

the latter argument has considerable merit, there is little evidence that surveillance and audit of antibiotic use has corrected physicians' prescribing habits or their well-documented abuse of antibiotics. Misuse or abuse of antibiotics has contributed to the high incidence of microbial resistance in infections acquired both in and out of the hospital and requires further development of new compounds able to eradicate organisms with seemingly more sophisticated mechanisms of resistance.

JOHN A. WASHINGTON II  
*Mayo Clinic,  
 Rochester, Minnesota 55905*

## Bacterial Adherence

**Adhesion and Microorganism Pathogenicity.** Papers from a symposium, London, May 1980. Pitman, London, 1981 (U.S. distributor, Medical Education Administration, Ciba Pharmaceutical Company, Summit, N.J.). x, 346 pp., illus. \$35. Ciba Foundation Symposium 80.

In essentially any environment where both microorganisms and solid surfaces occur, some of the microbes will attach to the surface and may subsequently proliferate and colonize it. This phenomenon has interesting, and frequently serious, implications in a wide range of habitats, including natural waters, soil, industrial containers and pipelines, and plant and animal hosts. This book of symposium proceedings deals specifically with the role of attachment of microbial pathogens in disease but should be fascinating reading for anyone interested in microbial attachment to surfaces.

The papers are roughly organized into three groups. The first group deals with mechanisms of microbial adhesion and includes papers on the attachment of mycoplasmas to inert surfaces and eukaryotic cells, of amoebae to eukaryotic cells, of bacteria to mucosal surfaces and cell-surface sugars, and of viruses to plant protoplasts. The second group deals with the pertinent question of whether adhesion is a dominant factor in pathogenicity, and the significance of adhesion to the pathogenicity of *Escherichia coli*, *Neisseria gonorrhoeae*, malaria merozoites, and chlamydiae (obligate intracellular parasites) is discussed. The third group deals with the ways in which disease may be prevented by inhibiting microbial adhesion and includes papers on aspects of the molecular basis for adhesion, such as the surface glycoproteins of myxoviruses and paramyxo-

viruses and the effects of glycoprotein synthesis or sublethal concentrations of antibiotics on bacterial adhesion. The main facts of these papers are then summarized in a table.

For the most part the papers are of excellent quality, but the real strength of the book lies in the discussions that follow each paper and in the general discussions of the use of glycolipids in receptor assays, streptococcal adherence, terminology, the nature of receptors, other factors affecting adhesion, the relevance of models, and clinical implications. The interchange between participants not only clarifies the answers to questions but also defines subjects for future research. For example, concerning the attachment of streptococci to eukaryotic cells, one participant refers to evidence suggesting that lipid moieties of lipoteichoic acid of streptococci are available for interaction and hypothesizes that the lipoteichoic acid is bound to bacterial surface proteins by hydrogen bonds, thus allowing the lipid ends to flip open as a host membrane approaches and to interact with receptor sites. Such a hypothesis could also help to explain a number of hydrophobic interactions that have been observed between apparently hydrophilic bacteria and hydrophobic surfaces in a range of habitats other than animal hosts. However, none of the other participants can provide theoretical or experimental support for the hypothesis, which only provokes further questions. Other stimulating questions touched on in the papers and explored during the discussions are whether there are examples of mixed bacterial infections where one species promotes or inhibits adhesion of another and whether adhesiveness could be a disadvantage to the pathogen by increasing its potential for interaction with phagocytic cells.

MADILYN M. FLETCHER  
*Department of Environmental Sciences,  
 University of Warwick,  
 Coventry CV4 7AL, England*

## Books Received

- Annual Review of Ecology and Systematics.** Vol. 12. Richard F. Johnston, Peter W. Frank, and Charles D. Michener, Eds. Annual Reviews, Palo Alto, Calif., 1981. x, 470 pp., illus. \$20.
- Annual Review of Physical Chemistry.** Vol. 32. B. S. Rabinovitch, J. M. Schurr, and H. L. Strauss, Eds. Annual Reviews, Palo Alto, Calif., 1981. x, 478 pp. \$20.
- Applied Time Series Analysis II.** Proceedings of a symposium, Tulsa, Okla., Mar. 1980. David F. Findley, Ed. Academic Press, New York, 1981. xii, 798 pp., illus. \$49.50.
- The Archaeology of Death.** Robert Chapman, Ian Kinnes, and Klavs Randsborg, Eds. Cambridge University Press, New York, 1981. viii, 160 pp., illus. \$29.50. New Directions in Archaeology.
- Arzneimittelwirkungen.** Ein Lehrbuch der Pharmakologie für Pharmazeuten, Chemiker und Biologen. Ernst Mutschler. Wissenschaftliche Verlagsgesellschaft, Stuttgart, ed. 4, 1981. xviii, 774 pp., illus. DM 68.

- Astronomy Through the Telescope.** Richard Lerner. Van Nostrand Reinhold, New York, 1981. 224 pp., illus. \$29.95.
- Atmospheric Chemistry.** Fundamental Aspects. E. Mészáros. Translated from the Hungarian edition (1977). Elsevier, New York, 1981. 202 pp., illus. \$41.50. Studies in Environmental Science 11.
- Between Science and Values.** Loren R. Graham. Columbia University Press, New York, 1981. xii, 450 pp. \$19.95.
- Bibliography of Bioethics.** Vol. 7. LeRoy Walters, Tamar Joy Kahn, Renée Johnson, and Cecily Orr, Eds. Free Press (Macmillan), New York, and Collier Macmillan, London, 1981. xii, 284 pp. \$55.
- The Biology of Algae and Other Verses.** Ralph A. Lewin. University Press of America, Lanham, Md., 1981. viii, 104 pp. Paper, \$6.75. Reprint of the 1978 edition.
- Brain Mechanisms of Perceptual Awareness and Purposeful Behavior.** Papers from a symposium, Pisa, July 1980. Ottavio Pompeiano and Cosimo Ajmone Marsan, Eds. Raven, New York, 1981. xxii, 494 pp., illus. \$57. International Brain Research Organization Monograph Series, vol. 8.
- The Burnout Syndrome.** Current Research, Theory, Interventions. John W. Jones, Ed. London House Press, Park Ridge, Ill., 1981. vi, 180 pp. Paper, \$12.95.
- Cancer.** An Introduction. William A. Creasey. Oxford University Press, New York, 1981. xiv, 272 pp., illus. Cloth, \$18.95; paper, \$12.95.
- Cell Markers.** G. Jasmin, Ed. Karger, Basel, 1981. xii, 294 pp., illus. \$99.50. Methods and Achievements in Experimental Pathology, vol. 10.
- Cellular Interactions.** Papers from a symposium, Cambridge, England, Sept. 1980. J. T. Dingle and J. L. Gordon, Eds. Elsevier/North-Holland, New York, 1981. xiv, 296 pp., illus. \$80. Research Monographs in Cell and Tissue Physiology, vol. 6.
- Disorders of the Cerebellum.** Sid Gilman, James R. Bloedel, and Richard Lechtenberg, Eds. Davis, Philadelphia, 1981. x, 416 pp., illus. \$40. Contemporary Neurology Series, 21.
- Drug Dependence and Alcoholism.** Vol. 2, Social and Behavioral Issues. Proceedings of a conference, Seattle, Apr. 1978. Arnold J. Schechter, Ed. Plenum, New York, 1981. xxii, 1042 pp. \$39.75.
- Dynamics of Large Mammal Populations.** Charles W. Fowler and Tim D. Smith. Wiley-Interscience, New York, 1981. xviii, 478 pp., illus. \$42.50.
- Ecological Genetics.** David J. Merrell. University of Minnesota Press, Minneapolis, 1981. xii, 500 pp., illus. \$25.
- Educational Policy and Management.** Sex Differentials. Patricia A. Schmuck, W. W. Charters, Jr., and Richard O. Carlson, Eds. Academic Press, New York, 1981. xiv, 338 pp. \$26.50. Educational Psychology.
- Elliptic Problem Solvers.** Proceedings of a conference, Santa Fe, N.M., June 1980. Martin H. Schultz, Ed. Academic Press, New York, 1981. xiv, 444 pp. \$27.50.
- Emission and Scattering Techniques.** Studies of Inorganic Molecules, Solids, and Surfaces. Proceedings of an institute, Alghero, Sardinia, Italy, Sept. 1980. Peter Day, Ed. Reidel, Boston, 1981 (distributor, Kluwer Boston, Hingham, Mass.). viii, 390 pp., illus. \$48. NATO Advanced Study Institutes Series C, vol. 73.
- Endogenous Peptides and Learning and Memory Processes.** Joe L. Martinez, Jr., Robert A. Jensen, Rita B. Messing, Henk Rigter, and James L. McGaugh, Eds. Academic Press, New York, 1981. xx, 588 pp., illus. \$49.50. Behavioral Biology.
- Environmental Speciation and Monitoring Needs for Trace Metal-Containing Substances from Energy-Related Processes.** Proceedings of a workshop, Gaithersburg, Md., May 1981. Frederick E. Brinckman and Richard H. Fish, Eds. National Bureau of Standards, Washington, D.C., 1981. xii, 326 pp., illus. Paper. NBS Special Publication 618.
- Environmental Systems Optimization.** Douglas A. Haith. Wiley, New York, 1982. xiv, 306 pp., illus. \$28.95.
- Essays of an Information Scientist.** Vol. 4, 1979-1980. Eugene Garfield. ISI Press, Philadelphia, 1981. xxii, 780 pp., illus. \$20.
- Etiology and Pathogenesis of Insulin-Dependent Diabetes Mellitus.** Julio M. Martin, Robert M. Ehrlich, and F. John Holland. Raven, New York, 1981. xvi, 296 pp., illus. \$33.50. Advances in Pediatric Research.
- Evaluation Roles in Education.** Arieh Lewy and David Nevo, Eds. Gordon and Breach, New York, 1981. xii, 512 pp., illus. \$35.
- Fear of Fear.** A Survey of Terrorist Operations and Controls in Open Societies. John B. Wolf. Plenum, New York, 1981. xx, 236 pp. \$22. Criminal Justice and Public Safety.

