

Motor patterns of (top) lying down to sternal and then lateral recumbency, (middle) rolling, and (bottom) getting up. [From *Horse Behavior: The Behavioral Traits and Adaptations of Domestic and Wild Horses, Including Ponies*]

successful management, handling, and production. For example, there is a section dealing with abnormal sexual behavior in both stallions and mares, a section dealing with manipulation of the mare estrous cycle, and a section dealing with behavioral manipulation and restraint. This last section contains the results of experiments conducted by the author, which have not appeared anywhere else, on methods used to socialize young foals to humans.

Waring has worked for years on domestic horses. He was the first to produce sound spectrograms of horse sounds, and those spectrograms are included in the chapter on communicative behavior. Waring has also studied the perinatal behavior of foals, and the chapters on maternal behavior and social attachment are particularly well done.

The written information contained in *Horse Behavior* is supplemented by an abundance of drawings, photographs, and tables. The drawings, by Gail S. Dark Van Asten, are excellent and complement almost every chapter. Some drawings show complete behavioral sequences such as sexual behavior in the stallion or rolling behavior, an important grooming activity of equines. Similarly the drawings of the expressions of horses show how subtle changes in the position of the head, neck, ears, lips, and tail communicate different information. Because of these drawings and the sound spectrograms the chapter on communicative behavior is probably the strongest in the book. Drawings are also used to summarize in just a small amount of space the various comfort actions used by horses, the kinds of play behavior displayed by foals, and the various gaits and other motor patterns of horses.

Almost as important as the drawings are the numerous tables found throughout the book. Some of these are derived

from the publications of other workers, and they summarize written information effectively. Other tables were originated by Waring. One especially creative piece summarizes the social organization patterns exhibited by free-ranging horses by separating social groups into reproductive and nonreproductive units and then showing their age and sex composition.

Because of the wealth of basic and applied information presented by the text and the exquisite artwork, *Horse Behavior* will be an important addition to the bookshelves of anyone directly or indirectly interested in horses.

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Books Received

Application of Behavioral Pharmacology in Toxicology. Papers from a workshop, Capri, Apr. 1982. Gerhard Zbinden, Vincenzo Cuomo, Giorgio Racagni, and Bernard Weiss, Eds. Raven, New York, 1982. xviii, 392 pp., illus. \$39.50.

Applied Genetic Engineering. Future Trends and Problems. Morris A. Levin, George H. Kidd, Robert H. Zaugg, and Jeffrey R. Swarz. Noyes Publications, Park Ridge, N.J., 1983. xii, 194 pp. \$24.

Applied Physiology in Clinical Respiratory Care. Papers from a symposium, Rotterdam, 1981. Omar Prakash, Ed. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 482 pp., illus. \$76. Developments in Critical Care Medicine and Anaesthesiology.

Biomechanics. Principles and Applications. Papers from a meeting, Nijmegen, Netherlands, Jan. 1982. Rik Huiskes, Dick H. van Campen, and Joost R. de Wijn, Eds. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 458 pp., illus. \$65. Developments in Biomechanics, vol. 1.

Birkhoff Interpolation. G. G. Lorentz, K. Jetter, and S. D. Riemenschneider. Addison-Wesley Advanced Book Program, Reading, Mass., 1983. lvi, 238 pp. \$32.50. Encyclopedia of Mathematics and Its Applications, vol. 19.

Bloodtransfusion and Problems of Bleeding. Papers from a symposium, Groningen, Netherlands, 1981. C. Th. Smit Sibinga, P. C. Das, and J. J. van Loghem, Eds. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xxii, 308 pp., illus. \$39.50. Developments in Hematology and Immunology, vol. 5.

Conservation Surgery and Radiation Therapy in the Treatment of Operable Breast Cancer. Papers from a symposium, San Francisco, Feb. 1982. Jerome M. Vaeth, Ed. Karger, Basel, 1983. viii, 154

pp., illus. \$85.25. Frontiers of Radiation Therapy and Oncology, vol. 17.

Contemporary Basic Mathematical Skills. Ignazio Bello. Harper and Row, New York, ed. 2, 1982. xiv, 402 pp., illus. Paper, \$22.50.

Dictionary of Nutrition and Food Technology. Arnold E. Bender. Butterworth, Boston, ed. 5, 1982. viii, 310 pp. \$34.95.

Dietary Fats, Prostanoids and Arterial Thrombosis. Gerard Hornstra with a chapter by A. Bleakley Chandler. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 242 pp., illus. \$48. Developments in Hematology and Immunology, vol. 4.

Diffusion of Innovations. Everett M. Rogers. Free Press (Macmillan), New York, and Collier Macmillan, London, ed. 3, 1982. xx, 454 pp., illus. \$18.95.

Digital Image Processing. A Systems Approach. William B. Green. Van Nostrand Reinhold, New York, 1982. xiv, 192 pp., illus., + plates. \$34.50. Van Nostrand Reinhold Electrical/Computer Science and Engineering Series.

Directory of On-Going Research in Cancer Epidemiology 1982. C. S. Muir and G. Wagner in collaboration with E. Demaret and four others. International Agency for Research in Cancer, Lyon, 1982 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). xviii, 722 pp. Paper, \$20. IARC Publications No. 46.

DNA and the Creation of New Life. Christopher Lampton. Arco, New York, 1983. viii, 136 pp., illus. \$12.95. The Arco How It Works Series.

Economic Theory of Natural Resources. W. Eichhorn, R. Henn, K. Neumann, and R. W. Shephard, Eds. Physica-Verlag, Würzburg, 1982 (U.S. distributor, Birkhäuser Boston, Cambridge, Mass.). 646 pp., illus. Paper, \$39.95.

The Herpesviruses. Vol. 1. Bernard Roizman, Ed. Plenum, New York, 1982. xvi, 446 pp., illus. \$39.50. The Viruses.

A History of Mathematics Education in England. Geoffrey Howson. Cambridge University Press, New York, 1982. x, 294 pp. \$49.50.

Host Parasite Relationships in Gram-Negative Infections. Lars Åke Hanson, Paul Kallós, and Otto Westphal, Eds. Karger, Basel, 1983. viii, 344 pp., illus. \$118.75. Progress in Allergy, vol. 33.

Human Biology. John D. Cunningham. Harper and Row, New York, 1983. xii, 450 pp., illus. \$26.95.

The Human Side of Biology. William H. Mason and Norton L. Marshall. Harper and Row, New York, 1983. xvi, 576 pp., illus. \$26.95.

Hydrocarbon Technology Environment. Papers from a conference, Miami, Dec. 1981. T. Nejat Veziroglu, Ed. Ann Arbor Science (Butterworths), Woburn, Mass., 1982. xxii, 466 pp., illus. \$95. Alternative Energy Sources IV, vol. 6.

IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans. International Agency for Research on Cancer, Lyon, 1982 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). Vol. 29, Some Industrial Chemicals and Dyestuffs. 416 pp. Paper, \$30. Supplement 3, Cross Index of Synonyms and Trade Names in Volumes 1 to 26. vi, 200 pp. Paper, \$30.

Indoor Air Pollution. Characterization, Prediction, and Control. Richard A. Wadden and Peter A. Scheff. Wiley-Interscience, New York, 1982. xiv, 214 pp. \$39.95. Environmental Science and Technology.

Indoor Air Quality. Beat Meyer. Addison-Wesley Advanced Book Program, Reading, Mass., 1983. xvi, 434 pp., illus. \$49.95.

In Suspect Terrain. John McPhee. Farrar, Straus, Giroux, New York, 1983. viii, 210 pp. \$12.95.

Longman Illustrated Dictionary of Chemistry. The Fundamentals of Chemistry Explained and Illustrated. Arthur Godman. Longman, New York, 1982. 256 pp. Paper, \$7.95.

Los Alamos Explosives Performance Data. Charles L. Mader, James N. Johnson, and Sharon L. Crane, Eds. University of California Press, Berkeley, 1983. x, 812 pp. \$45. Los Alamos Series on Dynamic Material Properties.

The Magmot Line Syndrome. America's Hopeless Foreign Policy. Sidney Lens. Ballinger (Harper and Row), Cambridge, Mass., 1983. viii, 196 pp. \$14.50.

Maize for Biological Research. William F. Sheridan, Ed. Plant Molecular Biology Association, Charlottesville, Va., 1982. xvi, 434 pp., illus. Paper: to institutions, \$35; to individuals, \$20.

Make Prayers to the Raven. A Koyukon View of the Northern Forest. Richard K. Nelson. University of Chicago Press, Chicago, 1983. xvi, 292 pp. + plates. \$25.

Mammalian Biology in South America. Papers from a symposium, Linesville, Pa., May 1981. Michael A. Mares and Hugh H. Genoways, Eds. University of Pittsburgh Pymatuning Laboratory of Ecology, Linesville, Pa., 1982. xii, 540 pp., illus. \$30. The Pymatuning Symposium in Ecology, vol. 6.

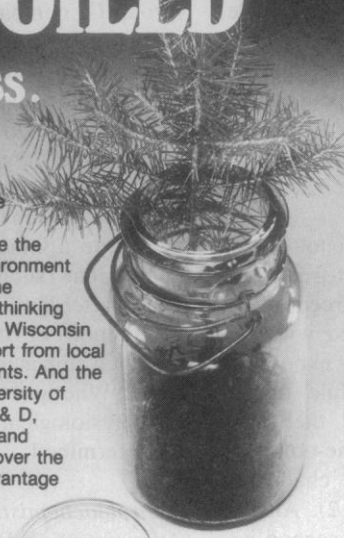
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(Continued on page 1085)

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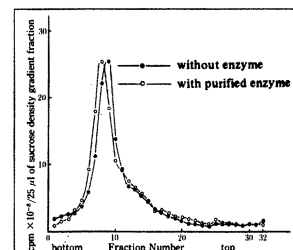



Fig. Reverse RNase Activity
8.5 μg ³²P-labeled RNA were incubated with 97 units of reverse transcriptase in 0.01 M Tris, pH 7.4, 0.15 M NaCl at 37°C for 1 hr and the reaction was stopped with final 0.25% SDS. The mixture was layered over 15-30% sucrose gradient in 0.15 M sodium acetate, 0.1% SDS, pH 5.0 and centrifuged at 50,000 rpm for 4.0 hrs at 5°C in a SW 50.1 rotor with spinco Model L5.

