald D. Lee, Eds. Academic Press, Orlando, Fla., 1983. Vol. 1, Supply and Demand for Children. xx, 644 pp., illus. \$37. Vol. 2, Fertility Regulation and Institutional Influences. xx, 848 pp. \$45. Studies in Population.

The Determination of Ionization Constants. A Laboratory Manual. Adrien Albert and E. P. Serjeant. 3rd ed. Chapman and Hall, London, 1984 (U.S. distributor, Methuen, New York). x, 218 pp., illus. \$33.

Experiments in Gothic Structure. Robert Mark. MIT Press, Cambridge, Mass., 1984. x, 135 pp., illus., + plates. Paper, \$7.95. Reprint, 1982 edition.

The Eye. Vol. 1a, Vegetative Physiology and Biochemistry. Hugh Davson, Ed. 3rd ed. Academic Press, Orlando, Fla., 1984. xiv, 600 pp., illus. \$80.

Fast Transforms. Algorithms, Analyses, Applications. Douglas F. Elliott and K. Ramamohan Rao. Academic Press, Orlando, Fla., 1983. xxii, 488 pp., illus. \$75.

Fish Physiology. Vol. 9, Reproduction. W. S. Hoar, D. J. Randall, and E. M. Donaldson, Eds. Academic Press, Orlando, Fla., 1983. Two volumes. Part A, Endocrine Tissues and Hormones. xviii, 483 pp., illus. \$59. Part B, Behavior and Fertility Control. xviii, 477 pp., illus. \$52.

Flexible Assembly Systems. Assembly by Robots and Computerized Integrated Systems. A. E. (Tony) Owen. Plenum, New York, 1984. xii, 231 pp., illus. \$42.50.

Fury on Earth. A Biography of Wilhelm Reich. Myron Sharaf. St. Martin/Marek, New York, 1984. xvi, 550 pp. + plates. Paper, \$10.95. Reprint, 1983 ed.

Fusion. An Introduction to the Physics and Technology of Magnetic Confinement Fusion. Weston M. Stacey, Jr. Wiley-Interscience, New York, 1984. xvi, 260 pp., illus. \$39.95.

Gas Turbine Combustion. Arthur H. Lefebvre. Hemisphere, Washington, D.C., and McGraw-Hill, New York, 1983. xx, 531 pp., illus. \$39.95. McGraw-Hill Series in Energy, Combustion, and Environment.

Gastrointestinal Disorders of the Elderly. Lawrence J. Brandt, with Gerald H. Beahler and Ellen L. Wolf. Raven, New York, 1984. xviii, 620 pp., illus. \$68.

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BOOKS RECEIVED

(Continued from page 334)

Human T-Cell Leukemia/Lymphoma Virus. The Family of Human T-Lymphotropic Retroviruses: Their Role in Malignancies and Association with AIDS. Robert C. Gallo, Myron E. Essex, and Ludwik Gross, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1984. xx, 398 pp., illus. \$50. From a conference, Cold Spring Harbor, Sept. 1983.

The Identity of the Psychoanalyst. Edward D. Joseph and Daniel Widlöcher, Eds. International Universities Press, New York, 1983. xviii, 291 pp. \$30. International Psycho-Analytical Association Monograph Series, No. 2. From a symposium, Haslemere, England, Feb. 1976.

Immune Deficiency and Cancer. Epstein-Barr Virus and Lymphoproliferative Malignancies. David T. Purtilo, Ed. Plenum, New York, 1984. xiv, 488 pp., illus. \$50. From a symposium, Omaha, Neb., Sept. 1982.

Local Density Approximations in Quantum Chemistry and Solid State Physics. Jens Peder Dahl and John Avery, Eds. Plenum, New York, 1984. xvi, 851 pp., illus. \$125. From a symposium, Copenhagen, June 1982.

Love's Labor. Twenty-five Years of Experience in the Practice of Psychotherapy. Stanley E. Greben. Schocken, New York, 1984. xx, 203 pp. \$18.95.

A Manual on Methods for the Assessment of Secondary Productivity in Fresh Waters. John A. Downing and Frank H. Rigler, Eds. 2nd ed. Blackwell Scientific, Palo Alto, Calif., 1984. xxiv, 501 pp., illus. \$55.

Neuroendocrinology and Psychiatric Disorder. Gregory M. Brown, Stephen H. Koslow, and Sey-

mour Reichlin, Eds. Raven, New York, 1984. xviii, 430 pp., illus. \$62. From a symposium, Hamilton, Canada.

Neuroimmunology. Peter O. Behan and Federico Spreafico, Eds. Raven, New York, 1984. xvi, 484 pp., illus. \$85. Serono Symposia Publications from Raven Press, vol. 12.

New Drugs Annual: Cardiovascular Drugs. Vol. 2. Alexander Scriabine, Ed. Raven, New York, 1984. x, 273 pp., illus. \$41.50.

New Phenology. Elements of Mathematical Forecasting in Ecology. Alexander S. Podolsky. Wiley-Interscience, New York, 1984. xvi, 504 pp., illus. \$64.95.

Optical Bistability 2. Charles M. Bowden, Hyatt M. Gibbs, and Samuel L. McCall, Eds. Plenum, New York, 1984. xiv, 512 pp., illus. \$69.50. From a meeting, Rochester, N.Y., June 1983.

Organic Functional Group Preparations. Vol. 1. Stanley R. Sandler and Wolf Karo. 2nd ed. Academic Press, Orlando, Fla., 1983. xiv, 659 pp., illus. \$75. Organic Chemistry, vol. 12.

Oscillation Theory of Optimal Processes. George M. Smirnov. Robert H. Silverman, Ed. Wiley-Interscience, New York, 1984. xii, 154 pp., illus. \$29.95.

Paradoxes of Western Energy Development. How Can We Maintain the Land and the People If We Develop? Cyrus M. McKell *et al.*, Eds. Published for the American Association for the Advancement of Science by Westview, Boulder, Colo., 1984. xviii, 327 pp., illus. \$28.50. AAAS Selected Symposia Series, 94. From a symposium, Washington, D.C., Jan. 1982.

Past and Present Vegetation of the Far Northwest of Canada. J. C. Ritchie. University of Toronto Press, Buffalo, N.Y., 1984. xii, 251 pp., illus. \$35.

The Pathogenicity of Cationic Proteins. P. P. Lambert, P. Bergmann, and R. Beauwens, Eds. Raven, New York, 1984. x, 385 pp., illus. Paper, \$32. From a symposium, Brussels, Oct. 1982.

The Psychology of Infancy and Childhood. Evolutionary and Cross-Cultural Perspectives. Harold D. Fishbein. Erlbaum, Hillsdale, N.J., 1984. xx, 435 pp., illus. \$49.95. Child Psychology.

The Psychology of Learning and Motivation. Advances in Research and Theory. Vol. 17. Gordon H. Bower, Ed. Academic Press, Orlando, Fla., 1983. xvi, 282 pp. \$32.

Quaternary Period in Saudi Arabia. Vol. 2. Abdul Raof Jado and Josef G. Zötl, Eds. Springer-Verlag, New York, 1984. xii, 361 pp., illus. \$59.

Quaternary Science Reviews. Vol. 1. David Q. Bowen, Ed. Pergamon, New York, 1984. vi, 319 pp., illus. \$84.

Reviews in Environmental Toxicology 1. Ernest Hodgson, Ed. Elsevier, New York, 1984. xii, 337 pp., illus. \$80.75.

Reviews of Physiology, Biochemistry and Pharmacology, 100. R. H. Adrian *et al.*, Eds. Springer-Verlag, New York, 1984. vi, 247 pp., illus. \$36.50.

The Robot Revolution. Tom Logsdon. Illustrated by Ed Roman. Simon and Schuster Computer Book Division, New York, 1984. 208 pp. Paper, \$9.95.

The Science Business. Report of the Twentieth Century Fund Task Force on the Commercialization of Scientific Research. Background paper by Nicholas Wade. Priority Press, New York, 1984. x, 84 pp., Paper, \$7.50.

Science in the Streets. Report of the Twentieth Century Fund Task Force on the Communication of Scientific Risk. Background paper by Dorothy Nelkin. Priority Press, New York, 1984. viii, 97 pp. Paper, \$7.50.

The Surface-Contact Glia. F. Hajós and E. Bascó. Springer-Verlag, New York, 1984. vi, 81 pp., illus. Paper, \$22. Advances in Anatomy, Embryology and Cell Biology, vol. 84.

Survey of Drug Research in Immunologic Disease. Vol. 4, Noncondensed Aromatic Derivatives, Part 3. Vassil St. Georgiev. Karger, Basel, 1984. x, 332 pp., illus. \$173.75.

Technology Impact. Potential Directions for Laboratory Medicine. David B. P. Goodman, Ed. New York Academy of Sciences, New York, 1984. viii, 334 pp., illus. Paper, \$64. Annals of the New York Academy of Sciences, vol. 428.

Theory of Crystal Space Groups and Lattice Dynamics. Infra-Red and Raman Optical Processes of Insulating Crystals. Joseph L. Birman. Springer-Verlag, New York, 1984. xxiv, 538 pp., Paper, \$35. Reprinted from *Encyclopedia of Physics*, vol. 25/2b (1974).

A Workbook for Astronomy. Jerry Waxman. Cambridge University Press, New York, 1984. xii, 356 pp., illus. Spiral bound, \$19.95.

X-ray Crystallography and Drug Action. A. S. Horn and C. J. De Ranter, Eds. Clarendon (Oxford University Press), New York, 1984. xii, 514 pp., illus. \$59. From a school, Erice, Sicily, March 1983.

Yeast Molecular Biology—Recombinant DNA. Recent Advances. Michael S. Esposito, Ed. Noyes, Park Ridge, N.J., 1984. xxii, 353 pp., illus. \$35. From a workshop, Berkeley, Calif., May 1982.

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Biochemist. Ph.D. 12 years of research experience. Expertise in protein sequencing and purification. Knows immunochemical and modern analytical techniques. Seeks senior position in academia, hospital, industry, government. Box 244, SCIENCE. X

Biologist seeks position with university/government/industry. M.N.S. in zoology (1984) with experience in aquatic toxicology concerning heavy metals in fish, macroinvertebrates and algae. Experience in scanning electron microscopy and 2 years teaching general biology. Box 243, SCIENCE. 10/19, 26

Biologist. B.S. May 1985 seeks graduate assistantship in physiology or pharmacology beginning summer/fall 1985. Extensive undergraduate research experience in both areas. Also experience with animal surgery. Box 239, SCIENCE. X

M.S. Botany, B.S. Chemical Engineering, 34 hours graduate study environmental science, experience in plant ecology, 3 years plant tissue culture. Seeks research or teaching work in northeastern United States relating biology and environmental problems, for example, acid rain, sustainable agriculture, appropriate technologies. Reply Box 234, SCIENCE. 10/19

Immunologist. Ph.D. 1970. University research experience in cellular immunity in infectious disease, lymphocyte mediated target cell killing, lymphokines, and hybridomas in targeted chemotherapy. Excellent publications and references. Mature dedicated individual seeks academic faculty position. Box 233, SCIENCE. X

Molecular/Cell Biologist. Ph.D. 1984. Immunoelectromicroscopy. Protein modification, chromatographic, electrophoretic, and immunochemical characterization. Toxicology. Microsurgery. Teaching experience. Publications. Interested in additional modern molecular biology "Know How." Seeks postdoctorate. Box 235, SCIENCE. 10/19, 26

POSITIONS WANTED

Immunochemist/Biotechnologist, Ph.D. 1979. Presently Director, R/D laboratory in biotechnology company. Background: immunoregulation, idiotypes, chemical modifications, electrofusions. Seeks senior level position/industry, Box 231, SCIENCE. X

Ph.D., Pharmacologist. Six years of industrial experience with expertise in cancer chemotherapy, anti-metastasis, reverse transformation, and carcinogenesis research. Desires industrial research position. Box 238, SCIENCE. 10/19, 26; 11/2

Pharmacologist, Ph.D. 1971. Former university and now industrial researcher with extensive background in calmodulin, microtubules, and chemotherapeutic agents. Also some experience in endocrine, neuropharmacology, trace metals, enzyme kinetics, and RIA. NIH postdoctorate. Excellent publications and proven high performance thinking ability. Seeks position with university, research institute, or industry. No geographic preference. Box 228, SCIENCE. 10/19, 26

Writer/Editor. Ecology doctorate with publications, research, and teaching experience seeks freelance writing and editing in all life science areas. 916 Marsh Street, Mankato, Minn. 56001. X

POSITIONS OPEN

AFRICAN IMMUNOLOGISTS AND MOLECULAR BIOLOGISTS: International laboratory in Kenya is seeking specialists to study African trypanosomes and theileria. Openings for: study of influence on the differentiation of B lymphocytes to high rate antibody secreting cells; study of mechanisms of resistance in vertebrate host; research on immune responses; and study of gene structure and expression in haemeparasitic trypanosomes and theileria parasites. All positions require Ph.D. and 3 to 5 years of experience. Interested African nationals may send résumés for placement and relocation assistance to: **Intergovernmental Committee for Migration, 1346 Connecticut Avenue, NW, Washington, D.C. 20036.**

FACULTY POSITION AT THE OHIO STATE UNIVERSITY

The Chemistry Department has an opening for a tenure-track position in **ANALYTICAL CHEMISTRY** at the assistant professor level. Outstanding candidates requiring a higher level appointment may also be considered. Demonstrated excellence and a strong commitment to innovative research are essential, with separations, surface science, or bioanalytical chemistry as preferred areas of research. Teaching at the graduate and undergraduate levels is necessary. Please send résumé, statement of research and teaching interests, and three letters of recommendation to: **Dr. Heinz G. Floss, Analytical Search Committee, Department of Chemistry, The Ohio State University, Columbus, Ohio 43210. An Equal Opportunity/Affirmative Action Employer.** Closing date for applications is 30 November 1984.

ASSISTANT OR ASSOCIATE PROFESSOR OF PHARMACOLOGY

A tenure-track assistant or associate professorship in pharmacology is available immediately for an M.D., M.D./Ph.D., or Ph.D., for a department strong in membrane biology. Candidates should have a record of success in independent research and teaching, with interests in biochemical, molecular genetics, or immunological approaches to cellular control mechanisms. Send curriculum vitae, publications, summary of interests, and names of referees to: **J. D. Potter, Chairman, Department of Pharmacology, University of Miami School of Medicine, P.O. Box 016189, Miami, Fla. 33101. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR OF ANATOMY

Applications are invited for a tenure-track, 12-month academic appointment at the rank of assistant professor in the Department of Anatomy at the University of New Mexico School of Medicine. The successful candidate will be expected to demonstrate a productive research background in cellular or developmental neurobiology and teaching ability in neuroanatomy. Send curriculum vitae, description of research and teaching interests, and names of at least three references as soon as possible to: **Dr. Robert O. Kelley, Professor and Chairman, Department of Anatomy, University of New Mexico, School of Medicine, Albuquerque, N.M. 87131. The University of New Mexico is an Equal Opportunity/Affirmative Action Employer.**

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ALTERNATIVE CAREER OPPORTUNITY

ANALYST IN GERMLASM TECHNOLOGY: congressional research support agency seeks full-time, temporary (approximately 12 to 18 months) analyst to work on a project investigating techniques to maintain biological diversity. Applicant will synthesize and analyze information on laboratory techniques (for example, seed banks and tissue culture) to preserve germplasm and will write parts of final report.

Applicant should have a M.S. or Ph.D. in plant physiology, physiological ecology, or plant biotechnology. Experience with developing countries and international research institutions desirable. Strong oral and writing skills essential. Salary negotiable, depending on education and experience. Send résumé, writing samples, salary history, and names of three references to: **Denise DeSanctis, Office of Technology Assessment, U.S. Congress, Washington, D.C. 20510 by 2 November 1984. Please reference Job Number: SS2.**

Equal Opportunity Employer

The Department of Psychiatry of the University of Michigan has a tenure-track faculty (instructor to professor) position as **ASSOCIATE CHIEF, PSYCHIATRIC EMERGENCY SERVICES.** Duties include direction of a psychiatric emergency program involving walk-in patients, consultation to medical/surgical emergency room, administrative responsibilities for support staff, liaison with community mental health system, and supervision of psychiatric residents and medical students working in the emergency room. Requires interest and demonstrated abilities in crisis intervention, emergency evaluation, medical psychiatry, teaching, and supervision. Research background desired; programmatic, grant-supported health services research is now on-going and medical psychiatric research is planned. Board certification in psychiatry or eligibility to take boards is a requirement. Salary range dependent on academic rank. Please send curriculum vitae to: **David J. Knesper, M.D., Chief, Psychiatric Emergency Services, Department of Psychiatry, University of Michigan Hospitals, Room C-7056, Box 54, 1405 East Ann Street, Ann Arbor, Michigan 48109.**

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DEPARTMENT OF BIOCHEMISTRY UNIVERSITY OF MISSOURI-COLUMBIA

Outstanding candidates in all research areas of biochemistry are invited to apply for a position at the level of **ASSISTANT PROFESSOR.** This is a tenure-track position requiring a doctoral degree, not necessarily in biochemistry, and postdoctoral experience. Initial teaching duties will be light as the successful candidate will be expected to develop a vigorous research program. Substantial start-up funds will be available for this purpose.