(Continued on page 1540)

## BOOKS RECEIVED

(Continued from page 1497)

**Fertilization and Embryonic Development in Vitro.** Luigi Mastroianni, Jr., and John D. Biggers, Eds. Plenum, New York, 1981. xii, 372 pp., illus. \$45.

**Human Reproduction.** Proceedings of a congress, Berlin, Mar. 1981. K. Semm and L. Mettler, Eds. Excerpta Medica, Amsterdam, 1981 (U.S. distributor, Elsevier North-Holland, New York). xvi, 586 pp., illus. \$93.50.

**Intermolecular Forces.** Proceedings of a symposium, Jerusalem, Apr. 1981. Bernard Pullman, Ed. Reidel, Boston, 1981 (distributor, Kluwer Boston, Hingham, Mass.). x, 568 pp., illus. \$76. The Jerusalem Symposia on Quantum Chemistry and Biochemistry, vol. 14.

**International Advances in Nondestructive Testing.** Vol. 8. Warren J. McGonagle, Ed. Gordon and Breach, New York, 1981. viii, 352 pp., illus. \$69.50.

**International Review of Cytology.** Vol. 73. G. H. Bourne, J. F. Danielli, and K. W. Jeon, Eds. Academic Press, New York, 1981. xii, 366 pp., illus. \$45.

**Interplanetary Dust.** P. W. Hodge. Gordon and Breach, New York, 1981. viii, 280 pp., illus. \$38.

**Introduction to Multidimensional Scaling.** Theory, Methods, and Applications. Susan S. Schiffman, M. Lance Reynolds, and Forrest W. Young. Academic Press, New York, 1981. xvi, 414 pp., illus. \$29.50.

**An Introduction to Optical Waveguides.** M. J. Adams. Wiley-Interscience, New York, 1981. xvi, 402 pp., illus. \$51.95.

**The Invisible World.** Sights Too Fast, Too Slow, Too Far, Too Small for the Naked Eye to See. Houghton Mifflin, Boston, 1981. 160 pp., illus. \$25.

**The Islets of Langerhans.** Biochemistry, Physiology, and Pathology. S. J. Cooperstein and Dudley Watkins, Eds. Academic Press, New York, 1981. xxii, 498 pp., illus. \$53.

**The Land Use Policy Debate in the United States.** Papers from a colloquium, Oct. 1977. Judith I. de Neufville, Ed. Plenum, New York, 1981. xiv, 270 pp. \$29.50. Environment, Development, and Public Policy.

**Lasers.** Theory and Applications. K. Thyagarajan and A. K. Ghatak. Plenum, New York, 1981. xii, 432 pp., illus. \$39.50. Optical Physics and Engineering.

**Learning and Discovery.** The University and the Development of the Mind. Stephen David Ross. Gordon and Breach, New York, 1981. x, 138 pp. \$29.50.

**Lehrbuch der theoretischen Physik.** Band 6, Hydrodynamik. L. D. Landau and E. M. Lifschitz. Translated from the Russian edition. Akademie-Verlag, Berlin, 1981. xiv, 618 pp., illus. 38 M.

**Measurement of Subjective Phenomena.** Denis F. Johnston, Ed. Bureau of the Census, Washington, D.C., 1981 (available from the Superintendent of Documents, Washington, D.C.). xii, 194 pp., illus. Paper, \$5.50. Special Demographic Analyses. CDS-80-3.

**Mediation of Cellular Immunity in Cancer by Immune Modifiers.** Papers from a workshop. Michael A. Chirigos, Malcolm Mitchell, Michael J. Mastrangelo, and Mathilde Krim, Eds. Raven, New York, 1981. xii, 276 pp., illus. \$31.50. Progress in Cancer Research and Therapy, vol. 19.

**Metal Ions in Biological Systems.** Vol. 13, Copper Proteins. Helmut Sigel, Ed. Dekker, New York, 1981. xxii, 394 pp., illus. \$59.75.

**Metamorphosis.** A Problem in Development Biology. Lawrence I. Gilbert and Earl Frieden, Eds. Plenum, New York, ed. 2, 1981. xx, 578 pp., illus. \$39.50.

**Meteorites.** A Petrologic-Chemical Synthesis. Robert T. Dodd. Cambridge University Press, New York, 1981. xii, 368 pp., illus. \$69.50.

**Methods in Enzymology.** Sidney P. Colowick and Nathan O. Kaplan, Eds. Vol. 72, Lipids, Part D. John M. Lowenstein, Ed. Academic Press, New York, 1981. xxviii, 842 pp., illus. \$65.

**Nerve and Muscle.** R. D. Keynes and D. J. Aidley. Cambridge University Press, New York, 1981. viii, 164 pp., illus. Cloth, \$29.50; paper, \$9.95. Cambridge Texts in the Physiological Sciences, 2.

**Plastics Engineering.** R. J. Crawford. Pergamon, New York, 1981. iv, 334 pp., illus. \$75. Progress in Polymer Science, vol. 7.

**Pocosin Wetlands.** An Integrated Analysis of Coastal Plain Freshwater Bogs in North Carolina. Proceedings of a conference, Beaufort, N.C., Jan. 1980. Curtis J. Richardson, Ed. Hutchinson Ross, Stroudsburg, Pa., 1981 (distributor, Academic Press, New York). xx, 364 pp., illus. \$25.

**The Rationality of Science.** W. H. Newton-Smith. Routledge and Kegan Paul, Boston, 1981. xii, 294 pp. Cloth, \$19.50; paper, \$11.50. International Library of Philosophy.

**Recent Advances in Ultrasound Diagnosis 3.** Proceedings of a congress, Dubrovnik, May 1981. A.

Kurjak and A. Kratochwil, Eds. Excerpta Medica, Amsterdam, 1981 (U.S. distributor, Elsevier North-Holland, New York). xiv, 542 pp., illus. \$85.

**Recent Developments in Condensed Matter Physics.** Vol. 2, Metals, Disordered Systems, Surfaces, and Interfaces. Papers from a conference, Antwerp, Apr. 1980. J. T. Devreese, L. F. Lemmens, V. E. van Doren, and J. van Royen, Eds. Plenum, New York, 1981. xviii, 478 pp., illus. \$59.50.

**The Reenchantment of the World.** Morris Berman. Cornell University Press, Ithaca, N.Y., 1981. 358 pp., illus. Cloth, \$34.50; paper, \$8.95.

**Regulation of Growth in Neoplasia.** G. V. Sherbet, Ed. Karger, Basel, 1981. x, 202 pp., illus. \$69.50.

**Resource and Environmental Economics.** Anthony C. Fisher. Cambridge University Press, New York, 1981. xvi, 284 pp., illus. Cloth, \$39.50; paper, \$9.95. Cambridge Surveys of Economic Literature.

**Resource Managers.** North American and Australian Hunter-Gatherers. Papers from a symposium, San Francisco, Jan. 1980. Nancy M. Williams and Eugene S. Hunn, Eds. Published for the American Association for the Advancement of Science by Westview, Boulder, Colo., 1982. xii, 268 pp., illus. \$28. AAAS Selected Symposia Series, 67.

**Review of Allied Health Education: 4.** Joseph Hamburg, Darrel J. Mase, and J. Warren Perry, Eds. University Press of Kentucky, Lexington, 1981. x, 148 pp. \$13.

**Rigorous Atomic and Molecular Physics.** Proceedings of a school, Erice, Italy, June 1980. G. Velo and A. S. Wightman, Eds. Plenum, New York, 1981. viii, 496 pp. \$59.50. NATO Advanced Study Institutes Series B, vol. 74.

**Solar Active Regions.** A Monograph from Skylab Solar Workshop III. Frank Q. Orrall, Ed. Colorado Associated University Press, Boulder, 1981. x, 350 pp., illus. \$17.50.

**The Solution of the Inverse Problem in Geophysical Interpretation.** Proceedings of a course, Erice, Italy, Mar. 1980. R. Cassinis, Ed. Plenum, New York, 1981. x, 382 pp., illus. \$45. Ettore Majorana International Science Series, vol. 11.

**Spaces.** Dimensions of the Human Landscape. Text and photographs by Barrie B. Greenbie. Yale University Press, New Haven, Conn., 1981. xiv, 322 pp. Cloth, \$47.50; paper, \$14.95.

**Spinal Cord Sensation.** Sensory Processing in the Dorsal Horn. Proceedings of a symposium, Keszthely, Hungary, July 1980. A. G. Brown and M. Réthelyi, Eds. Scottish Academic Press, Edinburgh, 1981 (U.S. distributor, Columbia University Press, New York). xvi, 342 pp., illus. \$32.50.

**Stability and Reactivity of Crown-Ether Complexes.** F. de Jong and D. N. Reinholdt. Academic Press, New York, 1981. vi, 164 pp., illus. Paper, \$31. Reprinted from *Advances in Physical Organic Chemistry*, vol. 17.

**Stomach Diseases.** Current Status. Proceedings of a congress, Antwerp, May 1981. Y. M. F. van Maercke, E. M. J. van Moer, and P. A. R. Pelckmans, Eds. Excerpta Medica, Amsterdam, 1981 (U.S. distributor, Elsevier North-Holland, New York). xiv, 434 pp., illus. \$76.50.

**Structure and Bonding in Crystals.** Vol. 1. Michael O'Keeffe and Alexandria Navrotsky, Eds. Academic Press, New York, 1981. xviii, 328 pp., illus. \$48.

**A Study of Prehistoric Social Change.** The Development of Complex Societies in the Hawaiian Islands. Ross H. Cordy. Academic Press, New York, 1981. xii, 276 pp., illus. \$29. Studies in Archaeology.

**Subcellular Biochemistry.** Vol. 8. Donald B. Roodyn, Ed. Plenum, New York, 1981. xviii, 408 pp., illus. \$49.50.

**Suicide and Self-Damaging Behavior.** A Sociological Perspective. Denys deCatanaro. Academic Press, New York, 1981. x, 246 pp. \$24. Personality and Psychopathology, 28.