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BOOKS RECEIVED

(Continued from page 1044)

Posture, Poise and Skill. Phillip V. Tobias. University of New South Wales Committee in Postgraduate Medical Education, Kensington, Australia, 1982. vi, 74 pp., illus. Paper, A\$5.50.

Marine Tailings Disposal. Papers from a symposium, Ketchikan, Alaska, Mar. 1982. Derek V. Ellis, Ed. Ann Arbor Science (Butterworths), Woburn, Mass., 1982. xiv, 368 pp., illus. \$37.50.

Nutrition and Cardiovascular Disease. Papers from a symposium, Rome, Dec. 1980. R. J. Hegyeli, Ed. Karger, Basel, 1983. xii, 314 pp., illus. \$138.50. Progress in Biochemical Pharmacology, vol. 19.

Nutrition in Early Childhood and Its Effects in Later Life. Papers from a symposium, Jena, Oct. 1980. J. C. Somogyi and H. Haenel, Eds. Karger, Basel, 1982. viii, 144 pp., illus. Paper, \$63.50. Bibliotheca Nutritio et Dieta, No. 31.

The Ocean Basins and Margins. Vol. 6, The Indian Ocean. Alan E. M. Nairn and Francis G. Stehli, Eds. Plenum, New York, 1982. xviii, 776 pp., illus. \$85.

Oedipus in the Trobriands. Melford E. Spiro. University of Chicago Press, Chicago, 1983. xii, 200 pp. Paper, \$12.95.

The One-Hundred-Percent Natural, Purely Organic, Cholesterol-Free, Megavitamin, Low-Carbohydrate Nutrition Hoax. Elizabeth M. Whelan and Fredrick J. Stare. Atheneum, New York, 1983. xiv, 304 pp. \$14.95.

On the Development of Developmental Psychology. Deanna Kuhn and John A. Meacham, Eds. Karger, Basel, 1983. xii, 160 pp. \$29.50. Contributions to Human Development, vol. 8.

The Pains of Imprisonment. Robert Johnson and Hans Toch, Eds. Sage, Beverly Hills, Calif., 1982. 336 pp. Paper, \$12.50.

Pancreatic Tumors in Children. G. Bennett Humphrey, Gerald B. Grindley, Louis P. Dehner, Ronald T. Acton, and Theodore J. Pysher, Eds. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xviii, 222 pp., illus. \$58.50. Cancer Treatment and Research, 8.

Quantification of Circulating Proteins. Theory and Applications Based on Analysis of Plasma Protein Levels. Wim Th. Hermens, George M. Willems, and Marja P. Visser. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). iv, 256 pp. \$44.

Recent Developments in the Genetics of Insect Disease Vectors. Papers from a symposium, Apr. 1981. William W. M. Steiner, Walter J. Tabachnick, Karamjit S. Rai, and Sudhir Narang, Eds. Stipes Publishing Company, Champaign, Ill., 1982. xiv, 66 pp., illus. \$26.

Recueil de Terminologie Spatiale. A Glossary of Space Terms. Yves Tailleur. European Space Agency, Paris, 1982 (distributor, ESA Scientific and Technical Publications Branch, ESTEC, Noordwijk, Netherlands). iv, 432 pp., illus. Paper, 200 F. ESA SP-1011

Representation Theory. Selected Papers. I. M. Gelfand and 5 others. Translated from the Russian. Cambridge University Press, New York, 1982. vi, 272 pp. Paper, \$29.95. London Mathematical Society Lecture Notes Series, 69.

Reproductive Physiology of Vertebrates. Ari van Tienhoven. Comstock (Cornell University Press), Ithaca, N.J., ed. 2, 1983. 494 pp., illus. \$49.50.

Research in Philosophy and Technology. Vol. 5. Paul T. Durbin, Ed. Jai Press, Greenwich, Conn., 1982. x, 334 pp. \$47.50.

The Reticuloendothelial System. A Comprehensive Treatise. Vol. 3. Phylogeny and Ontogeny. Nicholas Cohen and M. Michael Sigel, Eds. Plenum, New York, 1982. xxx, 758 pp., illus. \$89.50.

Spectral Methods in Linear Transport Theory. H. G. Kaper, C. G. Lekkerkerker, and J. Hejmanek. Birkhäuser, Boston, 1982. xii, 346 pp. \$29.95. Operator Theory, vol. 5.

Structured COBOL. A Modern Approach. Henry Mullish. Harper and Row, New York, 1983. xvi, 368 pp., illus. Paper, \$20.50.

Studies in the History of Biology. Vol. 6. William Coleman and Camille Limoges, Eds. Johns Hopkins University Press, Baltimore, 1983. viii, 220 pp., illus. \$25.

Thread of Life. The Smithsonian Looks at Evolution. Roger Lewin. Smithsonian Books, Washington, D.C., 1983 (distributor, Norton, New York). 256 pp., illus. \$27.50.

Uranium Series Disequilibrium. Applications to Environmental Problems. M. Ivanovich and R. S. Harmon, Ed. Clarendon (Oxford University Press), New York, 1982. xxxii, 572 pp., illus. \$98.

Waves and Photons. An Introduction to Quantum Optics. Edwin Goldin. Wiley, New York, 1982. xii, 212 pp., illus. \$25.95. Wiley Series in Pure and Applied Optics.

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ENVIRONMENTAL BIOCHEMIST. The State Department of Health Services has three vacancies in Berkeley, California. For details, telephone: **Elaine Williams at 415-540-2926**, and send résumés/applications to: **2151 Berkeley Way, Berkeley, Calif. 94704**, by 17 June 1983. Doctorate in biochemistry or related specialty and 1 year of environmental biochemistry experience or a master's and 3 years are required. *Equal Opportunity Employer.*

MANAGER AND SENIOR SCIENTISTS POSITIONS

Genex Corporation is seeking scientists with experience in molecular biology, biochemistry, or microbiology for positions in the Microbial Biochemistry Department. Scientists should be skilled in either the selection and characterization of microorganisms with unique biochemical properties or in the molecular genetic manipulations needed for increased chemical production. A senior scientist must have a Ph.D., postdoctoral experience, and the ability to work independently. A manager should have additional supervisory experience and demonstrated productivity and will have both administrative and research responsibilities while leading a section with five to ten people.

Genex offers a stimulating, cooperative research and business environment, competitive salaries and fringe benefits, and excellent research facilities. Genex is located in Rockville and Gaithersburg, Maryland. Curriculum vitae describing your scientific background and publications and containing three professional references should be submitted prior to 30 June 1983 to:

**GENEX CORPORATION
Department B
6110 Executive Boulevard
Rockville, Md. 20852**

Principals Only—Equal Opportunity Employer

The International Laboratory for Research on Animal Disease (ILRAD), Nairobi, Kenya, is an internationally funded institution with the mandate to develop improved methods of control for two major diseases of livestock, trypanosomiasis, and theileriosis. The multidisciplinary research programme includes the disciplines of biochemistry, molecular biology, immunology, cell biology, pathology, and parasitology with appropriate supporting units. Applications for the following positions are invited:

PARASITOLOGIST—Reference: SC/L3/83/5

To strengthen and develop research in the area of parasite cultivation and its application to African trypanosomiasis. Applicants should have experience in cultivation of salivarian trypanosomes, and be capable of developing and improving methods of cultivation. Experience in immunology, electron-microscopy or biochemistry will be an additional advantage.

IMMUNOLOGIST—Reference: SC/L6/83/2

To explore cellular aspects of this immune response to trypanosomiasis, especially the early events of immunogenesis related to the acquisition of immunity. Applicants should have 3 to 5 years of postdoctoral experience in a relevant area, preferably in the role of cellular immunity in relation to infectious disease. Experience of the ruminant immune system, lymphatic duct cannulations, or induction of immune responses would be advantageous.

IMMUNOCHEMIST—Reference: PD/L1/83/4

A postdoctorate to study biochemical and immunological characterisation of salivarian trypanosome populations. Applicants should have recently completed a doctorate in the immunological/biochemical characterisation of cells and their products. Experience in characterisation of parasite populations, especially protozoa would be advantageous.

The above positions are international staff positions and salaries will be paid in U.S. dollars. Initial salary levels will be determined by qualification and experience. Moving, housing, commutation, and education allowances are paid and there are medical and retirement benefits. Applications should include current curriculum vitae and the names and addresses of three referees. Applications, citing the position reference number, should be sent by 15 July 1983 to:

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

POSITIONS OPEN

Anticipated 1-year sabbatical nonrenewable replacement: **ASSISTANT PROFESSOR OF BIOLOGY** to teach **microbiology, physiology, and general biology** (both majors and nonmajors); also, opportunity to teach cellular and molecular biology, if desired. Salary: \$15,500, nonnegotiable. Submit curriculum vitae and addresses of three references by 17 June 1983 to: **Dr. John Jungck, Chairperson, Department of Biology, Beloit College, Beloit, Wis. 53511.** An Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR OF PHARMACOLOGY

The department invites applications for this non-tenure-track position. Applicant should possess the Ph.D. or other doctoral degree plus 5 years of postdoctoral experience. The incumbent should be experienced in lipid-lipoprotein biochemistry/metabolism, use of hepatocytes and perfused liver systems, and will be expected to maintain collaborative research programs and obtain external support. Salary range is \$20,000 to \$30,000 per year. Inquiries should be received prior to 20 June 1983, addressed to: **Dr. Murray Heimberg, Department of Pharmacology, University of Tennessee Center for the Health Sciences, 874 Union Avenue, Memphis Tenn. 38163.** An Equal Opportunity/Affirmative Action Employer.

ASSISTANT OR ASSOCIATE PROFESSOR—PHARMACOLOGY

The Pharmacology Department of Stanford University School of Medicine invites applications for a position at the assistant or associate professor level. Applicants are expected to have strong orientation to modern biochemistry and molecular biology and the application of these disciplines to pharmacological investigations. Send curriculum vitae, summary of research interests, and names of three references to: **Dr. Tag E. Mansour, Chairman, Department of Pharmacology, Stanford University School of Medicine, Stanford, Calif. 94305.** Stanford University is an Equal Opportunity Employer and welcomes nominations of women and minority group members and applications from them.

