

adequately defined. There are more complicated problems: problems in higher-dimensional situations, problems concerning the existence of such functions satisfying supplementary conditions, variable end-point problems, and so on.

The author describes the history of these problems up to the 20th century, including many technical details. Problems of mechanics and physics provided the original impetus for studying variational problems. In the 17th century—and for many years afterward—there was a kind of unity between mathematics and the physical sciences. There were, for example, the problem of the passage of a light ray from one optical medium to another (the problem of the least possible time), already studied by Fermat; the famous brachistochrone problem (the problem of finding the curve joining two points in a vertical plane along which a body will descend frictionlessly in the least possible time, studied by Leibniz and the Bernoullis); and the problem of least action. There were also classical mathematical problems such as geodesics on a surface (Euler) and the problem of finding a surface of least area among all those bounded by a given curve (Lagrange; the problem of Plateau). The influence of physical sciences remained for a long time. The author deals with the theory of Hamilton and Jacobi (19th century) in analytical mechanics. Variational principles are important into modern times (dynamics). He considers the way in which through the work of Euler, Lagrange, Legendre, and others the more special theory developed into a general theory in connection with differential equations. First and second variations of functionals that present themselves in this theory are discussed. Weierstrass, especially, did important work in giving the theory an exact basis. There are questions of necessary and sufficient conditions and questions of what is to be understood by the neighborhood of a curve. Coming toward the end of the 19th century the author mentions the work of Hilbert. Note that some of the 23 problems that Hilbert proposed at the International Congress of 1900 at Paris concern variational calculus. The author proceeds to the work of Carathéodory, Bliss, Bolza, and Kneser, hinting at the calculus of variations in the large developed by Morse (1934).

This book gives a good picture of an important branch of mathematics, to which many great mathematicians of history contributed. I add some remarks.

Hilbert's work in this domain is related to Dirichlet's problem in potential theory

and the well-known failure of the so-called principle of Dirichlet to solve that problem. This principle is a variational problem. The author mentions it briefly. More attention to it in the context of the remarks on Hilbert's work would have been interesting because this work marks the beginning of the so-called "direct method" for variational problems, a method that avoids the classical way of introducing auxiliary parameters that reduced the problem to questions on functions of one variable. Mentioning it would have been the more interesting because it provides an opportunity to show the relation of the variational calculus to functional analysis. Although the latter is mainly a development of the 20th century, there were studies in this direction at the end of the 19th century. Note the work on integral equations—historically related to the calculus of variations—and the introduction of the concept of a "functional" (Volterra). I add a supplementary bibliography on these points.

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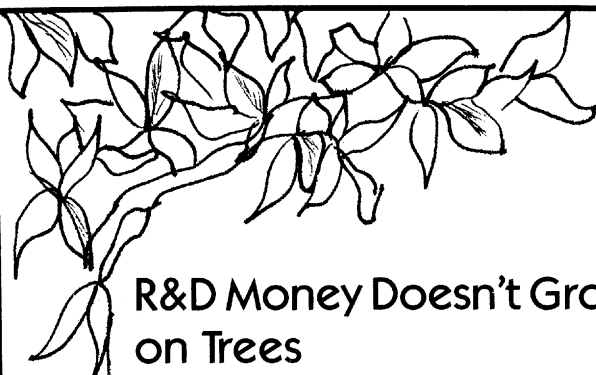
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Pneumatic and Hydraulic Components and Instruments in Automatic Control. Proceedings of a symposium, Warsaw, May 1980. H. J. Leskiewicz and M. Zaremba, Eds. Published for the International Federation of Automatic Control by Pergamon, New York, 1981. x, 280 pp., illus. \$75.

Poker Strategy. Winning with Game Theory. Nesmith C. Ankeny. Basic Books, New York, 1981. xvi, 190 pp. \$11.95.

Polymer Blends. Processing, Morphology, and Properties. Proceedings of a seminar, Capri, Italy, Oct. 1979. Ezio Martuscelli, Rosario Palumbo, and Marian Kryszewski, Eds. Plenum, New York, 1980. xii, 510 pp., illus. \$59.50.

Polymer Melt Rheology. A Guide for Industrial Practice. F. N. Cogswell. Godwin, London, and Halsted (Wiley), New York, 1981. xiv, 178 pp., illus. \$49.95.

Popular Lectures on Mathematical Logic. Wang Hao. Van Nostrand Reinhold, New York, and Science Press, Beijing, China, 1981. xii, 274 pp. \$24.95.

Population and Technological Change. A Study of Long-Term Trends. Ester Boserup. University of Chicago Press, Chicago, 1981. xii, 256 pp. \$17.50.

The Population Ecology of Cycles in Small Mammals. Mathematical Theory and Biological Fact. James Patrick Finerty. Yale University Press, New Haven, Conn., 1981. xiv, 234 pp., illus. \$18.50.

Population Growth, Society, and Culture. An Inventory of Cross-Culturally Tested Causal Hypotheses. Richard Grey Sipes. HRAF Press, New Haven, Conn., 1981. x, 126 pp. Cloth, \$12; paper, \$6.

Postwar Trends in U.S. Forest Products Trade. A Global, National, and Regional View. Roger A. Sedjo and Samuel J. Radcliffe. Resources for the Future, Washington, D.C., 1980 (distributor, Johns Hopkins University Press, Baltimore). xxiv, 598 pp. Paper, \$15. Research Paper R-22.

Prehistoric Mining and Allied Industries. R. Shepherd. Academic Press, New York, 1980. xii, 272 pp., illus. \$37. Studies in Archaeological Science.

Preservation of Paper and Textiles of Historic and Artistic Value II. Papers from a symposium, Washington, D.C., 1979. John C. Williams, Ed. American Chemical Society, Washington, D.C., 1981. x, 356 pp., illus. \$44.75. Advances in Chemistry Series, 193.

The Principles and Practice of Human Physiology. O. G. Edholm and J. S. Weiner, Eds. Academic Press, New York, 1981. xiv, 672 pp., illus. \$88.50.

Principles of Applied Geophysics. D. S. Parasnis. Chapman and Hall, London, ed. 3, 1980 (U.S. distributor, Methuen, New York). x, 276 pp., illus. Paper, \$14.95.

Principles of Electronic Instrumentation. A. de Sa. Halsted (Wiley), New York, 1981. viii, 280 pp., illus. Paper, \$29.95.

Principles of Optics. Electromagnetic Theory of Propagation, Interference and Diffraction of Light. Max Born and Emil Wolf with contributions by A. B. Bhatia and six others. Pergamon, New York, ed. 6, 1980. xxviii, 808 pp., illus. Paper, \$27.50.

Principles of Social Psychology. Kelly G. Shaver. Winthrop (Prentice-Hall), Cambridge, Mass., ed. 2, 1981. xvi, 572 pp., illus. \$19.95.

Proceedings of the Fifth Congress of the Mediterranean Phytopathological Union. Patras, Greece, Sept. 1980. The Hellenic Phytopathological Society, Athens, 1981. xvi, 220 pp., illus. Paper, \$10.

Radical Pragmatics. Peter Cole, Ed. Academic Press, New York, 1981. xiv, 328 pp. \$34.50.

Radiology of the Sella Turcica. J. F. Bonneville and J. L. Dietemann. Translated from the French. Springer-Verlag, New York, 1981. xxii, 262 pp., illus. \$116.80.

Recent Advances in EPH-Gestosis. Papers from a meeting, Cairo, Dec. 1978. Maher Mahran and E. T. Rippmann, Eds. Organisation Gestosis Press, Basel, 1980. 422 pp., illus. Paper, SFr. 75.

Recombinant DNA. K. J. Denniston and L. W.

Enquist, Eds. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1981 (distributor, Academic Press, New York). xvi, 390 pp., illus. \$45. Benchmark Papers in Microbiology, vol. 15.

The Slow Inward Current and Cardiac Arrhythmias. Douglas P. Zipes, John C. Bailey, and Victor Elharrar, Eds. Nijhoff, The Hague, 1980 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 522 pp., illus. \$69.50. Developments in Cardiovascular Medicine, vol. 7.

Social Inequality. Comparative and Developmental Approaches. Papers from a symposium, Burg Wartenstein, Austria, Aug. 1978. Gerald D. Berreman and Kathleen M. Zaretsky, Eds. Academic Press, New York, 1981. xviii, 364 pp. \$32.50. Studies in Anthropology.

Society, Technology and Risk Assessment. Papers from a workshop, Wolfersheim, Germany, June 1979. J. Conrad, Ed. Academic Press, New York, 1980. xxviii, 304 pp. \$35.

Sociology of Mental Disorder. William C. Cockerham. Prentice-Hall, Englewood Cliffs, N.J., 1981. viii, 408 pp. \$19.95.

The Sociology of Social Problems. Paul B. Horton and Gerald R. Leslie. Prentice-Hall, Englewood Cliffs, N.J., ed. 7, 1981. xvi, 640 pp., illus. \$18.95.

Soils and Agriculture. P. B. Tinker, Ed. Halsted (Wiley), New York, 1981. viii, 152 pp., illus. Paper, \$27.95. Critical Reports on Applied Chemistry, vol. 2.

Solar Applications in Agriculture. Robert N. Brewer, Clifford A. Flood, Jr., Elwynn S. Taylor, Joe L. Koon, and Morris White. Franklin Institute Press, Philadelphia, 1981. vi, 144 pp., illus. \$22.50.

Solid Supports in Gas Chromatography. V. G. Berezkin, V. P. Pakhomov, and K. I. Sakodinsky. Translated from the Russian edition. Supelco, Bellefonte, Pa., 1980. vi, 134 pp., illus. Paper, \$13.

Solving Learning and Behavior Problems of Children. A Planning System Integrating Assessment and Treatment. Mark N. Ozer. Jossey-Bass, San Francisco, 1980. xiv, 258 pp. \$14.95.

Spontaneous Intracerebral Haematomas. Advances in Diagnosis and Therapy. Papers from a workshop, Giessen/Bad Nauheim, Feb. 1979. H. W. Pia, C. Langmaid, and J. Ziarski, Eds. Springer-Verlag, New York, 1980. xvi, 416 pp., illus. \$116.90.

Statistical Methods in Biology. Norman T. J. Bailey. Halsted (Wiley), New York, ed. 2, 1981. viii, 216 pp. Paper, \$12.95.

Statistical Methods in Cancer Research. Vol. 1. The Analysis of Case-Control Studies. N. E. Breslow and N. E. Day. W. Davis, Ed. International Agency for Research on Cancer, Lyon, 1980 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 338 pp., illus. \$30. IARC Scientific Publications, No. 32.

Stigma. A Social Psychological Analysis. Irwin Katz. Erlbaum, Hillsdale, N.J., 1981. xii, 140 pp. \$16.50.

Stratobound Sulphides in the Caledonian-Appalachian Orogen. Proceedings of a symposium, Trondheim, Norway, Sept. 1979. Frank V. Vokes and Arne Reinsbakken, Eds. Universitetsforlaget, Oslo, 1980 (U.S. distributor, Columbia University Press, New York). 328 pp., illus. Paper, \$24. NGU (Norges Geologiske Undersøkelse) No. 360.

Structural Studies on Molecules of Biological Interest. A Volume in Honour of Professor Dorothy Hodgkin. Guy Dodson, Jenny P. Glusker, and David Sayre, Eds. Clarendon (Oxford University Press), New York, 1981. xviii, 610 pp., illus. \$98.

The Sweetness of the Fig. Aboriginal Women in Transition. Virginia Huffer. New South Wales University Press, Sydney, and University of Washington Press, Seattle, 1981. x, 166 pp., illus. \$15.

Theories of Illness. A World Survey. George Peter Murdock. University of Pittsburgh Press, Pittsburgh, 1980. xvi, 128 pp. \$9.95.

The Theory of Linear Models and Multivariate Analysis. Steven F. Arnold. Wiley, New York, 1981. xviii, 476 pp. \$34.95. Wiley Series in Probability and Mathematical Statistics.

Thera and the Aegean World II. Proceedings of a congress, Santorini, Greece, Aug. 1978. Thera and the Aegean World, London, 1980 (U.S. distributor, Humanities Press, Atlantic Highlands, N.J.). 428 pp., illus. + maps. \$85.

The Three Christs of Ypsilanti. A Psychological Study. Milton Rokeach. Columbia University Press, New York, 1981. xii, 338 pp. + index. Paper, \$8. Reprint of the 1964 edition.

The Tuning of My Harpsichord. Herbert Anton Kellner. Verlag Das Musikinstrument, Frankfurt/Main, Germany, 1980. 56 pp., illus. Paper, DM22. Schriftenreihe Das Musikinstrument. Heft 18.

Understanding Written Language. Explorations of Comprehension beyond the Sentence. A. J. Sanford and S. C. Garrod. Wiley, New York, 1981. xiv, 224 pp., illus. \$33.95.

Uranium and Nuclear Energy: 1980. Proceedings of a symposium, London, Sept. 1980. Ann Arbor Science (Butterworths), Ann Arbor, Mich., 1981. xvi, 360 pp., illus. \$62.95.