**Survival Analysis.** Rupert G. Miller, Jr. Notes by Gail Gong and problem solutions by Alvaro Muñoz. Wiley, New York, 1981. xiv, 238 pp. Paper, \$18.95.

**Technology—Humanism or Nihilism.** A Critical Analysis of the Philosophical Basis and Practice of Modern Technology. Gregory H. Davis. University Press of America, Lanham, Md., 1981. xvi, 278 pp. Cloth, \$19.75; paper, \$10.75.

**Tropical Ecology.** Carl F. Jordan, Ed. Hutchinson Ross, Stroudsburg, Pa., 1981 (distributor, Academic Press, New York). xvi, 358 pp., illus. \$45.

**Under the Influence.** A Guide to the Myths and Realities of Alcoholism. James R. Milam and Katherine Ketcham. Madrona, Seattle, 1981. x, 210 pp. \$12.95.

**Universe.** Don Dixon. Houghton Mifflin, Boston, 1981. 240 pp., illus. \$35.

**The Use of Satellite Data in Rainfall Monitoring.** Eric C. Barrett and David W. Martin. Academic Press, New York, 1981. xii, 340 pp., illus. \$57.

**Visual Cues in Word Recognition and Reading.** Keith Rayner, Ed. Visible Language, Cleveland, 1981. Two volumes, pp. 121-312, illus. Paper, \$6; to libraries, \$10. *Visible Language*, vol. 15, Nos. 2 and 3.

# Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference.

## CLASSIFIED ADVERTISING DEADLINES:

9 April issue (mailed 2 April): 19 March  
16 April issue (mailed 9 April): 26 March  
23 April issue (mailed 16 April): 2 April  
30 April issue (mailed 23 April): 9 April

**POSITIONS WANTED:** 40¢ per word, plus \$4 for use of box number, per insertion, \$10 minimum, per insertion. Prepayment required. This rate is available only to individuals seeking jobs.

**DISPLAY (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth):** \$9 per millimeter; \$225 minimum, per insertion (minimum charge covers 25 millimeters on a single column; 25 millimeters equals 10 lines of 50 spaces per line). No charge for use of box number. No agency commission for ads less than 103 millimeters (4 inches). No cash discount. Prepayment required for all foreign ads. Purchase orders and billing information required for all other advertising.

Send copy for all **Positions Wanted** ads and **Display** ads less than 1/6 page in size (125 millimeters) to:

SCIENCE, Room 207  
1515 Massachusetts Avenue, NW  
Washington, D.C. 20005  
Telephone: 202-467-4456

Send copy for **Display** ads 1/6 page and larger to:

Scherago Associates, Inc.  
1515 Broadway  
New York, N.Y. 10036  
Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

Box (give number)  
SCIENCE  
1515 Massachusetts Avenue, NW  
Washington, D.C. 20005

## POSITIONS WANTED

**Biotechnology Consultant.** Licensed physician and biochemist experienced in prokaryotic and eukaryotic techniques. Expertly prepared to evaluate feasibility and diagnostic or therapeutic utility of "biotechnology" products. Salary or consultation. Box 63, SCIENCE. X

**Connective Tissue Biochemist.** Ph.D. Biochemistry of collagen types in soft and hard tissues; preparative, analytical, HPLC methods development. Publications. Seeks challenging position. Box 82, SCIENCE. 3/19, 26

**Environmental Chemist/Agronomist.** Ph.D. Pesticide residue analysis of water, feed, fat, and soil. Adsorption study of farm wastes by soils. Effluent and leachate study. Strong background in GC, GPC, AA, and wet methods. EPA standard methods. Telephone: 601-373-0264 before 9 a.m. or after 5 p.m. CDT. Box 51, SCIENCE. 3/19; 4/2, 16

**Environmental Impact Specialist.** M.S. entomology (Michigan State University, 1979). Five years of experience in pesticides and hazardous waste issues: risk/benefit analysis; health and environmental effects; development of training programs; public speaking; 17 publications and technical reports; cooperation with state and federal regulatory agencies. Currently assistant pesticide coordinator for Michigan. Seeking responsible position in Washington, D.C., area in pesticides/toxic substances and health/environmental effects, or environmental policy making. A. E. Brown, 270 Plant Biology Laboratory, Michigan State University, East Lansing, Michigan 48824. Telephone: 517-355-5237. X

**Writer/Editor.** I have a Ph.D. in chemistry (organic) and am a professional scientific/medical editor. I can prepare and/or edit your papers, review articles, books, theses, presentations. If you want to communicate your scientific ideas clearly and concisely, you can benefit from my full range of editorial services. Box 86, SCIENCE. X

## GEOCHEMISTS

Gulf Research & Development Company is seeking Geochemists with a strong organic and geology/geophysics background to investigate the origin, migration, and entrapment of hydrocarbons. Topics under investigation include regional variation in source rock parameters (detection and prediction), an understanding of the migration mechanisms and its consequences, interaction of hydrocarbons and mineralogic materials, maturation processes, and estimation of timing of maturation and migration. Technical strengths in at least one of the following areas is desirable: stable isotopes, kerogen/vitrinite, crude-source correlation techniques, and evolution of organic compounds. Positions are open at all technical levels, Ph.D. or M.S. with previous experience required.

Interested candidates should send their resume in confidence to:



**Gulf Research & Development Company**  
ATTENTION: B. E. Pearson  
P.O. Drawer 2038  
Pittsburgh, PA 15230

*An Equal Opportunity Employer M/F*

## KING FAISAL UNIVERSITY COLLEGE OF MEDICINE DAMMAM, SAUDI ARABIA

Faculty Positions Open  
1982-1983

King Faisal University College of Medicine, now in its eighth year, invites applications from qualified men and women for the 1982-1983 academic year in:

Chemistry	Pathology
Biology	Epidemiology
Physics	Microbiology
Biochemistry	Parasitology
Anatomy	Pharmacology
Physiology	Community Medicine

Doctorate or equivalent degree required. Language of instruction is English. Interviews to be held in London and Houston during spring 1982.

Salaries are highly competitive and negotiable; comparable to other Saudi universities.

Benefits include free furnished housing, educational allowances, air tickets to and from Saudi Arabia once each year for a family of four, 60-day paid vacation, and liberal overweight allowance. No Saudi income tax.

Send curriculum vitae with current telephone number and the names and addresses of three references to:

Dr. Tawfik Tamimi  
Dean, College of Medicine  
King Faisal University Office  
Suite 540  
2425 West Loop South  
Houston, Texas 77027  
OR

c/o Saudi Arabian Educational Office  
29 Belgrave Square  
London, S.W. IX 8QB, England

## MEDICAL SCIENTISTS

The American Medical Association, Division of Drugs has opportunities for individuals with an MD and/or PhD in a medical science. Work and publication experience in academic, governmental or industrial clinical pharmacology is desirable. Principal responsibilities involve evaluation, writing and processing drug information for computerization and the text, **AMA-Drug Evaluations**.

Applicants must have drug expertise in any of the following areas: psychopharmacology-neurology; gastroenterology-metabolism; infectious diseases; and cancer chemotherapy.

Voluntary outside academic or practice activities to maintain biomedical skills are possible. The AMA can offer an attractive salary and excellent fringe benefit program. Please send CV or resume to:



Thomas J. Nilles  
AMERICAN MEDICAL ASSOCIATION  
535 N. Dearborn  
Chicago, Illinois 60610  
equal opportunity employer m/f

## NATIONAL SCIENCE FOUNDATION Deputy Division Director Division of Environmental Biology

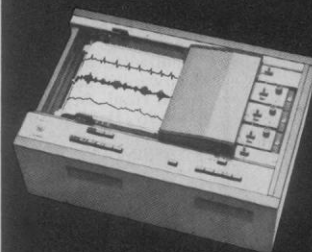
The Directorate for Biological, Behavioral and Social Sciences is seeking qualified applicants for position of **Deputy Division Director, Division of Environmental Biology**. The incumbent participates with division director in the management of a division responsible for the support of research in systematics, population biology and physiological ecology, ecology, and ecosystem studies, as well as support for biological research resources. The person selected will receive either a permanent, career appointment or a 2-year rotational appointment (requiring leave of absence from current employment). This position is part of the Senior Executive Service with a salary currently limited by law to \$58,500 per annum.

Qualification requirements include: (i) Ph.D. or equivalent professional experience in a field related to the purview of the division; (ii) substantial research experience and strong evidence of scholarship in disciplines related to systematics, ecology, ecosystem studies and/or population biology and physiological ecology, including publication of research; (iii) familiarity with relevant academic community and recognized professional standing in scientific community; and (iv) supervisory and managerial experience for the achievement of organizational objectives through subordinates.

Applicants should telephone: **Margaret Cademartori on 202-357-7857**, to request announcement EPB 82-4 for a permanent appointment or announcement EPB 82-14 for a rotational appointment. Announcements contain qualification requirements and instructions concerning the supplemental narrative required with SF-171 as application. Send SF-171 and narrative to: **National Science Foundation, Executive Personnel Section, Room 212, 1800 G Street, NW, Washington, D.C. 20550 (attention: EPB 82-4 or EPB 82-14)**. Applications must be received by 14 April 1982.

*Equal Opportunity Employer*

## Physiological Research Systems



- Micro Computer Interface
- 100 Plug-in Modules
- Biotelemetry
- Rectilinear Chart Recorders
- Stimulation
- High Performance Electronics

**COULBOURN INSTRUMENTS**

P. O. Box 2551  
Lehigh Valley, PA 18001  
(215) 395-3771

## Anti-Neoplastic Drug Research

### Antibiotics and Chemotherapy

The Pharmaceutical Research Division of Warner-Lambert has the following immediate openings at the Scientist/Senior Scientist level to participate in the discovery, evaluation and development of novel anti-neoplastic drugs through the use of *in vivo* and *in vitro* test methods. Both positions are located in Ann Arbor, Michigan, at our modern facilities, adjacent to the University of Michigan campus.

### Biochemical Pharmacologist

The successful candidate will have:

- A Ph.D. equivalency with formal training in Biochemistry.
- A minimum of two years experience in biochemical pharmacology of antitumor drugs in relation to biochemical mechanisms of drug action, drug resistance and anti-tumor selectivity.
- Experience with assays of anti-tumor drugs in body fluids and tissues and metabolic separation.