ASSOCIATE DIRECTOR GI RESEARCH LABORATORY

Ph.D., postdoctoral and career experience emphasizing protein chemistry, including separation, identification, isolation and characterization, including physical and immunochemical methodologies. Knowledge of serum apoproteins and protein-lipid interactions important. Must have leadership potential, administrative ability, and a desire to develop career independence. Tenure track and salary competitive for this responsible position. Send résumé and three references to: **Dr. R. T. Holzbach, GI Research Unit, Cleveland Clinic Foundation, 9500 Euclid Avenue, Cleveland, Ohio 44106.**

CELL BIOLOGIST, ELECTRON MICROSCOPIST: Two-year temporary position at assistant professor level starting 27 August 1983 or 9 January 1984. Position may possibly become tenure track. Must have Ph.D. and preferably some postdoctoral experience. Duties: teaching, research, and maintenance of EM laboratory. Send résumé and three letters to: **Dr. Robert P. George, Department of Zoology, Box 3166, University Station, Laramie, WY. 82071,** by 1 July 1983. Affirmative Action/Equal Opportunity Employer.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT) FACULTY POSITION IN APPLIED BIOLOGICAL SCIENCES

Applications are sought for a tenure-track appointment as assistant or associate professor. Preferred areas of doctoral training are biochemistry, cell biology, or molecular biology. Research interests could be in areas relevant to: (i) physiology or pharmacology of the nervous system, or (ii) hormonal regulation of cellular metabolism.

Specific research interests are less important than the ability to participate in and develop existing educational programs, and to establish a strong independent research program. Teaching responsibilities will include instruction at both the undergraduate and graduate level. Please send curriculum vitae and the names of three referees to: **Professor Gerald N. Wogan, Room 16-333, MIT, Cambridge, Mass. 02139.**

MIT is an Affirmative Action/Equal Opportunity Employer. Members of minority groups are urged to apply.

3 JUNE 1983

NATIONAL RESEARCH COUNCIL

National Academy of Sciences National Academy of Engineering Institute of Medicine

RESIDENT RESEARCH ASSOCIATESHIPS



1983

TENABLE AT THE

**Fire Control and Small Caliber Weapon
Systems Laboratory**

Large Caliber Weapon Systems Laboratory

LOCATED AT DOVER, NEW JERSEY

AND THE

Ballistic Research Laboratory

Chemical Systems Laboratory

**LOCATED AT ABERDEEN PROVING GROUND,
MARYLAND**

These NRC-ARRADCOM Research Associateships are awards which provide opportunities for research on problems of individual choice to scientists and engineers of unusual ability and promise. Programs are open to U.S. citizens only; awards are on a competitive basis. Initial awards are for one year with the possibility of renewal.

The National Research Council is accepting applications for its 1984 Resident Research Associateships that will provide opportunities for postdoctoral and senior scientists to conduct experimental and theoretical research in the areas of:

- APPLIED MATHEMATICS
- PROBABILITY THEORY
- STOCHASTIC PROCESSES
- ATMOSPHERIC PHYSICS
- COMBUSTION RESEARCH
- FLUID MECHANICS
- MATERIALS SCIENCES
- NUCLEAR & RADIATION PHYSICS
- ORGANIC CHEMISTRY
- PHYSICAL CHEMISTRY
- SURFACE CHEMISTRY
- KINETICS
- COMPUTER SIMULATION
- ELASTIC—PLASTIC STRAIN & INTERNAL STRESS
- GUIDED WAVE TECHNOLOGY
- MECHANISMS OF HIGH STRENGTH ALLOYS
- ENZYMATIC DETERRENTS

DEADLINES:

Applications must be postmarked on or before **August 15, 1983.** Supporting documents must be received by **September 1, 1983.** Awards will be announced in early **October 1983.**

FOR INFORMATION, WRITE TO:

ASSOCIATESHIP PROGRAMS (JR610—E1)

NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, N.W. Washington, DC 20418

POSITIONS OPEN

CHAIRPERSON DEPARTMENT OF BIOCHEMISTRY THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT DALLAS SOUTHWESTERN MEDICAL SCHOOL

Applications and nominations are invited for the position of **professor and chairperson** of the Department of Biochemistry. Candidates should have an outstanding record of research accomplishments and be dedicated to the provision of leadership in research and teaching for a department that currently includes more than 25 faculty. Nominations and applications will be received until the position is filled and should be addressed to: **Alfred G. Gilman, Chairman of the Biochemistry Search Committee, Department of Pharmacology, The University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity Employer.**

FACULTY POSITION AVAILABLE Arboriculture University of California, Davis

Tenure-track faculty position in arboriculture, assistant professor, 85 percent research and 15 percent teaching. Ph.D. required in a plant science field to develop fundamental and mission-oriented research programs in arboriculture. Prior training or experience working with woody landscape plants is desirable. Teaching responsibilities include undergraduate and graduate instruction in arboriculture, guiding graduate student research, and advising students. Research would be in areas of the performance of woody plants in the landscape, such as tree root growth and function, structural development of trees, and planting and plant establishment. Participation in extension programs and activities is expected but is not a formal assignment. Applicant should submit résumé, statement of research and teaching interests, undergraduate and graduate transcripts, a list of publications, and the names and addresses of at least three references to: **Dr. Jack L. Paul, Chairman of the Search Committee, Department of Environmental Horticulture, University of California, Davis, California 95616, by 12 September 1983. Position available 1 January 1984.**

The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.

FACULTY POSITION

Responsibilities include the development of basic research with application to emergency medicine and the acquisition of research funding. Current areas of active clinical and applied basic research by the Division of Emergency Medicine include cardio-cerebral resuscitation and toxicology. Knowledge of computer programming and advanced statistical analysis is expected. Experience with animal modeling and physiologic monitoring is expected. Previous application of basic research to clinical resuscitation desired. Evidence of prior grant development and procurement is mandatory. This will be a faculty position with tenure potential; promotions based upon research productivity and educational contribution to the Division of Emergency Medicine. Primary appointment with Division of Emergency Medicine with secondary appointments in other departments possible. Ph.D. in pharmacology, physiology, or bioengineering or an M.D. with expertise in pharmacology or physiology preferred. Send curriculum vitae to: **Richard Levy, M.D., Director, Division of Emergency Medicine, University of Cincinnati College of Medicine, ML Number 769, Cincinnati, Ohio 45267.**

MARINE TECHNOLOGIST

To engage in research and teaching in the comparative metabolic and nutritional requirements of pelagic crustacean species. Ph.D. degree or Ph.D. candidate and 1 year of experience required. Position is full-time; \$14,000 per year. Send this ad and your résumé to: **P.O. Box 865, Sacramento, California 95804, Job Number 2308, not later than 3 July. Ad paid by employer.**

RESEARCH SCIENTIST

To undertake research and teaching in the biology and toxicology of marine dinoflagellate. The duties include maintenance of axenic conditions and also the training of students in these techniques. Ph.D. degree or Ph.D. candidate and 3 years of experience required. Position is full-time; \$16,000 per year. Send this ad and your résumé to: **P.O. Box 865, Sacramento, California 95804, Job Number 2309, not later than 3 July. Ad paid by employer.**

POSITIONS OPEN

ENDOCRINE/REPRODUCTIVE BIOLOGY FACULTY POSITION

The Worcester Foundation has initiated a major recruitment drive to attract talented investigators of all faculty-level ranks in the field of **ENDOCRINE/REPRODUCTIVE BIOLOGY**. The Foundation is especially interested in those using **molecular, cellular, genetic, and biophysical approaches** in the following areas of interest:

- 1) Hormone receptors,
- 2) Postreceptor events concerned with the mechanism of hormone action, and
- 3) Neuroendocrinology.

Researchers pursuing vigorous independent programs in these and related areas are encouraged to apply. Candidates appointed in endocrine biology will have every opportunity to interact with other programs in cell biology, neurobiology, and reproduction.

Applicants should send, in duplicate, their curriculum vitae, a summary of research interests, and at least three references to: **Chairman, Endocrine Search Committee, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

An Equal Opportunity/Affirmative Action Employer

ENTOMOLOGIST/INVERTEBRATE ZOOLOGIST

Idaho State University (ISU)
Temporary position: 15 August 1983 to 15 May 1984

VISITING ASSISTANT/ASSOCIATE PROFESSOR. The Department of Biology at ISU is accepting applications for position of visiting assistant/associate professor for the academic year 1983-1984 to begin 15 August 1983. Duties include general zoology, general entomology, and invertebrate zoology with additional duties to be assigned by the chairman. A doctoral degree is required. Salary: \$16,000 to \$20,000, commensurate with rank and experience. Send application, official transcripts, and three letters of recommendation to: **Chairman, Department of Biology, Idaho State University, Pocatello, Idaho 83209. Closing date: 17 June. ISU is an Affirmative Action/Equal Opportunity Employer.**

Applications are invited for full-time **FACULTY POSITIONS** to teach undergraduate courses starting in August in computer science, communication, marketing management, management information systems, and tourism. Candidates must have at least an M.A. or M.S. degree in corresponding field and should have a working knowledge of Spanish. Send résumé and supporting documents by 17 June to: **Dr. Cándida R. T. Acosta, Dean of Academic Affairs, University of the Sacred Heart, P.O. Box 12383, Santurce, Puerto Rico 00914. An Affirmative Action/Equal Opportunity Employer.**

Biomedical electronics firm seeks research **IMMUNOLOGIST-TOXICOLOGIST**. Candidates must have a Ph.D. in related field plus minimum of 1 year of postdoctoral experience in quantitative techniques at toxic environmental substances and their possible cancer-producing effects. Relevant publications required. To serve as liaison with European firms, fluency in at least two European languages required. Salary: \$28,500. Send résumé and three references to: **Cal-Count, P.O. Box 1600, Springfield, Va. 22151. An Equal Opportunity Employer.**

LEADER IN BASIC SCIENCE RESEARCH. The Children's Hospital Medical Center and Research Foundation is seeking an outstanding scientist for an endowed chair to lead basic science research in the Institute for Developmental Research. This Institute, a modern freestanding facility, is a part of the Children's Hospital Research Foundation, an independent endowed institution established in 1933 which has close affiliation with the University of Cincinnati. The successful applicant will provide leadership for a group of 12 active investigators in the Institute with interests in various aspects of developmental biology and, in addition, maintain an active research program of his/her own. The total program will encompass 15,000 square feet net of research space, plus space in animal quarters. To develop the program, start-up costs will be provided and additional faculty members may be recruited. Areas of research interest most appropriate for the position are neurobiology, teratology, molecular genetics, and developmental biology. Send curriculum vitae and covering letter to: **Clark D. West, M.D., Children's Hospital Medical Center, Cincinnati, Ohio 45229.**

POSITIONS OPEN

THE ENVIRONMENTAL SCIENCE AND ENGINEERING PROGRAM at University of California at Los Angeles (UCLA), now 10 years old, is an interdisciplinary program in the School of Public Health. We are seeking applications for three tenure-track positions to conduct graduate-level interdisciplinary environmental teaching and research. Emphasis is currently given to problem-solving. The priority areas for recruitment are:

- 1) **Environmental engineer or applied scientist** with background in a field such as mechanical or chemical engineering, physical chemistry, or other scientific engineering field which has foundations in physical science;
- 2) **Applied environmental biological scientist** with background in biology, botany, agriculture, or other related field; and
- 3) **Environmental social scientist** with background in sociology, political science, law, or related fields.