Personnel Placement

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POSITIONS WANTED

Bacteriologist/Writer. Ph.D., biology; B.A., English; R.M. (AAM). Professor of biology for 10 years. Seeking academic, laboratory, or editorial position; rank secondary to reciprocity in skills and ideas. Strongest interests: ecology of anaerobic bacteria, photomicrography, writing. Will teach food microbiology, microbial ecology, medical bacteriology, cell biology. Northeast. Box 217, SCIENCE. 9/4, 11, 18

Bioceramic Materials Scientist. Experienced in carbons, casting, porcelain, alloys; XRD, IRA, DTA, TGA, TEA, SEM. Publications and patents. Box 221, SCIENCE. 9/4, 11

Cell Biologist. Ph.D. 1977. Research interest and experience in mutagenesis/carcinogenesis both in vivo and in vitro; mammalian, including human, cytogenetics. Techniques: sister chromatid exchanges, Giemsa banding, electron microscopy, tissue culture, cytochemistry. Seeks research position in industry/institution. Box 226, SCIENCE. X

Experimental Physicist. Ph.D. Seeks position in the field of NMR imaging. Experienced in biomedical applications of NMR, physiology, electronics, solid state, magnetism, computer programming. Box 227, SCIENCE. X

Physician (M.D.). Board-certified, specializing in food and nutrition with clinical and research background; many publications; several books. Seeking short-term consultative positions to assist in developing specialized diets. This includes diets and foods for disease states, for the elderly, for weight reduction facilities, for industry, and for resorts. Can travel as needed. Contact: HERA, P.O. Box 4189, Station A, Albuquerque, New Mexico 87106. X

Recombinant DNA Lawyer. Ph.D. in biochemistry; postdoctoral experience in molecular biology. Approximately 2 1/2 years of legal experience. Familiar with regulatory and contractual aspects of the biotechnology, particularly FDA matters. Seeking legal position with corporation or university. Publications. Box 216, SCIENCE. 9/4, 11

POSITIONS OPEN

ANALYTICAL FACULTY POSITIONS—PROFESSOR, ASSOCIATE, AND/OR ASSISTANT PROFESSOR. Any level, tenure-track. Excellent opportunity to shape future of division. Any research area, although areas complementary to present faculty preferred. A complete résumé, a brief outline of present and proposed research, a list of extramural funding for the past 5 years (professor and associate professor candidates only), and three letters of recommendation should be sent to: **James L. Anderson, Department of Chemistry, University of Georgia, Athens, Ga. 30602.** Deadline for full professor applications is 9 October 1981. Deadline for associate and assistant professor applications is 30 November 1981. *The University of Georgia is an Equal Opportunity/Affirmative Action Institution.*

ANATOMY. Assistant professor to teach histology, embryology, gross anatomy, or neuroanatomy. Research interest in reproductive endocrinology or pancreatic islet endocrinology. Minimum of 2 years of postdoctoral experience required. If interested, send curriculum vitae, including list of publications and three references, to:

**Carl R. Morgan, Ph.D.
Professor and Chairman
Department of Anatomy
School of Medicine
East Carolina University
Greenville, N.C. 27834**

Applications should be received by 30 September 1981. *An Equal Opportunity/Affirmative Action Employer.*

ANATOMY: Gross Anatomy. The Department of Anatomical Sciences, State University of New York (SUNY) at Stony Brook, seeks to fill a faculty position with teaching responsibility in the area of health sciences gross anatomy. Research experience in the areas of functional or quantitative morphology and/or evolutionary biology. Send curriculum vitae and list of references to: **Dr. Maynard M. Dewey, Chairman, Department of Anatomical Sciences, Health Sciences Center, SUNY at Stony Brook, Stony Brook, N.Y. 11794.** *SUNY Stony Brook is an Equal Opportunity/Affirmative Action Employer.* AK 129A.

ASSISTANT OR ASSOCIATE AGRONOMIST AND EXTENSION AGRONOMIST. The Department of Agronomy and Soils seeks a Ph.D. to conduct research and develop appropriate Extension programs in forage production and management; located at Puyallup, Wash. Salary is open; application review begins 1 November 1981. Submit résumé, statement of career interests, academic transcripts, and names of three references to: **Dr. J. C. Engibous, Chairman, Department of Agronomy and Soils, Washington State University, Pullman, Wash. 99164,** or **Dr. Wayne Bath, Associate Director, Cooperative Extension, Washington State University, Pullman, Wash. 99164.** *An Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR, ORGANIC CHEMISTRY. The Department of Chemistry, Kansas State University, seeks exceptional candidates who have a commitment to excellence in research, scholarship, and teaching for a tenure-track faculty appointment starting August 1982. Applications from aggressive and creative Ph.D. scientists, particularly with a strong emphasis in synthetic methodology in organic, bioorganic, or organometallic chemistry, are invited. Primary teaching responsibilities in organic chemistry. Closing date: 16 October 1981. Send curriculum vitae, three letters of recommendation, undergraduate and graduate transcripts, and descriptions of proposed research (two to three pages per project) to: **Professor R. N. McDonald, Department of Chemistry, Kansas State University, Manhattan, Kansas 66506.** *Kansas State University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT/ASSOCIATE PROFESSOR OF PATHOLOGY—Applications invited for tenure-track position for individual with strong background in cellular immunology with distinct potential to develop independent research program and to contribute to on-going projects concerned with the pathogenesis of oral diseases. D.M.D./D.D.S., M.D., D.V.M., or Ph.D. required. Candidate will participate in teaching of pathology to dental students. Salary negotiable. Send curriculum vitae and brief statement of research and teaching interests to: **Norton S. Taichman, Department of Pathology, University of Pennsylvania, School of Dental Medicine, Philadelphia, Pa. 19104.**

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4 SEPTEMBER 1981

POSITIONS OPEN

ASSISTANT PROFESSOR. The Department of Chemistry of Syracuse University invites applications from applicants in the field of organic chemistry, including bioorganic, for a tenure-track position as **assistant professor of chemistry.** A new NIH Research Resource in NMR and data processing is one of the unique research facilities operated by the department. Applicants should send complete curriculum vitae, list of publications, summary of teaching experience, and a statement of research plans, and should arrange for at least three letters of recommendation to be forwarded to support the application. Nominations and applications should be mailed by 26 October to: **Professor D. C. Dittmer, Chairman, Search Committee, Department of Chemistry, Syracuse University, Syracuse, New York 13210.** *Syracuse University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR CELLULAR AND MOLECULAR BIOLOGY

The Laboratory of Molecular Biology and the Department of Biochemistry of the University of Wisconsin-Madison invite applications for a joint, tenure-track position at the rank of assistant professor. Candidates should have research interests in problems of eukaryotic cell function. Within this broad area emphasis will be placed on selecting an outstanding individual. Responsibilities will include teaching in the Biochemistry Department's curriculum, participating in the Interdepartmental Program in Molecular Biology, supervision of graduate students, and development of an independent research program. Salary will be on a 12-month basis; it will be commensurate with the experience of the candidate and compatible with the salary structure of the University of Wisconsin. Applicants should submit curriculum vitae, statement of research interests, and three letters of reference by 15 November 1981 to: **Gary G. Borisy, Chairman, Laboratory of Molecular Biology, University of Wisconsin, Madison, Wisconsin 53706.**

The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer; applications from minority and women candidates and other qualified persons are encouraged.

ASSISTANT PROFESSOR, NEUROBIOLOGY AND BEHAVIOR. State University of New York (SUNY) at Stony Brook is seeking candidates for a tenure-track position at the assistant professor level for the 1982-1983 academic year. The Department presently has 14 faculty with primary appointments and three with joint appointments. These faculty have broad interests in cellular and integrative neurobiology. Candidates should have at least 2 years of postdoctoral experience. Letters of application should be accompanied by curriculum vitae, statement of research and teaching interests, and the names and addresses of at least three references. Please send all materials to: **Dr. David H. Cohen, Department of Neurobiology and Behavior, SUNY at Stony Brook, Stony Brook, N.Y. 11794.** *SUNY at Stony Brook is an Equal Opportunity/Affirmative Action Employer.* AK 87B.

ASSISTANT PROFESSOR—PHYSIOLOGY. Full-time faculty position involving both teaching and research available immediately. Ph.D. with minimum of 5 years of postdoctoral experience in membrane biochemistry, protein, peptide, and organic chemistry desirable. Start-up funds and salary guaranteed for 2 years. Send curriculum vitae and relevant information to: **Dr. R. Kinne, Chairman, Department of Physiology, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, New York 10461.** *An Equal Opportunity Employer.*

BEHAVIORAL ECOLOGIST

The Department of Biological Sciences invites applications for an assistant professorship to begin 1 September 1982. Responsibilities include teaching an undergraduate course in ecology and an advanced course in ecology or behavior. The applicant will be expected to develop an active research program and to participate in the graduate program in behavioral ecology. Applications, including curriculum vitae, reprints, names of at least three references, and a statement of plans for research and teaching, should be sent prior to 31 October 1981 to: **Jerram L. Brown, Department of Biological Sciences, State University of New York, Albany, New York 12222.**

The State University of New York at Albany is an Equal Opportunity/Affirmative Action Employer. Applications from women, minorities, and handicapped persons are especially welcome.

POSITIONS OPEN

ASSISTANT PROFESSOR OF PHYSIOLOGY. We seek a faculty member dedicated to excellence in both teaching and research in such areas as cellular, renal, cardiovascular, respiratory, reproductive, or endocrine (but not CNS) physiology. Applicants must have the Ph.D. or the M.D. degree. The position will be available after 1 January 1982. Please send résumé and three letters of reference to: **Director, Department of Physiology, The Johns Hopkins University School of Medicine, Baltimore, Maryland 21205.** *The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR OF SOCIAL MEDICINE AND HEALTH POLICY. Harvard Medical School; faculty member qualified to develop and coordinate a research program to evaluate child and adolescent health and mental health policy. Assess current national programs; evaluate programmatic relevance of recent advances in biomedical and psychosocial research; develop science-based policy recommendations to improve child health.

Requirements: doctoral degree; extensive experience in public health, child development, and mental health; both productivity in child health research and senior level administrative and policy management experience in public sector child health programs. Applications deadline: 1 October 1981. Send résumé and names of three references to: **Leon Eisenberg, M.D., Harvard Medical School, Boston, Massachusetts 02115.**

ASSISTANT OR ASSOCIATE PROFESSOR OF SOILS AND SOIL SCIENTIST. The Department of Agronomy and Soils seeks a Ph.D. to teach appropriate courses and conduct research in soil genesis and morphology. Salary is open; application review begins 1 October 1981. Submit résumé, statement of career interests, academic transcripts, and names of three references to: **Dr. J. C. Engibous, Chairman, Department of Agronomy and Soils, Washington State University, Pullman, Wash. 99164.** *An Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR OF TOXICOLOGY—A tenure-track position. Primary responsibilities will be to the Graduate Program in Toxicology, including teaching and establishment of an independent research program. The Program bridges the College of Pharmacy, Cook College, Rutgers College, and the College of Medicine and Dentistry of New Jersey, thereby providing interdisciplinary collaborations. Primary appointment will be in the College of Pharmacy. Candidate must have a Ph.D. in toxicology or related field, expertise in biochemical toxicology, and 2 years of postdoctoral training. Send curriculum vitae to: **Dr. Robert Snyder, Director, Graduate Program in Toxicology, Rutgers-The State University, College of Pharmacy, Box 789, Piscataway, N.J. 08854.** *An Equal Opportunity/Affirmative Action Employer.*

BIOMECHANICAL ENGINEER

Large Medical Center is seeking an advanced degree (Ph.D.) biomechanical engineer for a faculty position in the Orthopedic Department of our Medical School. Position entails the development of precision instrumentation and experimental techniques to study kinematics and mechanics of spine and spinal instability, development of mathematical theories for data analysis and computer simulation of spine motion, and development of biomechanical models to study various spinal cord injury mechanisms.

Ideal candidate will have done doctoral dissertation work on biomechanics of spine, involving experimental and mathematical simulation studies.

We offer excellent salary (\$500 per week) for the 40-hour per week position.

Please submit résumé to:

**Dr. Wilton Bunch
Department of Orthopedics
Loyola University Medical Center
2160 South First Avenue
Maywood, Illinois 60153**

CELL-MOLECULAR BIOLOGIST (eukaryotes). Tenure-track position at assistant professor level to begin about 1 July 1982. Postdoctoral experience required and demonstrated potential for excellence in research. Send résumé, including one-page statement of specific research plans, reprints, and the names and addresses of at least three references, to: **Search Committee, Department of Zoology, Wilson Hall 046A, University of North Carolina, Chapel Hill, N.C. 27514,** by 1 January 1982. *The University of North Carolina is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

BIOCHEMIST—MOLECULAR ENDOCRINOLOGIST. Research associate and postdoctoral positions available for research related to biochemistry of reproduction with emphasis on mechanism of hormone action, receptor purification, membrane biochemistry, glycoprotein hormone chemistry, and associated problem areas. Ph.D. in biochemistry preferred. Positions available immediately. Please forward curriculum vitae and names of three references to:

Dr. Leo E. Reichert, Jr.
Professor and Chairman
Department of Biochemistry
Albany Medical College
Albany, New York 12208

Albany Medical College is an Equal Opportunity Employer.