### Tumor Biologist

The successful candidate will have:

- Either a Ph.D. in a biological subject and at least two years post doctoral experience, or a M.S. in a biological subject with at least five years subsequent experience.
- Experience in screening for anti-tumor activity in transplanted tumor systems.
- Knowledge of procedures for monitoring drug toxicity to normal tissues.

These positions require administration and communication skills with the ability to motivate the staff to high levels of scientific performance and to interact with other scientists in the Antibiotics Group, Pharmacology, Chemistry, Toxicology, Clinical Research and extramural programs. Candidates should have the demonstrated ability to represent the Company within the scientific community.

Interested, qualified applicants should forward curriculum vitae together with references and salary requirements in confidence to: Ms. M. Wolin, Human Resources Representative, WARNER-LAMBERT/ PARKE-DAVIS PHARMACEUTICAL RESEARCH DIVISION 2800 Plymouth Road, Ann Arbor, Michigan 48105

An Equal Opportunity Employer M/F/H

**WARNER  
LAMBERT**

## POSITIONS WANTED

**Fishery Biologist/Quantitative Ecologist.** Ph.D. Research experience in commercial fishery stock assessment and aquatic toxicology. Strong quantitative background. Knowledge of applied economics and resource development. Seeking consulting/industrial/academic research position involving renewable natural resource evaluation, management, and use. Box 83, SCIENCE. X

**Immunology/Genetics.** Ph.D. 1981. Experienced in cell culture, cell fusion and somatic cell genetics, hybridoma production, histocompatibility, and immunological assays. Three years of experience supervising tissue typing laboratory associated with transplantation program. Seeking clinical or industrial research position in New York City area. Box 69, SCIENCE. X

**Life Sciences Editor** seeks to assist individuals preparing journal articles, reviews, monographs, advanced books. Can manage any or all phases of manuscript development and editing, including photo research, illustration programs. Technical background; extensive journal and textbook experience. No project too large, small, or recondite. Inquiries welcome. Box 84, SCIENCE. X

**Microbiologist.** Ph.D. Seeks research and development or quality control industry, or university teaching, research position. Background as senior research microbiologist; microbiology section head of testing laboratory; assistant professor. Supervisory experience. Research articles and papers presented. R. G. Butler, 3607 Hobbs Road, Greensboro, North Carolina 27410. X

**Neuroscientist.** Ph.D. 1979. Three years of postdoctoral research, neuroanatomy. Excellent teacher. Experience: neuroanatomical techniques (LM/EM), including immunocytochemistry and single-cell HRP method. Background: physiological psychology/statistics. Interests: reconstruction of CNS after brain damage and aging. Seeking research/teaching position. Box 85, SCIENCE. X

## POSITIONS OPEN

**ASSISTANT PROFESSOR, ANALYTICAL CHEMISTRY.** University of South Florida, beginning August 1982. Applicants should hold Ph.D. with specialization in analytical chemistry. Postdoctoral experience and experience with microprocessor control of instrumentation and data analysis desirable. Interaction with clinical chemistry program possible. In addition to teaching, active research, possibly in cooperation with other faculty members, is essential. Send résumé, brief description of research and teaching interests, and names of three persons who can be contacted for letters of reference to: Dr. Jefferson C. Davis, Jr., Chairman, Department of Chemistry, University of South Florida, Tampa, Fla. 33620. Letters of application should be received by 2 April 1982. *The University of South Florida is an Affirmative Action/Equal Opportunity Employer.*

### ASSISTANT PROFESSOR IN ANATOMY

Applications are invited from persons with M.D., D.D.S., or Ph.D. degrees for the above position which will be available on 1 September 1982. Applicants should be able to teach gross anatomy and neuroanatomy or histology to medical and dental students. Current research fields in the department include neuroanatomy, neuroendocrinology, genetics, ophthalmic morphology, cell biology, and evolutionary biology. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Applicants should forward a copy of their curriculum vitae and arrange to have three references forwarded directly to: Dr. D. G. Gwyn, Professor and Head, Department of Anatomy, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4H7.

### ASSISTANT PROFESSOR—TENURE STREAM CONDENSED MATTER THEORY

The Department of Physics and Astronomy of the University of Pittsburgh invites applications for an assistant professor position in condensed matter theory, beginning September 1982. This announcement represents the resumption of an earlier search.

Applications, including curriculum vitae, publication list, and letters of recommendation, should be sent to: P. Stehle, Chairman, Department of Physics and Astronomy, University of Pittsburgh, Pittsburgh, Pa. 15260.

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

## POSITIONS OPEN

### ASSISTANT PROFESSOR OF BIOLOGICAL SCIENCES

**Qualifications:** Ph.D. in microbiology with a specialization in microbial physiology.

**Responsibilities:** Teaching elementary microbiology (freshman level), advanced microbiology (upper division/graduate level), courses in microbial physiology (upper division and graduate level), and participation in group teaching within the department. Although teaching experience is not an absolute requirement, it will be considered in the evaluation of all applications. Responsibilities will include the development of an active research program. Communication skills and a commitment to departmental affairs, teaching, and research are essential.

**Salary:** Negotiable.

**Date available:** August 1982.

**Application:** Forward application materials (official transcripts, curriculum vitae, and three letters of recommendation) to:

Dr. James D. Yarbrough, Professor and Head  
Department of Biological Sciences  
Mississippi State University  
P.O. Drawer GY  
Mississippi State, Miss. 39762

*Mississippi State University is an Equal Opportunity/Affirmative Action Employer.*

**Application deadline:** 15 April 1982.

### ASSISTANT PROFESSOR OF BIOLOGICAL SCIENCES

**Qualifications:** Ph.D. in aquatic biology.

**Responsibilities:** Teaching introductory biology courses (biological sciences or zoology), history of biology (undergraduate/graduate), ichthyology (graduate level), and develop a course in specialty. Teaching experience will be given consideration in the evaluation of all applicants. The applicant will be expected to develop an active research program. Applicants will be evaluated on either proven research ability or research potential.

**Salary:** Negotiable.

**Date available:** Anticipated August 1982.

**Application:** Forward application materials (official transcripts, curriculum vitae, and three letters of recommendation) to:

Dr. James D. Yarbrough, Professor and Head  
Department of Biological Sciences  
Mississippi State University  
P.O. Drawer GY  
Mississippi State, Miss. 39762

*Mississippi State University is an Equal Opportunity/Affirmative Action Employer.*

**Application deadline:** 15 April 1982.

**ASSISTANT OR ASSOCIATE PROFESSOR OF CHEMISTRY.** The Department of Chemistry seeks a Ph.D. with industrial experience to teach organic, analytical, and industrial chemistry in a 4-year liberal arts college located 20 miles south of San Francisco. This is a permanent, full-time position to begin in fall 1982. Please send curriculum vitae to: Dr. John F. Moore, Chairman, Department of Chemistry, College of Notre Dame, Belmont, California 94002.

### ASSISTANT PROFESSOR—BOTANY

Tenure-track, undergraduate teaching position starting 21 August 1982. Preference will be given to candidates who have completed the Ph.D. and have demonstrated excellence in teaching. The successful candidate will teach over 2 years: introductory biology, nonvascular/vascular botany, plant evolution, biostatistics, and plant physiology. A modest research program is encouraged.

Please send a letter of application, curriculum vitae, transcripts, and at least three letters of reference by 15 April 1982 to: Professor William Brooks, Biology Department, Ripon College, P.O. Box 248, Ripon, Wis. 54971.

*Ripon College is an Affirmative Action/Equal Opportunity Employer.*

**BIOLOGY—Assistant professors, 1-year temporary appointment starting September 1982.** Teaching responsibilities include courses in ecology and histology in the fall. In the spring, an advanced course in ecology (field biology) is required and possibly a second course depending upon departmental needs. A Ph.D. and some teaching experience are expected. *Women and minorities are encouraged to apply.* Applicants should send curriculum vitae and names, addresses, and telephone numbers of three references to: Dr. M. J. Bradford, Department of Biology, Lafayette College, Easton, Pa. 18042. *An Equal Opportunity Employer, M/F.*

## POSITIONS OPEN

**ASSISTANT PROFESSOR, Ph.D. PHARMACOLOGY, D.V.M./Ph.D., D.V.M.,** or other medical degree, 2 years of postdoctoral experience, capable of initiating independent research, participate in teaching of pharmacology/toxicology to students of veterinary medicine, Ph.D. graduate students. Tenure stream, state-funded, 12-month position, available 1 July. Send applications by 30 April 1982. Send curriculum vitae and names of three references to:

**Chairman, Search Committee**  
Department of Pharmacology/Toxicology  
College of Medicine, Life Sciences Building  
Michigan State University  
East Lansing, Mich. 48824

*Michigan State University is an Affirmative Action/Equal Opportunity Institution.*

## THE UNIVERSITY OF BRITISH COLUMBIA Department of Zoology

Applications are invited for the position of a beginning **ASSISTANT PROFESSOR** in the Department of Zoology, University of British Columbia. The successful applicant will be expected to teach embryology and to undertake a strong experimental research programme in developmental biology. Preference will be given to a newly graduated Ph.D. with postdoctoral research experience. Salary maximum: C\$27,000 per annum. Curriculum vitae and the names of three referees should be submitted to: **Dr. G. G. E. Scudder, Head, Department of Zoology, University of British Columbia, 2354-6270 University Boulevard, Vancouver, British Columbia, Canada V6T 2A9.** The expected date of appointment is 1 July 1982, subject to budgetary approval. Closing date for application is when position is filled.

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. *Equal Opportunity for Employment is offered to male and female applicants.*

## BIOCHEMIST—MOLECULAR BIOLOGIST

**ASSISTANT PROFESSOR OF CHEMISTRY.** The Department of Chemistry at The University of Texas at Austin solicits applications for a tenure-track faculty position at the assistant professor level beginning September 1982 or January 1983. Candidates who have demonstrated exceptional ability in the area of biochemistry—molecular biology and promise in teaching should forward curriculum vitae, short description of proposed research plans, and names of three references by 1 June 1982 to: **Dr. Joanne M. Ravel, Biochemistry Search Committee, Department of Chemistry, The University of Texas at Austin, Austin, Texas 78712.** The University of Texas is an Equal Opportunity/Affirmative Action Employer.