Candidates should submit curriculum vitae, a short summary of their proposed research, and three letters of recommendation by 1 December 1984 to:

Search Committee
Department of Biochemistry
M121 Medical Sciences Building
University of Missouri-Columbia
Columbia, Mo. 65212

The University of Missouri is an Equal Opportunity/Affirmative Action Institution and welcomes applications from qualified women, disabled, and minority individuals.

TROPICAL RESOURCE MANAGEMENT ANALYST

Technical support agency, U.S. Congress, has immediate opening for full-time, temporary (approximately 18 months) analyst for investigation of renewable resource management in U.S. insular areas.

Applicant will assist in researching and analyzing material, establishing contacts and conducting interviews, preparing workshops and related meetings, and writing final report. Analyst should have a graduate degree in agroecology, social ecology, or related field incorporating resource and human use concerns. Experience in U.S. insular areas preferable but not necessary. Strong verbal and writing skills essential.

Salary negotiable based on experience and qualifications. Send résumé, two writing samples, salary history, and names of three references to: **Denise DeSanctis, Office of Technology Assessment, U.S. Congress, Washington, D.C. 20510 by 2 November 1984. Please reference Job Number: AH2.**

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POSITIONS OPEN

ASSISTANT DIRECTOR OF DRUG-LIVER UNIT (Research Assistant Professor) in Department of Pharmacology required to conduct research on mechanisms of drug hepatotoxicity at both clinical and experimental levels as well as other aspects of drug metabolism. Candidate should have a Ph.D. in pharmacology or biochemistry, and should have conducted research on drug hepatotoxicity or cytochrome P-450 system. Salary is competitive and fringe benefits are excellent. Send curriculum vitae and references to: **Dr. Martin Black, Head Liver Unit, Director of Clinical Pharmacology, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, Pa. 19140. Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR—DEVELOPMENTAL BIOLOGY: Tenure-track position beginning September 1985. To teach an introductory and an advanced level course in developmental biology, participate in a team-taught introductory biology course, and engage in research which encourages participation by undergraduates. Preference for an emphasis on molecular biology with postdoctoral research experience. Send curriculum vitae, statement of research and teaching interests, and three letters of reference by 16 November 1984 to: **Dr. William L. Steinhart, Biology Department, Bowdoin College, Brunswick, Maine 04011. An Affirmative Action/Equal Opportunity Employer.**

DEPARTMENT OF BIOLOGY UNIVERSITY OF CALIFORNIA, LOS ANGELES

Applications are invited for a position as a tenure-track **ASSISTANT PROFESSOR** beginning 1 February 1985. We are seeking a person who studies the behavioral biology of vertebrates. Preference will be given to a candidate who emphasizes physiological or evolutionary mechanisms.

Candidates should submit curriculum vitae (including a list of publications, a summary of research and teaching objectives), and names and addresses of at least three references. Send materials to:

**Chair, Behavioral Search Committee
Department of Biology
University of California, Los Angeles
Los Angeles, California 90024**

Deadline for receipt of applications is 1 January 1985.

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ASSISTANT PROFESSORS; IMMUNOCHEMISTRY and IMMUNOBIOLOGY. The Department of Microbiology and Immunology, and Department of Biochemistry, State University of New York, Upstate Medical Center, invite applications for two tenure-track positions available 1985. Applicants must have a Ph.D. or equivalent degree, postdoctoral training or independent experience, evidence of productivity in original research, and demonstrated success in generating research or research training support. Successful candidates will teach immunology and immunobiology to medical and graduate students, conduct original research, and train predoctoral and postdoctoral fellows. Applicants utilizing contemporary methodologies of molecular biology (for example, recombinant DNA) and cell biology (for example, monoclonal Ab) favored. Immunologist to have joint appointment in the Department of Biochemistry. Salary (12 months) competitive and based upon experience. Applications with curriculum vitae, list of publications, statement of research interests and support, and names of three references to: **Dr. George G. Holz, Jr., Department of Microbiology, State University of New York, Upstate Medical Center, Syracuse, New York 13210. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR OF MICROBIOLOGY

The Department of Microbiology at the University of Alabama will have one or two tenure-track positions available at the level of assistant professor to begin in August 1985. These positions will be filled in the areas of microbial physiology, applied microbiology, pathogenic microbiology, or molecular biology. One of the positions will require expertise in recombinant DNA techniques. Ph.D. required, postdoctoral experience preferred. Applicants should send curriculum vitae, reprints of relevant publications, date of availability, and the names, addresses, and telephone numbers of three references by 15 January 1985 to: **Dr. Gary L. Sloan, Department of Microbiology, P.O. Box BM, The University of Alabama, University, Ala. 35486. The University of Alabama is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

ASSISTANT PROFESSOR, EXPERIMENTAL PATHOLOGY

The newly reorganized and expanding Department of Pathology and Laboratory Medicine is seeking a basic scientist with interests in environmental pathology for a tenure-track position as assistant professor. The successful candidate should be capable of teaching systemic pathology to medical students, should be able to interact with undergraduate and graduate students in the biomedical sciences, and would be expected to develop an independent research program, supported by external funds, in some basic biological aspect of environmental pathology.

An M.D., D.V.M., and/or Ph.D. degree and a minimum of 2 years of postdoctoral or residency research training in pathology are required. Preference will be given to M.D.'s with training in experimental pathology. Please send curriculum vitae, a description of career objectives and research plans, and the names of three references to: **Dr. Nelson Fausto, Chairperson, Department of Pathology and Laboratory Medicine, Division of Biology and Medicine, Brown University, Providence, R.I. 02912. We encourage applications from women and minority candidates. Brown University is an Equal Opportunity/Affirmative Action Employer. Deadline for applications: 15 December 1984.**

ASSISTANT PROFESSOR

Food Microbiologist, 12-month tenure-track position, available 1 January 1985, Number AG-55, to teach and conduct research in the Department of Food Science and Human Nutrition. Responsibilities include undergraduate and graduate instruction and development of an externally funded research program using modern experimental approaches to solve problems of fundamental importance to food microbiology. A Ph.D. degree with documented capability in food microbiology is required. Salary commensurate with qualifications and experience. Send letter of application, curriculum vitae, and three letters of reference by 15 December 1984, to:

**Dr. J. I. Gray, Chairperson of Search Committee
Department of Food Science and Human Nutrition
Michigan State University
East Lansing, Michigan 48824
Telephone: 517-355-0167**

An Affirmative Action/Equal Opportunity Institution

ASSISTANT PROFESSOR—MICROBIOLOGY

The Department of Microbiology, University of Kansas, Lawrence, invites applications from qualified individuals for a tenure-track faculty position. The successful candidate will participate in teaching courses in virology and develop an active, productive research program in an area of molecular biology. Required qualifications include: a Ph.D. or D.Sc. in microbiology, biochemistry, or a related discipline; 2 years of postdoctoral research experience; and demonstrated commitment to research and teaching. Interested candidates should forward current curriculum vitae, names of three references, and a brief statement of research interests to: **Professor James M. Akagi, Chair, Department of Microbiology, The University of Kansas, 735 Haworth Hall, Lawrence, Kansas 66045. The position will be available 16 August 1985 and completed applications should be received by 15 February 1985. The University of Kansas is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR. Department of Nutrition, Rutgers University, tenure-track position. Ph.D. with background in **mineral metabolism** and nutritional biochemistry to participate in teaching of general and specialized nutrition courses. Candidate must demonstrate the ability to initiate/continue research in specialty and obtain outside funding. To apply, or for detailed information, write to: **Search Committee, Department of Nutrition, Thompson Hall, Rutgers University, New Brunswick, N.J. 08903. Applications accepted to 1 December 1984. An Equal Opportunity Employer.**

ASSISTANT/ASSOCIATE PROFESSOR (tenure-track). Department of 17 with Ph.D. program seeks biologist to teach graduate and undergraduate courses and to develop strong research program using genetic, molecular, or physiological approaches to questions of cellular or organismal structure and function. Send curriculum vitae, research interests, and names, addresses, and phone numbers of three references by 1 January 1985 to: **Dr. R. Di-mock, Chairman, Department of Biology, Wake Forest University, Winston-Salem, N.C. 27109. Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

ASSISTANT PROFESSOR IN RESIDENCE

The Center for Ulcer Research and Education (CURE) of the University of California, Los Angeles (UCLA) School of Medicine currently has an opening for an assistant professor in residence. In addition to a Ph.D. in life sciences (biochemistry or physiology), candidates should have extensive research experience in active transport mechanisms at the level of isolated proteins, membrane vesicles, isolated cells, and intact epithelial tissues. Research experience is also required in studies of stimulus-secretion coupling, measurements of intracellular ion activities, and phospholipid metabolism. The selected candidate is expected to conduct an independent research of hormone regulation of pH, cell volume, electrolyte transport, intracellular ions activity, Ca²⁺ metabolism, and stimulus-secretion coupling. Competence in independent research shown by publication of at least 15 articles as primary author. Minimum of 3 years of postgraduate research and 2 years of teaching at the university level. Salary: Approximately \$36,000. Apply with curriculum vitae and five letters of recommendation to: **Dr. George Sachs, Director, CURE, University of California, Los Angeles (UCLA), School of Medicine; Wadsworth VA Center, Building 115, Room 203, Los Angeles, California 90073. The University of California is an Equal Opportunity/Affirmative Action Employer.**

NORTHWESTERN UNIVERSITY DEPARTMENT OF MICROBIOLOGY-IMMUNOLOGY

Applications are invited from molecular biologists for two tenure-track **ASSISTANT PROFESSORSHIPS** in the basic science faculty of the medical and dental schools. We are particularly interested in candidates with demonstrated expertise in the application of molecular genetics to either microbial pathogenesis or to the control of mammalian cell growth. Potential for developing a strong research program and teaching at the postgraduate level will be considered. Please send curriculum vitae, an outline of research plans, and names of three referees by 31 December 1984 to: **Dr. Carl Waltenbaugh, Faculty Search Committee, Department of Microbiology-Immunology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611.**

BIOCHEMISTRY FACULTY POSITION. The School of Chemistry, Georgia Institute of Technology, invites applications for a tenure-track position at the assistant-associate professor level. Candidates with research interests in genetic engineering or related areas of molecular biology are especially encouraged to apply but outstanding candidates with research interests in other areas of biochemistry will be considered. Send curriculum vitae, graduate and undergraduate transcripts, description of proposed research program, and three letters of recommendation to: **Professor Robert A. Pierotti, Director, School of Chemistry, Georgia Institute of Technology, Atlanta, Ga. 30332. The deadline for receipt of applications and accompanying documents is 3 December 1984. Georgia Institute of Technology is an Equal Opportunity/Affirmative Action Employer.**

The University of California, San Diego, Department of Chemistry invites applications for a tenure-track position in **BIOCHEMISTRY**. The appointment most likely will be at the assistant professor level (\$23,500 to \$31,000). Although all applicants will be considered, those applicants whose research interests deal with cellular aspects of biochemistry such as oncogenesis and growth regulation or molecular aspects of cell surface receptors are particularly encouraged to apply. A Ph.D. is required. Candidates will be expected to develop a strong, independent, and creative research program. Teaching will be required at both the undergraduate and graduate levels in the general areas of biochemistry and molecular biology. Candidates should send curriculum vitae, a list of publications, reprints of representative papers, a summary of plans for their research program, and the names of three people who can be contacted for letters of recommendation to:

**Biochemistry Search Committee
c/o Department Chairman
Department of Chemistry, B-032
University of California, San Diego
La Jolla, California 92093**

Prompt response is recommended but all applications received by 15 November 1984 will be given thorough consideration. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

NATIONAL CANCER INSTITUTE CANCER CONTROL SCIENCE ASSOCIATES PROGRAM

The Division of Cancer Prevention and Control, National Cancer Institute, National Institutes of Health (DCPC, NCI, NIH) is accepting applications for July 1, 1985 entry into the Cancer Control Science Associates Program (CCSAP). The primary purpose of this new program is to attract qualified individuals from a multiplicity of health science disciplines into the field of cancer control research. Up to five (5) individuals may be accepted as DCPC Science Associates for a three-year period of duty. In most cases, two years will be spent at the NCI working directly with individual preceptors on ongoing cancer prevention and control projects. Science Associates will also participate in formal in-house training in cancer prevention and control and may, in some instances, pursue specialized course work at selected academic institutions. A third year will be spent at one of the NCI-supported cancer preven-

tion and control programs located throughout the United States. Matching procedures will ensure that each DCPC Science Associate will be placed according to his/her professional training and interests.

Requirements for appointment are: 1) M.D., D.O., or doctorate in an allied or public health profession, biomedical or behavioral science, or equivalent; 2) A minimum of one year of post-doctoral training or experience at the time of application, which included familiarity with the basic fundamentals of scientific research methodology; and 3) academic-professional excellence supported by official transcripts and four letters of reference. [NOTE: Individuals with payback obligations to the National Health Service Corps Scholarship Program or other similar federal programs are not eligible for consideration.] DCPC Science Associates will occupy non-tenure Civil Service positions as professional staff.

Current salaries for the first year for an M.D./D.O. or a Ph.D., respectively, are \$31,044 or \$25,489 per annum. Employment benefits include health and life insurance, sick and annual leave, relocation and travel expenses, and tuition expenses (if applicable).

To obtain program details and an application packet, SEND A POSTCARD ONLY with your printed name and home mailing address to: Ms. Nancy E. Garner, Program Coordinator, CCSAP, NIH/NCI/DCPC/CCAB, Blair Building, Room 4A01, Bethesda, MD 20205 or call (301) 427-8788. (Do NOT send letters, curriculum vitae, transcripts, reprints, etc. until you have received the information packet and reviewed the program details, eligibility requirements, and instructions for submission.) NIH is an Equal Opportunity Employer.

DEADLINE FOR RECEIPT OF APPLICATIONS IS JANUARY 2, 1985

National Institutes of Health NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES NATIONAL TOXICOLOGY PROGRAM Toxicology Research and Testing Program (TRIP) Research Triangle Park, North Carolina

HEAD, QUALITY ASSURANCE

The Toxicology Research and Testing Program is seeking applicants for the position of Head, Quality Assurance, within the Office of the Program Director, TRIP. The position has a salary range of \$42,928 to \$55,807. The successful candidate will be expected to:

- Direct and coordinate the formulation and design of data audits to evaluate the administrative and scientific integrity of the toxicology and carcinogenesis studies conducted under the aegis of the National Toxicology Program. The studies are performed principally through contracts supplemented by an intramural laboratory capability. There are approximately 200 ongoing tests in this Program.
- Direct a program for developing or evaluating current methods and procedures for auditing these studies, both ongoing and retrospectively.
- Supervise the in-life Good Laboratory Practices (GLP) monitoring and Quality

Assurance audits of studies conducted at the contract testing laboratories. These GLP/Audit functions will be done largely by other contractors, expert in these procedures, under the direct supervision of the Head, Quality Assurance.

Candidates are required to have the following:

- Ph.D. degree or the equivalent in toxicology, pharmacology, physiology, chemistry, industrial hygiene, or other allied subjects where training was focused on activities dealing with research/testing, data generation, validation, and monitoring.
- Experience in pathology/histopathology procedures and in chemistry methodologies.
- Experience in managing and developing a broad spectrum of data evaluation and auditing procedures for laboratory research/testing experiments as well as for computerized

toxicology data collection techniques.

- A thorough knowledge of toxicology and carcinogenesis studies and the procedures used to investigate pre-chronic and chronic toxic effects of chemicals.
- Excellent written and oral communication skills.
- Relevant publications in scientific journals.

Applicants must be found to be eligible on a Civil Service Register. If interested, please send a curriculum vitae by Nov. 15, 1984 to Ms. Lou Rozier, Personnel Office, NIEHS, P.O. Box 12233, Research Triangle Park, NC 27709. Any questions may be directed to Ms. Lou Rozier, area code 919, telephone number 541-7513.

U.S. citizenship required.

The NIEHS is an Equal Opportunity Employer.

POSITIONS OPEN

EMORY UNIVERSITY

The Department of Biology seeks applicants with postdoctoral experience for three tenure-track **ASSISTANT PROFESSOR** positions to begin 1 September 1985. Candidates should have demonstrated their potential for initiating and sustaining an excellent research program and should have a commitment to quality teaching.

POPULATION BIOLOGIST. Candidates must have a research program which integrates the ecological and genetic components of population biology. Preference will be given to candidates who have demonstrated research experience in using molecular biological methods.