BIOCHEMIST—BIOLOGIST. To pursue independent research in the area of bone metabolism. Junior faculty position available for qualified applicants. The Bone and Connective Tissue Research Program is a joint venture between the Orthopaedic Hospital of Los Angeles and the University of Southern California. Please send résumé and references to: **Dr. Marcel Nimni, Orthopaedic Hospital, D&T 5th floor, 2400 South Flower Street, Los Angeles, Calif. 90007.**

BIOCHEMIST/NEUROCHEMIST

RESEARCH POSITION at UNIVERSITY HOSPITAL available immediately for a person with a Ph.D. in neurochemistry/biochemistry. Position is for the study of brain enzymes and their metabolic role. Persons with experience/training in enzyme purification, kinetic studies, electrophoresis, and so forth will be preferred. Please send curriculum vitae and names of references to: **Dr. S. Kumar, Director, Perinatal Laboratory and Research, Christ Hospital, 4440 West 95 Street, Oak Lawn, Illinois 60453.** A member of the Evangelical Hospital Association. *An Equal Opportunity Employer.*

BOTANY CHAIRPERSON LOUISIANA STATE UNIVERSITY

We seek an individual with recognized research productivity, an ongoing record of extramural funding, ability to work well with faculty and students, and demonstrated leadership abilities. The Department of Botany consists of ten faculty members representing a wide range of botanical interests and offers both Ph.D. and M.S. degrees. Anticipated starting date is August 1982; preference will be given to applications received by 1 November 1981. Curriculum vitae, description of research goals, reprints of five representative publications, and five letters of recommendation should be sent to: **Dr. Shirley Tucker, Chairperson Search, Department of Botany, Louisiana State University, Baton Rouge, La. 70803.** Telephone: 504-388-8485.

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CHAIRPERSON—BIOLOGY

Faculty position at the professor level to serve as **CHAIR** of the Department of Biology in the College of Arts and Sciences. Ph.D. or equivalent in any area of biological sciences required. Strong background of published research and demonstrated capabilities to continue development of graduate and undergraduate programs necessary. Application period remains open until position is filled.

Applications, including curriculum vitae, representative publications, and names of at least four references, should be sent to:

Search Committee for Chairperson
Department of Biology
University of Miami
P.O. Box 249118
Coral Gables, Fla. 33124

An Equal Opportunity/Affirmative Action Employer

EXTENSION SOIL SCIENTIST AND ASSISTANT OR ASSOCIATE SOIL SCIENTIST. The Department of Agronomy and Soils seeks a Ph.D. to conduct research and develop Extension programs in soil fertility under irrigated conditions at Prosser, Wash. Salary is open; application review begins 1 November 1981. Submit résumé, statement of career interests, academic transcripts, and names of three references to: **Dr. J. C. Engibous, Chairman, Department of Agronomy and Soils, Washington State University, Pullman, Wash. 99164,** or **Dr. Wayne Bath, Associate Director, Cooperative Extension, Washington State University, Pullman, Wash. 99164.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CHAIRMAN, DEPARTMENT OF PEDIATRICS AND PEDIATRICIAN-IN-CHIEF

Wayne State University School of Medicine and the Children's Hospital of Michigan are seeking applicants for this position, which involves leadership of a department with important service, teaching, and research activities, and direction of a large, diverse clinical program in a major pediatrics referral center. Candidates should have demonstrated excellence in directing patient care programs as well as in teaching and should have an outstanding record of scholarly achievement. Apply by sending curriculum vitae by 31 October 1981 to:

Bernard H. Marks, M.D.
Chairman, Department of Pharmacology
Wayne State University School of Medicine
540 East Canfield Avenue, Room 6374
Detroit, Michigan 48201

We are an Equal Opportunity/Affirmative Action Employer.

CHAIRMAN, DEPARTMENT OF EPIDEMIOLOGY AND PUBLIC HEALTH

The Yale University School of Medicine invites applications and nominations for the position of **professor and chairman** of the Department of Epidemiology and Public Health. Although it is organizationally a part of the School of Medicine, this department is an accredited School of Public Health. Candidate must be a nationally recognized leader in a field relating to epidemiology or public health and have proven ability as a scholar, teacher, and administrator. Appointment is to be effective in 1982.

Applications should be submitted prior to November 1981. *Yale University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority group members are encouraged to apply.*

Curriculum vitae and bibliography should be sent to the chairman of the Search Committee: **Dr. Joseph B. Warshaw, Department of Pediatrics, Yale University School of Medicine, 333 Cedar Street, P.O. Box 3333, New Haven, Connecticut 06510.**

CHAIRMAN, Department of Chemistry The Ohio State University

Applications are invited from men and women with demonstrated administrative and academic leadership skills for the **chairmanship** of this strong department. The position will be open in July 1982. The Ohio State University (OSU) is a large comprehensive university. The Chemistry Department, with 40 faculty, has 240 graduate and 60 postdoctoral students, and has extensive research programs in most conventional areas of the subject. Applicants, who must have established research credentials in some branch of chemistry, should write to: **Dr. Leo Paquette, Chairman Search Committee, Department of Chemistry, The Ohio State University, Columbus, Ohio 43210** (telephone: 614-422-2520), giving the names of three or more referees. Applications should be received by 31 October 1981 but screening of candidates will begin immediately. *OSU is an Affirmative Action/Equal Opportunity Employer.*

DIRECTOR, CENTER FOR CHICANO STUDIES University of California, Santa Barbara (UCSB)

The Center is one of a number of Organized Research Units situated on the UCSB campus. The principal objective of the Center is to conduct interdisciplinary research on the history and contemporary condition of the Chicano community. A search is being made for a director to assume duties in fall 1982. Candidates must have experience in administration, fund-raising, and in developing and supervising research projects. They should have a Ph.D. as well as demonstrated excellence in both teaching and research. Appointment will be made at the tenure level of associate professor or full professor; salary and rank dependent on qualifications. Candidate must have expertise in an academic area which will qualify him/her for a joint appointment in an appropriate academic department. Applicants should send curriculum vitae and at least three letters of recommendation by 30 October 1981 to: **Dr. David Brokensha, Chairperson, Search and Screening Committee, Social Process Research Institute, University of California, Santa Barbara, Calif. 93106.** *The University of California is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

CHAIRPERSON DEPARTMENT OF ZOOLOGY AND PHYSIOLOGY LOUISIANA STATE UNIVERSITY

Louisiana State University (LSU) invites applications and nominations for the position of **chairperson** of the Department of Zoology and Physiology. The department, consisting of 22 faculty positions and 60 graduate students, has Ph.D. programs in zoology and physiology. The new chairperson will aid in developing the future direction of the department with new faculty appointments. The candidate must have a distinguished record of scholarly activity, administrative leadership, excellence in teaching, and the ability to interact effectively with faculty and students. An active research program in some area of zoology with demonstrated ability to generate extramural support is expected.

The salary is commensurate with qualifications. The appointment may become effective for 1982-1983. Candidates should submit an application and curriculum vitae, including a list of referees. Preference will be given to applications received by 31 October 1981. Applications and nominations should be sent to: **Chairman, Search Committee, Department of Zoology and Physiology, Life Sciences Building, Louisiana State University, Baton Rouge, Louisiana 70803-1725.** *LSU is an Equal Opportunity/Affirmative Action Employer.*

CLIMATE DYNAMICS AND FISHERIES ECOLOGY

The Cooperative Institute for Marine and Atmospheric Studies (CIMAS), a joint venture between the University of Miami and the National Oceanic and Atmospheric Administration (NOAA), offers research opportunities in cooperation with researchers at the University's School of Marine and Atmospheric Science, and at the NOAA Atlantic Oceanographic and Meteorological Laboratories and Southeast Fisheries Center.

CIMAS is currently seeking to develop a core group of personnel concerned with the observation and modeling of oceanic transients related to climate variability, and with the mechanisms whereby physical process fluctuations may influence tropical and subtropical fisheries ecology in reef and pelagic environments. Inquiries are welcome from persons interested in any aspect of these two focal areas who have background which qualifies them to function as independent investigators or effective members of research teams. Employment would be on annual renewable terms as research associates at the University of Miami. *An Equal Opportunity Employer.*

Inquiries should be addressed to: **The Director, CIMAS, 4600 Rickenbacker Causeway, Miami, Florida 33149.** Telephone: 305-350-7385.

FACULTY POSITIONS IN BIOCHEMISTRY University of Illinois, Urbana-Champaign

The Department of Biochemistry at the University of Illinois at Urbana-Champaign invites applications for two tenure-track positions. Candidates should have demonstrated excellence in research and be prepared to establish an active research program. A commitment to excellence in undergraduate and graduate education is also an important prerequisite for consideration. A Ph.D. in biochemistry or a related area is required. Rank and salary are dependent upon the qualifications of the candidate. For full consideration, candidates should submit curriculum vitae, including a brief summary of their research interests, and three letters of reference by 1 January 1982 to:

Biochemistry Search Committee
Department of Biochemistry
University of Illinois
1209 West California
Urbana, Illinois 61801

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

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

POSITIONS OPEN

CLINICAL CHEMISTRY AND TOXICOLOGY CLINICAL LABORATORIES UNIVERSITY OF VIRGINIA MEDICAL CENTER CHARLOTTESVILLE, VIRGINIA

Applications are invited for a faculty position in the Clinical Chemistry and Toxicology Laboratory of the Department of Pathology of the University of Virginia School of Medicine. Responsibilities will include a role in service, educational, and research programs. Service activities include supervision of the toxicology section of the Clinical Chemistry Laboratory. Experience in therapeutic drug monitoring and toxicology will be an advantage. Interested individuals should send curriculum vitae to: Michael R. Wills, M.D., Ph.D., Director of Clinical Laboratories, University of Virginia Medical Center, Department of Pathology, Box 168, Charlottesville, Virginia 22908. An Equal Opportunity/Affirmative Action Employer.

Dean, School of Allied Health University of Kansas College of Health Sciences and Hospital

Applications are being accepted for the position of DEAN, School of Allied Health, University of Kansas College of Health Sciences and Hospital. The candidates must have the M.D., Ph.D., or equivalent doctoral degree to be considered. In addition to the degree requirements, candidates must have demonstrated administrative ability and experience, a record of sustained scholarly research and teaching, and evidence of a long-term commitment to the health sciences. Preference will be given to those candidates with educational experience in allied health fields. Deadline for accepting applications is 15 November 1981. Send curriculum vitae and letters of reference to: Stanley R. Nelson, M.D., Department of Anatomy, University of Kansas College of Health Sciences and Hospital, 39th and Rainbow, Kansas City, Kansas 66103.

An Affirmative Action/Equal Opportunity Employer

DIRECTOR OF PHARMACY PROGRAM NORTHEASTERN UNIVERSITY

Position available for chief academic officer for undergraduate and graduate programs. Reports to dean of College of Pharmacy and Allied Health Professions. Qualifications: (i) doctorate (Ph.D. or Pharm.D.) in appropriate discipline, (ii) demonstrated administrative competence, (iii) familiarity with academic, professional, regulatory, and scholarly activities influencing academic programs in pharmacy, (iv) demonstrated research ability, (v) expertise in pharmaceuticals, biopharmaceutics, or pharmacokinetics is highly desirable, and (vi) eligibility for licensure as a pharmacist is desirable.

Salary commensurate with qualifications.

Nominations, inquiries, and résumés should be sent by 1 December 1981 to:

Norman Boisse, Ph.D.
Chairman, Search Committee
College of Pharmacy and Allied Health Professions
211 Mugar Hall
Northeastern University
360 Huntington Avenue
Boston, Massachusetts 02115

Northeastern University is an Equal Opportunity/Affirmative Action/Title IX Employer.

Brown University, Division of Biology and Medicine, is seeking an **EXPERIMENTAL PATHOLOGIST** for a tenure-track position at the assistant professor level. The successful candidate is expected to give a series of lectures in the general pathology course for medical students and to take the responsibility for a course in pathology for nonmedical students. Candidates should be prepared to establish an independent research program in experimental pathology involving the study of pathogenesis of disease. Preference will be given to candidates with training and research interests in experimental carcinogenesis or immunopathology. Applicants with other areas of expertise will be considered if their field makes possible interaction with existing research groups on campus and/or in the affiliated hospitals. The position requires an M.D. or Ph.D. degree and a minimum of 2 years of postdoctoral training in experimental pathology, preferably in the areas of interest mentioned above. Please send curriculum vitae, a description of career objectives and research plans, and the names of three references by 10 November 1981 to: Dr. Nelson Fausto, Chairperson of Search Committee, Box G, Brown University, Providence, R.I. 02912. An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

DEAN. The College of Veterinary Medicine, University of Missouri, Columbia, invites applications and nominations for the position of dean. The College is committed to excellence in professional and graduate training, agricultural, companion animal, and biomedical research and service. Candidate must possess a D.V.M. or equivalent degree and be a facilitator of multidisciplinary activities within the University. Leadership capability is of primary importance. An advanced degree and/or Board-certification are desirable. Correspondence should consist of curriculum vitae, including academic training, teaching and administrative experience, and the names of three references. The closing date for applications is 31 December 1981 or until a suitable candidate is identified. Send applications to: Dr. C. A. Carson, Chairman, Search Committee, 104 Connaway Hall, College of Veterinary Medicine, University of Missouri, Columbia, Missouri 65211.