## BIOLOGIST/ASSISTANT PROFESSOR

The Department of Biological Sciences at Murray State University (MSU) invites applications for a tenure-track appointment at the rank of assistant professor beginning 1 August 1982. The Ph.D. is required and salary is competitive. The successful applicant's teaching assignment will include upper-division courses in population biology or wildlife biology and parasitology (the latter for students in wildlife, fisheries, and allied health). The development of an active research program and direction of graduate students is expected. Opportunities and support for "tick" research exist locally. Review of applications will begin 30 March and will continue until the position is filled. Submit curriculum vitae, transcripts, and three letters of recommendation to:

**M. D. Hassell, Chairman**  
Search Committee  
Biological Sciences  
Murray State University  
Murray, Ky. 42071

*MSU is an Equal Opportunity/Affirmative Action Employer.*

**BIOLOGY/ANATOMY.** Tenure-track assistant professor, August 1982; in a department with 36 full-time faculty in a comprehensive university with 2500 on-campus students. To teach human anatomy, with prosection, to nonbiology undergraduates. The Ph.D. is required, as is productive personal research and direction of graduate research in a biological area compatible with present faculty and programs. Closing date for applications is 5 April 1982. Send curriculum vitae, statement of research goals, and names, addresses, and telephone numbers of at least three references to: **Jerrold H. Zar, Chair, Department of Biological Sciences, Northern Illinois University, DeKalb, Ill. 60115.** The University is an Affirmative Action/Equal Opportunity Employer.

## POSITIONS OPEN

### BOTANY AND GENETICS UNIVERSITY OF GUELPH

Tenure-track position. Applications are invited from qualified individuals who will maintain a vigorous research program in plant population biology/genetics or ecology or field botany and make an active contribution to the undergraduate and graduate teaching programs of the department. The department consists of 19 faculty members with research interests covering a broad range of subjects, from molecular biology to community ecology, and offers undergraduate degree specializations in botany, ecology, and genetics.

Deadline for applications is 1 May 1982, and the position is to commence 1 August 1982. Subject to final budgetary approval.

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Submit curriculum vitae, résumé of research interests, and the names and addresses of three academic referees to: **Dr. W. G. Barker, Chairman, Department of Botany and Genetics, University of Guelph, Guelph, Ontario, Canada N1G 2W1.**

### BOTANIST

An established and growing Florida-based environmental consulting firm has an immediate opening for an experienced botanist with taxonomic and ecological training. Master's degree with 3 years of experience or Ph.D. Experience in wetlands of the southeastern United States and aerial photointerpretation abilities preferred. Please submit résumé, in confidence, to: **Breedlove Associates, Inc., Northwest Avenue, Gainesville, Florida 32601.** *Equal Opportunity Employer.*

**CARDIOLOGISTS**—The Division of Cardiovascular Disease of the Department of Medicine at the University of Alabama has available two assistant professor and three instructor positions open to qualified individuals. The individuals must have experience in the management of patients with cardiovascular disease, in cardiac catheterization, and have a firm commitment to teaching. Finally, the individuals should have a research background and be able to carry out independent research. One of the assistant professors will also need to be knowledgeable in echocardiography and exercise physiology. Apply to: **Division of Cardiovascular Disease, Department of Medicine, University of Alabama Medical Center, Birmingham, Alabama 35294, attention: Norma McSweeney; telephone 205-934-4615.** An Equal Opportunity/Affirmative Action Employer. Expiration date for receipt of applications: 31 May 1982.

### EVOLUTIONARY/POPULATION BIOLOGIST

The Department of Biology of The University of Chicago seeks an evolutionary or population biologist for appointment to its faculty at the tenured or pretenured level. Send curriculum vitae, statement of research interests, and names of three references by 15 April 1982 to: **Evolution/Population Search Committee, The Department of Biology, The University of Chicago, 1103 East 57 Street, Chicago, Illinois 60637.** The University of Chicago is an Affirmative Action/Equal Opportunity Employer.

### FACULTY POSITION IN TOXICOLOGY (Occupational Health)

Applications invited for appointment as assistant professor of toxicology in the Department of Biomedical and Environmental Health Sciences, School of Public Health, University of California, Berkeley, beginning fall 1982. Responsibilities include instruction and supervision of graduate student research in toxicology and development of independent research program in toxicology. Ability to collaborate with clinical faculty and participate in interdisciplinary research desirable. Strong background in basic principles of toxicology required. Appointee also expected to contribute to collaborative programs of the Northern California Occupational Health Center. Applicants should possess Ph.D. or M.D. degree, have several years of postdoctoral experience, and show evidence of creativity in research. Appointment will be at assistant professor level and salary is negotiable. Submit curriculum vitae, two representative publications, and names of three references to: **Dr. E. T. Wei, School of Public Health, University of California, Berkeley, California 94720.** Review of applications will start 1 May with a closing date of 15 May 1982. The University of California is an Equal Opportunity/Affirmative Action Employer.

## Anti-Tumor Drug Discovery Research

### Ph.D. Level

Significant expansion at the Warner-Lambert/Parke-Davis Pharmaceutical Research Division has generated a number of immediate openings in the Antibiotics Chemotherapy Department at the Scientist/Senior Scientist level. All positions below are located in Ann Arbor, Michigan at our modern facilities, adjacent to the University of Michigan campus, which are exclusively devoted to the discovery and development of new drugs. Candidates for the positions below should possess a Ph.D. equivalency and up to three years related post doctorate experience.

### Microbial Assay

The successful candidate will be responsible for the development of microbial assays and screens for antitumor, antibiotic and synthetic compounds; the design of quantitative/qualitative microbial assays predictive or correlative of antitumor activities; and should possess a Ph.D. or equivalent in microbiology and a good working background in biochemistry and microbial metabolism in order to design rational microbial screens for antimetabolites, enzyme inhibitors and DNA-active compounds.

### Culture Isolation

The successful candidate will be responsible for isolation of microbial cultures from natural sources for the antitumor-antibiotic screening program; devising isolation procedures; taxonomic characterization and identification; maintenance and preservation of isolates; and strain improvement for higher antibiotic productivity. Candidates must have a Ph.D. in Microbiology or equivalent, and a working experience in handling different classes of microorganisms. Experience in fermentation is desirable.

### Cellular Biochemistry

The successful candidate will be responsible for the isolation and characterization of antigenic determinants from cancer cells (i.e. glycoproteins and enzymes), and should possess a Ph.D. equivalency in biochemistry/immunology with a strong background in cell biology.

Interested, qualified applicants should forward curriculum vitae together with references and salary requirements to: **Ms. M. Wolin, Human Resources Representative, WARNER-LAMBERT/PARKE-DAVIS PHARMACEUTICAL RESEARCH DIVISION 2800 Plymouth Road, Ann Arbor, Michigan 48105**

*An Equal Opportunity Employer M/F/H*

**WARNER  
LAMBERT**



## POSITIONS OPEN

**CLINICAL PATHOLOGIST/ASSOCIATE DIRECTOR OF CLINICAL LABORATORIES:** University of California, Los Angeles (UCLA), Department of Pathology, is seeking an experienced, Board-certified clinical pathologist for responsibilities as associate director of the Comprehensive University Hospital Laboratories and clinical pathology training programs. Experience is required in teaching and clinical laboratory management. Expertise in data automation is desired. Appointment will be at the assistant-associate professor levels, depending on qualifications. Send curriculum vitae to: **George S. Smith, M.D., Director, Clinical Laboratories, UCLA Center for Health Sciences, Los Angeles, Calif. 90024.** *UCLA is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are encouraged to apply.*

## ECONOMIST, SCIENCE ANALYST

Technical support agency, U.S. Congress, for multidisciplinary team addressing international trade, industrial competitiveness, technology transfer. **Economist:** Will provide economic analysis and policy guidance, synthesize existing knowledge from the field of economics, and prepare sections of final reports to Congress. Ph.D., D.B.A., or extensive relevant experience required. Strength in both macroeconomics and microeconomics; field of specialization is less important than empirical attitude, interest in policy, ability to communicate with non-economists. **Analyst in Technology or Science:** Background in engineering or one of the natural sciences, B.S. plus 5 years of experience or graduate degree are minimum qualifications. Broad knowledge of technology and the sciences. Relevant fields: any branch of engineering, computer science, physics, chemistry, biological science. Industrial experience highly desirable, particularly product development or marketing. Excellent writing and verbal communication skills. Employment may be on a contract basis, or in a permanent staff position. Salary is negotiable, based on previous experience. Washington, D.C. Résumé, salary history, and names of three references to: **Box 87, SCIENCE.**

*An Equal Opportunity Employer*

## POSITIONS OPEN

**DIRECTOR, COMMUNITY RESEARCH AND PROGRAMS—**To design and conduct research on the social context of cancer care in the community; supervise cancer control personnel in community affiliations and professional associations; and identify and obtain funds for cancer control research projects. Successful applicant will hold appointment as assistant professor, Department of Social Medicine and Health Policy at Harvard Medical School. Doctoral degree in sociology required, plus at least 5 years of experience in community health research. Knowledge of medical student teaching and continuing medical education for physicians and qualitative and quantitative skills in evaluation required. Submit résumé to: **W. Bradford Patterson, M.D., Director of Cancer Control, SIDNEY FARBER CANCER INSTITUTE, 44 Binney Street, Boston, Mass. 02115.** *An Affirmative Action/Equal Opportunity Employer.*

**HOST-PARASITE PHYSIOLOGIST.** The Department of Plant Pathology, Oklahoma State University, has a tenure-track position at the rank of assistant professor. Appointee will initiate programs in the area of host-parasite physiology with emphasis on diseases of legumes important in Oklahoma and participate in graduate teaching. Closing date for applications is 1 May 1982. Send résumé, transcripts, and three letters of recommendation to: **Dr. W. L. Klarman, Professor and Head, Department of Plant Pathology, Oklahoma State University, Stillwater, Okla. 74078.** *An Affirmative Action/Equal Opportunity Employer.*