Applicants should have interest in interdisciplinary studies. Rank and salary commensurate with experience. A doctoral degree is required. The first appointment will be at a senior level and this person will head the program. The second and third positions will be at the assistant or associate professor level. Closing date for applications is 1 July 1983. *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minority groups.* Interested applicants should submit curriculum vitae and three references to:

**Dr. John R. Froines
Chair, Search Committee
School of Public Health
University of California
Los Angeles, Calif. 90024**

The Department of Surgery, Southwestern Medical School, is seeking applicants for:

INSTRUCTOR—M.D., accredited general surgery residency, interest in peripheral vascular surgery. Deadline for submission of applications for 1984-1985 is 30 June 1983; for 1985-1986, 30 October 1983; and for 1986-1987, 1 January 1984. Contact: **William J. Fry, M.D., Hudson-Penn Professor and Chairman, Department of Surgery, 5323 Harry Hines Boulevard, Dallas, Texas 75235. The University of Texas Health Science Center at Dallas is an Equal Opportunity Employer.**

The Department of Biology at Georgia State University invites applications for an anticipated tenure-track position (**assistant professor** level) with expertise in **MOLECULAR GENETICS** (effective 1 January 1984). Preference will be given to candidates with postdoctoral experience who have demonstrated outstanding potential for independent research; expertise in recombinant DNA techniques will be considered an asset. Salary will be commensurate with qualifications. The successful candidate will be expected to teach undergraduate and graduate courses in general genetics and in area of specialization. Applications, including curriculum vitae, reprints, a statement of research plans, and three letters of reference should be sent to: **Chairman, Department of Biology, Georgia State University, Atlanta, Georgia 30303. Deadline for receipt of applications is 15 August 1983. Georgia State University, a unit of the University System of Georgia, is an Equal Educational Opportunity Institution and is an Equal Opportunity/Affirmative Action Employer in compliance with Title IX and other Civil Rights laws.**

NUCLEAR SAFETY ENGINEER

The Union of Concerned Scientists (UCS) has an opening in its Washington, D.C., office for a nuclear safety engineer. Candidates should have technical knowledge of the design and operation of U.S. light water reactors (LWR), with particular emphasis on safety-related issues. Responsibilities include researching LWR safety problems, developing technically sound solutions for these problems, and articulating the UCS position on reactor safety as opportunities arise. Salary commensurate with experience. Excellent working conditions and fringe benefits. All applications will be treated with the strictest of confidence.

Please send résumé to:

**Shirley Golden
Union of Concerned Scientists
Suite 1101
1346 Connecticut Avenue, NW
Washington, D.C. 20036**

NO TELEPHONE CALLS, PLEASE.

THE NATIONAL INSTITUTE ON ALCOHOL ABUSE AND ALCOHOLISM, INTRAMURAL PROGRAM at the NIH CLINICAL CENTER invites applications from highly qualified individuals with an M.D. or M.D., Ph.D., who are seriously interested in pursuing careers in academic medicine and research. Studies will focus on investigations of diagnosis, consequences and treatments of alcohol abuse and alcoholism. Clinical and laboratory research training opportunities are available in clinical pharmacology, genetic studies, neuroscience, neuropsychiatry and medical biochemistry.

Appointments are available for 2 to 3 years beginning July 1, 1983 with an initial salary of \$30,000 up to a maximum of \$34,000 for the third year. Applicants should call collect for applications.

NATIONAL INSTITUTES OF HEALTH

Medical Staff Fellowship Program
Bldg. 10, Room 2N220
9000 Rockville Pike
Bethesda, MD 20205
(301) 496-2427

AN EQUAL OPPORTUNITY EMPLOYER

FACULTY POSITION IN DEPARTMENT OF PHARMACOLOGY

The Dept. of Pharmacology of the Hebrew University-Hadassah Medical School in Jerusalem invites applications for a tenure track faculty position in cardiovascular and/or renal pharmacology. Ph.D. or M.D. & post-doctoral training required. Candidate expected to develop independent research and participate in teaching of pharmacology to medical, dental and pharmacy students.

Send C.V., list of publications and 3 letters of recommendation by July 1, 1983 to:

**Search Committee
Pharmacology
P.O.B. 1172
Jerusalem, Israel**

Research Scientists Drug Delivery Systems

CIBA-GEIGY has established itself as one of the foremost companies in the field of drug delivery systems. It is now seeking to expand its research efforts in this new and exciting field.

TRANSDERMAL DRUG DELIVERY

The Basic Pharmaceutics Research Unit has a challenging opportunity for a Ph.D. with post-doctoral or industrial experience in the transport of drugs across human skin. Experience with animal skin transport models is desirable, but not essential. This individual will be responsible for the study of drug transport, both in-vivo and in-vitro, and will be expected to understand mechanisms and rates of drug transport to a degree sufficient to design transdermal drug delivery systems for ultimate development and commercialization.

GASTROINTESTINAL DRUG DELIVERY

A senior level position is available in the Basic Pharmaceutics Research Unit for an innovative and progressive Ph.D. or M.D. with a proven background in the study of drug absorption in the gastrointestinal tract. A working knowledge of both chronic and acute animal models, including their preparation, is highly desirable. This individual is ultimately expected to lead a group of five to seven scientists in the search for innovative drug delivery systems through the study of basic mechanisms of gastrointestinal absorption and metabolism.

These positions offer professional growth opportunities, excellent working conditions, competitive salaries, liberal benefits and relocation assistance when necessary.

If qualified, please send resume, including current and desired salary information, indicating area of expertise, in strictest professional confidence, to: Ms. Arlene Rosenberg, Assistant Personnel Manager, The Pharmaceutics Division, of CIBA-GEIGY Corporation, P.O. Box 100, Suffern, New York 10901. An equal opportunity employer m/f/v/h.

CIBA—GEIGY

TECHNICAL COMMUNICATIONS

Two challenging positions are currently available at the Lovelace Inhalation Toxicology Research Institute, a non-profit biomedical and environmental research laboratory located in a desirable area of the Southwest. Both positions require highly motivated professionals capable of providing state-of-the-art technical services to a multidisciplinary team of doctoral level scientists involved in developing a better understanding of the impact of developing energy technology on man and the environment.

Technical Editor

To work with staff of 60 biomedical, biophysical and physical scientists and engineers to develop and prepare written and graphic material for internal and external publication. Demonstrated competency is needed in all phases of editing and producing scientific materials in an environment where the pressures of deadline and heavy work loads are a constant factor. Supervision of a small editing, graphics and word processing staff required. BA in English with some science courses, or BS in Life or Physical sciences with substantial course work in English or equivalent, plus at least 5 years of directly related experience, 2 of which must include supervisory responsibilities.

Technical Librarian

To manage library containing 10,000 volumes and 485 active journal subscriptions with computer-assisted cataloging and reference services. Extensive use is made of computerized reference bases such as MEDLINE and TOXLINE as well as excellent local and regional technical library resources. Masters degree in library science plus at least 4 years of post-graduate library experience, 2 of which must include supervisory responsibilities. Biomedical, environmental or other technical library experience essential.

The Institute offers a competitive salary, outstanding fringe benefits program and relocation. Submit resume, salary requirements and editorial candidate should provide work samples (not returnable) to: **PERSONNEL MANAGER, LOVELACE INHALATION TOXICOLOGY RESEARCH INSTITUTE, P.O. BOX 5890, ALBUQUERQUE, NM 87185.**

POSITIONS OPEN

MOLECULAR BIOLOGIST—Cancer Center, University of New Mexico School of Medicine. Seeking molecular biologist to fill tenure-track position at assistant or associate professor level. Minimum of 3 years of postdoctoral research experience in eukaryotic molecular biology and capable of establishing vigorous and independent research program. Curriculum vitae, representative reprints, and statement of research goals and interests to: **Chairperson, Department of Cell Biology, CRTC, University of New Mexico, Albuquerque, N.M. 87131. Affirmative Action/Equal Opportunity Employer.**

PHYSIOLOGY. The School of Veterinary Medicine at the University of Wisconsin-Madison is recruiting for a faculty position in respiratory, cardiovascular, or metabolism/gastrointestinal physiology. It is expected that the position will be filled at the assistant professor level but senior faculty with outstanding credentials will also be considered. Responsibilities will include assisting in development and implementation of programs in instruction, research and service. The Ph.D. and/or D.V.M. degree is required. Application should include complete curriculum vitae and names and addresses of three references. Application closing date is 30 June 1983 or until filled. Apply to: **Dr. Gerald Bisgard, Department of Structural and Functional Sciences, School of Veterinary Medicine, 2015 Linden Drive West, University of Wisconsin, Madison, Wis. 53706.**

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

POSTDOCTORAL FELLOW—HUMAN SEXUAL PSYCHOPHYSIOLOGY. From July 1983 at Stanford University Medical School. Studies on endocrine and physiological variables in sexuality. Experience in psychophysiological measurement; active interest in human sex research required. Training available in endocrinology and animal behavioral physiology. Call and/or send curriculum vitae, references, and statement of interests to: **Julian M. Davidson, Department of Physiology, Stanford University, Stanford, Calif. 94305; telephone: 415-497-2432.**