The University of Missouri is an Equal Opportunity/Affirmative Action Employer and encourages applications from members of minority groups and women.

POSITION AVAILABLE FOR ELECTRON MICROSCOPIST-HISTOLOGIST

A position is available for a **senior technician** to supervise a new electron microscope facility and to aid in Student Histology Laboratories. Experience in histology and transmission and scanning electron microscopy is desirable. Applicants should also be able to perform routine maintenance procedures on electron microscopes (for example, filament changing) and to carry out routine sample preparation and dark room techniques. Some experience with freeze fracture techniques is also desirable, but not essential. Opportunity will be available for working on a basic cell biological research project. Please include salary history and send résumé to: Connie Leahy, Personnel Office, Room 616, 339 East Chicago Avenue, Chicago, Ill. 60611. Northwestern University is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.

The Department of Chemistry at Purdue University solicits applications for a **FACULTY POSITION** in any area of **ANALYTICAL CHEMISTRY**, effective August 1982. Applicants will be considered at any professorial rank. Minimum requirements include a Ph.D. in chemistry and exceptional promise in research and teaching at the undergraduate and graduate levels. Applicants for more senior ranks must have demonstrated distinguished research and teaching abilities. Curriculum vitae, including undergraduate and graduate transcripts for applicants at the assistant professor level, a summary of planned research, and three letters of recommendation should be sent by 1 December 1981 to: Professor Dale W. Margerum, Head, Department of Chemistry, Purdue University, West Lafayette, Indiana 47907. Purdue is an Equal Opportunity/Affirmative Action Employer.

SIX FACULTY POSITIONS are available for the 1982-1983 academic year. Applications will be considered for all academic levels. The successful applicants will be chosen from among:

**EUKARYOTIC GENETICS
EUKARYOTIC CELL BIOLOGY
NEUROBIOLOGY
ENTOMOLOGY
VERTEBRATE POPULATION BIOLOGY
EVOLUTIONARY BIOLOGY**

or outstanding candidates in related areas. Coordinated applications are encouraged. Clear designation of position desired will be appreciated. Successful candidates will be expected to have demonstrated commitment to quality teaching and a vigorous, independent research program. Please submit curriculum vitae (including biographical data), short statement of research objectives, names of at least five referees, and selected reprints to: Clark Hubbs, Department of Zoology, University of Texas at Austin, Austin, Texas 78712, before 1 November 1981.

FACULTY POSITION. Assistant professor. Required to teach medical microbiology, virology, and molecular genetics to medical and graduate students and to maintain a vigorous research program. Salary dependent on experience and qualifications. Send curriculum vitae and three recommendations by 1 November 1981 to: Dr. Fred Rapp, Chairman, Department of Microbiology, The Milton S. Hershey Medical Center, The Pennsylvania State University, Hershey, Pa. 17033. An Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applicants are solicited for **FACULTY POSITIONS** in the following departments:

MEDICINE—(number 316) **Associate professor/professor.** Participating member of the Pulmonary Disease and Critical Care Section of the Department of Medicine. General ward and intensive care attending. Serve on consultation service and bronchoscopy service in the Pulmonary Disease Section. Must have experience in clinical and/or basic research. Closing date: 1 November 1981.

OTORHINOLARYNGOLOGY—(number 305) **neuroscientist in otolaryngology, assistant professor.** Participate in ongoing basic science education activity of the department for medical students and residents. Consult with members of the department in critical literature review, research design and development of improved patient care methods. Conduct independent and collaborative research. Compete for federal and private funds. Ph.D. in neurosciences and postdoctoral experience in auditory or vestibular systems.

PATHOLOGY—(number 319) **Associate professor.** Direct all neuropathology teaching and services on University of Oklahoma Health Sciences Center Campus. M.D. or equivalent. Certified in anatomic or neuropathology by the American Board of Pathology.

RADIOLOGICAL SCIENCES—(number 314) **Assistant professor.** Duties include teaching in the academic unit and service in an active radiation therapy treatment facility. Must have 4 years of postdoctoral training in radiation therapy and should be Board-certified or Board-eligible by the American Board of Radiology.

Applicants should send curriculum vitae, identifying vacancy number for which they are applying, to: O. C. Coleman, Assistant Dean, College of Medicine, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190. We are an Equal Opportunity Employer.

SCIENTISTS —PH.D.

ELI LILLY AND COMPANY, a world leader in pharmaceutical and agricultural research, is seeking two Ph.D.'s or Ph.D. candidates for the Biochemical Development Division.

Molecular Geneticist

- Ph.D. in Molecular Biology or Biochemistry
- Experience with lower eukaryotic organisms and recombinant DNA technology

Fermentation Microbiologist

- Ph.D. in Microbiology or Biochemistry
- Experience in microbial metabolism and physiology; antibiotic fermentation development from flask to pilot plant

These positions will be involved with the application of current biotechnology to antibiotic and other fermentation processes. Relevant postdoctoral or industrial experience will be an asset. Eli Lilly and Company offers an excellent compensation program and opportunities for professional growth. Qualified individuals should send their résumé in confidence to:

Mr. J. J. Komro, Personnel
Eli Lilly and Company
307 East McCarty Street
Indianapolis, Indiana 46285

Lilly

An Equal Opportunity Employer M/F

POSITIONS OPEN

FACULTY POSITIONS IN CELL BIOLOGY

Applications are invited for several tenure-track positions in the newly reorganized Department of Cell Biology and Anatomy at the Northwestern University Medical and Dental Schools. These positions are for assistant professors and, in exceptional cases, for associate professors. Applicants must have a Ph.D., M.D., or D.D.S. degree with research experience in cell biology, molecular biology, structural biology, biochemistry, or related areas. Applicants should be able to demonstrate excellence or the potential for excellence in their respective fields. Successful applicants will be expected to carry on vigorous research programs and to participate in the teaching of graduate, medical, and dental students. Send complete curriculum vitae, brief description of previous and future research and teaching interests (three to four pages), and recommendations from at least three referees by 30 October 1981 to: **Dr. Robert D. Goldman, Chairman, Department of Cell Biology and Anatomy, Northwestern University Medical and Dental Schools, 303 East Chicago Avenue, Chicago, Illinois 60611. Northwestern University is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.**

FACULTY POSITIONS

Two tenure-track appointments beginning in September 1982. One opening is in the area of **BIOORGANIC** chemistry. For the second position we seek applicants with an ability to bring new **INSTRUMENTAL** techniques to bear on interesting chemical, biochemical, or surface phenomena. Postdoctoral experience desirable. Applicants are expected to be capable of organizing and sustaining a vigorous research program of the highest quality. Send résumé, a description of research goals, and three letters of recommendation before 1 November 1981 to: **Dr. Jeong-long Lin, Chairman, Department of Chemistry, Boston College, Chestnut Hill, Mass. 02167. Boston College is an Affirmative Action/Equal Opportunity Employer.**

FACULTY POSITIONS—BIOCHEMISTRY

Tenure-track positions at a level to be determined by qualifications are open in the Biochemistry Department, School of Medicine, at the University of North Carolina at Chapel Hill. We seek to establish expertise in any of the following research areas: cell surfaces, cell surface interactions and/or membrane biosynthesis; culture, genetics and/or differentiation of eukaryote cells; use of recombinant DNA methods in eukaryote molecular genetics; and neurochemistry. Excellence in teaching and a desire to teach are expected. Send curriculum vitae to: **Dr. Mary Ellen Jones, Chair, Biochemistry Department, University of North Carolina, Chapel Hill, N.C. 27514. We are keenly interested in attracting outstanding women and/or minority scientists to this department. Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITION IN ANATOMY

Full-time faculty position is available in the Department of Anatomy beginning in fall 1981. Principal responsibilities include lectures and laboratories in gross anatomy, histology, and embryology. Applicants must hold the Ph.D. or master's degree in the specific discipline and have a strong commitment to teaching. Send curriculum vitae and names of three references by 20 September 1981 to:

**Director of Basic Science
Cleveland Chiropractic College
6401 Rockhill Road
Kansas City, Missouri 64131**

HUMAN CYTOGENETIC TECHNOLOGISTS

The Baltimore Cancer Research Program has two positions available immediately in its new cytogenetics laboratory with primary emphasis on the analysis of chromosome abnormalities in leukemia. Applicants must be familiar with chromosome banding and tissue culture techniques. A B.S. or M.S. degree with a minimum of 1 year of experience is required. Excellent salary and fringe benefits. Send résumé to:

**Dr. Joseph R. Testa, Chief
Cytogenetics Unit
Baltimore Cancer Research Program
Howard Hall Tower, Room 9-031
655 West Baltimore Street
Baltimore, Maryland 21201
Telephone: 301-528-7826**

POSITIONS OPEN

CLEMSON UNIVERSITY, FACULTY POSITION IN BIOCHEMISTRY. The Department of Biochemistry invites applications and nominations for a tenure-track faculty position at the level of assistant professor, beginning as soon as 1 January 1982, but no later than 15 August 1982. Responsibilities will include participation in the department's undergraduate and graduate teaching programs and the development of a vigorous, independent research program. An individual with expertise in either nucleic acid biochemistry or enzymology is preferred, but all well-qualified individuals in any area of biochemistry will be considered. Applicants must hold a doctoral degree and preferably should have postdoctoral experience. Applicants should submit curriculum vitae, publications list, and a brief description of future research plans, and should have at least three letters of recommendation sent not later than 15 October 1981 to: **Dr. J. K. Zimmerman, Department of Biochemistry, Clemson University, Clemson, S.C. 29631. Clemson University is an Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITION ANALYTICAL CHEMISTRY UNIVERSITY OF MINNESOTA FALL 1982

A tenure-track assistant professorship in analytical chemistry is available in the Department of Chemistry at the University of Minnesota, Minneapolis, as of September 1982 or any time during the 1982-1983 academic year. Areas of research should preferably complement those represented by the present faculty. Exceptionally well-qualified applicants may be considered for an appointment at an advanced rank. Undergraduate and graduate transcripts, curriculum vitae (including a list of publications), three letters of recommendation, and, of particular importance, a detailed description of proposed research should be received no later than 15 November 1981. Send application material to: **Professor Harold S. Swoford, Jr., Chairman, Department of Chemistry, University of Minnesota, Minneapolis, Minn. 55455. The University of Minnesota is an Equal Opportunity/Affirmative Action Employer.**

FOOD SCIENCE/TOXICOLOGY. Assistant professor; nontenure-track; 100 percent research; minimum 1-year appointment. Ph.D. required; HPLC and LSC experience and interest in rat behavior and brain/liver biochemistry in response to defined food chemical challenge. Send résumé and three letters of reference prior to 18 September 1981 to: **Department of Food Science, Attention: Dr. P. A. Lachance, Rutgers University, P.O. Box 231, New Brunswick, N.J. 08903. An Equal Opportunity/Affirmative Action Employer.**

MICROBIOLOGY. Permanent, full-time teaching position at assistant/associate professor level. Ph.D. required. Salary based on credentials. Available immediately. Send résumé, transcripts, and three letters of recommendation as soon as possible to: **Academic Dean, Sherman College of Straight Chiropractic, Box 1452, Spartanburg, S.C. 29304. Affirmative Action/Equal Opportunity Employer.**

NEUROSCIENTIST with research interests in sensory or motor systems in vertebrates. Funds available for initial salary and laboratory support. Successful candidate expected to establish extramural funding base. Send curriculum vitae, description of program, and names of three references to: **Chairman, Search Committee, Neurological Sciences Institute of Good Samaritan Hospital & Medical Center, 1120 Northwest 20 Avenue, Portland, Oregon 97209.**

University of Hawaii, Pacific Biomedical Research Center, Pesticide Hazard Assessment Project, seeks a **PESTICIDE RESIDUE CHEMIST** (assistant researcher level, assistant professor equivalent, nontenure-track). Applicants should have Ph.D. in chemistry or biochemistry, and pesticide residue analysis and laboratory management experience is desirable. Responsibilities: manage and direct residue laboratory programs; initiate independent research activities; collaborate in developing and writing research proposals. Appointment contingent on availability of grant funds; renewable annually. Send application, résumé, and names of three references to: **Dr. Leland H. Parks, Project Director, Pesticide Hazard Assessment Project, 1997 East West Road, Honolulu, Hawaii 96822. Telephone: 808-955-5184. Closing date: 18 September 1981. Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