NEUROBIOLOGIST. The Biology Department is developing strengths in systems neurobiology as well as cell and molecular biology; candidates who show promise of interaction with these groups will receive primary consideration.

EUKARYOTIC MOLECULAR GENETICIST. Emory University is developing strengths in molecular genetics, and a concurrent search for a molecular geneticist is being conducted by the Microbiology Department.

Applicants should submit curriculum vitae, a statement of research interests, and the names and addresses of four references by 31 December 1984, to: **Dr. William H. Murdy, Chairman, Department of Biology, Emory University, Atlanta, Ga. 30322.** Emory University is an Affirmative Action/Equal Opportunity Employer.

The Section of Pediatric Neurology at the University of Michigan has a position available at the **ASSISTANT/ASSOCIATE RESEARCH SCIENTIST** level (research faculty track). A Ph.D. in cell biology or related field, two or more years of postdoctoral training with experience in culture of differentiated cells is required. Laboratory currently involved in tissue culture of capillary endothelial cells derived from brain. Studies related to the production of the transcellular permeability barrier and factors involved in the maintenance of differentiated properties are presently of particular interest. Future work may be directed towards investigating potential interaction between brain endothelial cells and glial cells. Successful applicant will be expected to develop an independent research program within this framework. Teaching is not required but joint appointment with the appropriate basic science department may be arranged. Contact: **Gary Goldstein, M.D., Section of Pediatric Neurology, University of Michigan Hospitals, Ann Arbor, Michigan 48109; telephone: 313-763-6645.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer.

BIOCHEMISTRY—Assistant Professor. Bowling Green State University. Applicants are encouraged in areas which complement the research activities of the existing faculty: specifically in nucleic acid chemistry, structural chemistry of biological molecules (NMR), or in photochemistry/photobiology. Recent department instrument acquisitions include a high field NMR, and Hewlett Packard 5987 GC/MS/DS system. Bowling Green chemistry moved into new research laboratories in May 1984. Arrange for three letters of recommendation, transcripts, and a short synopsis of research plans to be sent by 1 November 1984 to: **SEARCH/D. C. Neckers, Chemistry Department, Bowling Green State University, Bowling Green, Ohio 43403.** Equal Opportunity/Affirmative Action Employer.

CHAIRPERSON-DEPARTMENT OF BIOCHEMISTRY University of Utah School of Medicine

The University of Utah is seeking a new chairperson of biochemistry who will develop a first-rate group that uses basic biochemical and physical methods to investigate biological problems at a molecular level. Our hope is that the Biochemistry Department will develop graduate and research programs that are broadly interactive with medical and other groups in the university. To help assure the success of this venture, the university is committing to the chairperson new positions, new space, and substantial start-up funds. Interested individuals should send curriculum vitae to: **Zell A. McGee, M.D., Center for Infectious Diseases, Diagnostic Microbiology and Immunology, University of Utah School of Medicine, Salt Lake City, Utah 84132,** before 1 November 1984. The University of Utah is an Equal Opportunity/Affirmative Action Employer.

Applications submitted after the deadline may be considered if no qualified candidates have applied by that date.

POSITIONS OPEN

BIOCHEMIST—Temple University is seeking a biochemist to join a research group studying protein interaction in the early stages of blood coagulation. Applicants should have a Ph.D. in biochemistry with at least 3 years of postdoctoral experience in protein chemistry, including purification, characterization, kinetics, and selected physical methods. Familiarity with HPLC, immunochemical methods, and end group analysis desirable. A non-tenured but long-term faculty position with full benefits and the rank of research assistant professor is available. Send résumé and three references to: **Robert W. Colman, Director, Thrombosis Research Center, Temple University Health Sciences Center, 3400 North Broad Street, Philadelphia, Pa. 19140.** An Equal Opportunity/Affirmative Action Employer.

Applications are invited for tenure-track positions in the following areas: **BOTANY, MICROBIOLOGY, and ENTOMOLOGY.** Candidates will be expected to coordinate and develop a large undergraduate course (300 students or more) in one of these areas. They will also be expected to develop active independent research programs, supervise undergraduate and graduate students, and teach graduate courses in their respective areas. Speaking and writing knowledge of Spanish is preferred. All appointments are expected to be made at the assistant professor level, but exceptional candidates will be considered at other levels. Send a letter describing your commitment to teaching, current and future research interest, curriculum vitae, transcript, bibliography, representative reprints, and the names, addresses, and telephone numbers of at least three people who may be contacted for letters of recommendation to: **Dr. José R. Ortiz Fernández, Department of Biology, University of Puerto Rico, Río Piedras, Puerto Rico 00931.**

CHAIRPERSON DEPARTMENT OF PHARMACOLOGY

Nominations and applications are invited for the position of chairperson of the Department of Pharmacology at Loyola University Stritch School of Medicine. We are seeking an established scientist with a distinguished record of supported research, a strong commitment to excellence in graduate and medical education, proven leadership and administrative abilities, and an active interest in initiating and facilitating collaborative interactions with other departments. The Department of Pharmacology has a strong graduate program leading to a doctoral degree and is committed to excellence in research and teaching. Loyola University Medical Center is located in Maywood, Illinois, 10 miles west of downtown Chicago. To apply, submit curriculum vitae, a brief summary of research interests, bibliography, and names of three references to:

**Marion H. Brooks, M.D.,
Chairman, Pharmacology Search Committee
Loyola University Stritch School of Medicine
2160 South First Avenue
Maywood, Illinois 60153**

Loyola University is an Equal Opportunity/Affirmative Action Employer.

CHAIRMAN, DEPARTMENT OF NUTRITION CASE WESTERN RESERVE UNIVERSITY MEDICAL SCHOOL

Applications are invited for the position of chairman of the newly established Department of Nutrition at Case Western Reserve University Medical School. The chairman will direct the development of a modern nutrition research program in close association with the clinical and basic science departments of the medical school. Applicants should send a letter of intent and curriculum vitae to: **Dr. Nathan A. Berger, Hematology/Oncology Division, Case Western Reserve University, 2074 Abington Road, Cleveland, Ohio 44106.** We are an Equal Opportunity/Affirmative Action Employer, M/F/H.

CHAIRMAN, DEPARTMENT OF PHARMACOLOGY, Temple University School of Medicine. A unique opportunity is offered for a highly qualified scholar to develop a first class department. The ideal candidate must have leadership qualities, an outstanding research record in pharmacology or related basic science experience, and a deep interest in teaching pharmacology to medical students and managing a graduate program. The current chairman is retiring and deadline for receipt of résumé, bibliography, and three references is 15 December 1984. Send to: **S. Weinhouse, Chairman, Search Committee, Room 805, Medical Research Building, Temple University School of Medicine, Philadelphia, Pa. 19140.** Temple University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

COGNITIVE PSYCHOLOGIST. Applications are invited for a tenure-track research/teaching position at the assistant professor level in cognitive psychology (preferably with a specialization in higher-order cognitive processes). Submit curriculum vitae and three letters of reference as soon as possible to: **Chair, Cognitive Search Committee, Department of Psychology, 210 McAlester Hall, University of Missouri, Columbia, Missouri 65211.** An Equal Opportunity/Affirmative Action Employer.

CURATORIAL POSITION IN INVERTEBRATE ZOOLOGY

Applications are solicited for the position of **ASSISTANT or ASSOCIATE CURATOR** in the Section of Invertebrates, Natural History Museum, Los Angeles County. Responsibilities consist of collection-oriented research on the systematics of Polychaetes, Coelenterates, or Echinoderms, participation in collections management, and participation in public programs of the museum. Applicants must possess a Ph.D. (or provide certification that it will be soon granted). Starting salaries: Assistant: \$1776; Associate: \$2095. Applications including names of three or more references should be sent before 15 January 1985 to: **Dr. Richard C. Brusca, Natural History Museum of Los Angeles County, 900 Exposition Boulevard, Los Angeles, Calif. 90007; telephone 213-744-3367.** An Equal Opportunity Employer.

DEAN, COLLEGE OF SCIENCES UNIVERSITY OF NEW ORLEANS (UNO) Open 1 June 1985

UNO is a young, developing state-supported institution located in New Orleans on Lake Pontchartrain. The university enrollment consists of approximately 14,000 undergraduate and 2,500 graduate students. The College of Sciences offers the baccalaureate degree in computer sciences, baccalaureate and masters degrees in biology, chemistry, earth sciences, mathematics, physics, and psychology and the Ph.D. degree in chemistry and psychology.

Candidates should possess outstanding credentials in research and teaching in one or more of the above mentioned degrees. Administrative experience is desirable but not required. Salary is negotiable. Completed applications must be submitted by 1 December 1984 and should include: (i) curriculum vitae including degrees and institutions, professional experience, list of publications, and accomplishments in obtaining external funding, (ii) a statement of professional interest and objectives, and (iii) a minimum of three letters of recommendation.

For further information send inquiries to: **Dr. Jack W. Timberlake, Chairman Search Committee, Department of Chemistry, University of New Orleans, New Orleans, Louisiana 70148.**

UNO is a member of the Louisiana State University System and is an Equal Opportunity/Affirmative Action Employer.

DEAN, COLLEGE OF SCIENCE AND ENGINEERING. Wright State University invites applications and nominations for this position currently available. The college has 200 faculty, 3700 undergraduate majors, and 400 graduate students and is organized into a School of Engineering and 11 departments: biological sciences, chemistry, computer science, geological science, mathematics and statistics, physics, and psychology. Anatomy, biochemistry, microbiology/immunology, and physiology are matrixed with the School of Medicine. Candidates must be eligible for appointment as a full professor and show evidence of leadership, scholarly achievements, and administrative experience. Send applications with curriculum vitae and names, addresses, and telephone numbers of four references by 5 November 1984 to: **Dr. Jerry Hubschman, Chair, Advisory Search Committee, c/o Provost's Office, Wright State University, Dayton, Ohio 45435.** Telephone: 513-873-2257. An Equal Opportunity/Affirmative Action Employer.

EXPERIMENTAL DYSMORPHOLOGIST Visiting Assistant Professor

Position available to establish and coordinate a congenital malformations registry for domestic mammals. The applicant should possess a Ph.D. in genetics and a thorough understanding of embryology and classical teratology. Funds available through 30 June 1985, with possible continuation dependent upon extramural support. Send curriculum vitae and the names of three references by 2 November 1984 to: **Dr. Richard H. Finnell, Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology, College of Veterinary Medicine, Washington State University, Pullman, Wash. 99164-6520.**

An Affirmative Action/Equal Opportunity Employer

BIOCHEMIST R&D

Our small but highly interactive lab offers abundant room for recognized achievement and exposure to the separation problems involved in the Biotechnology area. Principle challenge will be the purification and separation of monoclonal antibodies and the development of new binding methods for retaining the avidity and affinity of the bound antibody.

To qualify, you should have a PhD in Biochemistry and be familiar with affinity chromatography and other solid phase biochemistry to work on our specially designed matrix. Knowledge of immunology and hematology will also be useful to this project.

Working in our Talcottville laboratories conveniently located near Hartford, you'll receive an attractive salary and benefits package which includes employee discounts on our leisure time products. To apply, forward a resume with salary history and requirements to: John C. Stupakevich

AMF

Specialty Materials
Group

400 Research Parkway
Meriden, CT 06450

An equal opportunity employer M/F

Enzyme Scientist/ Drug Metabolism

Smith Kline & French Laboratories, a leader in pharmaceutical research, provides an excellent opportunity to participate in a challenging new drug metabolism program. The successful candidate will be responsible for designing and conducting enzyme assays; large scale enzyme isolation and purification from animal tissues; chemical modification of enzymes and developing HPLC, TLC and other analytical techniques for separation and isolation of products from enzymatic reactions.

Candidates must have a BS in biological chemistry or related areas (MS preferred) and at least 2 years experience in enzymology, ion-exchange and gel permeation chromatography and affinity chromatography. Must have a thorough knowledge of organic and analytical chemistry, enzyme kinetics and drug metabolism.

We offer an excellent compensation and benefits package including an attractive relocation policy. Please send your C.V. in confidence to: George Kissell, Smith Kline & French Laboratories, a division of SMITHKLINE BECKMAN CORPORATION, 1560 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

SK&F
A SmithKline Beckman Company



THE WORLD HEALTH ORGANIZATION OF THE UNITED NATIONS

invites applications for the post of MEDICAL OFFICER

Duties: To coordinate and implement in close collaboration with Regional Offices, a comprehensive programme on simple and rapid techniques for diagnosis of viral diseases, with special emphasis on the training component and the preparation of reagents at the Regional level, while securing quality control of reagents and of tests at the global level. To be responsible for surveillance of, and to advise on prevention of and research on dengue and Japanese encephalitis. To develop and coordinate the programme on the preparation, testing and distribution of viral reagents. To be responsible for the programme on viral diarrhoeal infections and to cooperate with the Diarrhoeal Diseases Control Programme, with regard to gastroenteritis viruses, with special emphasis on rotaviruses. Coordinate the activities of, and give guidance to, the related WHO Collaborating Centres supporting these programmes. To develop and maintain close contact between the Virus Unit and national virus laboratories. To be responsible for the organization of expert committees, scientific groups, study groups, consultations, etc. including the preparation of documents, and to act as secretary to such meetings.

Minimum Qualifications: Graduation in medicine from a recognized school. Specialized training in virology and epidemiology is essential. Comprehensive experience in laboratory and field studies of virus diseases. Previous responsibility for conduct of research and direction of control programmes. Excellent knowledge of viral diseases, diagnostic techniques and epidemiological features, and a good knowledge of molecular virology. Excellent knowledge of English or French with a good working knowledge of the other language.

The salary scale ranges from US\$ 51,661 (single) and from US\$ 55,922 (with dependents) net of tax per annum.

Applications are invited from candidates of either sex—applications from women are encouraged. Qualified candidates should send their detailed curriculum vitae as soon as possible quoting CDS/VIR/84 to:

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

Only those candidates under serious consideration will be contacted.

Biochemist Gastrointestinal Research

The expansion of Pfizer Central Research has created an exciting opportunity for a Ph.D. Biochemist to become involved in the discovery and development of important new medicines to treat ulceration and other gastrointestinal disorders. The successful candidate will join a well-established multidisciplinary team of biological and chemical scientists.

Applicants should have experience with the isolation, purification, and assay of membrane bound enzymes or receptors. Prior expertise with ATPases would be particularly beneficial. Emphasis on the gastrointestinal tract is desirable but not essential.

This position offers an excellent opportunity for professional recognition and career growth within a large and expanding pharmaceutical research organization. Recently completed new laboratories provide excellent facilities for our research teams, and publication of important new findings is encouraged. In addition, we offer a competitive compensation and benefits package and the opportunity to live in an attractive Connecticut shore community. Please send resume and brief description of research interests to: Dr. Jerry K. Larson, Manager of Employment, Pfizer Central Research, Eastern Point Road, Groton, CT 06340

Pfizer

An Equal
Opportunity Employer

POSITIONS OPEN

DIRECTOR Chesapeake Bay Institute The Johns Hopkins University

The Johns Hopkins University seeks an established marine scientist to become director of Chesapeake Bay Institute (CBI). The institute has a long history of outstanding research in estuarine and marine processes. Recent additions to the staff have provided a nucleus of talented young investigators specializing in biochemistry and physiology, biological oceanography, cellular and molecular biology, physical oceanography, and aquatic toxicology. CBI is located on a 7-acre waterfront site near Annapolis, Maryland, and is housed in a newly remodeled facility with excellent laboratories and ample space for continued expansion. The Institute operates a UNOLS vessel (R/V *Warfield*) and several small boats. Candidates for director should possess a strong record of research accomplishments in one of the areas above or a related area, and bring to CBI an active research program and the leadership qualities required to promote the continuing growth of the Institute. Curriculum vitae, names and addresses of four references, and any other pertinent information or inquiries should be addressed to: **Dr. Dennis A. Powers, Acting Director, Chesapeake Bay Institute, 4800 Atwell Road, Shady Side, Maryland 20764.** Applications should be received by 1 December 1984. *The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer.*

DIRECTOR, IN VITRO FERTILIZATION LABORATORY

The In Vitro Fertilization (IVF) Program at Pennsylvania Hospital seeks Ph.D. in reproductive physiology with experience in animal or preferably human IVF. Responsibilities include running an IVF laboratory, supervising a technician, and participating actively in an ongoing IVF program. Academic appointment at the University of Pennsylvania School of Medicine at instructor or assistant professor level available, commensurate with experience.

IN VITRO FERTILIZATION TECHNICIAN

Laboratory technician with experience in tissue culture, sterile technique, and handling of gametes is needed for ongoing IVF program. B.S. required.