POSTDOCTORAL POSITIONS (TWO) available immediately in growing, research-intensive department for Ph.D. in biochemistry, cell biology, or related field. Research deals with the mechanism of action at the receptor or postreceptor level of (i) polypeptide growth factors that induce phenotypic transformation, (ii) polypeptide growth factors involved in the expression and regulation of the immune response (lymphokines), or (iii) insulin as a hormone or growth factor. Experience in one or more of the following areas is desirable: cultured and isolated cell systems; receptor biochemistry; enzyme biochemistry; protein and peptide purification; immunochemistry; cellular immunology; or pharmacology. Salary range: \$14,000 to \$16,000. Send curriculum vitae and names of three references to: **Dr. J. Massagué or Dr. J. R. Seals, Department of Biochemistry, University of Massachusetts Medical School, 55 Lake Avenue, North, Worcester, Mass. 01605. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS, BIOCHEMISTRY/BIOPHYSICS/PICOSECOND KINETICS. Three positions are available as part of a Georgetown/Naval Research Laboratory cooperative project. Programs include: (i) creation and characterization of novel biological microstructures via polymerization of lipid layers; (ii) structure and properties of proteins within polymerizable lipid matrices (applicants should have background in lipid chemistry and/or Langmuir-Blodgett techniques); and (iii) picosecond laser photolyses of energy-rich molecules (applicants should be familiar with pulsed lasers and photochemistry). Salary: \$18,000 to \$25,000. Send curriculum vitae and two letters of reference to: **R. Weiss, Department of Chemistry, Georgetown University, Washington, D.C. 20057. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION—Opening available in summer or early fall 1983 for individual interested in the enzymology and regulation of RNA processing in prokaryotic or eukaryotic cells [*JMB* 159, 179 (1982); *Nucleic Acids Res.* 10, 4397 (1982); *JBC* 258, 1423 (1983); *PNAS*, June 1983]. Experience in enzymology and/or bacterial genetics required. Please contact: **Dr. Murray Deutscher, Department of Biochemistry, University of Connecticut Health Center, Farmington, Conn. 06032.**

An Affirmative Action/Equal Opportunity Employer, M/W/H

POSITIONS OPEN

POSTDOCTORAL ASSOCIATE position for studies of neural circuitry of pain in primate spinal cord and brainstem. Research will focus on EM immunocytochemical localization of neurotransmitters, combined with other neuroanatomical tracing techniques. Correlative physiological and pharmacological studies also planned. Seeking individual with experience in one or more of these areas. Position available as of 1 July 1983. Send curriculum vitae and list of three references to: **C. LaMotte, Section of Neurological Surgery, Yale University School of Medicine, New Haven, Conn. 06510. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE. Position available 1 July 1983 to work on renal Ca transport and its regulation. The techniques currently applied are micropuncture, in vivo microperfusion, and ultramicroanalysis by flameless atomic absorption spectrophotometry. The candidate should have an M.D. or Ph.D. in physiology, pharmacology, or related field. Salary commensurate with experience. Candidates should send curriculum vitae and names of three references to: **Dr. Linda Costanzo, Department of Physiology and Biophysics, Box 551 MCV Station, Medical College of Virginia, Richmond, Va. 23298.**

POSTDOCTORAL POSITION available for Ph.D. with experience in electrophysiology and neurochemistry to investigate the synaptic modulation of acetylcholine release by autoreceptors. Send curriculum vitae and the names and addresses of three references to: **Dr. George G. Bierkammer, Department of Pharmacology, University of Nevada School of Medicine, Reno, Nevada 89557. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available immediately for recent Ph.D. in immunology. Studies include analysis of rheumatoid cartilage immunogens and cloning of peripheral blood lymphocytes from arthritic patients. Stipend: \$15,000 per year. Send curriculum vitae and names of references to: **David J. Schurman, M.D., and R. Lane Smith, Ph.D., Stanford University Medical Center, Orthopedic Research Laboratory, R171, Stanford, Calif. 94305.**

POSTDOCTORAL POSITION available September 1983 for studies on bases for defective melanization and associated immunological defects in avian model. Background in immunobiology and/or pigment cell biology. Appointment is for 2½ years with starting salary of \$16,000, plus \$3274 fringe benefits. Closing date for applications: 1 September. Send résumé to: **Dr. J. Robert Smyth, Department of Veterinary and Animal Sciences, University of Massachusetts, Amherst, Mass. 01003. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITIONS

Applications are invited for postdoctoral fellowships in the area of the regulation of eukaryotic gene expression, with particular emphasis on chromatin structure, DNA replication, immunoglobulin, hemoglobin and H-2 genes, and cell surface glycosylation genes. Challenging research projects provide opportunities for training in molecular cloning of eukaryotic genes, recombinant DNA technology, DNA sequencing, DNA transfection, expression of cloned genes in heterologous systems, and production of monoclonal antibodies. Send curriculum vitae, a brief statement of research interests, and two letters of recommendation to: **Dr. Matthew D. Scharff, Associate Director, Chanin Cancer Research Institute, Albert Einstein College of Medicine, Bronx, New York 10461.**

PROFESSORSHIP, medicinal chemistry—bioorganic chemistry, Purdue University.

Candidates for this position, which is at the associate or full professor level, should have an outstanding record of research achievement in the area of the biosynthesis of secondary metabolites of plants or microorganisms with biological activity. For example, the area of antibiotic biosynthesis with an emphasis on the chemistry, genetics, and biochemistry of antibiotic production. An earned doctorate in organic, bioorganic, or medicinal chemistry is required. Duties will include teaching organic-biochemistry at the undergraduate and graduate levels. Candidates should provide curriculum vitae, three letters or recommendation, and a description of research interests by 15 August 1983 to: **Dr. John M. Cassidy, Head, Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy, Purdue University, West Lafayette Indiana 47907. Purdue University is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

ORGANIC/BIOORGANIC FACULTY POSITION to be filled at assistant professor level for fall 1983. Successful candidate must develop a vigorous independent research program in a young, enthusiastic department with high scientific standards. Teaching assignment will include the undergraduate introductory biochemistry course. Postdoctoral experience preferred. Letter of application, complete transcripts, outline of research plans, curriculum vitae, and three confidential letters of recommendation should be sent to: **Faculty Search Committee c/o J. E. Gano, Department of Chemistry, University of Toledo, Toledo, Ohio 43606. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION UCLA MEDICAL SCHOOL

A cell biologist with training in genetics is sought to undertake a genetic characterization of murine lymphoma T cell lines derived from AKR mice. Excellent research environment and support. A Ph.D. in either cell biology/immunology or genetics is required. Some knowledge of surface antigen expression and hormone assays helpful. Send curriculum vitae and list of references before 1 July 1983 to: **Personnel Officer, EH, University of California, Los Angeles, Laboratory of Biomedical and Environmental Sciences, 900 Veteran Avenue, Los Angeles, California 90024. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately for research on genetic and molecular mechanisms of bioactive polypeptides in cultured cells. Send curriculum vitae to:

**Dr. N. Shimizu
Department of Cellular and Developmental Biology
University of Arizona
Tucson, Arizona 85721**

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITIONS IN CARDIOLOGY—Positions are available starting 1 July 1983 (i) to study the biochemical alterations in the myocardium associated with various loading conditions of the heart and (ii) to examine the quantitative fine structural changes that occur as a result of various hemodynamic loads placed on the heart. Background in (i) cardiac biochemistry or (ii) cardiac ultrastructure preferred. Send curriculum vitae and names of three references to: **Dr. George Cooper, IV, Division of Cardiology, Department of Medicine, Temple University School of Medicine, 3401 North Broad Street, Philadelphia, Pa. 19140. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available for studies involving the development of in vitro assays to serve in lieu of existing whole animal toxicity testing.

Emphasis utilizing cell culture techniques, cell chemistry, and pathology. Independent as well as collaborative research encouraged. Salary: \$18,000 and benefits. Please send résumé, copies of publications, and names and telephone numbers of three references to:

**Dr. D. M. Stark
The Rockefeller University
Box 2
1230 York Avenue
New York, N.Y. 10021**

POSTDOCTORAL/RESEARCH ASSOCIATES

To investigate **TRANSCELLULAR IgG TRANSPORT** at the ultrastructural and biochemical levels in a unique tissue culture system or to use existing monoclonal Ab to study **COATED VESICLE STRUCTURE** and assembly. Send curriculum vitae and telephone numbers of three referees to: **Dr. Thomas F. Roth, Department of Biological Sciences, University of Maryland Baltimore County, Baltimore, Md. 21228.**

An Equal Opportunity/Affirmative Action Employer

RESEARCH SOIL MICROBIOLOGIST. Career Federal Service. Incumbent to develop independent research program that will evaluate microbial factors for their potential influence on weed seed longevity in soil. Position located at University of Missouri Campus, Columbia, Missouri. GS-11/12/13, salary based on qualifications and experience. For applications: **J. Brooks, USDA-ARS-NCR-B59, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7813. Candidates must be U.S. citizens. An Equal Opportunity Employer.**

Allelix^{INC}

has openings for Two Research Scientists

- 1) **Plant Cytogeneticist** to conduct research with somatic and meiotic cells of crop plant species and to work cooperatively with other research programs. Minimum qualifications for the position include a Ph.D. in genetics (with emphasis on plant cytogenetics) and two or more years of professional experience beyond the Ph.D. degree. Established expertise in pachytene analysis and in modern methods of chromosome identification is preferred.
- 2) **Enzymologist**, preferably with experience in affinity chromatography and protein sequencing, to work in collaboration with a group cloning plant genes. The applicant should have a Ph.D. followed by several years professional experience.

A partnership of three major Canadian organizations formed Allelix in 1981, and have committed approximately \$100 million to assure long-term success. Research is conducted in a modern, custom-built laboratory near Toronto. Four major universities are easily accessible. Nearby housing accommodations range from urban to open country. Salaries and benefits are at fully competitive levels.

If you are interested in this ground-floor opportunity, please send your resume, including a statement of research interest, representative copies of published work and letters of reference to:

Dr. James F. Shepard, Allelix Inc., 6850 Goreway Drive, Mississauga, Ontario, Canada, L4V 1P1.

AFOSR

SCEEE

AIR FORCE WEAPONS LABORATORY
RESEARCH SCHOLAR PROGRAM
1983 - 84

The Air Force Office of Scientific Research, The Air Force Weapons Laboratory, and The Southeastern Center for Electrical Engineering Education (SCEEE) are initiating an Air Force Weapons Laboratory (AFWL) Research Scholar Program beginning during the summer of 1983. This new research program is an adjunct effort to the U.S. Air Force Summer Faculty Research Program and will provide one year research opportunities for selected Engineers and Scientists, with research to be performed in residence at the AFWL, Kirtland AFB, Albuquerque, New Mexico. Scholars will be selected primarily from such fields as Engineering, Applied Science, Mathematics, and Computer Science. To be eligible, candidates must have a Ph.D. or equivalent in an appropriate technical field. All qualified applicants will receive consideration without regard to race, color, religion, sex, or national origin. SCEEE supports Equal Opportunity/Affirmative Action.