HEAD, DEPARTMENT OF PHARMACOLOGY AND TOXICOLOGY

The University of Arizona, College of Pharmacy, invites applications for head of the Department of Pharmacology and Toxicology. Candidates should be senior level scientists with experience in teaching and research in pharmacology and/or toxicology. They should have an active research program and be dedicated to furthering the strong education and research programs of the department. The department consists of ten faculty members with research interests in neuropharmacology, behavioral pharmacology, and toxicology. The educational responsibilities of the department include the pharmacology and toxicology courses for students in the Colleges of Pharmacy and Nursing and the Interdisciplinary Toxicology Program. The faculty is also actively involved in the graduate training programs in pharmacology and toxicology leading to the M.S. and Ph.D. degrees. The College of Pharmacy is a component of the Arizona Health Sciences Center which includes the Colleges of Medicine, Nursing, the School of Health Related Professions, and University Hospital. In 1982 the College of Pharmacy will be moving into its new building at the Health Sciences Center. Submit curriculum vitae and references by 1 December 1981 to: **Jack R. Cole, Ph.D., Dean, College of Pharmacy, The University of Arizona, Tucson, Arizona 85721. An Equal Opportunity/Affirmative Action Employer.**

IMMUNOLOGIST

The Department of Medical Microbiology, College of Veterinary Medicine, University of Georgia, invites applications now for a position of assistant or associate professor. Responsibilities include teaching veterinary and graduate immunology courses, development of a research program in the immunologic or immunochemical aspects of animal diseases, preferably diseases of food producing animals, and participation in the college service program. The person selected will be expected to develop cooperative projects within the department as well as with investigators in other departments. *Women and minority candidates are encouraged to apply.* Qualifications include D.V.M. and Ph.D. or equivalent degrees or Ph.D. and postdoctoral training in immunology or immunochemistry. Closing date for applications is 1 December 1981. Submit detailed curriculum vitae, copies of recent publications, statement of professional goals, and names of three references to: **Dr. Donald Dawe, Department of Medical Microbiology, College of Veterinary Medicine, University of Georgia, Athens, Georgia 30602. An Equal Opportunity/Affirmative Action Employer.**

MARINE STUDIES

The Institute for Marine Studies at the University of Washington is seeking a tenure-track **assistant or associate professor of marine studies**. Primary responsibilities will be research and teaching of graduate students in a program that awards a master of marine affairs degree. The Institute is multidisciplinary and invites applications from persons of diverse disciplinary backgrounds. Selection among applicants will be guided by the major curriculum needs of the Institute which include: coordinating the teaching of a graduate-level introductory course in marine affairs; marine transportation; national ocean policy and federal legislation; entrepreneurship/private policy in marine industries; development and management of nonliving marine resources; and military uses of the ocean.

Candidates should send curriculum vitae and the names of three references to:

**Professor Edward Miles
Chairman, Search Committee
Institute for Marine Studies HA-35
University of Washington
Seattle, Wash. 98105**

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

MOLECULAR BIOLOGY

The Department of Biochemistry and the Rosenstiel Center of Brandeis University invite applications for a tenure-track position at the assistant or associate professor level. The criterion for selection will largely rest on excellence of research, both accomplished and planned. Excellence in teaching is also expected. Send curriculum vitae and a short description of accomplished and planned research and arrange for three letters of reference to be sent to: **Dr. Pieter C. Wensink, Rosenstiel Center, Brandeis University, Waltham, Mass. 02254. Deadline for applications is 5 October 1981. We are an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL BIOCHEMIST/ MICROBIOLOGIST

American Cyanamid's Medical Research Division has a challenging assignment immediately available in our Infectious Disease Research Section.

As a Postdoctoral Biochemist/Microbiologist, you will be responsible for research on the isolation and characterization of outer membrane protein of gram negative bacteria and be part of a team working on purified bacterial vaccines.

Applicants should have previous experience in the study of bacterial membranes and a strong background in biochemistry. Our location provides an excellent opportunity for you to combine your interests in recreational and cultural activities.

Please send resume, to:

Ms. Sandra L. Johnson,
Professional Employment Coordinator

American Cyanamid Company

Lederle Laboratories
Pearl River, New York 10965

An Equal Opportunity Employer m/f

AUSTRALIAN BUREAU OF FLORA AND FAUNA

Position: **DIRECTOR.**

Salary: A\$34,031 to A\$37,220 per annum.

The Bureau of Flora and Fauna is responsible for the Australian Biological Resources Study (ABRS), a collaborative program to collect, describe, and document Australia's flora and fauna. The program includes writing a new Flora of Australia, compilation of an Australian Fauna Directory and Australian Biotaxonomic Information System, and oversight of the Grant-Funded ABRS Participating Program.

The Bureau is located in Canberra, Australia's capital city. Canberra is a modern, fully planned city with a population of about 230,000, located 300 kilometers southwest of Sydney and about 150 kilometers from the East Coast.

The director is an officer of the Department of Home Affairs and Environment and, ex-officio, a Member of the ABRS Advisory Committee to the Minister for Home Affairs and Environment.

Applicants should possess a higher degree and extensive research experience in a relevant field of biological sciences (with considerable emphasis on taxonomy), together with proven administration skills of a high order. Strong motivation and output orientation are essential.

The position is offered either as a permanent appointment to the Australian Public Service at a salary of A\$34,031 per annum, or as a fixed term engagement of up to 5 years (renegotiable) with a salary of between A\$34,031 and \$37,220 per annum, depending on qualifications and experience. To be eligible for permanent appointment, applicants must be British subjects.

Conditions of employment include 4 weeks annual leave with bonus payment, and cumulative paid sick leave. Fares and removal expenses to take up duty will be paid, and a short-term accommodation allowance may also be available. A permanent appointee will also be eligible for 3-month-long service leave after 10 years of service and will participate in a contributory superannuation scheme.

Applications, stating full details of personal history, experience, and current address, should be forwarded to the following address as early as possible:

The Secretary
Department of Home Affairs and Environment
P.O. Box 1252
Canberra City, ACT 2601
Australia

Closing date: 2 October 1981.

MANAGER SPECIAL STUDIES SECTION

An outstanding opportunity exists at Stauffer's new Environmental Health Center for an established scientist with extensive experience in molecular toxicology. Responsibilities of the successful candidate will include managing ongoing programs in chemical metabolism/pharmacokinetics, elucidation of mechanisms of toxicity, reproductive biology and carcinogenesis, and expanding efforts in "explanatory" toxicology.

This position offers excellent opportunities for collaborative programs in the pathogenesis of toxic effects including correlation of altered morphology with biochemical alterations and reactive metabolites, and mechanisms in carcinogenesis. Successful candidate should have a minimum of 8 years appropriate experience.

We offer a strong professional environment, outstanding facilities, competitive salary and comprehensive benefits. The Stauffer Environmental Health Center is adjacent to the University of Connecticut Health Center, in one of the state's most attractive, semi-rural towns. For prompt, confidential consideration, please forward your resume with salary history and a brief description of your experience to:

Mrs. P. Frutchey
Stauffer Chemical Company
400 Farmington Avenue
Farmington, Conn. 06032



An Equal Opportunity Employer

MOLECULAR BIOLOGIST/ RECOMBINANT DNA

Diamond Shamrock's expanding life sciences program has created an opening for a PhD Molecular Biologist with 2 to 5 years post-doctoral experience in recombinant DNA. This technology leadership position requires the individual to have demonstrated technical capabilities in DNA methodology including gene cloning and nucleic acid biochemistry. The ideal candidate will also be experienced in peptide/protein isolation.

Diamond Shamrock is a Fortune 150 company with businesses in energy, chemicals and the life sciences. Our modern Corporate Research Center is located in a beautiful rural setting 30 miles east of Cleveland in an area which offers a variety of living and recreational opportunities. We offer an excellent salary and benefits package with good opportunities for career growth. Please send resume and salary requirements to:



Diamond Shamrock

Attn: James M. Lombardi
Diamond Shamrock Corporation
T. R. Evans Research Center
P. O. Box 348
Painesville, Ohio 44077

An Equal Opportunity Employer M/F/H/V

POSITIONS OPEN

PHARMACOLOGY CHAIRPERSON AND FACULTY urgently needed. Teaching and administrative practice essentials. Research encouraged. Salary according to experience. Newly created accredited school. Please send résumé and names of three references to: **Chairman, Department of Pharmacology, Ponce School of Medicine, Box 7004, Ponce, P.R. 00732.** An Equal Opportunity Employer.

PHARMACOLOGIST. Emory University has a position open at the assistant professor or associate professor rank. Candidates must have doctoral or equivalent degree; for assistant professor rank, at least 1 year of postdoctoral research experience and potential to develop an independent research program; for associate professor rank, five or more years of experience in teaching and research in pharmacology or related discipline, evidence of excellent independent research, and current grant support. Strong commitment to teaching and research is essential. Preferred research interests are cardiovascular-renal system, autonomic nervous system, receptors, cellular and molecular pharmacology, or autacoids. Letters of application, curriculum vitae, a brief description of career goals and proposed research program, and three letters of recommendation must be received by 31 October 1981. Address to: **Dr. Neil C. Moran, Chairman, Department of Pharmacology, Emory University, Atlanta, Ga. 30322.**

An Affirmative Action/Equal Opportunity Employer

We have an available position on our training grant with a stipend of \$13,380 for a **Ph.D. at the postgraduate level.** Should have background in lipid biochemistry (bile acid cholesterol) and/or lipoprotein metabolism. Position available now. Apply to: **Z. R. Vlahcevic, M.D., Division of Gastroenterology, VCU/ MCV Box 711, Richmond, Va. 23298.** Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Employer.

BERKELEY PHYSICS

Pending budgetary approval the Department of Physics of the University of California, Berkeley, expects during the next 2 years to make several appointments at the assistant professor level. Preferred areas of theoretical and experimental research are particle physics, condensed matter physics, statistical physics, astrophysics, atomic and plasma physics, and nuclear physics. For exceptional candidates there is a possibility of a research fellowship for 1 or 2 years preceding the assumption of the regular duties of an assistant professor.

Applicants should write, as soon as possible, and definitely before 15 October 1981, to: **Chairman, Department of Physics, University of California, Berkeley, Calif. 94720,** giving curriculum vitae, publications list, and references. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

PHYSIOLOGICAL PSYCHOLOGIST. Princeton University. We anticipate a position at the assistant professor level for fall 1982. A focus on the neural bases of behavior is desired, preferably with an expertise in either neuroanatomy or neurochemistry. Position involves research and teaching in Psychology Department and Neuroscience Program. Send curriculum vitae and three letters of recommendation to: **Chair, Physiological Search Committee, Department of Psychology, Princeton University, Princeton, N.J. 08544.** Princeton University is an Equal Opportunity Employer with a vigorous Affirmative Action program.

POSTDOCTORAL FELLOW. Immediate opening for a Ph.D. in biochemistry for work on human aldehyde dehydrogenases, purification, characterization, and subcellular distribution. Experience in enzyme purification, sequencing and/or immunochemistry is an advantage. Salary: \$13,500 to \$15,000. Send curriculum vitae and three references to: **Dr. Regina Pietruszko, Center of Alcohol Studies, Rutgers University, New Brunswick, N.J. 08903.** An Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL LIPID BIOCHEMIST. Unique opportunity to study lipid requirements and metabolism of normal human cells grown in defined media. Absence of undefined additives allows precise control over lipid content of medium. Several cell types already under study require externally supplied lipids for growth, including phospholipids, cholesterol, and sphingomyelin. Send résumé to: **Dr. Richard G. Ham, Campus Box 347, University of Colorado, Boulder, Colo. 80309.** The University of Colorado is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

PLANT ECOLOGIST. Assistant professor, tenure-track. Starting date: September 1982. Ph.D. required. Strong interest in undergraduate teaching, broad training in biology with specialization in plant ecology, research emphasis in angiosperms, and skill in computer modeling and analysis desirable. Send curriculum vitae, brief statement of research interests and plans, transcript, and three letters of recommendation to: **Search Committee, Department of Biological Sciences, Mount Holyoke College, South Hadley, Mass. 01075.** Closing date for applications is 9 October 1981. An Equal Opportunity/Affirmative Action Employer.

PLANT RESEARCH SCIENTISTS

GENOCO RESEARCH AND DEVELOPMENT, a rapidly growing biomass energy technology company, is recruiting personnel for a new research facility in San Diego, California. We seek postdoctoral scientists with expertise in one or more of the following areas:

PLANT BREEDING—Selection and development of superior germplasm from wild populations of *Euphorbiaceae* and *Asclepiadaceae*. Establishment of laboratory.

PLANT CELL AND TISSUE CULTURE—Manipulation of *Euphorbiaceae* and *Asclepiadaceae* cells in culture and regeneration of plants. Manipulation of plant protoplasts. Establishment of laboratory.

PLANT CHEMISTRY—Isolation and characterization of potentially useful metabolites (terpenoids, waxes, unsaponifiable lipids). Development of quantitative and qualitative assays to screen populations for these constituents. Establishment of laboratory.

PEST MANAGEMENT—Identification of pests of *Euphorbiaceae* and *Asclepiadaceae* (weeds, insects and pathogens). Development of chemical, cultural, and biological methods to control identified pests. Establishment of laboratory.