Applicants should send curriculum vitae and references to: **Esther Eisenberg, M.D., Department of Obstetrics and Gynecology, Pennsylvania Hospital, 8th and Spruce Street, Philadelphia, Pa. 19107.**

DIRECTOR—U.S. Salinity Laboratory. The Agriculture Research Service, Riverside, California, invites applications from senior research soil scientists or agricultural engineers to direct a research program on crop water management with special emphasis on problems associated with saline and sodic soils. This federal position has a beginning salary of \$50,485 per annum. Must be U.S. citizen. Further information and application procedures may be obtained by contacting: **Rita Millard, telephone: 301-344-3138**, in Beltsville, Maryland. *An Equal Opportunity Employer.*

DIVISION DIRECTOR SCIENTIFIC AFFAIRS

Applications are invited for the position of assistant executive director, Scientific Affairs Division. This position is responsible for the direction and management of three scientific councils, two laboratory research agencies within the American Dental Association Health Foundation, and related grant programs. Applicants should have a D.D.S. or Ph.D. in life or physical sciences and 10 to 15 years of experience in the dental field including thorough knowledge of research methodology, dental materials/equipment, therapeutic agents, and research administration. Please submit curriculum vitae to: **Thomas S. Dorsch, Personnel Director, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.** *An Equal Opportunity Employer. Women, minorities, and handicapped are encouraged to apply.*

ENVIRONMENTAL SCIENTIST

A key government agency with quasi-legislative and quasi-judicial powers is seeking a pollution control professional to direct a scientific/technical staff. Responsibilities include the coordination of this staff's research and technical input to the Pollution Control Board's regulatory policy formulation. The individual selected will have some supervisory experience, academic and technical credibility, plus programmatic expertise in one of the following areas: air pollution, solid waste, water pollution, or pollution control equipment. For details respond to: **John P. Grubbs, Room 327, 160 North LaSalle Street, Chicago, Illinois 60601.**

POSITIONS OPEN

PURDUE UNIVERSITY MATERIALS RESEARCH LABORATORY DIRECTOR

The Materials Research Laboratory (MRL) at Purdue University is seeking a director to begin 1 July 1985. The director has full administrative responsibility for MRL, which is an NSF-funded interdisciplinary program in which about 30 faculty members participate, carrying out research in materials related fields.

The director is expected to maintain an active research program. He should have credentials appropriate for appointment as a tenured faculty member in materials engineering, physics, chemistry, chemical engineering, or electrical engineering. Administrative experience is desired. Applications should include a complete bibliography and the names of three references. Applications should be sent before 1 January 1985 to:

**Allan H. Clark, Dean
School of Science
Mathematical Sciences Building
Purdue University
West Lafayette, Ind. 47907**

An Equal Opportunity/Affirmative Action Employer

INDIANA UNIVERSITY, BLOOMINGTON Ecology/Evolution/Population Biology Fall 1985

Applications are invited for a tenure-track position at the level of assistant professor. We are seeking an individual with expertise in both experimental and theoretical approaches in ecological, evolutionary, or population biological questions. The successful applicant will be expected to teach both graduate and undergraduate students and maintain a strong research program.

Submit curriculum vitae, summary of past and present research, a statement of research objectives, a set of publications, and have three letters of reference sent to: **Rollin C. Richmond, Chairman, Department of Biology, Indiana University, Bloomington, Ind. 47405.** Applications received before 17 December 1984 will be assured of consideration. *Applications from minorities and women are especially welcome.*

EDUCATION IN MATHEMATICS, SCIENCE, OR TECHNOLOGY University of California, Berkeley

One associate professorship and one tenure-track assistant professorship are to be filled, pending final budgetary approval, starting August 1985, by the Graduate School of Education as part of a multi-year effort to build outstanding programs of research, doctoral education, and professional training concerned with education in mathematics, science, and technology. Candidates should have a doctoral degree, preferably in a field such as mathematics, a physical science, or computer science. They should have expertise in the educational applications of computers and cognitive science, excellence in research and teaching, and applied interests in instructional improvement.

Applicants should send a résumé, a statement describing qualifications and interests, and the names of at least three references to: **Mathematics, Science, or Technology Search Committee, Graduate School of Education, University of California, Berkeley, Calif. 94720**, so as to be received by 30 November 1984. They should also have their references send letters of recommendation directly to the committee by this deadline. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

DEPARTMENT OF GEOLOGY AND GEOPHYSICS UNIVERSITY OF CALIFORNIA, BERKELEY

Subject to final budgetary approval, the department is authorized to make **TWO FACULTY APPOINTMENTS**, one at the senior level and one at the junior level, and anticipates making two further appointments next year. Applicants with an outstanding record of research in any field of geology and geophysics are encouraged to apply. The ability to carry out leading research, as well as an interest in teaching graduate and undergraduate students, are major factors in the selection. Applications, including the names of at least three references, should be sent by 15 December 1984 to: **The Search Committee, Department of Geology and Geophysics, University of California, Berkeley, California 94720.**

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

POSITIONS OPEN

ELECTRON MICROSCOPE ENGINEER/RESEARCH SPECIALIST position available at the Madison High Voltage Electron Microscope Facility. Applicant must have at least a B.S. degree, preferably in physics or engineering, and several years of practical experience maintaining and improving electron optical equipment. An individual with a Ph.D. could be considered for an assistant scientist position. Applicant is expected to help maintain the 1 MeV electron microscope, assist visiting investigators in its use, and assist the staff in high resolution studies of biological materials. A challenging opportunity to join an active group involved in the development of novel light- and electron-optical instrumentation and its application to biological problems. *The University of Wisconsin is an Equal Opportunity Employer.*

Salary: \$22,000 to \$33,000 per year.

Send curriculum vitae and three references to: **Hans Ris, Director, Madison HVEM, Zoology Research, 1117 West Johnson Street, Madison, Wis. 53706; telephone: 608-262-2694.**

ELECTRON MICROSCOPIST. Postdoctoral position available (3 years). Ultrastructural research in aging and CNS. Candidate should be experienced in all phases of electron microscopy. Morphometric experience desirable. Salary: \$19,312.

Send inquiries to: **G. Y. Lin, Ph.D., Attention: Personnel, New York State Institute for Basic Research, 1050 Forest Hill Road, Staten Island, New York 10314.**

EXERCISE PHYSIOLOGIST Ph.D. for immediate opening in work physiology research, testing of life support systems, and supervision of employees' exercise facility at Kennedy Space Center. Background in thermoregulatory physiology desirable. Ph.D., minimum of 2 years of relevant experience, and productive publication record required. Salary negotiable. Send curriculum vitae to: **J. R. Puleo, The Bionetics Corporation, BIO-1, Kennedy Space Center, Fla. 32899.** Applications must be postmarked no later than 9 November 1984. *Equal Opportunity Employer.*

FACULTY POSITION

The Department of Physiology, Vanderbilt University School of Medicine, invites applications for a faculty position specializing in the use of cell and/or molecular biology techniques to study control mechanisms in mammalian cells. An earned doctorate and demonstrated ability to organize and conduct an independent research program are requisites. Faculty rank is dependent upon training and experience. Submit curriculum vitae, a brief research plan, and the names of three references to: **D. K. Granner, M.D., Chairman, Department of Physiology, Vanderbilt University School of Medicine, Nashville, Tenn. 37232.**

Affirmative Action/Equal Opportunity Employer

HEAD, DEPARTMENT OF ENTOMOLOGY LOUISIANA STATE UNIVERSITY AGRICULTURAL CENTER LOUISIANA AGRICULTURAL EXPERIMENT STATION AND COLLEGE OF AGRICULTURE LOUISIANA STATE UNIVERSITY BATON ROUGE, LOUISIANA

Applications are being accepted at the level of associate professor or professor. A Ph.D. in entomology or related field with qualifications for appointment as a full member of the graduate faculty is required. Significant accomplishments in teaching, research, and/or extension with potential for leadership in administration are required. Dedication to quality instructional programs is essential. Familiarity with the land grant system is preferred but not required. Responsibilities include leadership and administration of research and teaching programs in entomology. The head prepares, justifies, and administers departmental budgets, leads in recruitment of faculty, assists in obtaining extramural funds, and maintains liaison with the Louisiana Cooperative Extension Service, allied departments, commodity groups, governmental agencies, and industry. Salary, rank, and tenure will be commensurate with training and experience. Deadline: 1 December 1984 or until a suitable candidate is identified. Send letter of application; résumé to include publications, teaching experience, and related activities; and names and addresses of three references to: **Dr. David J. Boethel, Chairman Search Committee, Department of Entomology, Louisiana State University, Baton Rouge, La. 70803; telephone: 504-388-1634.** *An Equal Opportunity Employer.*

REGIONAL SUPERVISOR FISH and WILDLIFE PROGRAM

Position located in New York City to administer Fish and Wildlife Program for New York State Department of Environmental Conservation. Duties include environmental impact reviews and compliance monitoring, extension and sportsmen training, oversight and technical support for endangered species program and routine administration.

Permanent appointment is contingent upon satisfactory placement on a State Civil Service exam. Qualifications for the exam include a Bachelor's degree in Biological Science and 4 years of paid professional experience including 2 years of supervisory experience. 1 year of experience may be substituted by an advanced degree.

Starting Salary: \$33,593.

Application closing date: November 9, 1984. Send resumes to:

Peggy Sauer, Room 524
New York State Department
of Environmental Conservation
50 Wolf Road
Albany, New York 12203-0001
Equal Opportunity Employer

Scientist/Drug Metabolism

The Drug Metabolism Department of SmithKline & French Laboratories, located in suburban Philadelphia near Valley Forge, is seeking a Scientist to participate in basic drug metabolism research programs designed to assist in drug development and discovery. The selected individual will develop novel HPLC assays for drugs and their metabolites in biologic media, conduct pharmacokinetic studies in animals and man, and publish results from these studies.

The successful candidate must have:

- M.S. in analytical chemistry, chemistry, biochemistry or related area with 23 years analytical laboratory experience or a B.S. degree in the aforementioned disciplines with 3-5 years analytical laboratory experience.
- Demonstrated experience in bioanalytical methods development (HPLC) for drugs in biologic media.
- Excellent communications and interpersonal skills.
- Proven research ability evidenced by scientific publications is desirable.
- Knowledge of pharmacokinetics/biopharmaceutics preferred.

If you possess these qualifications and are interested in an excellent salary, benefits and relocation package as well as the opportunity for personal and professional growth, reply in confidence to George P. Kissell, Jr., Senior Employment Consultant, SK&F Laboratories, 1581 Spring Garden Street, Philadelphia, PA 19101.

We are an Equal Opportunity Employer, M/F/H/V

SK&F
A SmithKline Beckman Company

PRESIDENT

The New England College of Optometry

The Presidential Search Committee of the College is seeking applications and nominations for the position of President.

Founded in 1894, the College is a free-standing, nonprofit institution, located in Boston, Massachusetts. The College offers a four-year, postgraduate professional curriculum, leading to the degree of Doctor of Optometry.

Nominations or applications, accompanied by current curriculum vitae, are expected by November 15, 1984, and should be directed to:

Chairperson
Presidential Search Committee
**The New England
College of Optometry**
P.O. Box 821
Stoughton MA 02072

An Equal Opportunity/
Affirmative Action Employer



THE UNIVERSITY OF ADELAIDE

invites applications from both men and women for the following position:

LECTURER (LIMITED TERM) IN AGRONOMY WAITE AGRICULTURAL RESEARCH INSTITUTE

(Reference: X4151) for the Waite Institute barley breeding program to work as second breeder in collaboration with Dr. D. H. B. Sparrow in the Department of Agronomy. The successful applicant is required for barley improvement and associated research studies.

The Waite barley program has as its objective the production of improved barley cultivars adapted to a winter rainfall climate. Specific interests include improvement of disease resistance, malting quality, and trace element efficiency as well as increases in yield.

Applicants should have an appropriate training to undertake plant breeding and/or research experience, preferably with a Ph.D., in cereals or other major crops.

The appointment is funded by the South Australian Barley Industry Research Committee on an annual basis until 30 June 1985, in the first instance, with the probability of renewal for further periods.

Further information about the position and the cereal breeding activities of the Department of Agronomy can be obtained from its Chairman, Professor C. J. Driscoll. Telephone number: 618-79 7901.

Further information about the general conditions of all appointments may be obtained from the Senior Assistant Registrar (Personnel) at the University.

Salary per annum: A\$24,353 x 5 to A\$31,994 (salary under review)

Applications in duplicate, quoting reference number and giving full personal particulars (including residential status), details of academic qualifications, and names and addresses of three referees should reach: The Senior Assistant Registrar (Personnel) at the University of Adelaide, GPO Box 498, Adelaide, South Australia 5001. Telex: UNIVAD AA 89141 not later than 16 November 1984.

The University reserves the right not to make an appointment or to appoint by invitation.

SENIOR RESEARCH MICROBIOLOGIST

A newly created position at the doctoral level has been approved in our Molecular Biology Department. Requirements include extensive experience in immunology and a background in biochemistry and/or cell biology. Knowledge and interest in developing assays for detection of immune modulators and experience in cell culture, immunoassay, immunochemical techniques, and protein chemistry are desired.

Excellent benefits, a pleasant working environment, and competitive salary commensurate with experience and background complement this professionally demanding opportunity. A. H. Robins is headquartered in a southern metropolitan atmosphere within convenient driving distance to Washington, D.C., the seashore, and the mountains.

Manager
Personnel R&D Division
A. H. Robins Company
1211 Sherwood Avenue
Richmond, Virginia 23220

Equal Opportunity Employer, M/F

PROTEIN CHEMIST In Exciting Research Program!

Cetus Corporation, a rapidly growing leader in biotechnology-based health care products, has an opportunity for a Scientist skilled in protein isolation and characterization. Research responsibilities will include studies on native and cloned human proteins of therapeutic value.

Experience with micro-isolation and analysis is the primary requirement for this Ph.D. level position.

Please send resume in confidence to:

Cetus Corporation
Box SCK
1400 Fifty-third Street
Emeryville, CA 94608



an equal opportunity employer
m/f/handicapped

POSITIONS OPEN

FACULTY POSITION IN CELLULAR OR DEVELOPMENTAL BIOLOGY

The Department of Biological Sciences at the University of Southern California is seeking two or more tenure-track faculty with research and teaching interests in cellular and/or developmental biology. Appointments may be in any of the three research sections (molecular biology, marine biology, or neurobiology) of the department. Candidates will be expected to establish an independent research program. Applicants should send, by 30 November 1984, curriculum vitae, bibliography, brief descriptions of their predoctoral, postdoctoral, and proposed research, and the names and phone numbers of three references to:

Search Committee
Department of Biological Sciences
University of Southern California
AHF 107F
Los Angeles, California 90089-0371
Equal Opportunity/Affirmative Action Employer

University of Guam (UOG) MARINE LABORATORY Two Faculty Positions

Tenure-track, 12-month positions at the assistant professor level, in marine natural products chemistry/marine chemical ecology, plankton ecology, or nearshore physical oceanography. Ph.D. and research experience essential. Position available beginning January 1985. Responsibilities include establishing an active research program, thesis supervision at the M.S. level, and teaching six contact hours per week. Excellent facilities available for marine biological research.

Initial appointment for 3 years. Benefits include round-trip transportation and moving expenses for selected applicant and family.

Applicants send curriculum vitae, names and addresses of three references, and copies of selected publications to: **Director, Marine Laboratory, UOG Station, Mangilao, Guam 96913.** *An Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION IN NEUROGENETICS

The Department of Neuroscience, Mental Retardation Program, Children's Hospital, Boston, is seeking an experienced research scientist with independent grant support to lead a new initiative in experimental mammalian neurogenetics. Academic rank at Harvard Medical School will be at the assistant or associate professor level, and will involve opportunities to participate in university-wide programs in neuroscience and in genetics. The successful candidate will have access to a large series of mutations affecting the nervous system in mice and to modern computer graphics, tissue culture, and chemistry facilities. Priority consideration will be given to applicants with an established training record and with research objectives that would integrate with the department's current interests in developmental neuroscience. *Applications are particularly invited from qualified women and minority candidates.* Applicants should send curriculum vitae and two letters of reference to: **Professor Richard L. Sidman, Department of Neuroscience, Children's Hospital, 300 Longwood Avenue, Boston, Mass. 02115.**

Ann Arbor VA Medical Center has a full time position available immediately for a **GERIATRIC PSYCHIATRIST**. Looking for energetic clinician researcher to develop a geropsychiatry program in this fully affiliated VA hospital with the University of Michigan. Applicants must have proven biomedical research ability and be eligible for Michigan licensure. A letter of interest and curriculum vitae should be sent to: **Spencer Falcon, M.D., Psychiatry Service (116A) VA Medical Center, 2215 Fuller Road, Ann Arbor, Michigan 48105.** *Equal Opportunity Employer.*

IMMUNOLOGY. Applications are invited from individuals with demonstrated excellence in immunology for a tenure-track assistant/associate professorship in the Department of Microbiology at the Medical College of Wisconsin. Applicants must have postdoctoral research training and be able to develop an independent research program, teach medical students, and instruct graduate students. Send résumé, summary of proposed research, and names of references to: **Search Committee, Department of Microbiology, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, Wisconsin 53226.**

Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

FACULTY POSITIONS AVAILABLE

BIOLOGY—Two positions. Cumberland College, a church-related liberal arts college with a total enrollment of over 2100 students in its graduate and undergraduate programs, invites applications for two tenure-track positions. **VERTEBRATE BIOLOGIST**—Courses taught will include introductory biology, human anatomy and physiology, comparative vertebrate anatomy, embryology, and histology. **CELL BIOLOGIST**—Courses taught will include introductory biology, microbiology, genetics, and biochemistry. Will also develop and teach a course in cell biology. Both positions require a strong commitment to undergraduate education in a Christian atmosphere. It is expected that the individuals will, in addition to classroom teaching and student advising, exhibit continued professional growth by remaining active in their respective fields and by directing the undergraduate research projects of upper division students. Ph.D. required. Excellent fringe benefits, salaries negotiable. Send letters of application, résumé, and references to: **Dr. Joseph E. Early, Academic Dean, Cumberland College, Williamsburg, Kentucky 40769,** by 1 December 1984.