For Further Information Contact:

SCEEE
1101 Massachusetts Ave.
St. Cloud, FL 32769

Or Call:
(305) 892-6146

REQUEST FOR PROPOSALS ON SPECIAL PROBLEM AREAS IN REGIONAL AIR QUALITY STUDIES

The Electric Power Research Institute's Energy Analysis and Environment Division is soliciting specialized research proposals pertinent to the following features of regional air quality:

- Long-range transport of airborne gases and aerosols
- Preferred chemical pathways for the formation of sulfates and nitrates in the atmosphere
- Meteorological factors in the transport and transformation of reactive pollutants
- The magnitude of the random component of air quality variability

Responses to this solicitation are to be in the form of a clearly stated scientific problem, the research approach, the time schedule, and a cost estimate. Proposals from educational institutions, involving graduate student training and a level of effort in the range of one-half to one person-year per year are especially encouraged. The data bases on sulfates, precipitation chemistry, visibility, etc. generated by EPRI's Air Quality Studies subprogram (SURE, RAQS, UAPSP) are available for these projects.

If you wish to respond to this solicitation, write to the address below requesting RFP1630-25.

**Mr. Michael Poole, Proposals Office
Electric Power Research Institute
3412 Hillview Avenue
P.O. Box 10412
Palo Alto, CA 94303**

VICE PRESIDENT RESEARCH AND DEVELOPMENT Biotechnology

An exceptional ground floor opportunity for a uniquely qualified individual to provide scientific and managerial direction for the development of new product lines.

We are a young, dynamic company in the Biotechnology field focusing on:

clinical diagnostic reagents and instrumentation
fermentation products agricultural chemicals

The ideal candidate will have outstanding scientific credentials (a Ph.D. or equivalent in Biochemistry, Molecular Biology, Immunology or related science and post-doctoral research training experience). Additionally, he/she will have eight to ten years experience in supervising a medium-size R&D laboratory and in hiring technical personnel. This is an unusual opportunity to build and direct R&D teams in a product oriented company.

Equally important, we need an individual with the management skills and personality traits to be an integral part of our Senior Management team.

If you have the scientific and leadership skills, are professionally motivated to hold an adjunct professorship at a world-renowned university, to interface with an internationally prominent Scientific Advisory Board and leading research institutions, and are interested in a competitively attractive compensation package, including an opportunity for substantial equity participation, then please forward your curriculum vitae in strict confidence to the Chief Scientific Officer at:

Box 133, SCIENCE

POSITIONS OPEN

POSTDOCTORAL POSITION immediately available for recent Ph.D. in biochemistry or pharmacology to study peptide receptors and post-receptor molecule signals. Must have solid background in protein chemistry and enzymology. Prefer experience in cell cultures, ligand-receptor interactions, and immunological techniques. One-year appointment with second year option for Dr. Jose Musacchio, Department of Pharmacology. Send résumé with names of three references to: **M. Kerans, Recruitment Coordinator, New York University Medical Center, 560 First Avenue, New York, New York 10016. An Affirmative Action/Equal Opportunity Employer, M/F.**

RESEARCH INSTITUTE OF SCRIPPS CLINIC LA JOLLA, CALIFORNIA POSTDOCTORAL POSITION IN CELLULAR IMMUNOLOGY

A postdoctoral position is available in the Department of Molecular Immunology of the Research Institute of Scripps Clinic. The project involves the molecular analysis of the cytolytic mechanism of lymphocyte-mediated cytotoxicity. Applicants with a background in cell culture and cell separation techniques are preferred. The Research Institute provides a stimulating intellectual environment with other groups working in biochemistry, cellular and molecular biology, immunology, virology, and clinical medicine.

Send résumé and names of two references to: **Dr. Eckhard Podack, Department of Immunology, Scripps Clinic and Research Foundation, 10666 North Torrey Pines Road, La Jolla, California 92037. Telephone: 619-455-8072.**

POSTDOCTORAL—RESEARCH ASSOCIATE POSITION to conduct rotavirus studies. Applicant should have a background and interest in molecular aspects of animal virology, preferably including experience in hybridoma and recombinant DNA research and a strong interest in clinical applications. Salary commensurate with experience but in the range of \$16,000 to \$20,000. Position available immediately. *We are an Affirmative Action/Equal Opportunity Employer.* Send curriculum vitae and names of references to: **Richard L. Ward, Ph.D., The Christ Hospital Institute of Medical Research, 2141 Auburn Avenue, Cincinnati, Ohio 45219.**

POSTDOCTORAL RESEARCH ASSOCIATE—Works on molecular biology of glucocorticoid receptors. Send curriculum vitae and names of three references to: **Gerald Litwack, M.D., Fels Research Institute, Temple University School of Medicine, 3420 North Broad Street, Philadelphia, Pa. 19140.** Experience in molecular biology preferred. Stipend negotiated on basis of experience. *Temple University is an Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH OPPORTUNITIES

The Graduate Program in Craniofacial Biology at The University of Southern California in Los Angeles offers outstanding scientists in the early stages of their careers several postdoctoral fellowships in a stimulating biomedical environment. Applicants must have a Ph.D. in biochemistry, cell biology, immunology, molecular biology, D.D.S., or M.D. Fellowships are available for 3 years beginning September 1983.

Research projects include the structure and function of enamel gene products, regulation of enamel gene expression, genetic studies of drug-induced birth defects in congenic strains of mice, bone diseases, pulmonary surfactant production during mouse fetal lung morphogenesis, primary and secondary palate formation, tooth morphogenesis, extracellular matrix regulation of differentiation, and evolutionary studies of dental gene products.

Please submit complete curriculum vitae and three letters of reference before 15 July 1983 to: **Dr. H. C. Slavkin, Chairman, Graduate Program in Craniofacial Biology, University of Southern California, University Park, Los Angeles, California 90089-0191.**

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

RESEARCH ASSOCIATE/POSTDOCTORAL. An opportunity for an individual with training in analytical chemistry and expertise with HPLC (UV and ECD detectors) to join a multidisciplinary team studying the disposition and pharmacokinetics of narcotics and endorphins. Start 1 July 1983. Send curriculum vitae and references to: **Dr. Charles E. Inturrisi, Department of Pharmacology, Cornell University Medical College, 1300 York Avenue, New York, N.Y. 10021. Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION—CELLULAR SECRETION. Available immediately to study secretory mechanisms in the adrenal chromaffin system. Experience in any of the following areas desirable: membrane biophysics, fluorescence spectroscopy, membrane isolation, calcium uptake/efflux, cell culture. Send curriculum vitae, bibliography, and the names of three references to: **Dr. Allan Schneider, Sloan-Kettering Institute, Cornell University, Graduate School of Medical Sciences, 1275 York Avenue, New York, N.Y. 10021.**

POSTDOCTORAL/RESEARCH ASSOCIATE POSITIONS (two) available immediately for: (i) studies on lipoprotein clearance defects, including apoprotein abnormalities during experimental diabetes, and (ii) studies on the role(s) and mechanisms of sterol and phospholipid transfer proteins in regulating cellular lipid translocations. Salary negotiated based on experience, personal grants, and so forth. Send references (three) and curriculum vitae to: **Dr. George V. Vahouny, Department of Biochemistry, The George Washington University School of Medicine and Health Sciences, 2300 Eye Street, NW, Washington, D.C. 20037. Affirmative Action/Equal Opportunity Employer.**

ENDOWED PROFESSORSHIP FOR CANCER RESEARCH

The University of Kansas College of Health Sciences is seeking a highly qualified scientist who will devote 80 percent effort to cancer research. Candidates must have a Ph.D., M.D., or M.D./Ph.D. and be able to establish a productive program in basic cancer research. Expertise in molecular genetics, immunology, or toxicology is preferred. Extensive laboratory space, developmental funds, and faculty appointment with tenure are available. Submit curriculum vitae, three references, and a letter describing interests and needs to: **Dr. Larry H. Baker, University of Kansas Cancer Center, 39th and Rainbow Boulevard, Kansas City, Kansas 66103. An Equal Opportunity/Affirmative Action Employer.**

PROGRAM DIRECTOR—Ph.D., biochemical engineer, biochemist, or molecular biologist to be program director of biotechnology industrial-university training program. Nontenure-track assistant or associate research professor in Chemical Engineering Department. Experience in rDNA methodology desirable. Will coordinate and participate in teaching biochemical microbiological methods. Will also develop research program. Please submit résumé and three references to: **Chemical Engineering Department, Tufts University, Medford, Mass. 02155. An Affirmative Action/Equal Opportunity Employer.**

RESEARCH ASSOCIATE positions available for qualified Ph.D.'s to study regulation of plasmid DNA replication, regulation of gene expression in prokaryotes, and structure-function relationships of virulence factors of bacterial pathogens using molecular biological techniques. Stipend depends on previous experience. Please send curriculum vitae and letters of recommendation to: **Dr. June R. Scott, Department of Microbiology and Immunology, Emory University School of Medicine, Atlanta, Ga. 30322. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE. Position available immediately for a Ph.D. to study the relationships between CNS neuropeptide systems and behavior in nonhuman primates. Experience in behavior neuropharmacology and/or neurobiology is desirable. Send curriculum vitae and names of two references to: **Dr. Ned Kalin, Department of Psychiatry, Clinical Sciences Center, 600 Highland Avenue, University of Wisconsin, Madison, Wisconsin 53792. Salary range: \$16,000 to \$18,000. An Affirmative Action/Equal Opportunity Employer.**

RESEARCH ASSOCIATE. Carry out experiments on cellular and molecular aspects of peroxisome proliferation induced by hypolipidemic drugs in rodents and other experimental animal species, and study the mechanism underlying hypolipidemic drug-induced carcinogenesis; fluorometry; electrophoresis; chromatography; autoradiography; subcellular fractionation of tissues; enzyme analysis; density gradient centrifugation; and mutagenesis assays. Requires Ph.D. Also requires 2 years of experience in postdoctoral studies in experimental pathology. Forty hours per week. Hours: 8 a.m. to 5 p.m. Salary: \$17,087. Job location: near north side. Send résumés to: **Illinois Job Service, 910 South Michigan Avenue, Room 400, Chicago, Ill. 60605. Reference number 1408-H. An employer paid ad.**