Positions are available in January 1982. Starting salaries: \$35,000 per year, with full benefits. Submit résumé and reprints of pertinent publications, in confidence, to:

Box 228, SCIENCE

POSTDOCTORAL ASSOCIATES (two) to carry out research on the regulation of gene transcription by insulin in mammalian liver. Salary commensurate with ability. Send résumé and letters of recommendation to: **Dr. John W. Porter, Department of Physiological Chemistry, 589 Medical Science Building, University of Wisconsin, Madison, Wisconsin 53706.** Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION in oncology available immediately in NCI-supported training program. Multidisciplinary research opportunities in the etiology, diagnosis, and treatment of cancer. Candidates will be selected from recent Ph.D.'s with training in basic medical sciences or recent M.D.'s who wish to develop a career in cancer research. Trainees must be U.S. citizens or permanent residents. Candidates may apply by submitting their curriculum vitae and a letter indicating their career goals. Write to: **Dr. Sheldon Dray, Program Director, Department of Microbiology/Immunology, University of Illinois Medical Center, P.O. Box 6998, Chicago, Ill. 60680.**

POSTDOCTORAL POSITIONS—Two positions open immediately to study regulation of protein glycosylation and metabolism of dolichol derivatives during chick oviduct differentiation. Background in lipid intermediates, carbohydrate chemistry, or polyprene biosynthesis desirable but not essential. Salary negotiable depending upon experience. Send curriculum vitae and three letters of reference to: **Dr. John J. Lucas, Department of Biochemistry, State University of New York—Upstate Medical Center, Syracuse, N.Y. 13210.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION—Available for research on the chemical structure and physiological effects of a cystic fibrosis factor [*Pediatr. Res.* 15, 940 (1981)]. Ph.D. with training in enzymology and/or protein chemistry. Some background in organic chemistry desirable. Salary competitive and commensurate with experience. Send curriculum vitae and three letters of reference to: **Dr. T. E. Nelson, Department of Rehabilitation, Baylor College of Medicine-TIRR, Texas Medical Center, Houston, Texas 77030.**

POSITIONS OPEN

POSTDOCTORAL POSITION available in neuroembryology to study interactions of autonomic nerves in the developing heart. Send curriculum vitae and references to: **Dr. Margaret L. Kirby, Department of Anatomy, Medical College of Georgia, Augusta, Ga. 30912.**

An Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL POSITION—BIOCHEMISTRY/MOLECULAR BIOLOGY. A position is available immediately to study the molecular biology and biochemistry of trypanosomes as they differentiate in vitro. African trypanosomes are the causative agent of sleeping sickness. We are primarily interested in studying the biochemical changes that occur as the trypanosomes develop a cytochrome system in vitro. Previous experience in the area of mitochondrial biogenesis is desirable but not necessary. The individual must have a Ph.D. degree in biochemistry, cell or molecular biology. Recombinant DNA experiments will be performed to identify changes or control of gene expression during differentiation, and experience with this technology is preferable. Salary: \$13,000 to \$15,000. Send curriculum vitae and names of references by 1 October 1981 to: **Dr. George C. Hill, Associate Professor, Department of Pathology, Colorado State University, Fort Collins, Colorado 80523.** Telephone: 303-491-7086. An Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITIONS IN BIOCHEMISTRY AND ANATOMY OR PATHOLOGY. One biochemical position involves work on vitamin D metabolism and the other protein purification. The position in anatomy or pathology has its major focus on quantitative histology and histochemical techniques applied to studies of bone and metabolic bone disease. Other current research activities in this laboratory include cell cycle analysis, cell differentiation, immunochemistry, RIA, membrane receptor studies, monoclonal antibody development, and molecular biology. Competitive salary with full benefits and exceptional opportunity with potential for long-term employment in a well-equipped, multidisciplinary laboratory. Contact: **D. J. Baylink, M.D., Department of Medicine, Room 1501, Loma Linda University, Loma Linda, Calif. 92350.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION. Immediate opening in the research laboratories of the Division of Hematology and Oncology, Children's Hospital Medical Center, Harvard Medical School, for a Ph.D. to study red blood cell differentiation, including cell culture, analysis of globin gene expression, membrane receptor assays, protein purification and related techniques, somatic cell hybridization, and the production of polyclonal and monoclonal antibodies. Competitive salary and full benefits. Send résumé and names, addresses, and telephone numbers of three references to: **Dr. Arthur J. Sytkowski, Hematology Research, Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Mass. 02115.**

POSTDOCTORAL POSITION. To study mechanism of DNA replication in animal cells and mechanism of action of chemotherapeutic agents. Available for M.D. or Ph.D. applicant with background in molecular biology/biochemistry. Write: **M. Goulian, M-013, University of California, San Diego, La Jolla, Calif. 92093.** The University of California is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION (research associate) available as of 1 November 1981 for a Ph.D. (or equivalent) with training in immunology, particularly cellular immunology. Knowledge of protein and carbohydrate purification is desirable. Send applications before 25 September 1981 to: **Dr. Marius Teodorescu, Department of Microbiology and Immunology, University of Illinois Medical Center, P.O. Box 6998, Chicago, Ill. 60680.** The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITIONS

Two postdoctoral positions for recent Ph.D.'s now available. (i) **ELECTROPHYSIOLOGY** of nonexcitable cells. Intracellular recording experience required. (ii) **TRANS-MEMBRANE FLUXES IN CULTURED CELLS.** Interest in ion transport and experience in cell culture desired. Both persons will learn electron probe microanalysis. Résumés to: **Reinier Beeuwkes, Ph.D., Department of Physiology and Biophysics, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115.** Harvard is an Equal Opportunity/Affirmative Action Employer.

RECOMBINANT DNA RESEARCH

CORNING GLASS WORKS invites an outstanding scientist to join its expanding Biosciences Department as a member of the recombinant DNA research group.

The successful candidate should have a doctoral degree, experience in recombinant DNA research, and a significant record of scientific achievement. Experience with both DNA sequencing and synthesis is desirable.

We are located in the beautiful Finger Lakes region of upstate New York, approximately 250 miles from New York City.

We offer a pleasant working environment in addition to a competitive salary and benefits package.

Interested candidates should forward their resumes, lists of publications, reprints or preprints of pertinent publications and the names of three references, by no later than October 15, 1981 to:

Mr. Gordon R. McPherson, Manager
Personnel Administration
Research and Development Division
Corning Glass Works
Sullivan Park
Corning, New York 14831

CORNING
CORNING GLASS WORKS

An Equal Opportunity Employer

ENGINEERING PSYCHOLOGIST

**Starting salary range is \$37,871 to \$50,112 (GS-14/15)
depending on qualifications.**

The Office of Naval Research seeks a Scientific Officer to plan and manage contract Research and Development (R & D) Programs involved in improving performance of man-machine systems currently employed by the Navy and Marine Corps and development of new human factors data and principles. Specific areas of responsibility will be visual and auditory perception, human information processing and decision-making, computer-aided system control, computer-based decision aiding, human performance modeling and performance which exploits artificial intelligence concepts and techniques.

Candidates must have a Ph.D in Psychology (or equivalent) plus a record of accomplishments in the performance of R & D. Three years of progressively responsible professional experience comparable to the next lower grade in the Federal Service are required.

Interested persons should send resume or Standard Form SF-171, Personal Qualifications Statement (available at Federal Job Information Centers) by 21 September 1981 to:

OFFICE OF NAVAL RESEARCH
Code 722, Room 823
800 N. Quincy Street
Arlington, Virginia 22217

U.S. Citizenship Required

An Equal Opportunity Employer

VACANCY ANNOUNCEMENT IN THE NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The National Institutes of Health (NIH) invites nominations and applications for the position of **associate director for medical applications of research**. This is a Civil Service position in the Senior Executive Service (SES), with a salary range from \$52,247 to \$57,673 per annum, depending on qualifications (currently, salary limited to \$50,112.50). Candidates may be eligible for Physicians Comparability Pay up to \$10,000 per year. Alternately, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service. The individual selected, if not presently in the SES, must serve a 1-year probationary period.

The associate director is responsible for assisting major units of NIH in the use of appropriate methods for identification and evaluation of clinically relevant new knowledge emerging from NIH and other programs and for effective transfer of this information to the health-care community. Further information about the position, including qualifications and requirements, may be obtained by **telephoning: Sharon Posy on 301-496-6521**. Applications (Personal Qualifications Statement, SF-171) are to be sent to: **Chairman, Search Committee for Director, OMAR, National Institutes of Health, Building 1, Room 132, 9000 Rockville Pike, Bethesda, Maryland 20205**. Current curriculum vitae and bibliography must accompany all applications. *Applications from women and/or minority group members are especially solicited.*

Applications will be accepted through 31 October 1981 and must be postmarked by that date.

An Equal Opportunity Employer

STATE OF NEW YORK DEPARTMENT OF HEALTH

OVERHEAD POWER LINES PROJECT

Pre-proposals for contracts to study possible health hazards from exposure to low frequency (60Hz) electric and magnetic fields are requested in the following areas:

1. Genetic, cytogenetic, teratogenic, and reproductive studies
2. Cell and organ culture studies
3. *In vivo* animal physiology and pathophysiology
4. Animal and human neurobiology
5. Animal and human behavior
6. Multidisciplinary human studies with controlled exposure conditions
7. Epidemiology of human populations
8. Other studies relevant to health hazards

Advice on exposure facilities and dosimetry will be available. Send a pre-proposal containing a 2-5 page description of the proposed study, an approximate budget, and C.V.'s of all investigators, by 15 October 1981 to: David O. Carpenter, M.D., State of New York Department of Health, Albany, New York 12201. For further information call (518) 474-4170.

POSITIONS OPEN

POSTDOCTORAL POSITION—OLFACTION

Available immediately for NSF-funded study of olfactory chemistry using electrophysiological and biochemical techniques. Background in neuroscience preferred. Starting salary of \$16,000 for 2- to 3-year position. Send curriculum vitae, publications, and at least three letters of reference to: **Dr. Rolfe Schafer, Department of Biological Sciences, North Texas State University, Denton, Texas 76203. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately for studies of the mechanism of androgen action. Emphasis on regulatory factors, hormone-hormone interactions, and genetics using *in vivo* and *in vitro* studies. Ph.D. in biochemistry preferred but not necessary. Send curriculum vitae and names of three references to: **Dr. Leslie P. Bullock, Division of Endocrinology, Milton S. Hershey Medical Center, The Pennsylvania State University, Hershey, Pa. 17033. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE

A position is available for studies aimed at identification of germ-line specific RNA transcripts in *D. melanogaster* and *C. erythrocephala*. Techniques include DNA cloning and sequencing, cytogenetics, and tissue-specific RNA studies. Experience with *D. melanogaster* genetics preferred.

Available October 1981. Send curriculum vitae and three references to: **Dr. K. Beckingham, Department of Biochemistry, Rice University, Houston, Texas 77001.**

POSTDOCTORAL RESEARCH ASSOCIATE—Research on the metabolism and pharmacokinetics of chlorophenols in mammals. Ph.D. in organic chemistry, biochemistry, or pharmacology and previous research experience in drug metabolism and pharmacokinetics desirable. Salary: \$15,000 to \$18,000, depending on experience and qualifications. Send curriculum vitae and three letters of reference by 15 October 1981 to: **Dr. Donald R. Buhler, Department of Agricultural Chemistry, Oregon State University, Corvallis, Ore. 97331. An Affirmative Action/Equal Opportunity Employer, in compliance with Section 504 of the Rehabilitation Act of 1973.**

POSTDOCTORAL RESEARCH ASSOCIATE POSITION available immediately to study the molecular mechanism utilized by mitochondrial inner membrane proteins to transport metabolites. Special emphasis will be placed on the phosphate transport protein. Research program encompasses identification and purification of the membrane proteins, elucidation of their structure (including DNA sequencing techniques), their function in mitochondrial and artificial membranes, and their interaction with membranes during biosynthesis. Minimum salary: \$13,567 plus fringe benefits. Send curriculum vitae and two references to: **Dr. Hartmut Wohlrad, Boston Biomedical Research Institute, 20 Staniford Street, Boston, Mass. 02114. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE. Position available as soon as fall 1981 for Ph.D. in cell biology, biochemistry, or molecular biology, to join program on UV transformation of human skin cells, DNA damage and repair in these cells, and in skin *in vivo*. Experience in cell culture and/or biochemistry of mammalian cells desirable. Appointment initially for 1 year, renewable. Apply to: **Dr. Betsy M. Sutherland, Biology Department, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, New York 11973. An Equal Opportunity Employer, M/F.**

Applications are invited for a **POSTGRADUATE RESEARCHER** position available after January 1982 in the Department of Biology at the University of California, San Diego. The appointee's research will involve either biochemical and biological studies on the ciliary neurotrophic factors using *in vitro* methods or histological and biochemical studies on peripheral nerve regeneration using model regeneration chambers. Candidate is expected to have experience and/or an interest in learning tissue culture, protein biochemistry, immunocytochemistry, histology (light and EM), microsurgery/microdissection, and radiochemical techniques. Position available for up to 3 years. Salary range: \$15,936 to \$19,848 per year. Please send résumé and the names of three references by 1 November 1981 to: **Dr. Marston Manthorpe, Department of Biology M-001, University of California, San Diego, La Jolla, California 92093. The University of California, San Diego, is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH SPECIALIST—Postdoctoral position immediately available for the study of immunogenicity of separated fractions of Haemophilus influenzae ribosomes and membranes. Background in purification of ribosomal or membrane proteins is desirable. Send curriculum vitae and names of references to: **Dr. M. Lynn, c/o Personnel Department, COLLEGE OF MEDICINE AND DENTISTRY OF NEW JERSEY—New Jersey School of Osteopathic Medicine, P.O. Box 101, Piscataway, New Jersey 08854. An Equal Opportunity/Affirmative Action Employer, M/F.**

POSTDOCTORAL RESEARCH SPECIALIST—Position available immediately for a Ph.D. in biochemistry/cell biology to investigate the molecular basis of force generation in flagellar and cytoplasmic motility, particularly mitosis. Experience with techniques of protein purification, enzyme kinetic analysis, and cell fractionation preferred. Laboratory is located in the Pharmacology Department of the Rutgers Medical School on the Piscataway, New Jersey, campus. Starting salary of \$17,000 includes extensive fringe benefits. Please send curriculum vitae and names of three references to: **Dr. Stephen Penningroth, c/o Personnel Department, COLLEGE OF MEDICINE AND DENTISTRY OF NEW JERSEY—Rutgers Medical School, P.O. Box 101, Piscataway, New Jersey 08854. An Equal Opportunity/Affirmative Action Employer, M/F.**

A search is being conducted for an individual to fill an **ENDOWED PROFESSORSHIP** in the Department of Tropical Public Health.