TWO FACULTY POSITIONS. Tenure-track positions at assistant professor level teaching undergraduate courses, to begin fall 1985. Ph.D. required. A **MICROBIOLOGIST** will teach microbiology and share responsibilities in cell biology and introductory biology courses. A **ZOOLOGIST** will teach in the general areas of vertebrate or invertebrate zoology and will share responsibilities in introductory biology courses. Facilities include a new building with well-equipped laboratories including TEM and SEM and a 120-acre nature center. Research is encouraged. Salary negotiable. Send letter of application, current curriculum vitae, transcripts from all schools, three letters of reference, and any other supporting documents to: **Dr. Dean Dillery, Acting Chairman, Department of Biology, Albion College, Albion, Michigan 49224.** *Albion College is an Equal Opportunity Employer.* Deadline for application is 15 November 1984.

IMMUNOLOGIST

The newly developed Division of Immunology of the James N. Gamble Institute of Medical Research invites applications for positions as assistant, associate, or full member. Successful candidates will be expected to have a vigorous, independent research program of high quality in microbial immunology or a related area. The institute is prepared to make a strong commitment to research support and equipment. Facilities are excellent. Teaching opportunities are available at the University of Cincinnati College of Medicine. Submit curriculum vitae, summary of research goals, and names of three references to: **Ann B. Bjornson, Ph.D., Member and Director, Division of Immunology, James N. Gamble Institute of Medical Research, 2141 Auburn Avenue, Cincinnati, Ohio 45219.** *Equal Opportunity Employer.*

MOLECULAR, CELLULAR, OR DEVELOPMENTAL BIOLOGIST

The Department of Molecular Biology of Vanderbilt University invites applications and nominations for a tenure-track position, the rank dependent upon qualifications. Scientists with experience and research programs in the areas of molecular, cellular, and developmental biology are invited to apply. Candidates qualifying for a senior rank should have a record of distinguished contributions. Other candidates should have already demonstrated their research capabilities. Responsibilities will include development of a strong independent program of research and participation in the teaching program. *Women and minority candidates are especially encouraged to apply.* Please send applications, including curriculum vitae, list of publications, and summary of research plans by 15 December 1984, as well as three letters of reference, to: **Dr. Oscar Touster, Chairman, Department of Molecular Biology, Vanderbilt University, Nashville, Tenn. 37235.**

An Affirmative Action/Equal Opportunity Employer

MOLECULAR GENETICIST. The Department of Development Genetics and Anatomy is searching for a tenure-line faculty member in the field of molecular control of developmental processes. *Applications from women and minority members are especially invited.* *Case Western Reserve University is an Equal Opportunity Employer.* Applications should be sent to: **Dr. Anthony P. Mahowald, Department of Developmental Genetics and Anatomy, Case Western Reserve University, Cleveland, Ohio 44106.**

POSITIONS OPEN

MICROBIOLOGY AND IMMUNOLOGY

Faculty Positions

The Department of Microbiology and Immunology of the University of Oklahoma Health Sciences Center announces two tenure-track position openings in the following areas:

IMMUNOLOGY, molecular immunology, immunogenetics, immune regulation, or cellular immunology.

MICROBIAL PHYSIOLOGY OR GENETICS, metabolism, regulation, gene structure or function.

Rank for each position will depend on qualifications, but should include postdoctoral training and an excellent publication record. Candidates will be expected to develop a strong independent research program. Other responsibilities will include instruction of medical, dental, and graduate students. Send curriculum vitae, a statement of research interests, and the names of three references to: **Roderick E. McCallum, Ph.D., Department of Microbiology and Immunology, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Okla. 73190.** *The University of Oklahoma is an Equal Opportunity/Affirmative Action Employer.* Deadline for applications is 1 January 1985.

MICROBIOLOGIST

Applications are invited for a tenure-track position in the Faculty of Natural Sciences, The University of Tulsa. Appointment is at the level of assistant professor, beginning fall 1985. The candidate must have a Ph.D. degree with strong research and teaching interests in microbiology. Preference will be given to individuals with postdoctoral experience and expertise in recombinant DNA and/or immunology. Salary is competitive and negotiable.

A commitment to liberal arts education and the ability to conduct independent research are required. The Faculty of Natural Sciences offers B.S. and M.S. degrees with specializations in genetics, organismic, and environmental biology. Modern facilities are available for research and graduate studies in most phases of cell and molecular biology. Applications, including curriculum vitae, reprints, and three letters of recommendation should be sent by 31 October 1984 to: **Dr. Klaus Bräsch, Faculty of Natural Sciences, University of Tulsa, Tulsa, Oklahoma 74104.** *The University of Tulsa is an Equal Opportunity/Affirmative Action Employer.*

MOLECULAR BIOLOGIST. The Biology Department, Rutgers University-Camden, is seeking a broadly trained molecular biologist for a tenure-track (assistant or associate professor level) position beginning fall 1985. A Ph.D. is required. Preference will be given to applicants with research interests in bacteriophage and competence in electron microscopy. Teaching responsibilities include courses in introductory biology, molecular biology, virology, and cell ultrastructure and function plus a course in the individual's specialty. Members of the Biology Department are expected to develop a strong research program and advise both undergraduate and graduate students.

Applicants should submit curriculum vitae, a statement of professional objectives, three representative reprints, and three letters of recommendation before 1 December 1984, to: **Dr. H. Lee, Chairman, Biology Department, Rutgers University, Camden, New Jersey 08102.**

Rutgers, the State University of New Jersey, is an Equal Opportunity/Affirmative Action Employer.

ORNITHOLOGIST—Applications are invited for the position of **Assistant Curator** in the Division of Birds of the Field Museum of Natural History. The position is a 12-month, full-time, career-track appointment scheduled to begin summer 1985, involving both research and curatorial responsibilities. Applicants must have a Ph.D. with primary interest in, and commitment to, systematic ornithology in the broadest sense. Preference given to candidates with the ability to perform imaginative research, who can develop an active field program, and whose interests are suited to a research career amidst one of the world's leading systematic collections of birds. Other duties may include participation in exhibition and education functions of the museum. Salary dependent on qualifications and experience. Send curriculum vitae, description of research experience and plans, reprints of publications, and letters from three referees by 21 December 1984 to: **Dr. James S. Ashe, Chairman, Search Committee, Department of Zoology, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, Illinois 60605.** *An Equal Opportunity Employer.*

Research Opportunities

Viral Diagnostics

The Becton Dickinson and Company's Corporate Research Center, located in Research Triangle Park, North Carolina, has initiated a new research program in viral diagnostics. We are seeking dedicated and talented scientific professionals to assist in these challenging assignments.

GROUP LEADER/ DIAGNOSTIC DEVELOPMENT

You will direct and actively assist a group of two Ph.D. level and other laboratory support personnel in the search for new and novel non-isotopic immunoassays for viral antigens. Requires a Ph.D. in Organic or Analytical Chemistry backed by 3 or more years in assay development with a minimum of 1 year in a supervisory capacity.

MOLECULAR VIROLOGIST

You will have primary responsibility for the isolation, purification and characterization of viral proteins and polypeptides. You will need a good understanding of large scale virus production and purification. A strong background in protein chemistry including HPLC and other analytical techniques is required. Requires a Ph.D. in virology, microbiology or related discipline with more than 1 year of experience in the analysis of viral polypeptides.

Becton Dickinson offers excellent salaries, a comprehensive benefits program which includes relocation assistance, and the opportunity to contribute to the dynamic health care field. Qualified candidates are asked to send curriculum vitae, in strict confidence, to: Mr. F. Richard Wilson, Human Resources Department, Becton Dickinson Research Center, P.O. Box 12016, Research Triangle Park, North Carolina 27709. An equal opportunity/affirmative action employer.

Caring for people is our business

**BECTON
DICKINSON**

THE UNIVERSITY OF CHICAGO
DIVISION OF THE BIOLOGICAL SCIENCES
IS PLEASED TO ANNOUNCE THE FORMATION OF
TWO NEW ACADEMIC DEPARTMENTS:

**THE DEPARTMENT OF BIOCHEMISTRY
AND MOLECULAR BIOLOGY**

AND

**THE DEPARTMENT OF MOLECULAR GENETICS
AND CELL BIOLOGY**

The faculty of these Departments is comprised of former members of the Departments of Biochemistry, Biology, Biophysics and Theoretical Biology, and of Microbiology. (Three of these antecedent Departments have been dissolved while the Department of Biology has been reorganized around studies in population biology, evolution, ecology and animal behavior.)

The two new Departments will take this opportunity to recruit to their faculty outstanding scientists and scholars at every academic rank. The chairmanship of each Department also will be open as of July 1, 1985. Interested parties are invited to write for details (see below).

The Division of Biological Sciences will welcome inquiries from highly qualified students concerning new and ongoing graduate programs in Biochemistry, Molecular Structure, Genetics, Cell Biology, Immunology, Microbiology, Virology, and Developmental Biology.

For further information please contact:

Donald W. King, M.D., Dean and Vice-President
Division of the Biological Sciences
The University of Chicago
950 East 58th Street
Chicago, IL 60637
(312) 962-6500

*Student applicants should write to
the Department of their interest.*

DIVISION HEAD

**Division of
Science, Engineering, and Technology**

The Pennsylvania State University
The Behrend College
Erie, Pennsylvania

Penn State-Behrend, an undergraduate and graduate college of The Pennsylvania State University, invites applications for the position of division head of the Division of Science, Engineering, and Technology. The division has 47 full-time faculty in biology, chemistry, computer science, engineering, geoscience, mathematics, and physics; it offers associate, baccalaureate, and graduate programs, including new 4-year science and engineering programs in energy and the environment, and a new 4-year technology program.

General qualifications include an earned doctorate in an appropriate discipline, successful teaching experience, a strong record in research and scholarship, and significant administrative experience. Candidates should possess at least one degree in engineering or have had substantial experience working with engineers. It is anticipated that this position will be filled at the rank of full or associate professor, at a competitive salary and with immediate tenure. The starting date is 1 July 1985.

Erie is an attractive, nascent, medium-sized city on the Pennsylvania shore of Lake Erie, approximately equidistant from Pittsburgh, Cleveland, and Buffalo. There are abundant cultural and recreational opportunities and housing costs are quite reasonable. Penn State-Behrend has an especially beautiful 450-acre campus with two new science and engineering buildings and new student apartments under construction.

Applications and three letters of recommendation will be accepted until 1 December 1984, or until a suitable applicant is identified, and should be addressed to:

Search Committee for Science, Engineering, and Technology Head
Office of the Provost
Behrend College, Department F
The Pennsylvania State University
Erie, Pa. 16563

An Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

MOLECULAR VIROLOGIST. A tenure-track assistant professor position is open. Candidates must have a Ph.D. in plant pathology, biochemistry, or related area of molecular biology. Appointee expected to teach in graduate, undergraduate courses in plant virology, conduct strong research program in plant virology, and interact with other virologists in the department. Postdoctoral experience and knowledge of viral genome structure, expression, recombinant DNA, and nucleic acid sequencing desired.

Send curriculum vitae, transcripts, statement of research goals, publications, and names of three references by 1 December 1984 to: **Dr. Charles R. Curtis, Department of Plant Pathology, The Ohio State University, 201 Kottman Hall, 2021 Coffey Road, Columbus, Ohio 43210.**

The Ohio State University is an Equal Opportunity/Affirmative Action Employer.

NEUROBIOLOGIST—Assistant professor (tenure-track). The successful applicant will be expected to develop a vigorous research program and to teach at undergraduate and graduate levels. Requirements are a Ph.D. or equivalent, demonstrated research ability, and strong prospects for funding of the research program. Postdoctoral experience highly desirable. Applicants should submit detailed curriculum vitae, three letters of recommendation, and a letter describing their research interests to: **Dr. Charles Drewes, Chairman, Search Committee, Department of Zoology, Iowa State University, Ames, Iowa 50011.** Application deadline: 10 December 1984, or until filled. *Iowa State University is an Equal Opportunity/Affirmative Action Employer.*

OPHTHALMOLOGIST. Full-time faculty position available; assistant, associate, or full professor. Opportunity for clinical and laboratory research, resident and student teaching, and clinical practice. Department of Ophthalmology, The University of Michigan and Affiliated Hospitals. Contact: **Paul R. Lichter, M.D., Chairman, W. K. Kellogg Eye Center, Box 004, University Hospitals, Ann Arbor, Mich. 48109.** *The University of Michigan is a nondiscriminatory, Affirmative Action Employer.*

The Pan American Seed Company has an intermediate opening, due to business expansion for an **ORNAMENTAL PLANT BREEDER.** We are looking for a Ph.D. level candidate with 3 to 5 years of experience, plus some training and background in pathology. This position is based out of our West Chicago, Illinois, location.

We offer above average benefits and a competitive salary. If you are interested in joining a leader, please send your résumé including salary history to:

Dr. Scott Trees
Vice President of Research
Pan American Seed Company
P.O. Box 438
West Chicago, Ill. 60185

Equal Opportunity Employer, M/F

PHARMACOLOGIST

The Department of Cardiovascular Research of the Cleveland Clinic Foundation is seeking a Ph.D. or an M.D. who will have completed at least 2 years of postdoctoral research in the area of molecular pharmacology with emphasis on neuropeptides. A background in neuropharmacology is highly desirable with a strong research interest in the general area of receptor and post-receptor molecular events. The level of appointment and salary will be commensurate with the previous experience of the successful applicant. Interested persons should send curriculum vitae to: **Dr. Robert R. Smeby, Research Division, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106.** *An Equal Opportunity Employer.*

PHYSIOLOGIST. The Department of Biology invites applications for a tenure-track appointment beginning August 1985. The successful candidate will teach an upper-level course in physiology (animal and plant) for science majors and a human physiology course for nursing majors in alternate semesters, participate in introductory biology laboratories, and guide students in research projects. Specialization in mammalian physiology is desirable although other areas of physiology will be considered. Establishment of a research program is expected. A completed Ph.D. is required by June 1985. Send curriculum vitae, official transcripts, and a statement of teaching and research plans by 15 December 1984 to: **Dr. Anne A. Susalla, Physiology Search Committee, Department of Biology, Saint Mary's College, Notre Dame, Ind. 46556.** *Saint Mary's College is an Equal Opportunity Employer.*

POSITIONS OPEN

PEDIATRIC ALLERGIST. Northwestern University Medical School, Children's Memorial Hospital, Chicago. Senior level faculty appointment as head, Division of Allergy. Excellent opportunity to direct an active research, teaching, and clinical program in a university-based children's hospital. Inquiries with curriculum vitae by 2 November 1984, to: **Lauren Pachman, M.D., Allergy Search Committee, Children's Memorial Hospital, 2300 Children's Plaza, Chicago, Illinois 60614.** *An Equal Opportunity Employer.*

PEDIATRICIAN—with interest in research in tropical medicine, to assume medical responsibility for colony of chimpanzees located in West Africa, and to participate in vaccine trials in newborn human infants. Contact: **Alfred M. Prince, M.D., Laboratory of Virology, Lindsley F. Kimball Research Institute, The New York Blood Center, 310 East 67th Street, New York, N.Y. 10021.** *An Equal Opportunity Employer.*

PHYSIOLOGIST

A tenure-track position will be available in the Department of Physiology and Biophysics at the University of Illinois at Urbana-Champaign, effective August 1985. The Department of Physiology and Biophysics is a component of both the College of Medicine and the College of Liberal Arts and Sciences at Urbana-Champaign. The appointment is expected to be made at the level of either an assistant or associate professor. Candidates must have a Ph.D. and/or M.D. degree with demonstrated ability and commitment to both teaching and development of a strong independent research program. While the specific area of research interest is unrestricted, the successful candidate will be expected to participate in the delivery of the systems and integrative physiology curriculum to medical and graduate students on this campus. Salary is negotiable and will be commensurate with experience. Please provide curriculum vitae and the names of at least three individuals who may be contacted for letters of reference. Applications should be completed not later than 1 November 1984 and sent to: **Dr. John E. Zehr, Chairman of Physiology Search Committee, 524 Burrill Hall, University of Illinois, 407 South Goodwin, Urbana, Ill. 61801.** Telephone: 217-333-7393.