POSITIONS OPEN

UNIVERSITY OF PENNSYLVANIA DEPARTMENT OF MEDICINE

The Cardiovascular-Pulmonary Division seeks **TWO RESEARCH ASSISTANT PROFESSORS:** Ph.D. in physiology or bioengineering with proven competence either in mathematical modeling of the water-exchanging system of the lungs or neurophysiological techniques as applied to respiratory anatomy and physiology. Candidates should have electronics background and expertise in handling specialized techniques as well as pertinent computer hardware and software. Experience in both physiological and computer laboratories are prerequisite. Send résumé and names of three references to: **Michael McNicholas, Cardiovascular-Pulmonary Division, Department of Medicine, Hospital of the University of Pennsylvania, 3400 Spruce Street, Philadelphia, Pa. 19104. Equal Opportunity/Affirmative Action Employer, M/F.**

RESEARCH ASSOCIATE to assist and collaborate in ongoing research, to develop and maintain computer hardware and software for neuromuscular signal analysis and to initiate new research. Must have Ph.D. or equivalent in biomedical engineering, 1 year of experience in similar work, and research interest in automated EMG analysis and simulation of physiologic signals. Salary: \$16,000. Two publications related to EMG and two references necessary. Send résumé to: **D. B. Sanders, M.D., Box 3403, Duke University Medical Center, Durham, N.C. 27710. Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE

Ph.D. plus experience in *B. subtilis* genetics required. Training in mycology and plants desirable to work on microbial genetics and plant pathology. Send curriculum vitae and names of references to: **Search Committee, Department of Cellular and Developmental Biology, Biosciences West Room 308, University of Arizona, Tucson, Arizona 85721**

An Equal Opportunity/Affirmative Action Employer

RESEARCH ASSOCIATE sought for an opening in the Spectroscopy Laboratory of the Massachusetts Institute of Technology (MIT). Will conduct investigations into use of lasers and fiber optics in specialized surgical techniques. In addition, will assist other researchers at MIT Regional Laser Center, working closely with graduate students, technicians, medical doctors, and so forth, as well as organizing and pursuing research programs. Involves coordinating efforts of other scientists and technicians.

Candidates must have Ph.D. in physics or chemistry with broad background in lasers, optics, and spectroscopy. Minimum of 3 years of experience with pulsed UV/visible/IR laser systems and CW ion-dye lasers, plus expertise in optical imaging techniques and spectroscopic analysis crucial.

Please submit two copies of résumé, referencing job number R1022, to: **Vera J. Ballard, MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, Mass. 02139. MIT is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH LEADER, interdisciplinary—microbiologist, biologist, or biochemist. Salary: \$35,000 to \$48,500, depending on qualifications. To develop a program on the biochemistry of plant/microorganism interaction in the rhizosphere. Research will encompass both symbiotic and associative nitrogen fixation with an emphasis on the effects of environmental stress (temperature, drought, salinity) on these associations. Résumé and references due by 24 June 1983 to: **Dr. John Bernardin, U.S. Department of Agriculture, Western Regional Research Center, 800 Buchanan Street, Albany, Calif. 94710. Equal Opportunity Employer.**

Job opening: **SYSTEM SOFTWARE STAFF** of the Computer-based Education Research Laboratory (PLATO), with duties in maintenance, development, system management, and system design. Qualifications: bachelor's degree or comparable experience, with experience in system software and/or CAI programming. Should be able to work on own initiative in group of 10 to 20 people. Starting salary: \$18,000 to \$22,000. Send letter and résumé to: **Michael W. Walker, 252 ERL, 103 South Mathews, University of Illinois, Urbana, Ill. 61801. Closing date: 20 June 1983.**

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



Enthusiastic candidates confident of their superior practical abilities, intellectual stamina, and capacity for original thought will be considered at Scientist (Ph.D.) and Technical (M.S./B.S.) levels for career positions at our Advanced Research Laboratory in Madison, Wisconsin, in the following areas of crop biotechnology:

- Expression of alien genes in transformed plant tissues
- Genetic identification of crop traits amenable to bioengineering
- Cellular manipulation and regeneration of crop plants
- Greenhouse and growth chamber culture of genetically modified plants

Superb facilities for Biochemistry, Microbiology, Cell Biology and Genetics, plus modern controlled environments for plant culture and 10,000 square feet of research greenhouse. Research programs integrate with work of 8 company plant breeding stations, our Applied Genetics Laboratory (Boulder, CO) and sponsored research at various universities.

A resume, together with names of three referees and statement of career objectives should be sent to:

Director/Advanced Research Division
Agrigenetics Corporation
5649 E. Buckeye Road
Madison, WI 53716

Enzyme Scientist Drug Metabolism

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

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

We offer an excellent compensation and benefits package including an attractive relocation policy. Please send your C.V. in confidence to: C.J. Elder, Smith Kline & French Laboratories, a division of SMITHKLINE BECKMAN CORPORATION, 1570 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

SK&F

A SmithKline Beckman Company

Postdoctoral Scientist Receptor Localization

Smith Kline & French Laboratories, a leader in the health care industry has an exciting growth opportunity in our Pathology Department located in suburban Philadelphia, Pennsylvania. We seek a postdoctoral scientist to study drug receptor localization and binding sites in tissues and cultured cells in a broad range of systems including cardiovascular, renal, immune and gastrointestinal. Candidates must possess a degree at the doctoral level and have demonstrated experience in electron microscopy and receptor localization. Candidates with expertise in EM autoradiography are strongly encouraged to apply. Appointment is for 1 year; renewable for a second by mutual agreement of the candidate and the sponsoring department.

Our compensation and benefit package, including our relocation policy, geared to today's economy, are among the best in the industry. Investigate our growth and your potential to grow with us by sending your C.V. and names of 3 references to: Mr. Jim Beyea, SMITH KLINE & FRENCH LABORATORIES, a Division of SMITHKLINE BECKMAN CORPORATION, 1538 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

SK&F

A SmithKline Beckman Company

ELECTRON MICROSCOPY RESEARCH SCIENTIST

The Upjohn Company, a leader in worldwide research, marketing, and production of pharmaceuticals, health care products, chemicals, and agricultural products, is seeking a Ph.D. Scientist to supervise the operations and personnel of a service electron microscopy laboratory. The Scientist will support and collaborate with other Upjohn Scientists in a wide variety of ultrastructural research projects, and also conduct independent ultrastructural research.

Candidates should have a Ph.D. in pathology, anatomy, or closely related field with at least one year of experience supervising a service electron microscopy laboratory. Knowledge of modern theory and methods in electron microscopy and experience in the following technical aspects and specialized techniques is required: processing, embedding, sectioning, staining and photography, x-ray dispersion analyses, cytochemistry, freeze fracture and morphometrics. The ability to provide routine maintenance for electron microscopy equipment and broad experience in evaluating ultrastructural data is required. Must be able to supervise laboratory personnel and work well with a variety of people.

Upjohn offers an excellent salary, commensurate with experience, and an outstanding benefits package. Kalamazoo is a medium-sized Southwestern Michigan community with immediate access to a mix of excellent cultural, educational and recreational pursuits. For confidential consideration, please call toll free 1-800-253-8600 — ask for extension 3-6767 (from Michigan call collect 616/323-6767), to request a specialized employment application that will be sent to you immediately. Please refer to ad number 15009 when calling.

An Equal Opportunity Employer M/F

Upjohn

POSITIONS OPEN

UNIVERSITY OF ALBERTA DEPARTMENT OF ANATOMY

The Department of Anatomy invites applications for two positions as **RESEARCH SCHOLARS** at the assistant/associate professor rank (\$29,720 to \$41,820; \$37,420 to \$53,658). The successful candidates must have a Ph.D. and/or M.D. degree(s) and at least 2 years of postdoctoral experience and have demonstrated outstanding ability for independent research. While preference will be given to investigators interested in reproductive endocrinology, gastrointestinal pathophysiology, and musculoskeletal histochemistry, highly qualified candidates in other research areas will be considered.

These positions will be long-term (normally 5 years, renewable) and will be contingent on the applicants being funded through an external agency, such as the Alberta Heritage Foundation for Medical Research, but the incumbent will enjoy the privileges of the University academic rank at which the appointment is made. The granting of these awards is by competition and is made on the basis of excellence. The successful candidates are expected to devote approximately 75 percent of their time to medical research. The remaining 25 percent of time will be devoted to teaching and related activities. Candidates should forward their curriculum vitae, a two- to three-page outline of their proposed research, and the names of three references to: **Dr. K. D. McFadden, Acting Chairman, Department of Anatomy, University of Alberta, Edmonton, Alberta, Canada T6G 2H7.** The closing date for this competition is 1 August 1983. *The University of Alberta is an Equal Opportunity Employer, but in accordance with Canada Employment and Immigration Regulations, priority for these positions will be given to Canadian citizens and permanent residents.*

RESEARCH SCIENTIST

The Denver Center for the Performing Arts has founded a research laboratory for the study of laryngeal and respiratory function, both as basic research and in application to vocal performance. The laboratory is located in Denver, Colorado. Its director is Dr. Wilbur J. Gould, and associate director, as consultant, Dr. Ingo R. Titze.

Responsibilities include developing and carrying out a research program in voice area, development of laboratory, grant writing, and cooperation with visiting scientists. Emphasis on voice physiology, acoustics, or perception. Demonstrated ability to design and report research. Background may be in physical or biological sciences, engineering, medicine, experimental phonetics/speech science, or research in vocal performance. Should have interest in vocal arts and enhancement of vocal performance in both live and recorded form.