We will consider candidates who are actively utilizing modern biological approaches to understand and combat tropical diseases, particularly those caused by parasites. Preference will be given to persons whose expertise includes the biology and biochemistry of membranes.

The person to be selected should be willing to interact with members of a multidisciplinary department which includes molecular biologists, immunologists, cell and vector biologists; be able to establish working relationships with epidemiologists and field research workers; and be interested in teaching at the graduate and postgraduate level.

Harvard University is an Equal Opportunity Employer committed to an Affirmative Action Program. Send curriculum vitae, bibliography, and three references to:

**Dr. Konrad Bloch, Chairman
Search Committee
Department of Nutrition
Harvard School of Public Health
655 Huntington Avenue
Boston, Massachusetts 02115**

RESEARCH ASSISTANT. A position is available in a laboratory studying the molecular biology of animal DNA tumor viruses, requiring performance of various biochemical, biophysical, microbiological, and cell culture procedures involved in the propagation of viruses and analysis of viral and cellular proteins and nucleic acids. Researcher will conduct research projects and be responsible for presentation of data. Also, occasional supervision of an undergraduate student's research; \$12,500. Requires a B.S. in biochemistry or molecular biology and minimum of 2 years of research experience in microbiology or biochemistry, either as a paid position or as academic training. Send résumé to: **P. J. Pierce, MESC, 301 Maple Village, Ann Arbor, Michigan 48103. Telephone: 313-761-9192.**

RESEARCH FELLOW

Position available immediately. The work involves studies of molecular biology, including cloning of insulin receptor. Salary is \$15,000 (negotiable). Please send résumé to:

**Dr. K. Itakura
Department of Molecular Genetics
CITY OF HOPE RESEARCH INSTITUTE
Duarte, California 91010
An Equal Opportunity/Affirmative Action Employer**

HOSPITAL FOR SPECIAL SURGERY CORNELL MEDICAL CENTER

Research neurophysiologist (Ph.D.) and/or postdoctoral fellow to conduct ongoing research in spinal cord monitoring during corrective spinal surgery and to develop electrophysiological techniques for intraoperative recording of evoked responses. For further information, contact: **Peter Tsairis, M.D., Director of Neurology, Hospital for Special Surgery—Cornell Medical Center, 535 East 70 Street, New York, N.Y. 10021. An Equal Opportunity Employer.**

POSITIONS OPEN

PROFESSOR

THE SALK INSTITUTE invites applications for independent research positions at the assistant professor level in the areas of differentiation, development biology, and virology related to cancer. Candidates should send curriculum vitae, summary of research interests, and names of references to:

**Search Committee
The Armand Hammer Center
for Cancer Biology
The Salk Institute
P.O. Box 85800
San Diego, Calif. 92138**

The Salk Institute is an Equal Opportunity Employer, M/F/H.

Washington State University invites applications for the position of **RADIATION SAFETY SUPERVISOR** to direct the University Radiation Safety Office in accord with state and federal regulations. An opportunity to engage in research and teaching in an area of specialization exists for suitably qualified candidates. An advanced degree in a science or engineering subject, including formal training in radiation protection plus a minimum of 4 years of professional experience are required. Eligibility for or certification by the American Board of Health Physics is desired. Salary and rank commensurate with qualifications and experience. Send résumé and names of three references to: **Professor H. W. Dodgen, Nuclear Radiation Center, Washington State University, Pullman, Wash. 99164.** Review of applications will begin 1 October 1981. Applications accepted until the position is filled. *Washington State University is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSISTANT

Moving to Cincinnati? Ongoing research program in biochemistry of blood coagulation and some complement functions. B.S. including chemistry and biology. Work experience advantageous. Salary according to qualifications. Educational opportunities. Send résumé to or contact: **Debbie Strawser, Employee Relations Department, CHILDREN'S HOSPITAL MEDICAL CENTER, Elland and Bethesda Avenues, Cincinnati, Ohio 45229; telephone: 513-559-4243. Equal Opportunity Employer, M/F.**

RESEARCH ASSOCIATE position in cellular immunology available immediately in the laboratory of Dr. Donald E. Mosier. Work involves the use of an existing panel of monoclonal antibodies FACS analysis to characterize human B lymphocyte differentiation and function. Candidates should possess a Ph.D. and/or M.D. and have prior experience in immunology. Familiarity with human lymphoid malignancies is highly desirable. Send curriculum vitae and three letters of reference to: **Mary T. Dixon, Personnel Department, THE INSTITUTE FOR CANCER RESEARCH, Fox Chase Cancer Center, 7701 Burholme Avenue, Philadelphia, Pa. 19111. Equal Opportunity/Affirmative Action Employer.**

SOIL SCIENTIST with Agricultural Research Service, U.S. Department of Agriculture, at Water Quality Management Laboratory, Durant, Oklahoma, to develop models to predict the transport of soluble and soil-bound phosphorus in runoff, primarily using soil-P reaction kinetics. This is a permanent position at the GS-12 level. For details, application directions, and forms, contact:

**Special Examining Unit (0117)
Science and Education
6505 Belcrest Road
Hyattsville, Maryland 20782
Telephone: 301-436-7315**

Completed applications must be submitted by 9 October 1981.

An Equal Opportunity/Affirmative Action Employer

RESEARCH PHYSICIST



Brown & Williamson Tobacco Corporation has an immediate need for a BS or MS Physicist with a minimum of five years' experience in process or product research. Individual will be responsible for the discovery and research of new technology related to tobacco products or processes, and must have exploratory initiative to conceive new concepts from basic material properties with the ability to reduce these to practice in the laboratory. Fundamental studies of tobacco processing and product fabrication, combined with equipment/product quality interaction and the implementation of research findings through the development of optimal equipment, are facets of this challenging assignment, which also offers project opportunities from the bench and pilot plant to factory operations.

Qualified candidates should submit a confidential resume, describing experience, to:

E. L. Donan
BROWN & WILLIAMSON
TOBACCO CORPORATION
1600 West Hill Street
Louisville, KY 40210

Equal Opportunity Employer M/F

SCIENTIST -PH.D.

☐ This company, a world leader in pharmaceutical and agricultural research, is seeking a Ph.D. or Ph.D. candidate for the Biochemical Development Division. A microbial geneticist with experience in the genetics and molecular biology of prokaryotic and lower eukaryotic organisms is required. Experience with recombinant DNA techniques and familiarity with antibiotic biosynthesis and its regulation would be desirable.

☐ This position will be involved with the application of current biotechnology to antibiotic and other fermentation processes. Relevant postdoctoral or industrial experience will be an asset. This company offers an excellent compensation program and opportunities for professional growth. Qualified individuals should send their résumé in confidence to:

Indiana State Employment Service
10 N. Senate Avenue
Indianapolis, IN 46204
Attn.: B. Anderson

Salary: \$2175

An Equal Opportunity Employer M/F

Laboratory Assistants

Excellent growth opportunities are now available with Pfizer's Microbial Genetics/Recombinant DNA group for qualified professionals.

As a member of a group dedicated to the application of new molecular genetics techniques to biomedical research, you will conduct original research experiments and participate in our large multi-disciplinary research organization. Background should include an MS or BS and relevant experience.

In addition to a stimulating professional environment, we offer an excellent salary/benefits package plus an attractive Connecticut shore location. Qualified applicants should submit resume, including summary of research accomplishments, to:
Mrs. Lorraine C. Corr, Pfizer
Central Research, Eastern
Point Road, Groton, CT 06340.



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opportunity
employer

Biochemical Pharmacologist or Biochemist



American Critical Care is a leading pharmaceutical manufacturer involved in the development of critical care drugs for cardiovascular medicine. We currently have an opening for an individual who will perform independent research on the metabolism and disposition of macromolecular carbohydrates and cardiovascular drugs.

The person we seek will have a Ph.D. in Biochemical Pharmacology or Biochemistry, with or without post-doctoral experience. Training in drug metabolism and disposition and familiarity with up-to-date analytical instrumentation are required. Interest in carbohydrate chemistry and metabolism is desirable.

As a major division of American Hospital Supply Corporation, we offer an exciting career opportunity with a worldwide leader in the health care industry, a salary commensurate with your experience and an outstanding benefit package. To be considered for this position, send your resume with salary requirements to:

Personnel Manager—Dept. BP

American Critical Care

Division of
American Hospital Supply Corporation
1600 Waukegan Road
McGaw Park IL USA 60085

We are an equal opportunity employer m/f

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☐ **Membership rates** (individual only)

☐ \$43 USA ☐ \$67 Canada, PUAS ☐ \$70 Foreign
☐ \$98 air-surface delivery via Holland

☐ **Subscriber rates**

☐ \$80 USA ☐ \$104 Canada, PUAS ☐ \$107 Foreign
☐ \$135 air-surface delivery via Holland

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MW08

POSITIONS OPEN

RESEARCH ASSOCIATES. Positions for biochemists (Ph.D.) in NCI-supported studies on the mechanisms of action of carcinogenic aromatic amines. Investigations involve collaboration with integrated, multidisciplinary group at a nonprofit research institution within the Comprehensive Cancer Center of Metropolitan Detroit. Curriculum vitae and references should be sent to: **C. M. King, Ph.D., Chairman, Department of Chemical Carcinogenesis, Michigan Cancer Foundation, 110 East Warren Avenue, Detroit, Mich. 48201.**

RESEARCH ASSOCIATE with the following: broad training in electrical/mechanical engineering, Ph.D. in biomedical or related neurophysiology, full-time research experience, interest in electro-mechanical properties of muscle and stretch and long-loop reflexes, familiarity with computer technology. To participate in clinical and basic research studies of contractile properties of skeletal muscle as they relate to neuromuscular disease and motor control. Send curriculum vitae and names of three references to: **Dr. Richard F. Mayer, Department of Neurology, University of Maryland Hospital, Baltimore, Maryland 21201, or telephone: 301-528-6484. An Equal Opportunity/Affirmative Action Employer.**

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for **SENIOR RESEARCH FELLOWS** or **RESEARCH FELLOWS** (three posts), **DEPARTMENT OF CLINICAL SCIENCE, JOHN CURTIN SCHOOL OF MEDICAL RESEARCH.** Three new positions are offered in the developing research areas of intestinal inflammation and the molecular basis of tissue injury in human beings. Proven ability in original research is essential and experience in one of the following areas will be an advantage: (i) regulation of secretion and activity of neutral proteases from inflammatory cells; (ii) cell-mediated aspects of mucosal immunity; and (iii) integration of hormonal control of intestinal motility. Appointment: 2 years initially, with possible extension to maximum of 5 years. Salary loading of up to \$5000 may be paid for appropriate medical qualifications. Salary: senior research fellow, \$27,684 to \$33,021 per annum; research fellow, \$19,821 to \$25,871 per annum. Current exchange rate A\$1=U.S.\$1.14. Reasonable appointment expenses are paid. Applications naming at least three referees should be sent to: **The Registrar, Australian National University, P.O. Box 4, Canberra, ACT 2600, Australia, by 30 September 1981.**

SPECIALIST, HEALTH AND LIFE SCIENCES. Supervision of hybridoma and tissue culture facility; maintenance of myelomas for cell fusion; hybridoma culture; media preparation; instrument maintenance; supervision of technicians; instruction of research investigators and graduate students in cell culture technology; participation in development of research protocols. Extensive experience in cell culture work (6 years), including minimum of 3 years in hybridoma technology; supervisory experience of laboratory personnel in cell culture; experience and/or education in immunology and cell biology. Full-time; 40-hour week; B.S. preferred but specialized advanced training or equivalent of 4 years acceptable. Salary: \$18,000 per year. Send résumé to: **Wisconsin Job Service, Sath Menon, 206 North Broom Street, P.O. Box 7943, Madison, Wis. 53707. Telephone: 608-266-2341 or 266-1492. This ad not paid for with Job Service funds.**