Wanted: **Ph.D. IN IMMUNOLOGY;** tenure-track appointment of assistant professor in the Department of Ophthalmology, University of Minnesota, applying principles of immunology to the eye. Interaction with Immunobiology Research Center. Primarily research and teaching. One year post-Ph.D. experience. Send résumé to: **Richard Lindstrom, M.D., Box 493 Mayo, University of Minnesota, Department of Ophthalmology, Minneapolis, Minn. 55455.** *University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from qualified women and minorities. No applications accepted after 15 May 1982.*

## POSITIONS OPEN

### ENDOCRINE CELL BIOLOGY

Position for a **POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE** to work on mechanism of steroid hormone/hypothalamic peptide interaction with pituitary cells. Experience with at least one of the following techniques is required: EM immunocytochemistry, radioreceptor methods, and cell separation and culture. Salary up to \$20,000, depending on qualifications and training. Send curriculum vitae, reprints, and statement of experience and goals to: **Dr. J. D. Neill, Department of Physiology and Biophysics, University of Alabama in Birmingham, Birmingham, Ala. 35294.** *An Equal Opportunity/Affirmative Action Employer.*

**ENZYMOLOGIST—**Center for Biological NMR, Texas A & M University. An interdisciplinary team studying enzyme-catalyzed reactions by high-field NMR spectroscopy has an opening for a **staff scientist** with at least 3 years of postdoctoral experience in enzyme purification, assay, and mechanism. This is a 12-month appointment in the first instance and is expected to lead to a permanent position as staff scientist; it includes supervision of technical staff as well as the opportunity to direct graduate research. Salary in the range \$25,000 to \$35,000 per annum, depending on experience. Send curriculum vitae and the names of two referees to: **Professor A. I. Scott, Center for Biological NMR, Department of Chemistry, Texas A & M University, College Station, Texas 77843.** *Texas A & M University is an Affirmative Action/Equal Opportunity Employer.*

### FACULTY POSITIONS NEUROPHARMACOLOGY AND TOXICOLOGY

Tenure-track faculty positions are available in newly expanded Department of Pharmacology with modern research facilities. Candidates should be committed to developing a strong, independent, funded research program in some aspect of biochemical or molecular neuropharmacology or toxicology, and should be able to teach in these disciplines. Rank is open, but assistant professor is the likely level of appointment. The Department of Pharmacology is part of a young and growing university with one of the most comprehensive health and research centers in the Southeast. Complete curriculum vitae, including a brief statement of research interests and plans, and three letters of recommendation should be sent to: **Dr. Elias Meezan, Chairman, Department of Pharmacology, University of Alabama-Birmingham, Schools of Medicine and Dentistry, University Station, Birmingham, Alabama 35294.** *An Equal Opportunity/Affirmative Action Employer.*

### TRUDEAU INSTITUTE, INC.

A position exists for an **IMMUNOBIOLOGIST** at the **ASSOCIATE PROFESSOR** level to develop an independent research program related to immunity to cancer and infectious diseases. Applicants should have at least 8 years of postdoctoral experience and provide evidence that they possess the capacity for a productive scientific career. The Trudeau Institute is a not-for-profit, pure research institute situated on the shore of Saranac Lake, 10 miles from Lake Placid, N.Y. Send résumé and names of three references to:

**Dr. R. J. North, Director  
Trudeau Institute, Inc.  
P.O. Box 59  
Saranac Lake, N.Y. 12983**

### MICROBIOLOGY ASSISTANT PROFESSOR— RESEARCH

Ph.D. in microbiology and evidence of successful research related to anaerobic bacteria. The position will require isolation, identification, and toxicity test for canned food contaminating bacteria and methods of preventing canned food contamination. Other duties will include supervising undergraduate and graduate students in collecting, analyzing, and publishing data and writing research proposals. The salary is commensurate with qualifications and experience. The appointment will begin on 15 April 1982.

Send curriculum vitae, transcripts, paper reprints, and three letters of recommendation to: **Director of Personnel, Post Office Box PP, Virginia State University, Petersburg, Virginia 23803,** by 2 April 1982.

For any technical details, call or write to: **Dr. J. Upadhyay, Professor of Microbiology, Box 462, Virginia State University, Petersburg, Virginia 23803; telephone: 804-520-5177.**

\*\*\*\*\*  
**THE AUSTRALIAN NATIONAL UNIVERSITY** invites applications for **RESEARCH APPOINTMENTS** in the **RESEARCH SCHOOL OF EARTH SCIENCES** (director, Professor A. E. Ringwood). The school consists of a number of semi-autonomous research groups working in strategic areas of geophysics and geochemistry: earth physics (Professor K. Lambeck), geophysical fluid dynamics (Professor J. S. Turner), petrophysics (Dr. M. S. Paterson), geomagnetism (Dr. M. W. McElhinny), petrochemistry (Professor A. E. Ringwood), geochronology and isotope geochemistry (Dr. W. Compston), trace element geochemistry (Dr. S. R. Taylor), and environmental geochemistry (Dr. W. Compston, interim group leader). The School is well equipped in these areas to the best of contemporary standards. Consideration is also being given to establishing a new research activity in tectonophysics. Vacant staff positions exist in some of the groups and are detailed below. Most of these are advertised at the postdoctoral fellow (PDF) and research fellow (RF) levels. In exceptional cases, appointments at senior research fellow (SRF) level will be considered. For the tectonophysics post, appointment to the tenured position at fellow (F) or senior fellow (SF) may be considered. Applicants are invited to write directly to the group leaders designated above for further information. **TECTONOPHYSICS (PDF, RF, SRF, F, SF)**—A candidate is sought with interests in large-scale tectonophysics problems such as mantle convection, basin formation, subduction tectonics, and core formation. The successful candidate will be expected to interact closely with related research groups in the School and will initially be attached to the Earth Physics Group. **EARTH PHYSICS (PDF, RF, SRF)**—A seismologist is sought with interests in applying theoretical modelling, synthetic seismogram techniques, and seismic signal processing to studies of crust and upper mantle. Special field projects are undertaken when appropriate to collect data in critical areas. **GEOPHYSICAL FLUID DYNAMICS (PDF, RF, SRF)**—The role of double diffusive convection is of particular interest to this group. A candidate is sought with interests in one of the following fields: (i) laboratory and theoretical studies of mixing in the ocean, and (ii) laboratory studies of fluid dynamical processes in the interior of the earth, for example, layered magmatic intrusions, mantle convection. Applications from candidates with backgrounds in petrology or tectonophysics who are interested in quantitative modelling of problems in category (ii) are welcomed. **ENVIRONMENTAL GEOCHEMISTRY (PDF, RF, SRF)**—This group employs a range of geochemical, isotopic, and radioisotopic methods to study the palaeoclimatological and geochemical records retained in the sediments of Australian inland salt lakes and in the Great Barrier Reef. The group is also interested in the carbon cycle in the Southern Hemisphere. A candidate is sought who is interested in these problems and is qualified in appropriate fields such as sedimentary geochemistry, isotopic tracing, and theoretical modelling of geochemical cycles. **GEOCHRONOLOGY AND ISOTOPE GEOCHEMISTRY (PDF, RF)**—A candidate is sought to work in collaboration with Dr. I. McDougall on the thermal history of igneous and metamorphic terrains primarily utilizing the Ar/Ar age spectrum technique applied to diffusion mechanisms and isotopic closure temperatures of minerals. An appropriate background in geology is necessary, combined with experience and/or interest in relevant fields such as mass spectrometry, experimental petrology, diffusion in minerals, and thermal modelling. Salary in accordance with qualifications and experience within the ranges: senior fellow, \$32,782 to \$38,210 per annum; senior research fellow, \$29,282 to \$34,928 per annum; fellow, \$24,437 to \$32,739 per annum; research fellow, \$20,963 to \$27,539 per annum; postdoctoral fellow grade 2, \$20,963 to \$27,539 per annum; postdoctoral fellow grade 1, \$18,068 to \$20,699 per annum. Current exchange rate: A\$1 = U.S.\$1.07. Appointment will be: senior fellow/fellow for 5 years in the first instance with the possibility, after review, of reappointment to retiring age; senior research fellow/research fellow normally up to 3 years with the possibility, in certain cases, of extension to 5 years; postdoctoral fellow up to 2 years with the possibility of extension to 3 years. Reasonable appointment expenses paid; superannuation; assistance with housing. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, The Australian National University, P.O. Box 4, Canberra, Australia,** with whom applications close on 1 July 1982. Late applications may also be considered.  
\*\*\*\*\*

## POSITIONS OPEN

### FACULTY POSITION

**BIOLOGIST.** Oral Roberts University (ORU), beginning fall 1982, at instructor level, to teach nonmajors biology lecture and/or laboratories. M.A. or M.S. in biology required. Some teaching experience desired. Applications may be requested from: **Dr. Dale A. Williams, Chairman, Department of Natural Science, Oral Roberts University, Tulsa, Okla. 74171.** ORU is an Affirmative Action/Equal Opportunity Employer.

**FACULTY POSITION IN CARCINOGENESIS.** Applications are invited for faculty position at the McArdle Laboratory for Cancer Research (Department of Oncology) of the University of Wisconsin, Madison. Applicants should have a strong background in chemistry; biochemistry; cell, developmental, and/or molecular biology; and/or genetics. They should be prepared to develop a fundamental research program in the area of carcinogenesis. The research program of the applicant should be complementary to that of other investigations in carcinogenesis at the McArdle Laboratory and contribute to the interactive research environment of the laboratory. Appointment at the assistant professor level is anticipated. The position will be available 1 September 1982. Each applicant should submit curriculum vitae, list of publications, statement of research accomplishments, and a two- to three-page statement of future research objectives and approaches. Each applicant should ask at least three persons, qualified to evaluate his/her research, to send letters of recommendation. All materials should be sent to: **Dr. Henry C. Pitot, Director, McArdle Laboratory for Cancer Research, University of Wisconsin, 450 North Randall Avenue, Madison, Wisconsin 53706.** The University of Wisconsin is an Equal Opportunity Employer committed to a program of Affirmative Action.