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

PHYSIOLOGIST

Assistant professor, Department of Science, to teach anatomy and physiology to health science students. Doctorate required. Knowledge of medical application of anatomy and physiology is important. Also to teach other courses in the department; involvement in curriculum development and grant proposal writing.

Refer to Borough of Manhattan Community College vacancy Number 207 and send résumé by 15 November 1984 to:

Alyne Holmes Coy
Director of Personnel
Borough of Manhattan Community College
City University of New York
199 Chambers Street,
New York, N.Y. 10007

An Equal Opportunity Employer

PLANT CELL BIOLOGIST. Tenure-track assistant professor in plant cell biology or plant cellular and developmental biology. Applicant should provide evidence that he/she will develop a strong independent research program. Send curriculum vitae, reprints of publications, a one-page statement of research plans, and have four letters of recommendation sent by 1 December 1984 to: **Plant Cell Biology Search Committee, Department of Biology, Coker Hall 010A, University of North Carolina, Chapel Hill, N.C. 27514.** *The University of North Carolina is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.*

PLANT ECOLOGIST to maintain regional vegetation data base; assemble plant association classification for western United States. Advanced degree emphasizing synecology. **ZOOLOGIST** to maintain non-game vertebrate and invertebrate regional data base for western United States. Advanced degree in biology/zoology.

Both positions will develop network among knowledgeable professionals and laypersons; develop a list of priority taxa for regional conservation efforts; conduct some fund raising; and assist state and regional staff with their expertise. Résumé/cover letter to: **Rocky Mountain Heritage Program, The Nature Conservancy, 1370 Pennsylvania, Denver, Colo. 80203.** *An Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL FELLOW IN GEOPHYSICAL FLUID DYNAMICS (G.F.D.) UNIVERSITY OF SOUTHERN CALIFORNIA

To organize and perform experiments, analyze data, and present the results in oral and written form for the problem of flow over topography in rotating-stratified fluid systems. Ph.D. in suitable engineering or scientific discipline required. Knowledge of micro-processor based data acquisition systems essential. Position available immediately for a 2-year period. Salary commensurate with experience. A complete résumé and at least three letters of recommendation should be sent to: **Professor T. Maxworthy, OHE 430, Department of Mechanical Engineering, University of Southern California, Los Angeles, Calif. 90089-1453.**

An Equal Opportunity Employer, M/F/H

POSTDOCTORAL FELLOW. Biochemist/organic chemist with strong interest in mechanisms of chemical carcinogenesis. Well-equipped facility in mid-Westchester County offers good advancement opportunity for the qualified and motivated candidate. Send résumé and names of two references to: **Dr. E. S. Fiala, Chief, Division of Molecular Biology and Pharmacology, Naylor Dana Institute, Valhalla, N.Y. 10595.** *Equal Opportunity Employer.*

MEMORIAL UNIVERSITY OF NEWFOUNDLAND CANADA FACULTY OF SCIENCE POSTDOCTORAL FELLOW

POSTDOCTORAL POSITION IN INSECT PATHOLOGY available 1 November 1984 to study the ultrastructural aspects of fungal invasion of forest insect pests. Salary: \$20,000 for 1 year. Send curriculum vitae and names of three references to: **Dr. Richard Nolan, Department of Biology, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9.**

POSTDOCTORAL FELLOW in plant ecology to work on salinity and fog effects on epiphytic lichens along coastal California for 28 months. Gas exchange and trace element background desirable. Perspective from physiological ecology to ecosystem analysis wanted. Starting date 16 January 1985; application deadline 3 December 1984. Send résumé and three letters of recommendation to: **Dr. T. Nash, Department of Botany and Microbiology, Arizona State University, Tempe, Ariz. 85287.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL FELLOW. Available 1 November 1984 (2 years for research on cloning of genes encoding phaseolotoxin, produced by the plant pathogen *Pseudomonas syringae* pv. *phaseolicola*). Experience in molecular cloning techniques required. Experience in bacterial genetics desirable. Stipend commensurate with experience. Send résumé and names and phone numbers of three references to: **Dr. S. S. Patil, Department of Plant Pathology, 3190 Maile Way, University of Hawaii, Honolulu, Hawaii 96822.**

POSTDOCTORAL FELLOW. Research position available immediately to study the metabolic effects of heat shock on cultured cells. Recent Ph.D. with experience in the application of GC-MS and/or HPLC techniques to problems in intermediary metabolism should send résumé and names and telephone numbers of three references to: **Dr. Karl Lanks, Department of Pathology, 450 Clarkson Avenue, Box 25, Brooklyn, N.Y. 11203.** *An Equal Opportunity/Affirmative Action Employer, DMC Number 567.*

POSTDOCTORAL FELLOW position available immediately. Research involves the study of insulin receptor of a teratoma derived cell line and its insulin-independent variant. Ph.D. in biochemistry is essential. Send curriculum vitae and letters of reference to: **The Personnel Manager, W. Alton Jones Cell Science Center, 10 Old Barn Road, Lake Placid, New York 12946.** Refer to: Job SE-10.

An Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL POSITION available for biochemist, biologist, or chemist. Characterization of bacteria using multiparameter fluorescence techniques. Strong background in immunoassay and enzymatic methods of analysis is essential. Minimum salary of \$20,000. Send curriculum vitae and names of three references to: **Professor Isiah M. Warner, Department of Chemistry, Emory University, Atlanta, Georgia 30322.** *Applications from women and minority groups are encouraged. Emory University is an Affirmative Action/Equal Opportunity Employer.*

Pharmacology and Toxicology Research

Rapid expansion of the Pharmacology and Toxicology research programs at Midwest Research Institute has created several outstanding career opportunities for senior-level scientists. These positions require a Ph.D. or equivalent in Pharmacology, Toxicology, Biochemistry (or related field) or a D.V.M., with two or more years relevant research experience in academic or industrial laboratories.

Successful candidates will also possess the demonstrated ability to develop and write research proposals, direct creative experimental programs, supervise technical staff, formulate reports and communicate/interact effectively with clients and sponsors.

We are currently seeking innovative professionals for the following key program positions:

- **ANTITUMOR DRUG STUDIES**

Requires expertise in antitumor drug development research areas including pharmacological, toxicological, and/or biochemical characterizations using *in vivo* and *in vitro* methodology. Familiarity with current NCI and industrial programs to accelerate antitumor drug developments is an asset.

- **IN VITRO TOXICOLOGY**

Requires expertise in developing *in vitro* methodology to assess the toxicity, mutagenicity and carcinogenicity of drugs and environmental chemicals. The applicants must have experience in cell culture techniques and be able to relate the *in vitro* experimental findings to those demonstrated in *in vivo* studies.

- **CHEMICAL EXPOSURE ASSESSMENT**

Requires experience in the assessment of exposure to industrial and environmental chemicals using chemical, biochemical and/or immunological techniques. Applicants should be knowledgeable in modern methodology to determine the interactions of xenobiotics with cellular nucleic acids.

MRI offers competitive compensation, paid relocation, comprehensive benefits package and a unique environment enhancing professional growth and challenge. Resumes, specifying salary requirements, should be sent to Anthony Kinnaman at:



MIDWEST RESEARCH INSTITUTE
"Serving Science and Society"
 425 Volker Boulevard
 Kansas City, MO 64110

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Immunologist/ Cell Biologist Immunopharmacology Research

Pfizer Central Research has an immediate opening for a Ph.D. Immunologist/Cell Biologist to pursue research aimed at the discovery and development of human immunotherapeutics.

Qualified applicants must have a Ph.D. in immunology, microbiology, cell biology or biochemistry and 1-3 years postdoctoral training. The successful candidate will join a project team working to elucidate the mode of action of immune response modifying agents. Current projects are designed to assess immunologic function in experimentally compromised and infected hosts. Demonstrated expertise in analyzing humoral and/or cellular mechanisms of immune regulation and function is essential. A working knowledge of the complement system and lymphokine mediators is desirable.

This position offers an excellent opportunity for professional recognition and career growth. Publication of important findings will be encouraged. We also offer a competitive compensation, benefit and relocation package and the opportunity to live in an attractive Connecticut shore community. Please send resume and a brief description of research interests to: Jerry K. Larson, PhD, Manager of Employment, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.



An equal opportunity employer

TOXICOLOGY MANAGER

Applications are invited for a Scientist/Manager to direct the efforts of a team of toxicology researchers & support personnel. The successful applicant must be a recognized and respected leader in the field of toxicology with specific experience and expertise in inhalation toxicology. The successful candidate will have:

- A PHD, DVM, or MD with emphasis in Toxicology, Pharmacology or Environmental Health
- A record of significant accomplishments
- Proven ability to direct professional staffing in a scientific environment
- 5 to 10 years of relevant managerial experience
- A working knowledge of inhalation toxicology
- Demonstrated ability to communicate and interact with governmental officials, and the scientific & academic communities.

This position offers excellent opportunity for professional recognition and career growth. Those interested in being considered for this position should submit curriculum vitae and bibliography, in complete confidence to:

Glenda Ward Jahtaniah, T.R.E.E.
 NORTHROP SERVICES, INC.
 P.O. Box 12313
 Research Triangle Park, N.C. 27709

(No phone calls please)

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POSITIONS OPEN

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE POSITION in human genetics. Available immediately. Preference given to recent graduate in molecular biology or protein chemistry. Send curriculum vitae to: **E. Shapira, M.D., Ph.D., The Human Genetics Program, Tulane University School of Medicine, 1430 Tulane Avenue, New Orleans, La. 70112; telephone: 504-588-5229. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately to study effect of oxygen free radicals on isolated cardiac subcellular fractions and the intact heart. Two-year NIH-funded position. Send curriculum vitae and three letters of recommendation to: **Dr. Michael L. Hess, Box 281, Department of Medicine, Cardiology Division, Medical College of Virginia, Richmond, Va. 23298.**

POSTDOCTORAL POSITIONS IN MOLECULAR GENETICS

Positions are available dealing with the characterization of clones for NaK ATPase, globin gene expression, and characterization of androgen regulated genes of the mouse. Experience in recombinant DNA is desirable. Send résumé to: **Jerry B. Lingrel, Ph.D., University of Cincinnati, College of Medicine, Microbiology and Molecular Genetics Department, Cincinnati, Ohio 45267. The University of Cincinnati is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION Tumor Virology

Available immediately to study roles of SV40 T Ag and the associated p53 host tumor antigen in oncogenic transformation, studies especially involving biochemical and protein chemical techniques. U.S. citizenship or permanent residency required because funding is through an NIH training grant. Send curriculum vitae and names of three references to:

**Dr. Robert Carroll
Department of Pathology
New York University Medical School
550 First Avenue
New York, N.Y. 10016**

POSTDOCTORAL POSITION available to study central neural regulation of the cardiovascular system. Ph.D. or M.D. applicants with research interests in pharmacology or neurophysiology or tracer techniques are encouraged to apply. Position is supported by NIH training grant for 2 years. Send curriculum vitae, summary of research interests, and names of three references to: **Dr. D. O. Nelson, Department of Physiology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611; telephone: 312-649-8281.**

POSTDOCTORAL POSITION available 1 January to study adriamycin effects on lipid oxidation and lipid function in both isolated mitochondria and model systems. Experience in lipid biochemistry and/or mitochondrial energy metabolism preferred. Salary: \$18,000. Send curriculum vitae and names of three references to: **P. M. Sokolove, Ph.D., Department of Pharmacology, University of Maryland Medical School, Baltimore, Md. 21201. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately in biochemical pharmacology to work on the metabolism and pharmacokinetics of ethane and pentane, indicators of lipid peroxidation. Research will involve isolation of hepatocytes, microsomal metabolism and handling of radiochemicals. Appointment for up to 2 years. Salary commensurate with experience with minimum of \$17,000. Send curriculum vitae and three letters of reference to: **Thomas M. Ludden, Ph.D., Department of Pharmacology, The University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284.**

POSTDOCTORAL POSITIONS are available to study the biochemistry of cell motility. Problems of current interest include the mechanism of polymerization of actin, the regulation of polymerization of actin by actin-binding proteins and the regulation of the polymerization of non-muscle myosins and actomyosin ATPase activity by phosphorylation. Methods employed include protein purification, protein structure determinations, enzyme kinetics, immunocytochemistry, electron microscopy, and molecular biology. Minimum starting salary of \$19,000. Please send curriculum vitae and names of three references to: **Dr. Edward D. Korn, Chief, Laboratory of Cell Biology, National Heart, Lung, and Blood Institute, National Institutes of Health (NIH), Building 3, Room B1-22, Bethesda, Md. 20205. NIH is an Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITIONS IN MOLECULAR GENETICS AND EVOLUTION

Available to study primate phylogeny through work of chromosomal localization and sequence determination of selected genes [*Nature* 291, 201 (1981); *PNAS* 79, 71 (1982); *Am. J. Hum. Genet.* 35, 565 (1983)]. Strong background in molecular biology/recombinant DNA desirable. Send curriculum vitae and names of three references to: **Dr. Achilles Dugaiczky, Associate Professor, Department of Biochemistry, University of California, Riverside, Calif. 92521. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION available for 2-year minimum on or after 1 January 1985 in cellular immunology-neuroimmunology for M.D. or Ph.D. Projects encompass peptide chemistry, lymphocyte function, cell receptors, monoclonal antibodies, and cell-sorting. Send curriculum vitae and names of three references to: **Pamela, U-426, University of California, San Francisco, California 94143.**

POSTDOCTORAL POSITION available immediately for recent Ph.D. with biochemistry/biophysics background to investigate receptor movement and membrane changes associated with macrophage stimulation. Experience in fluorescent techniques and membrane biochemistry preferred; 3-year position. Starting salary: \$16,000 to \$17,000 per year. Send curriculum vitae and names of three references to: **Dr. Andrij Holian, University of Texas Medical School, 6431 Fannin, 1274MSB, Houston, Texas 77025. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN CARCINOGENESIS RESEARCH to study early stages in the process of malignant transformation associated with the development of differentiation control defects. Experiments will focus on human epidermal stem cells and murine proadipocyte stem cells. The techniques to be used will include tissue culture, general cell biology and cell cycle methodologies, protein purification/characterization, and molecular biology. Individuals with an interest in this field of research and with expertise in one and preferably more of these techniques please submit your curriculum vitae and three letters of recommendation. This position will be available beginning summer 1985. Address inquiries to: **Robert E. Scott, M.D., Section of Experimental Pathology, Mayo Clinic/Foundation, Rochester, Minnesota 55905. An Equal Opportunity/Affirmative Action Institution.**

POSTDOCTORAL POSITION available 1 January 1985 to study regulation of gene expression in viral/cellular systems. An integrated approach using in vitro mutagenesis, gene transfer and in vivo molecular analysis is being utilized. Applicants should have some experience in recombinant DNA; experience with DNA sequencing and gene transfer would be helpful. Send curriculum vitae and the names of three references to: **Dr. Geoffrey Kitchingman, Department of Virology and Molecular Biology, St. Jude Children's Research Hospital, 332 North Lauderdale, Memphis, Tenn. 38101.**

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POSTDOCTORAL POSITION now available to study neuroendocrine regulation. Candidate should have a Ph.D. or equivalent degree. Experience in one or more of the following would be advantageous: neural peptide synthesis isolation and characterization; neural peptide receptors; monoclonal antibodies and hybridoma technology. Curriculum vitae and two references to: **Ivor Jackson, M.D., Director, Division of Endocrinology, Rhode Island Hospital, 593 Eddy Street, Providence, R.I. 02902. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION IN MOLECULAR IMMUNOLOGY. A 2-year position is offered to study molecular mechanisms for immune regulation through cloning DNA encoding immunoregulatory T lymphocyte membrane glycoproteins. Recent Ph.D. with experience in molecular biology required. Experience in immunology is desirable. Please submit a résumé and names of three references to: **Dr. Colleen Hayes, Department of Biochemistry, University of Wisconsin, 420 Henry Mall, Madison, Wis. 53706.**

POSTDOCTORAL POSITION available to study chemotaxis and phagocytosis. Experience with cytochemistry and image analysis preferred. Send curriculum vitae and names of three references to: **Dr. Elliot Goldstein, Department of Medicine, University of California, Davis, School of Medicine, Davis, California 95616. University of California, Davis, is an Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION available immediately on NIH training grant. Apply directly to either **Dr. Andrew J. Lechner** (physiological and ultrastructural changes in the starved perinatal lung) or **Dr. Maw-Shung Liu** (myocardial and hepatic metabolism in endotoxic shock). Submit letter of interest, curriculum vitae, and the names of three references to the above, **Department of Physiology, St. Louis University School of Medicine, St. Louis, Mo. 63104. An Equal Opportunity Employer.**