Starting salary about \$27,500, depending on qualifications. Send letter of application with curriculum vitae, bibliography, and three or more letters of recommendation to:

Dr. Ingo R. Titze
Department of Speech Pathology and Audiology
University of Iowa
Iowa City, Iowa 52242

FELLOWSHIPS

RESEARCH FELLOWSHIP to study metabolism of isolated microvessels and cultured vascular cells. Research will deal with regulation of glucose transport and metabolism and of relationship of alterations in the processes to the genesis of vascular disease in diabetes. Stipend as per NIH criteria. Starting date: mid to late 1983. Send curriculum vitae and names of three references to: **Dr. N. B. Ruderman, Dr. K. Tornheim, or Dr. A. McCall, Boston University School of Medicine, 75 East Newton Street, Boston, Mass. 02118.** If attending ASBC meeting, please telephone: 617-247-6649. *Equal Opportunity Employer.*

A CHARLES H. REVSON FOUNDATION POSTDOCTORAL RESEARCH FELLOWSHIP is available in the Department of Biochemistry, Cornell University Medical College, to work with Dr. Alton Meister and associates on the biochemistry and molecular biology of amino acids, peptides, and proteins. Holders of M.D. or Ph.D. degrees are invited to apply for a 2-year fellowship with competitive salary. Applicants should generally have no more than 3 years of basic or clinical training beyond receipt of the doctorate. Send curriculum vitae and three references to: **Office of Research and Sponsored Programs, Cornell University Medical College, 1300 York Avenue, Room A-131, New York, N.Y. 10021.**

FELLOWSHIPS

A NORMAN AND ROSITA WINSTON FOUNDATION POSTDOCTORAL RESEARCH FELLOWSHIP is available in the Department of Obstetrics/Gynecology, Cornell University Medical College, to work with Dr. J. M. Bedford and associates in investigation of the cellular and molecular mechanisms that regulate the maturation of mammalian gametes and their interactions leading to conception. Holders of M.D. or Ph.D. degrees are invited to apply for a 2-year fellowship with competitive salary. Applicants should generally have no more than 3 years of basic or clinical training beyond receipt of the doctorate. Send curriculum vitae and three references to: **Office of Research and Sponsored Programs, Cornell University Medical College, 1300 York Avenue, Room A-131, New York, N.Y. 10021.**

A NORMAN AND ROSITA WINSTON FOUNDATION POSTDOCTORAL RESEARCH FELLOWSHIP is available in the Department of Physiology, Cornell University Medical College, to work with Dr. Bernice Grafstein and associates on the cellular, biochemical, and functional aspects of neuronal regeneration in the visual system. Holders of M.D. or Ph.D. degrees are invited to apply for a 2-year fellowship with competitive salary. Applicants should generally have no more than 3 years of basic or clinical training beyond receipt of the doctorate. Send curriculum vitae and three references to: **Office of Research and Sponsored Programs, Cornell University Medical College, 1300 York Avenue, Room A-131, New York, N.Y. 10021.**

PREDOCTORAL FELLOWSHIP IN BIOCHEMISTRY. Medically oriented research training in exciting, well-established, multidisciplinary laboratory. Students with bachelor's or master's degrees are eligible. Tuition waiver and stipend of \$8,000 annually to qualified individuals. Application should be sent to: **D. J. Baylink, M.D., Professor of Medicine and Biochemistry, Loma Linda University, Chief, Mineral Metabolism (111E), Pettis VA Hospital, 11201 Benton Street, Loma Linda, Calif. 92357.**

POSTDOCTORAL FELLOWSHIPS are available to M.D. or Ph.D. graduates within the Department of Pathology, The University of Texas Health Science Center, San Antonio. Research projects involve the regulation of cellular endocytosis, mechanisms of cellular injury, and the pathobiology of inflammatory mediators. Applicants must be either U.S. citizens or permanent residents, with a primary interest in basic research in an academic environment. Applications, including a résumé and the names of three referees, should be sent to: **Colin J. Schwartz, M.D., FRACP, Professor of Pathology, Department of Pathology, The University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284. Telephone: 512-691-6121.** *The University of Texas is an Equal Opportunity/Affirmative Action Employer.*

PFIZER POSTDOCTORAL FELLOWSHIPS

Pfizer Pharmaceuticals is offering postdoctoral fellowships to begin 1 July 1984. Physicians who have completed at least 3 years of residency training in psychiatry, internal medicine, or pediatrics, and who wish to begin research careers in cardiovascular medicine, rheumatology, psychiatry, diabetes, or infectious diseases are eligible. These awards will be available for up to 3 years. The application deadline is 1 November 1983. All fellows must be sponsored by an established investigator and recommended by the chairman of the Department where the applicant will take the fellowship training.

For further information and applications, please write: **Rita Wroblewski, M.D., Director of Medical Affairs, Pfizer Pharmaceuticals, 235 East 42 Street, New York, N.Y. 10017.**

POSTDOCTORAL FELLOWSHIP POSITION

Ph.D. in biochemistry or immunology with experience in cell culture, in purification and analysis of proteins by columns and electrophoresis, and in immunochemistry and radioimmunoassay techniques to work on regulation of acute phase and reactant synthesis in acute and chronic inflammation. Send curriculum vitae and recommendations to: **Dr. Jean D. Sipe, Arthritis Section—E337, Boston University School of Medicine, 75 East Newton Street, Boston, Mass. 02118.**

FELLOWSHIPS

IMMUNODIAGNOSTICS

Becton Dickinson Postdoctoral Fellowship

POSTDOCTORAL POSITION available starting 1 October 1983 to study, evaluate, and participate in the development of new and novel nonisotopic immunoassay technology. Candidates must be well instructed in and have had some experience with protein immobilization and immunoassay. Salary: \$20,000 per year and a relocation allowance. This assignment will be at the Becton Dickinson and Company Research Center in North Carolina's renowned Research Triangle Park. Send curriculum vitae, a description of your research interests, and the names of three references to: **Dr. Daniel B. Wagner, Becton Dickinson and Company Research Center, P.O. Box 12016, Research Triangle Park, North Carolina 27709.** *An Equal Opportunity/Affirmative Action Employer.*

CONFERENCE

CONFERENCE ON CURRENT STATUS OF THE BIOLOGY AND CHEMISTRY OF THE CARBONIC ANHYDRASES

28 to 30 September 1983
The Barbizon-Plaza Hotel, New York City

Sponsored by
The New York Academy of Sciences

Conference Chair:
Dr. Richard E. Tashian
University of Michigan Medical School

For further information, contact: **Conference Department, The New York Academy of Sciences, 2 East 63 Street, New York, N.Y. 10021; telephone: 212-838-0230.**

SYMPOSIUM

PERSPECTIVES IN THERAPEUTICS APPLICATIONS OF BIOELECTRICITY

The First Symposium of the International Society for Bioelectricity will be held 1 October 1983 at the Sheraton Hotel in Boston, Massachusetts. Topics will include interactions of electromagnetic fields with biological systems, electrical control of growth and development and clinical studies with neuroelectric stimulation. Program includes invited speakers, contributed papers, and discussions. Biological scientists, clinicians, and engineers are invited to submit abstracts for program presentations. Abstracts (no more than 250 words) should be sent by 15 August 1983. For further information, contact: **Dr. B. Lipinski, P.O. Box 82, Boston, Mass. 02135; telephone: 617-431-1990.**

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UNIVERSITY OF LEIDEN THE NETHERLANDS

The Subfaculty of Chemistry of the University of Leiden, The Netherlands, invites applications for the position of

professor of physical chemistry (m/f)

vacancy number: 3-121/2491

within the section of Physical and Macromolecular Chemistry. The appointee should be a physicist or a physical chemist with a thorough knowledge of statistical physics and personal experience in the development of new theoretical concepts e.g. as applied to the study of critical phenomena. The appointee is expected to be willing to apply his knowledge and experience to problems in the field of **the physics of macromolecular systems** including their (thermo)dynamic properties, to stimulate thereby the current research in the Section of Physical and Macromolecular Chemistry but also to open new fields for experimental investigations in that Section.

Responsibilities will include an active participation in the teaching by the Section.

More detailed information about this position can be obtained from the Chairman of the Section of Physical and Macromolecular Chemistry, Prof. dr. J. C. Leyte, Gorlaeus Laboratories, University of Leiden, P.O. Box 9502, 2300 RA Leiden, the Netherlands.

Salary range: f 84 000 to f 120 000 p.a

Applications with curriculum vitae and including full details of qualifications and experience should be addressed as soon as possible to the Chairman of the Section.

leiden^{RU}

U.S. PUBLIC HEALTH SERVICE EPIDEMIOLOGY TRAINING PROGRAM— 1984

The U.S. Public Health Service (USPHS) invites applications for a planned extension of a training program in medical epidemiology. Up to twelve (12) persons per year, who already have an M.D., a doctorate in an allied health profession, or Ph.D. in a biomedical or behavioral science (e.g., biochemistry, psychology, etc.), or equivalent, may be accepted as service fellows of the USPHS (a non-tenured, junior professional classification under Civil Service) for up to a three-year period of duty. Applications received by SEPTEMBER 9, 1983 may be considered for service to begin between July 1, and September 1, 1984.

During the first year, each successful applicant will attend a university at government expense to study epidemiology, biostatistics, and related subjects. This course work should be creditable toward, but will not necessarily complete requirements for, a degree in public health. During the subsequent two years, individuals will work in association with senior epidemiologists in the participating USPHS agencies (Alcohol, Drug Abuse, and Mental Health Administration; Centers for Disease Control; Food and Drug Administration; National Center for Health Statistics; and the National Institutes of Health) primarily in research studies. A matching procedure akin to the national internship matching will be employed to assure that each individual is assigned to a preceptor whose area of expertise is of interest to the trainee, and consistent with his/her career plans.

Salaries will be provided according to the scale in effect for staff fellows in intramural research at ADAMHA and NIH. The current schedule of remuneration for a physician to be recruited in 1984 is \$30,000/for a non-physician, \$21,000, per annum for the first year, with a \$2,000 increase annually for the second and third years. Educational costs for the first year and relocation expenses are provided in addition. Basic requirements for application to the program are: 1) M.D., doctorate in an allied health profession, or Ph.D. in a biomedical or behavioral science, or equivalent, AND one year of postdoctoral training or experience (by July 1, 1984), 2) U.S. citizenship at time of application, and 3) Acceptability to an accredited university offering an M.P.H. or equivalent, or more advanced public health degree.

To obtain further program details and application forms, SEND A POSTCARD ONLY, with your PRINTED name and home mailing address to: Robert S. Gordon, Jr., M.D., Chairman, Steering Committee, NIH, Building 1, Room 238, Bethesda, MD 20205. Please DO NOT SEND letters, curriculum vitae, resumes, transcripts, reprints, etc. until you have reviewed the instructions for submission and completed the application form. The USPHS is an equal opportunity employer.

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