### HARVARD MEDICAL SCHOOL DEPARTMENT OF GENETICS

The Department of Genetics at Harvard Medical School invites qualified Ph.D. or M.D. scientists to submit applications for an appointment at the **assistant professor** level. Candidates with demonstrated interests in molecular approaches to understanding the genetics of prokaryote and eukaryote systems are particularly encouraged to apply. The department will also seriously consider individuals whose research interests involve imaginative application of more classical solutions to contemporary genetic problems. Applicants should submit, prior to 1 June 1982, curriculum vitae, reprints, statement of research interests, and the names of three references to: **Dr. Philip Leder, Chairman, Department of Genetics, Harvard Medical School, 25 Shattuck Street, Boston, Massachusetts 02115.**

Harvard University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority group members are encouraged to apply.

University of Michigan Medical School, Department of Otorhinolaryngology, has a position available at the rank of **INSTRUCTOR THROUGH PROFESSOR.** Must have M.D. degree and be eligible for or certified by the American Board of Otolaryngology. Must be competent in all phases of clinical otorhinolaryngology. Contact: **Charles J. Krause, M.D., C6107 Outpatient Building, Box 61, University of Michigan Hospital, 1405 East Ann Street, Ann Arbor, Mich. 48109.** A nondiscriminatory, Affirmative Action Employer. Code 16FO.

### MICROBIOLOGIST OR VIROLOGIST

The Department of Microbiology and Immunology at the University of Washington, Seattle, is recruiting for a faculty position at the assistant or associate professor level. Applicants must have postdoctoral experience in the field of molecular cell biology, biochemistry, or genetics and be capable of mounting an independent research program in the broad area of host-parasite interactions. The appointee will be expected to teach courses in medical virology or other branch of medical microbiology, supervise Ph.D. candidates, and participate in the teaching of Ph.D.-level graduate courses. Salary will be commensurate with qualifications. Applicants should send curriculum vitae and list of three names to be used as references by 1 June 1982 to:

**Dr. James J. Champoux**  
Chairman of Search Committee  
Department of Microbiology and Immunology SC-42  
University of Washington  
Seattle, Washington 98195

The University of Washington is an Equal Opportunity Employer.

## POSITIONS OPEN

**LECTURER IN BIOLOGY.** The Department of Biology anticipates temporary teaching positions for one or two quarters in 1982-1983 and is accepting applications to establish a roster of qualified candidates. Subject areas are general introductory biology, marine biology, human anatomy and physiology, invertebrate and vertebrate zoology, ichthyology, and mycology. Preference will be given to persons with a Ph.D. and demonstrated research. Applicants should send a résumé and names of three referees to: **Dr. J. R. P. Ross, Roster Committee, Department of Biology, Western Washington University, Bellingham, Wash. 98225.** Closing date: 30 April 1982.

Western Washington University is an Equal Opportunity/Affirmative Action Employer.

University of Michigan Medical School, Department of Biological Chemistry, is inviting applications for a faculty position at the rank of **LECTURER, INSTRUCTOR, OR ASSISTANT PROFESSOR**, depending upon experience. Candidates should have a Ph.D. in biochemistry with postdoctoral training in the isolation and characterization of mammalian cytochrome P-450 and related enzymes, protein chemistry, and use of techniques such as GC and HPLC. Send résumé to: **Dr. M. J. Coon, Chairman, Department of Biological Chemistry, The University of Michigan Medical School, Ann Arbor, Michigan 48109.** A nondiscriminatory, Affirmative Action Employer. Code 41.

### LIFE SCIENCE RESEARCH POSITIONS Agricultural Research Service

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

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

### MICROSCOPIC ANATOMIST

Anatomist needed to teach microscopic anatomy. Applicant should have 5 to 8 years of experience, hold M.D. or Ph.D. degree, and have demonstrated competence in both teaching and research. Position available at assistant/associate level; salary commensurate with qualifications.

Send complete curriculum vitae, including names of three professional references, to: **Dr. J. W. Wagner, Head, Department of Anatomy, Texas A & M University, College of Medicine, Olin E. Teague Research Building, College Station, Texas 77843.**

Texas A & M University is an Equal Opportunity/Affirmative Action Employer.

**MUSEUM: DIRECTOR.** The Chicago Academy of Sciences seeks a specialist in the fields of natural history and ecology to serve as its director, beginning by September 1982. The successful applicant will have the Ph.D. degree, experience in the design of museum exhibits and administration, as well as an interest in ongoing field research. The Chicago Academy of Sciences was founded in 1857 and is one of the oldest scientific institutions in the Midwest. Allowance for hardship moving. The Chicago Academy of Sciences is an Equal Opportunity Employer. All replies confidential. **Box 79, SCIENCE.**

**NEUROBIOLOGY POSTDOCTORAL POSITION** available 1 September 1982 to study electrophysiology of synaptic transmission and neuronal excitability control using in vitro hippocampal slice preparation. Two-year position; salary commensurate with experience. Send curriculum vitae, letter outlining research background and interests, plus names of three references to: **B. E. Alger, Physiology Department, University of Maryland School of Medicine, 660 West Redwood Street, Baltimore, Md. 21201.** Closing date: 15 April 1982.

**POSTDOCTORAL FELLOW.** Studies in teratology/reproductive toxicology. Preference given candidates with electron microscopy or developmental pharmacology expertise. Ph.D. required. Salary commensurate with experience. Send résumé and names of references to: **Dr. Andrew G. Hendrickx, California Primate Research Center, University of California, Davis, Calif. 95616.** The University of California is an Equal Opportunity/Affirmative Action Employer.

## SENIOR RESEARCH FELLOW

The Department of Mineral Sciences at the American Museum of Natural History is seeking an Economic Mineralogist or Geologist. The major responsibility is to carry out a vigorous research program on mineralogy as related to ore deposits and is of relevance to the mining industry. Research may encompass field and/or laboratory studies of the origin and history of ore deposits, ore mineralogy, and theoretical aspects of ore formation. Collaborative work with other researchers to broaden the scope of the work is encouraged.

Minor duties may include development of an economic mineralogy collection, some exhibition and educational programs, and departmental functions. Substantial administrative and scientific support will be provided.

The department has an automated electron microprobe and X-ray facilities. Other equipment, if necessary, may be used at nearby institutions or can be purchased.

The term of appointment will be, at present, for one year, renewable for up to five years. It is anticipated that funding beyond this period will be available through support from the mining industry.

A Ph.D. is required and the position is primarily intended for someone with a proven track record in either academic or industrial research. A person with experience is also expected to have a strong publication record in academic journals.

Candidates are invited to submit a resume, salary requirements, and the names of three references familiar with their work to:

**Dr. Martin Prinz, Chairman**  
Department of Mineral Sciences  
The American Museum of Natural History  
Central Park West at 79th Street  
New York, New York 10024

**MATERIALS SHOULD BE SUBMITTED BY  
APRIL 30, 1982.**

An Equal Opportunity (M/F/H) Affirmative Action Employer

## Pharmaceutical Research

Ann Arbor, Michigan

The Pharmaceutical Research Division of Warner-Lambert, a world leader in pharmaceutical development, has immediate openings in the Pathology and Experimental Toxicology Department for the following positions:

### Toxicologic Pathologist

Requires an individual with experience and/or training in laboratory animal pathology to become a member of a dynamic interdisciplinary team focusing on the development of meaningful new therapeutic agents. Duties will include the design, conduct and reporting of a variety of toxicologic studies with emphasis on the clinical and anatomical pathologic evaluation of animals used in such studies. Board eligibility or certification in Pathology required.

### Manager, Genetics Toxicology

Requires an individual with a background in general genetics with an outstanding record of achievement. The Manager of the Genetics Toxicology Section will be involved in the *in vitro* testing for the efficient detection of mutagens in bacterial and mammalian cell systems with new pharmaceutical compounds. *In vivo* and *in vitro* cytogenetics and other ancillary methods, including cell transformation methodologies are also contemplated. This senior staff member will interact with other areas of functional activity and perform as Study Director for a variety of toxicity studies; and should possess demonstrated ability to act independently with a Ph.D. degree in Genetics or Cell Biology or related disciplines.

Our research facilities, adjoining the University of Michigan campus in Ann Arbor, Michigan, are among the finest and best equipped in the world and are devoted exclusively to the discovery and development of new drugs.

Join the exciting Research and Development team at Warner-Lambert, and enjoy outstanding compensation and environment. Send your curriculum vitae and salary history/requirements in confidence to: Ms. M. Wolin, Human Resources Representative, WARNER-LAMBERT/PARKE-DAVIS PHARMACEUTICAL RESEARCH DIVISION 2800 Plymouth Road, Ann Arbor, Michigan 48105

An Equal Opportunity Employer M/F/H

**WARNER  
LAMBERT**

## POSITIONS OPEN

**NEUROSCIENCE POSTDOCTORAL POSITION** now open in program devoted to the study of the functional organization and connectivity of parietal association cortex in monkeys. Background in single-cell neurophysiology or primate behavior preferred. Experience with small computers or animal surgery desirable. Starting date: spring/summer 1982; 2-year appointment on NIH research grant. Send curriculum vitae, brief description of research experience and interest, and names of three references by 15 April to: **Dr. James C. Lynch, Department of Anatomy, University of Mississippi Medical Center, 2500 North State Street, Jackson, Miss. 39216** *An Equal Opportunity/Affirmative Action Employer.*

Position available immediately for **academically oriented Ph.D. at the assistant professor level** to direct major cytogenetics service and research laboratory performing amniotic fluid, blood, and marrow karyotypes. Send curriculum vitae and names of references to: **Dr. Charles J. Epstein, Department of Pediatrics, University of California, Room 650 M, San Francisco, California 94143.** *An Affirmative Action/Equal Opportunity Employer.*