POSTDOCTORAL POSITION available 1 January in central cardiovascular control systems. Experience with autoradiography, stereotaxic, or B.P. measurement desirable. Research focuses on central sites of angiotensin II action, roles of these sites in high-renin hypertension, and imaging of central cardiovascular pathways. Send curriculum vitae and three letters of reference before 15 November to: **Dr. Michael Mangiapane, Department of Pharmacology, University of Rochester, Rochester, N.Y. 14642.**

POSTDOCTORAL POSITION in MARINE SCIENCE at Osborn Laboratories of Marine Sciences, NEW YORK AQUARIUM, Brooklyn, N.Y. Study involves biochemical genetics. Applicant must have experience in biochemical techniques such as DISC ELECTROPHORESIS, and so forth. Salary: \$17,600 per annum. Send résumé to: **Angelo Monaco, Personnel Department, NEW YORK ZOOLOGICAL SOCIETY, 185 Street and Southern Boulevard, Bronx, N.Y. 10460. Equal Opportunity Employer, M/F/H/V.**

POSTDOCTORAL POSITIONS available for recent Ph.D.'s to participate in an active research program on the regulation of DNA repair in human cells. Current research efforts focus on the use of monoclonal antibody and recombinant DNA technology for biochemical and cellular studies of DNA repair in normal human cells and in cells from cancer-prone individuals. [see *PNAS* 80, 5822 (1983); 81, 757 (1984)]. Interested individuals should submit curriculum vitae and names of two references to: **Dr. Michael Sirover, Fels Research Institute, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, Pa. 19140. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE

Expanding university laboratory. Basic studies on parathyroid gland biosynthesis and secretion. Experience in glycoprotein/protein processing, membrane chemistry/fusion or intracellular packaging/transport desirable; 2- to 3-year initial appointment; salary: \$20,000 plus. Send curriculum vitae and research interests to: **D. V. Cohn, Ph.D., Biochemistry/Oral Biology, Health Sciences Center, University of Louisville, Louisville, Ky. 40292.**

POSTDOCTORAL RESEARCH ASSOCIATE. Job Order Number 0416879; 40 hours per week; \$15,700 per year. Carrying out computer calculations of molecular properties using the GAUSSIAN 80 and GAUSSIAN 82 programs on the VAX 11/780 and related computers. Preparation of software to permit graphical display of output. Analysis of results of studies of strained molecules and pharmacologically active systems. Preparing papers for presentation at meetings and publication.

Send résumé and three letters of recommendation.

Contact: **Louisiana Office of Employment Security, 617 St. Charles Avenue, New Orleans, La. 70130.**

POSTDOCTORAL RESEARCH ASSOCIATE to study protein and nucleic acid structures and interactions in viruses and gene regulatory complexes by laser spectroscopic methods. Minimum 2-year appointment. Background in structural biology and/or molecular spectroscopy preferred. Submit statement of research interests, curriculum vitae, and references to:

**Dr. George J. Thomas, Jr.
Department of Chemistry
Southeastern Massachusetts University
North Dartmouth, Massachusetts 02747**

POSTDOCTORAL RESEARCH ASSOCIATE COCHLEAR PHYSIOLOGY

To study the mechanical response of the chinchilla basilar membrane using the Mössbauer technique. Two-year appointment available immediately. Candidates should have experience in auditory neurophysiology. Send curriculum vitae and the names of three references to: **Dr. Mario A. Ruggero, Department of Otolaryngology, University of Minnesota, 2630 University Avenue, SE, Minneapolis, Minn. 55414. An Equal Opportunity/Affirmative Action Employer.**

CHIEF ENGINEER MICROWAVE RESEARCH

WALTER REED ARMY INSTITUTE OF RESEARCH

SALARY: GM-15, \$50,495-\$65,462

u-Wave and/or mm-wave engineering experience in radar, signal processing, communications, imagery, transmitters, network analysis and antennas.

Responsibilities include engineering aspects of u-wave technology as applied to medicine in an interdisciplinary research environment.

Requires postgraduate degree or equivalent experience. Research and development history is especially pertinent.

Interested applicants should send a Personal Qualifications Statement, SF-171 to:

**Walter Reed Army Medical Center
Civilian Personnel Office
ATTN: Kathryn E. Lewis
Bldg. 11, Room 2-88
Washington, DC 20307**

TECHNICAL DEVELOPMENT MANAGER Marketing

Sandoz Nutrition is an exciting, growth oriented company producing high quality nutritional products for clinical, institutional and consumer markets.

Recent mergers and expansion have created an opening for a Technical Development Manager to assume responsibility for all technical aspects of product development/support and related communications within the Marketing Department. This individual will monitor key technical trends within the industry, recommend appropriate product changes, be responsible for legality of technical programs, and serve as liaison between Marketing and R&D. Some travel is required.

The ideal candidate will possess a PhD in Nutrition and/or Food Science with good managerial skills, relevant clinical experience, and in-depth knowledge of the medical nutrition field.

This position offers challenge and reward with a competitive salary, comprehensive benefit package, and excellent growth opportunities. Submit resume and salary history in confidence to: **Personnel Department, SANDOZ NUTRITION CORPORATION, P.O. Box 370, Minneapolis, MN 55440.**

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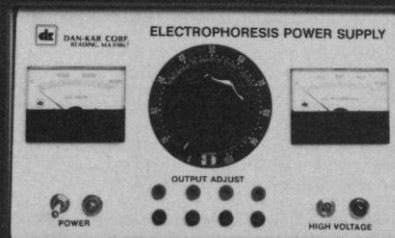
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POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE. Several positions open immediately for research involving molecular genetics and molecular biology. Candidates should have a Ph.D. in biochemistry, genetics, or molecular biology. Send curriculum vitae and names of three references to: **Dr. Pudur Jagadeeswaran, Center for Genetics, University of Illinois College of Medicine, 808 South Wood Street, Chicago, Ill. 60612.** For fullest consideration, applications should be received by 15 November 1984. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH POSITION available 1 December 1984 to participate in studies of biochemistry, immunocytochemistry, and ultrastructure of acetylcholine receptor-associated cytoskeletal proteins in muscle and electric tissue. Experience in cell culture or electron microscopy of protein structures particularly desirable. Salary: \$18,000. Submit curriculum vitae and names, addresses, and telephone numbers of three references to: **Dr. Robert Sealock, Department of Physiology, Room 54 Medical Sciences Research Building, University of North Carolina, Chapel Hill, N.C. 27514.**

POSTDOCTORAL STUDENT POSITION AVAILABLE for studies on the influence of hormones and purified components of extracellular matrix on normal and neoplastic (rat and human) liver cells. Special emphasis will be placed on studies of the regulation of gene expression using techniques of molecular biology. Please send curriculum vitae and references to: **Dr. L. Reid, Albert Einstein College of Medicine, 601 Chanin Cancer Center, 1300 Morris Park Avenue, Bronx, N.Y. 10461.**

Academic appointment to a named **PROFESSORSHIP** in the Department of Ophthalmology and an appropriate basic science department with some research support provided. Strong interest in basic aspects of physiology, pharmacology or biochemistry of vision is vital. Candidates should have excellent basic science training and experience in appropriate discipline but need not have had prior training in vision research, and should not currently be located in a Department of Ophthalmology. Rank, at assistant through full professor, to be assigned based upon experience, and so forth. Please send curriculum vitae, five representative reprints, statement of research interests, and names of three references to: **Dr. Keith Green, Department of Ophthalmology, Medical College of Georgia, Augusta, Ga. 30912.** *The Medical College of Georgia is an Equal Opportunity/Affirmative Action Employer.*

POSITION IN RESEARCH AND DEVELOPMENT

The U.S. Army Research and Development Center, Aberdeen Proving Ground, Maryland 21010, is seeking a **supervisory physical scientist, physicist, or general engineer** to head the Biological Detection Group. The successful candidate will be responsible for the management of the development programs for biological detectors, samplers, and detector kits for use in the field and at fixed installations and the biological aspects of CB decontamination and physical protection programs. Experience is desirable in the design, fabrication, test, and analysis of detector equipment including sample acquisition. The person must possess the ability to plan, direct, and execute development programs for these devices; have the ability to coordinate in-house, other government, industry, and academia institution efforts to accomplish the assigned task.

All qualified applicants will receive consideration for position vacancies without regard to age, race, color, religion, sex, national origin, lawful political or other affiliations, marital status, membership or nonmembership in an employee organization, or for any handicap which does not interfere with accomplishment of position requirements.

Salary range: \$42,722 to \$55,538 per annum. Inquiries are to be directed to: **Commander, U.S. Army Aberdeen Proving Ground, attention: STEAP-CP-R/Mrs. Mioduski, Aberdeen Proving Ground, Md. 21005. Telephone: 301-278-4254/5247.**

RESEARCH ASSOCIATE-MICROBIOLOGIST

Molecular genetics of *Mycobacterium tuberculosis* and *M. intracellulare*; includes characterization of plasmids, cloning of mycobacterial genes, and construction of cloning vectors. Ph.D., experience in genetics of pathogens desirable. Excellent facilities in new VA Medical Center; affiliation with University of Arkansas for Medical Sciences. Salary: \$21,000. Contact: **Jack Crawford, Ph.D., Research Service, McClellan Memorial Veterans Hospital, Little Rock, Ark. 72205. Telephone: 501-661-1202, extension 2981.**

POSITIONS OPEN

PRE- AND POSTDOCTORAL TRAINING IN VIRUSES, NUCLEIC ACIDS (INCLUDING MOLECULAR CLONING), GROWTH, AND CANCER. Applications are invited for positions in a NCI interdepartmental (Biochemistry, Microbiology, and Molecular Biology) training grant program. The primary areas of study (and faculty) include: epidermal growth factor (S. Cohen); mechanism of vitamin A action (F. Chytil); molecular biology of herpes viruses (T. Ben-Porat and A. S. Kaplan); poxviruses (R. Moyer); rhabdoviruses (S. Moyer); adenoviruses (C. Tibbetts); and bacteriophage T4 (G. Mosig); regulation of cell proliferation (D. Friedman); ribonucleo-protein particles (W. LeStourgeon). *Citizens or permanent residents are eligible.* Write: **Dr. Albert S. Kaplan, Department of Microbiology, Vanderbilt University School of Medicine, Nashville, Tennessee 37232.**

PROFESSIONAL RESEARCH ASSISTANTS/ASSOCIATES IN CARBOHYDRATE CHEMISTRY/PLANT BIOLOGY

Positions are available for plant biologists and carbohydrate chemists to participate in the plant bioassay, purification, isolation and structural characterization of biologically interesting complex carbohydrates. Applicants should have the equivalent of a B.Sc., M.Sc., or Ph.D. in plant biology, biochemistry, or chemistry. Starting salary (between \$14,000 and \$20,000) will depend on training and experience. Applications should be sent to: **Dr. Alan Darvill, Department of Chemistry, University of Colorado, Campus Box 215, Boulder, Colorado 80309.** The applications will be evaluated 1 November 1984, although later applications will be considered if the position has not been filled. *The University of Colorado is an Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSOCIATE position for a Ph.D. organic chemist or related field natural products isolation scientist with Murdock International to begin early in 1985. Responsibilities include: (i) identification and quantitation of active principles in commercially important natural plant products and (ii) development of new natural product pharmaceuticals and food supplements. Knowledge of GC-MS and HPLC are essential.

Send curriculum vitae, including publications, complete official transcripts, and names, addresses, and telephone numbers of three references, to:

**Ken Plant
Director of Human Resources
Murdock International
P.O. Box 4000
Springville, Utah 84663**

RESEARCH ASSOCIATE. Needed for investigation of modeling performance, design, and testing of electrochemical reactors, especially those composed of graphite particles. Require Ph.D. in electrochemical engineering and 2 years of postdoctoral experience. Applicant must have strong background in electrochemical reactors and experience in inorganic electrochemistry, familiarity with chromatography and mass and atomic absorption spectroscopy, and knowledge of packed bed electrochemical cells and hydrodynamic behavior. Salary: \$18,000 per year. Contact: **Utah Job Service, 1234 South Main Street, Salt Lake City, Utah 84147; job order Number 71089.**

SUPERVISORY RESEARCH ENTOMOLOGIST or SUPERVISORY RESEARCH CHEMIST at GM-13 (\$36,327), GM-14 (\$42,928), or GM-15 (\$50,495); grade based on qualifications. One federal career civil service position with United States Department of Agriculture (USDA)—Agricultural Research Service, VTERL (Physiology and Biochemistry of Livestock Insects Research Unit), College Station, Texas. As research leader, will conduct research in physiology, endocrinology, and biochemistry. Must have knowledge and skill in protein chemistry to isolate, characterize, identify, and synthesize neuro-peptide hormones and other bioregulators. Expertise in modern techniques of protein sequencing preferred. Synthetic peptides and other bioregulators will be evaluated as potential insect control agents. Applicants should have experience in directing, planning, and implementing successful research programs. Ph.D. or equivalent education/experience required. Candidate must be U.S. citizen. *Equal Opportunity Employer.* Applications must be received by 13 November 1984. For application forms and procedures, contact: **USDA-ARS-PD-POB; Southern Region Section; Building 417, BARC-East; Beltsville, Md. 20705. Telephone: 301-344-1508 (reference: SR-104-84).**

POSITIONS OPEN

RESEARCH ASSISTANT

The University of Maryland at Baltimore, Division of Geographic Medicine, has an immediate vacancy for a research assistant to coordinate and conduct studies at Baltimore directed to the control of tropical infectious diseases. Candidates must possess a master's degree in relevant area of microbiology plus postgraduate training in relevant scientific discipline and 3 years of experience in coordinating and conducting studies in tropical infectious diseases. Firsthand knowledge of the procedures and equipment employed for preparing and analyzing microbial, immunological, and arthropod vector samples, and fluency and literacy in English and Urdu are essential. Annual salary range: \$17,991 to \$25,521. Submit résumé to: **Pamela D. Fischer, University of Maryland at Baltimore, Office of Personnel, 737 West Lombard Street, Baltimore, Maryland 21201.**

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RESEARCH ASSOCIATE. To perform studies of the role of hepatic lipid peroxidation in human disease. Expertise in mitochondrial biochemistry, fatty acid metabolism, HPLC, fluorometry, and Ph.D. in biochemistry desired.

Salary: \$15,450 per year, plus fringe benefits.

Send résumé to: **Kathleen B. Schwartz, M.D., Division of Pediatric Gastroenterology, St. Louis University Medical Center, 1465 South Grand, St. Louis, Mo. 63104.**

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RESEARCH ASSOCIATE IN IMMUNOLOGY

Two postdoctoral positions are available at the National Jewish Hospital and Research Center, Division of Immunology, Denver, Colorado. One position involves the study of accessory cell presentation of herpes antigens to helper T cells. The second position concerns the minimal requirements of allo-genic Ia and Mls stimulation of T cell responses. Both studies are being carried out at the molecular and cellular levels.

Send curriculum vitae and three letters of reference to:

**Dr. Robert Chesnut
Department of Medicine
National Jewish Hospital and Research Center
3800 East Colfax Avenue
Denver, Colo. 80206**

RESEARCH FACULTY POSITION in internal medicine. To work in a human tumor biology laboratory. Time to develop own program. Chance to become an independent investigator. Formal training (Ph.D. or M.D. and postdoctoral experience) in cell culture and/or cell biology required. Experience in biochemical, experimental therapeutics, immunological, or molecular techniques useful but not required. Salary commensurate with training and experience. Send curriculum vitae and three references to: **J. M. Trent, Ph.D., Director of Basic Science, University of Arizona Cancer Center, 1501 North Campbell Avenue, Tucson, Ariz. 85724.** *University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

SENIOR ELECTRON MICROSCOPIST. A state-funded position requiring at least 5 years of experience is available to supervise TEM, x-ray microprobe, and ultramicrotomy facilities. Responsibilities include: maintaining equipment, instructing EM users, and consulting or collaborating with investigators on a variety of neurobiological problems. The salary is \$25,000 plus, based on qualifications, with excellent benefits. Please send résumé to: **Diana Green, Personnel Department, University of Texas Health Science Center, P.O. Box 20036, Houston, Texas 77025.** *An Equal Opportunity/Affirmative Action Employer.*

SENIOR FACULTY Multiyear contract positions available for Ph.D., D.O., or M.D.:

NEUROPHARMACOLOGY NEUROPHYSIOLOGY GENERAL (CARDIO) PHYSIOLOGY MICROBIOLOGY

Responsibilities include teaching medical students and **RESEARCH.** Interested candidates should send curriculum vitae and all supportive evidence (teaching experience and current grant support information, and grant track record) to: **Search Committee, Dr. Arnold L. Nagler, Associate Dean, Preclinical Medical Education, New York College of Osteopathic Medicine, Old Westbury, Long Island, New York 11568.**

SR. RESEARCH SCIENTISTS

Cytogen Corporation is a rapidly growing, innovative biotechnology group noted for its development of a unique method of linking a variety of substances to antibodies for use in human therapeutic and diagnostic products. This new technique has broad applications in the areas of targeted drug delivery, clinical diagnostic devices, therapeutic blood separation and medical imaging, and offers significant advantages over other currently accepted procedures. To continue our advances, we presently seek the talents of two PhD level Scientists experienced in the following areas:

IMMUNOLOGY

We require a PhD with 2-3 years postgraduate experience in the areas of in vivo and in vitro models of lymphocyte activation and effector functions. Additional experience in rodent tumor model systems and/or selective immunosuppressives regimens would be preferred.