SURGICAL PATHOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

The Department of Pathology and Laboratory Medicine seeks to fill one tenure-track position in surgical pathology at the level of assistant professor. The individual must have demonstrated competence in general surgical pathology, as well as an area of expertise in which a significant research program can be initiated and maintained. Areas of endeavor might include pathophysiology or renal, hepatic, or endocrine disease, ultrastructure aspects of disease for the biology of neoplasia. Ability to teach at both graduate and undergraduate levels is required. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Please send curriculum vitae and three references to:

Dr. James E. Wheeler
Acting Director, Surgical Pathology Division
Department of Pathology and Laboratory Medicine
Hospital of the University of Pennsylvania
3400 Spruce Street/GI—Box 527
Philadelphia, Pa. 19104

POSITIONS OPEN

RESEARCH SCIENTIST. To work in biomedical laboratory in Bethesda, Md. Incumbent will be expected to initiate independent research projects in cell storage and ultrastructure, direct electron microscopy unit, and provide guidance to professional and technical staff. Salary commensurate with experience. Excellent benefits. Send résumé to:

Ruth Straub
American Red Cross
Office of Personnel
18th and D Streets, NW
Washington, D.C. 20006
Equal Opportunity Employer, M/F

THEORETICAL POPULATION BIOLOGIST NORTHWESTERN UNIVERSITY

The Department of Ecology and Evolutionary Biology invites applicants whose research interests include the development of theory in ecology, evolution, or population genetics for a tenure-track position at the assistant professor level. Primary teaching responsibilities will be undergraduate ecology and evolution courses. Applicants must have an active research program and seek outside funding to support it. Send curriculum vitae, a statement of research interests, and names of three references to: **Dr. David C. Culver, Department of Ecology and Evolutionary Biology, Northwestern University, Evanston, Ill. 60201. Northwestern University is an Equal Opportunity/Affirmative Action Employer.**

VETERINARY MANAGEMENT POSITIONS OPEN ANIMAL RESOURCES RODENT COLONY SUPERVISION PATHOLOGY

The Life Sciences Division of Gulf South Research Institute (GSRI) in New Iberia, Louisiana, is seeking research management talent in the above disciplines. Must be Board-certified or -eligible. The successful candidates must be experienced and capable of managing programs, designing projects, interfacing with other disciplines, and training personnel.

Located 20 miles from one of the nation's top 10 fastest growing small cities (Lafayette), GSRI was established in 1964 as a private not-for-profit, nonendowed contract research organization which offers a tax-sheltered retirement program, generous vacation leave, group life, long-term disability, hospital, and major medical insurance, an equitable sick leave policy, educational encouragement and assistance, and liberal household and personal relocation allowances. Salary negotiable. Send résumé to:

Personnel Office
GULF SOUTH RESEARCH INSTITUTE
P.O. Box 14787
Baton Rouge, La. 70898
An Equal Opportunity Employer, M/F

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP. To study distribution and significance of serological and/or biochemical markers associated with transmission of viral hepatitis. Qualifications and/or experience in epidemiology, virology, or clinical chemistry. Position available immediately. Stipend: \$18,000 to \$21,000, commensurate with experience. Submit curriculum vitae to: **American Red Cross, Blood Services Personnel, 1730 E Street, NW, Washington, D.C. 20006. Equal Opportunity Employer, M/F.**

POSTDOCTORAL FELLOWSHIPS in hearing science. Areas of training and potential research include anatomy, physiology, psychoacoustics, and speech perception. Persons with an interest in clinical applications in addition to a more traditional basic science orientation are encouraged to apply. Fellowships are supported by NIH. Applicants should send curriculum vitae and three letters of reference to: **Kresge Hearing Research Laboratory, 1100 Florida Avenue, Building 147, New Orleans, La. 70119, Attention: Dr. Charles I. Berlin, Director.**

FELLOWSHIPS

POSTDOCTORAL RESEARCH FELLOWSHIP

In the Department of Pathology at the University of Manitoba. To work on a project studying the biology of pulmonary tumor metastasis. Applicants must have a doctoral degree in the biological sciences and should send brief curriculum vitae with the names and addresses of three references to:

Dr. F. W. Orr or Dr. I. Y. R. Adamson
Department of Pathology
University of Manitoba
770 Bannatyne Avenue
Winnipeg, Manitoba, Canada R3E 0W3

CLINICAL RESEARCH TRAINING FELLOWSHIPS. Harvard Medical School Department of Psychiatry, Massachusetts Mental Health Center, offers 2-year postdoctoral fellowships to psychiatric residents, other M.D.'s, and Ph.D.'s in social, psychological, and biological sciences. Program directors: **Stuart Hauser, M.D., Ph.D.,** and **Robert McCauley, M.D.** Starting date: 1 July 1982; application deadline: 1 December 1981. Stipends: \$13,380 to \$19,600. Write: **Karen Lyon, Clinical Research Training Program, 74 Fenwood Road, Boston, Mass. 02115. Telephone: 617-734-0031.**

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

PROGRAMS

JOINT INSTITUTE FOR LABORATORY ASTROPHYSICS (JILA)

JILA (operated jointly by the U.S. National Bureau of Standards and the University of Colorado) is devoted to research, study, and teaching in atomic and molecular physics, laser physics, astrophysics, precision measurements, geophysical measurement, and related areas. Applications are invited for three programs:

- 1) **Research Associateships**, for advanced research by recent Ph.D.'s. Applications are accepted and considered anytime throughout the year.
- 2) **Research Fellowship for Teachers**, for U.S. teachers who have an active role in the instruction and counseling of minority and women students. Deadline for completed applications: 15 January 1982, and
- 3) **Visiting Fellowships**, for advanced research by senior scientists. Deadline for completed applications: 15 January 1982.

Further information may be obtained from: **The Secretary, Visiting Scientists Program, JILA, Box 440, University of Colorado, Boulder, Colo. 80309. The University of Colorado is an Affirmative Action/Equal Opportunity Employer.**

The Committee on Scholarly Communication with the People's Republic of China (CSCPRC) announces opportunities under the **National Program for Advanced Study and Research in China** for graduate students and postdoctoral scholars in the natural sciences, engineering, social sciences, and humanities for 1982-1983. This program makes possible long-term study (10 to 12 months) or research (3 to 12 months) in affiliation with Chinese universities and research institutes. Application is open to citizens of the United States regardless of national origin, sex, or religious affiliation. Grants, the number of which depends on available funding, include transportation to and from China, stipend, living and travel allowances while in China, and a limited research and educational materials allowance. The program does not provide dependent travel or support. The program has two components; application should be made either to the Graduate Program or to the Research Program. Inquiries should be addressed to: **The CSCPRC, National Academy of Sciences, 2101 Constitution Avenue, Washington, D.C. 20418.**

Postmark/mailed deadline for applications: 6 November 1981.

Research Scientist Enzymologist/ Microbiologist

Searle's Research & Development Division has a current need for a Research Scientist within our Microbiology Department. You will be responsible for managing and implementing R&D programs involving enzymological and biochemical approaches to improve microbiological processes. This will include developing immobilized biocatalyst processes for application in aqueous or organic solvent systems. We seek a Ph.D. in Microbiology with 2-5 years of experience in Microbiological Research or Development.

We offer a competitive salary, relocation, and benefits package; a pleasant north suburban Chicago location and the opportunity to contribute your talents to our overall research efforts.

To apply, submit your curriculum vitae in confidence with salary requirements to:

Barbara Gardner
#809-109
Research & Development Division
G. D. Searle & Co.
Box 5110 / Chicago, IL 60680
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VIROLOGIST/ IMMUNOLOGIST

Merck Sharp & Dohme, a world leader in the pharmaceutical and biological industry, has an excellent career opportunity in the Virus and Cell Biology Department. The position involves herpes virus research and vaccine development.

The successful candidate should have a Ph.D. with post doctoral research and 2-5 years experience with animal viruses and immunological procedures. This individual should have the knowledge and skill to develop or adapt immunoassays for the analysis of viral antigens and humoral and cellular immune responses. Experience with herpes viruses is desirable.

An excellent benefit program accompanies this position and salary is commensurate with experience.

Please send resume with salary requirements to:

DAVID C. JONES
PERSONNEL MANAGER

**Merck Sharp & Dohme
Research Laboratories**

West Point, PA 19486
EEO/AA/VH/EMPLOYER



FACULTY WORKSHOPS FALL 1981

The Division of Educational Programs of Argonne National Laboratories is pleased to announce the following workshops for college/university faculty during fall 1981. These workshops are intended to provide short-term educational experiences in subject areas in which Argonne has major resources.

Separation of Proteins by Two-Dimensional Electrophoresis	October 2-3, 1981
Community Energy and Economic Development	October 23-24, 1981
Biological Applications of the High Voltage Electron Microscope HVEM	October 30-31, 1981
Safe Operations in Biological, Chemical and Nuclear Laboratories	November 6-7, 1981
The Use of Small Computers in Research	November 13-14, 1981
The Nuclear Regulatory Process	November 20-21, 1981
The Changing Quality of the Indoor Environment	December 4-5, 1981
Recent Advances in Thermal Hydraulic Analysis	December 11-12, 1981

This program is funded by the U.S. Department of Energy. No fee is charged to participants for attending. For further information write or call:

**Dr. Michael J. Harris, Division of Educational Programs, Building 15, Argonne National Laboratory,
9700 South Cass Avenue, Argonne, IL 60439 (312) 972-5769**

We appeal to your technical needs.

KODAK Technical Pan Film 2415 helps you record the sun and nearly everything under it.

What do you call a film you can use for solar flare photography, photomicrography, line-scan recording with cathode-ray tubes, lasers, or light-emitting diodes, photographing holographic reconstructions, and also for making black-and-white slides?

We call it KODAK Technical Pan Film 2415. You might call it "a film for all focal lengths," because it has been used rewardingly to record imagery with high-power microscope objectives, astronomical telescopes, and all sorts of camera lenses in between.

This extraordinary film, previously introduced as SO-115, is intended for

a wide range of applications requiring high resolution, extremely fine grain, processing flexibility, high D-max, and relatively flat spectral response through most of the visible spectrum. It is coated on ESTAR-AH Base.

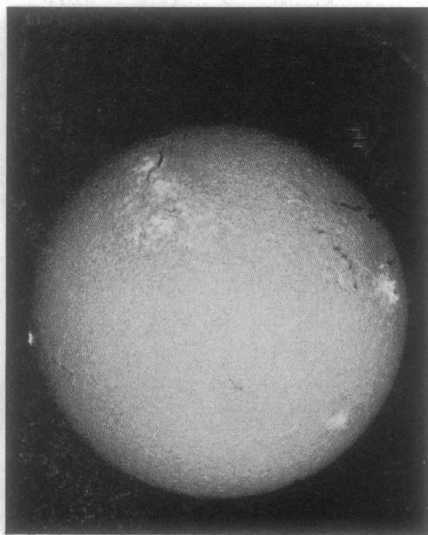
Its unusual combination of performance characteristics allows Technical Pan Film to fill a void in the matrix of black-and-white photorecording films. These characteristics have made 2415 a worthy successor to KODAK Solar Flare Patrol Film (ESTAR-AH Base) SO-392 and KODAK Photomicrography Monochrome Film SO-410—and a valuable alter-

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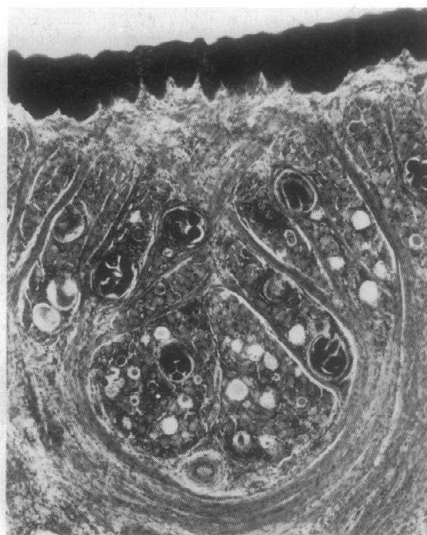
You won't find a Kodak film with a broader range of scientific and technical applications. At the same time, you may wish to load a roll into your 35 mm camera to record some stunning pictorial photography.

For additional information on Technical Pan Film, write to Eastman Kodak Company, Department 412L-153, Rochester, NY 14650. (A brief indication of your application may help us respond more effectively.)

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Hydrogen-alpha photograph of solar flares. Sacramento Peak Observatory, Sunspot, N.M.



Photomicrograph of *trichinella spiralis* in muscle, 175 \times . Tungsten-halogen source (3200 K) with KODAK WRATTEN Filter No. 58.



Meteorological imagery from geostationary satellite. VIZIR laser-beam recording by Société Européenne de Propulsion (France).

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