MOLECULAR PHARMACOLOGY

This PhD level position requires 2-3 years postgraduate experience, preferably in the transport and mode of action of drug and drug analog at the cellular and molecular level. The successful candidate will collaborate with other creative Scientists in Cytogen's Cancer Drug Delivery Program as well as other immunotherapy programs.

Both positions involve bench work as well as supervisory duties.

Cytogen is located in Princeton, NJ which is within commuting distance of both New York and Philadelphia metropolitan areas. We provide competitive salaries plus a generous program of employee benefits in an invigorating and supportive scientific atmosphere highly conducive to professional growth and the development of technical innovations.

Qualified candidates are invited to submit resume including salary history and requirements, in strictest professional confidence, to: Department S, Cytogen Corporation, 201 College Road East, Princeton, New Jersey 08540. An equal opportunity employer m/f.

CYTOGEN

CORPORATION

Veterinary Virologist - Animal Health Research

The Upjohn Company, a leader in worldwide research, manufacturing, and marketing of pharmaceuticals, chemicals, and agricultural products, is seeking a scientist to head an interdisciplinary research team dedicated to the development of subunit vaccines for diseases of veterinary interest by recombinant DNA methodology. In this capacity the scientist will be expected to interact with researchers in Molecular Biology, Virology, Fermentation Research and other Upjohn research groups. Additional duties will include evaluation of antiviral candidates and interferon inducers.

Candidates should have a Ph.D. in virology, or closely related discipline, with a strong background in immunology, and molecular virology of animal viruses. Postdoctoral experience and/or a D.V.M. degree is desirable.

Upjohn offers a stimulating research environment, career potential, competitive salary (commensurate with experience) and an outstanding benefits package. Publication of research data is encouraged, and it is expected that the successful candidate will attain peer recognition for scientific accomplishments.

For confidential consideration, please respond within one month and send a current c.v. and resume, list of publications, names and addresses of references, and graduate transcripts (if appropriate) to: Gerald L. Potratz, Department 16859G, The Upjohn Company, 7000 Portage Road, Kalamazoo, MI 49001.

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POSTDOCTORAL FELLOWSHIP

A postdoctoral fellow in cerebellar physiology is being sought by the Division of Neurobiology at the Barrow Neurological Institute. Applicants should have completed the M.D. or Ph.D. degree, have experience with single unit recording, and training in quantitative data processing and computer science. Studies will be focused in various aspects of cerebellar physiology. If interested, send curriculum vitae, three references, and graduate school transcript to: James R. Bloedel, Chairman, Division of Neurobiology, Barrow Neurological Institute, St. Joseph's Hospital and Medical Center, 350 West Thomas Road, Phoenix, Arizona 85013-4496.

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POSITIONS OPEN

RESEARCH ASSOCIATE. Opportunity for M.D. or Ph.D. to perform studies of human metabolic regulation, with emphasis on the response to injury and nutritional support. Training on application of stable isotope/mass spectrometry techniques. Starting date, duration of appointment flexible. Contact: **Dr. Robert R. Wolfe, Shriners Burns Institute, and The University of Texas Medical Branch, 610 Texas Avenue, Galveston, Texas 77550; telephone: 409-761-6538.**

RESEARCH ASSOCIATE POSITION available with the following requirements: Ph.D. in biochemistry or analytical chemistry specializing in gas chromatography/mass spectrometry and associated methodology with extensive theoretical and instrumental experience (two or more years) with stable isotopes, chemical ionisation, electron impact, computer techniques, trace analyses, and so forth. Publications in the fields required. The Centre is equipped with a Hewlett Packard 5987 GC-MS system interfaced to a HP series E computer with 87 megabytes of memory. The candidates will interact with basic scientists and clinicians interested in aging, dementia, and schizophrenia. Experience in monitoring neurotransmitters and drugs turnover and their metabolites is preferable. Please send curriculum vitae and three letters of reference to: **N. P. V. Nair, M.D., Director, Douglas Hospital Research Centre, 6875 LaSalle Boulevard, Verdun, Quebec, Canada H4H 1R3.**

STAFF ASSOCIATE IN BIOMATHEMATICS

To participate in an extended project on the theoretical analysis and computer simulation of solute and water transport in the mammalian kidney. An M.S. degree, skills, and experience in computer science and applied mathematics are required. Applicant must have experience in numerical solution of differential equations and numerical linear analysis. The salary range is a minimum of \$25,000 to a negotiable maximum. Send résumé and names of three references to: **Dr. John L. Stephenson, Department of Physiology, Cornell University Medical College, 1300 York Avenue, New York, N.Y. 10021. Equal Employment Opportunity. Affirmative Action Employer.**

TERATOLOGIST

Pathology Associates, Inc., invites applicants for a teratologist position (head, Teratology Section) to perform teratologic and reproductive toxicology for a contract period of 5 years beginning November 1984. The work will be performed at the National Center for Toxicological Research, Jefferson, Arkansas. Studies will typically be bioassays in rodents and rabbits. Duties will include research and research supervision with some administrative responsibilities. Publications will be encouraged. A broad variety of compounds will be evaluated and the full range of teratologic methods will be employed. A doctoral degree is required. Recent graduates will be considered; salary will be commensurate with experience. Applicants should send complete curriculum vitae to: **Project Manager, Pathology Services (NCTR), P.O. Box 26, Jefferson, Ark. 72079; telephone: 501-541-4401. Equal Opportunity Employer.** Applications close on 9 November 1984.

VISITING SCIENTIST for a period of 1 to 2 years. Ph.D. or M.D. with a background in biochemistry or chemistry. Work will involve the production of monoclonal antibodies to lymphocyte cell surface antigens. Starting salary: \$18,000, depending on individual, plus liberal benefits. Interested persons should send curriculum vitae and three letters of reference to: **The Personnel Office, W. ALTON JONES CELL SCIENCE CENTER, 10 Old Barn Road, Lake Placid, New York 12946. Refer to Job HA-103.**

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ASSISTANTSHIPS

GRADUATE ASSISTANTSHIPS leading to the Ph.D. degree in biochemistry. Active research programs in gene expression in animal, plant, and bacterial systems; protein chemistry; enzyme mechanisms; nutrition; hormone action; lipids; and physical biochemistry, including x-ray crystallography. Stipends range to \$8580 per year. Minority fellowships available. Contact: **Dr. David Peterson, Department of Biochemistry and Biophysics, Texas A&M University, College Station, Texas 77843-2128. Texas A&M University is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANTSHIPS

TEACHING ASSISTANTSHIPS available for qualified applicants beginning September 1985. Graduate study in Department of Biology leading to M.S. or Ph.D. with concentration in biochemistry, botany, ecology, marine biology, microbiology, molecular biology, physiology, vertebrate zoology. Anticipated stipends: \$6000 for 9 months and tuition waiver which includes 1985 summer courses. For further information, write to: **Graduate Secretary, Department of Biology, Northeastern University, Boston, Mass. 02115. An Affirmative Action/Equal Opportunity Employer.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS

Viral and Chemical Carcinogenesis

Two fellowships are available early in 1985 in the area of viral and chemical carcinogenesis at the University of Southern California (USC). The fellowships are supported by an NIH training grant and faculty research interests include molecular genetics of human cancer (W. Benedict); oncogenes (S. Rasheed, P. Roy-Burman); DNA viruses (W. Clough); molecular analysis of liver specific genes (K. Fournier); mutagenesis (J. Landolph, M. Goodman); DNA methylation (P. Jones); neoplastic transformation (W. Benedict, J. Landolph); glucose starvation specific genes (A. Lee); tumor proteases (W. Laug, P. Jones) and molecular basis of oncogenic transformation (J. Landolph).

Interested individuals, who should be U.S. citizens or hold permanent resident visas, should submit their curriculum vitae together with the names of three referees as soon as possible to: **Dr. Peter A. Jones, Director for Basic Science, USC Cancer Center, 2025 Zonal Avenue, Los Angeles, Calif. 90033.**

HARVARD UNIVERSITY SCHOOL OF PUBLIC HEALTH

TAKEMI FELLOWSHIPS IN INTERNATIONAL HEALTH

The Takemi Program in International Health invites applications from promising graduates of advanced degree programs and mid-career professionals with relevant backgrounds, for fellowships in research and advanced training on critical problems in international health, especially those concerned with less developed countries.

Fellows will be appointed for a 1-year term beginning in September 1985. Deadline for application is 1 February 1985. Decisions will be announced in May 1985.

For information, write to:

**Professor David E. Bell
Acting Director
Takemi Program in International Health
Harvard School of Public Health
665 Huntington Avenue, Building 1
Boston, Mass. 02115**

POSTDOCTORAL FELLOWSHIPS

Available in pharmacology and related fields. For details, please send curriculum vitae to: **Postdoctoral Program, Department of Pharmacology, Division of Experimental Therapeutics, Walter Reed Army Institute of Research, Washington, D.C. 20307-5100.**

POSTDOCTORAL FELLOWSHIP

POSTDOCTORAL POSITION available fall 1984 to investigate the molecular genetics of *Chlamydia trachomatis*. Emphasis to be placed on identification of genes corresponding to biologically relevant surface antigens. Some prior experience in the area of molecular genetics is desirable. Send curriculum vitae and the names of three references to: **Robert B. Jones, Department of Medicine, Emerson Hall 302, Indiana University School of Medicine, 545 Barnhill Drive, Indianapolis, Ind. 46223.**

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FELLOWSHIPS

POSTDOCTORAL RESEARCH FELLOWSHIPS IN DIABETES-METABOLISM. Applications for 1985 and 1986 are being considered for postdoctoral fellowships in diabetes research (for example, hormonal control of glucose; ketone body and amino acid metabolism; insulin receptors and insulin action; immunologic aspects of diabetes and diabetic complications). For information, write: **John Gerich, M.D., Endocrine Research Unit, Mayo Clinic, Rochester, Minnesota 55905. An Equal Opportunity/Affirmative Action Institution.**

WASHINGTON UNIVERSITY CENTER FOR CELLULAR AND MOLECULAR NEUROBIOLOGY FELLOWSHIPS

The Washington University Center for Cellular and Molecular Neurobiology is pleased to announce the availability of a limited number of fellowships for advanced postdoctoral work in neurobiology. The object of these special awards is to enable outstanding young neuroscientists to perform collaborative or even independent research in one or more laboratories associated with the center. Fellows of the center will be paid an annual salary that depends on years of experience and they will receive a budget for supplies. In general, each applicant should make arrangements with a scientist associated with the center, although this is not absolutely necessary in order to apply. A list of faculty members affiliated with the center is available on request. Applications should include a summary of background and training, a statement of proposed research, and three letters of reference. They should be addressed to:

**Dr. Gerald D. Fischbach
Center For Cellular and Molecular Neurobiology
Box 8108, Washington University School of Medicine
660 South Euclid Avenue
St. Louis, Missouri 63110**

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CONFERENCES

FOGARTY INTERNATIONAL CENTER NATIONAL INSTITUTES OF HEALTH BETHESDA, MARYLAND

presents a conference on
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14 November through 16 November 1984

This conference will be held at the NIH campus (Masur Auditorium, Building 10) and will focus on recent developments in the molecular biology of cancer. The list of speakers includes: S. Aaronson; D. Baltimore; M. Barbacid; S. Cohen; C. Croce; R. Erikson; D. Givol; J. Groffen; T. Hunter; J. Minna; G. Klein; P. Leder; A. Levinson; J. Nevins; Y. Nishizuka; E. Ruley; J. Schlessinger; G. Todaro; G. Vande Woude; M. Waterfield; R. Weinberg; and M. Wigler.

Organizing committee: D. Givol, D. Shemin, S. Aaronson. Registration is requested, but no fee is required. For further information contact:

**Françoise Arsenaux
HCR
1605 T Street, NW
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Telephone: 202-745-7504**

RIBOSOME CONFERENCE Texas Marine Science Institute Port Aransas, Texas 14 to 18 April 1985

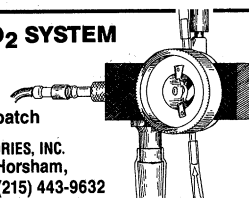
For information, contact: **Dr. Boyd Hardesty, Department of Chemistry, University of Texas, Austin, Texas 78712.**

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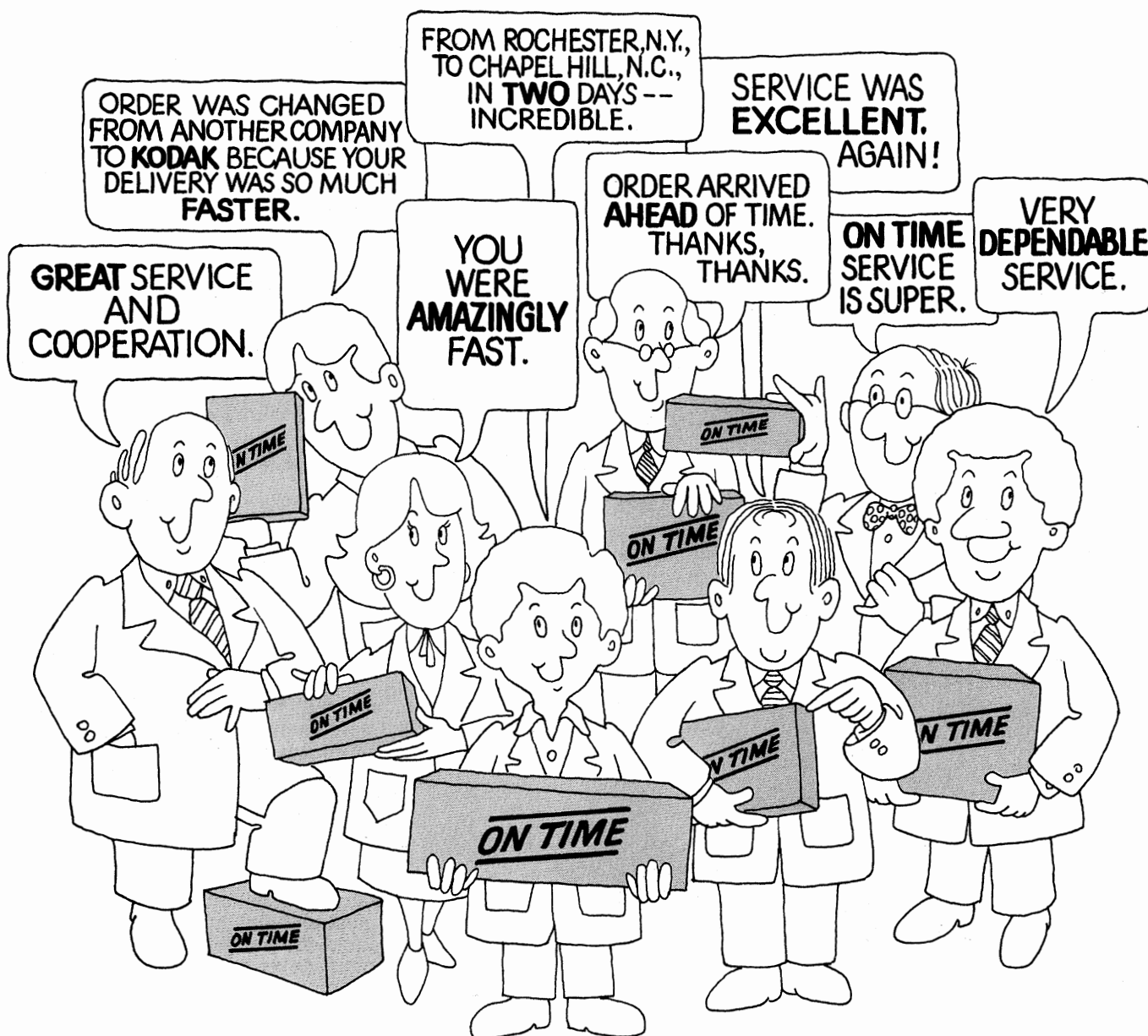
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