### PLANT ECOLOGIST

Plant ecologist. Tenure-track position beginning 1 September 1982 to teach undergraduates in plant ecology, forest ecology, and introductory environmental science; to participate in an interdisciplinary environmental science program at the Miner Center satellite campus in Chazy, N.Y.; and to participate in team research on forest ecosystems. Preference will be given to candidates with strengths in forestry, fire ecology, and statistics. Send letter of application with résumé by 2 April 1982, and arrange to send three letters of reference to: **Dr. James C. Dawson, Institute for Man and Environment, State University of New York, Plattsburgh, N.Y. 12901.** Telephone: 518-564-2178. *Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION** available for work in the general area of protein-glycoprotein structure and function with current emphasis on lectin-sugar interactions and post-translational modifications of proteins. Applicants should preferably have a Ph.D. in chemistry/biochemistry, or in biology with a strong chemistry minor. Please send curriculum vitae to: **Finn Wold, Department of Biochemistry and Molecular Biology, The University of Texas Medical School, P.O. Box 20708, Houston, Texas 77025.** *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION IN NEUROEMBRYOLOGY.** Project involves the study of synapse formation in the chick auditory system. Focus is on experimental morphogenesis and tissue interactions involving microsurgical transplantation and organotypic culturing experiments. The approach is interdisciplinary and possibilities for electrophysiological and biochemical studies exist. Strong background in neurobiology required. Contact: **D. K. Morest, Department of Anatomy, University of Connecticut Health Center, Farmington, Conn. 06032.** *Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE** to study structure-function relationships underlying auditory signal processing using intra- and extracellular recording and light and electron microscope techniques. Collaborative opportunities exist in the areas of neuroanatomy, neurochemistry, and developmental neurobiology. Candidates should have a strong background in the neurosciences. Experience in synaptic physiology and/or computer programming is preferred but not necessary. Send curriculum vitae and names of three references to: **Dr. S. Kuwada, Department of Anatomy, University of Connecticut Health Center, Farmington, Conn. 06032.** *An Affirmative Action/Equal Opportunity Employer, M/F/H.*

### RESEARCH SCIENTIST II

Assist in developing observational and computer programs for COMPTel on GRO satellite; analyze data during calibrations of COMPTel model; collaborate with scientists to optimize computer programs to locate gamma-ray sources. Qualifications required: Ph.D. in physics/astrophysics plus 3 years of experience in gamma-ray astronomy; detailed knowledge of gamma-ray instruments. Salary: \$19,160 to \$29,760. Forward résumé by 15 May 1982 to: **Dr. John Lockwood, Professor of Physics, Demeritt Hall, University of New Hampshire, Durham, New Hampshire 03824.** Position is funded by externally-generated grant/contract funds. *Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### COGNITIVE SCIENTISTS

As part of its expanding program in cognitive science, the University of Rochester invites cognitive scientists of all levels of experience to apply for one of four tenured or tenure-track positions beginning in September 1982. The anticipated positions are in the fields of psychology, linguistics, and education. For the two positions in psychology, preference will be given to applicants with research interests in the areas of memory, representation, and language. The preference for the linguistics position is for applicants with interests in semantics or computational linguistics, and the preference for the education position is for those interested in the role of computers in education. These positions involve interaction with other members of the cognitive science program in the teaching of interdisciplinary courses, and they offer unique opportunities for interdisciplinary research. Potential candidates should send a résumé, a brief summary of their research interests, several representative publications, and the names of three references to: **David A. Taylor, Department of Psychology, University of Rochester, Rochester, New York 14627.** *The University of Rochester is an Equal Opportunity Employer; women and members of minority groups are encouraged to apply.*

**HEADSHIP,** Department of Physiology/Biophysics, Faculty of Medicine, Dalhousie University, Halifax, Nova Scotia. Applications are invited for headship of the Department of Physiology/Biophysics, Faculty of Medicine, Dalhousie University. The department includes 22 full-time and 12 part-time faculty. Besides a vigorous commitment to research, the department assumes primary responsibility for the teaching of physiology and biophysics in the Faculties of Medicine, Graduate Studies, Health Professions, Dentistry, and Arts and Science. The successful applicant will be an enthusiastic leader, a capable administrator and educator, and an established investigator. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Further inquiries or applications with curriculum vitae and the names and addresses of three referees should be sent to: **Dr. Charles Hope, Chairman, Search Committee, Department of Physiology/Biophysics, Office of the Dean of Medicine, Sir Charles Tupper Medical Building, Halifax, Nova Scotia, Canada B3H 4H7.**

**NEUROBIOLOGIST**—University of Colorado at Denver is seeking applications for a tenure-track position as an assistant professor in biology. Teaching responsibilities include involvement in general biology and advanced courses reflecting the person's research expertise. Candidate must have an active research program in neurobiology. Postdoctoral teaching/research experience is required. Since research space and equipment are limited, the person must be capable of improvisation and grantmanship. Send curriculum vitae, three letters of reference, and reprints by 16 April to: **Linda Dixon, Biology, University of Colorado at Denver, 1100 14th Street, Denver, Colo. 80202.** *The University of Colorado at Denver is an Equal Opportunity Employer.*

Position for **POSTDOCTORAL FELLOW OR RESEARCH ASSOCIATE** in ongoing NIH project, available August 1982. Involves isolation and structural characterization of blood group glycoproteins, preparation of glycoconjugates, and immunochemical study of antibodies. Write to: **V. E. Dube, M.D., Department of Pathology and Laboratory Medicine, Evanston Hospital, 2650 Ridge Avenue, Evanston, Ill. 60201.**

First-year **POSTDOCTORAL FELLOW** to study mechanism of insulin action and processing in isolated hepatocytes. A strong background in biochemistry is required. Send résumé and two letters of reference to:

**Dr. Jose F. Caro**  
Department of Medicine—Endocrinology  
Thomas Jefferson University  
1025 Walnut Street  
Philadelphia, Pa. 19107

**POSTDOCTORAL RESEARCH POSITION.** To expand ongoing projects purifying and characterizing human tumor-associated proteins or antigens; production of hybridoma monoclonal antibodies for human tumor-associated antigens. Ph.D. in biochemistry, immunology, or immunochemistry required, with prior training in techniques of cell culture or protein chemistry. Send curriculum vitae and three references to: **Dr. Elliot Alpert, Department of Medicine, Baylor College of Medicine, 1200 Moursund, Houston, Texas 77030.** *An Equal Opportunity Employer.*



Applications will be accepted for the position of

## CHIEF, NUCLEAR MEDICINE DEPARTMENT

CLINICAL CENTER (CC)  
NATIONAL INSTITUTES OF HEALTH  
(NIH), BETHESDA, MARYLAND

The CC, NIH, is a 540-bed hospital and biomedical research facility whose mission includes patient care, research, and education. The clinical departments support research activities of the component Institutes and engage in research and education as appropriate to the mission of that department. The Nuclear Medicine Department has a responsibility for the full range of diagnostic and therapeutic procedures in nuclear medicine. Current research activities include diagnostic imaging, the development of radiopharmaceuticals, and data management in the field of nuclear medicine. The sections in the department include Applied Physics, Positron Emission Tomography, Radiopharmacy, Diagnostic Imaging, and Whole Body Counter. The department will staff and operate a cyclotron to be constructed during 1984. Candidates for the position should be certified in the specialty of Nuclear Medicine and have a broad background and record of outstanding performance in academic medicine and biomedical research. Prior experience in managing a large department is essential. Appointment will be made either in the Federal Civil Service or the U.S. Public Health Service Commissioned Corps. Salary and benefits will be commensurate with method of appointment.

Applications will be accepted until May 1, 1982. Please forward applications to:

**Ms. Mary Austin, Clinical Center Personnel Office  
Bldg. 31, Rm. 4B-19, National Institutes of Health  
9000 Rockville Pike, Bethesda, Maryland 20205**

For information call: (301) 496-1905

*An Equal Opportunity Employer*



## NATIONAL SCIENCE FOUNDATION (NSF) Director, Division of Social and Economic Science

The Directorate for Biological, Behavioral and Social Science is seeking qualified applicants for position of **Director, Division of Social and Economic Sciences**. The incumbent manages the division responsible for funding research in the areas of social and economic science. Duties include assessing research needs and trends, presenting plans for future development, determining funding requirements, preparing and justifying budget estimates, balancing program needs, allocating resources, overseeing the evaluation of proposals and recommendations for awards and declinations, supervising staff, and representing NSF to relevant external groups. This position, which will be filled on a noncareer (rotational) basis, is part of the Senior Executive Service with a salary ranging from \$56,936 to \$59,119 (currently limited to \$58,500 per annum).

Qualification requirements include: (i) Ph.D. or equivalent professional experience in the social and economic sciences; (ii) substantial research experience and strong evidence of scholarship in social and economic science including publication of research; (iii) experience in the planning of diverse research programs in the fields of social and/or economic science; (iv) demonstrated familiarity with relevant academic community and recognized professional standing in the social and economic science community; and (v) supervisory and managerial experience, including supervision and development of professional and support staff involved in diverse endeavors.

Applicants should **telephone: Margaret Cademartori on 202-357-7857**, to request announcement EPB 82-6 which contains additional qualification requirements as well as instructions concerning the preparation of the supplemental narrative required with SF-171 as application. Send SF-171 and narrative to: **National Science Foundation, Executive Personnel Section, Room 212, 1800 G Street, NW, Washington, D.C. 20550 (attention: EPB 82-6)**. Applications must be received by 23 April 1982.

*Equal Opportunity Employer*

*Journal Announcement*

## National Cancer Institute National Institutes of Health Public Health Service Department of Health and Human Services

### DIRECTOR, DIVISION OF CANCER TREATMENT National Cancer Institute

The National Cancer Institute (NCI), develops the overall national strategy against cancer, coordinates Federal Government and non-Federal Government cancer programs, and supports international programs of cancer research. The Institute's efforts cover the spectrum of basic, applied, and developmental research. It encompasses the research thrusts of cause and prevention of cancer, detection and diagnosis, treatment and rehabilitation, and cancer biology. It also encompasses control interventions in prevention; detection, diagnosis, and pretreatment evaluation; and treatment, rehabilitation continuing care.

As Director of the Division of Cancer Treatment, the incumbent will be responsible for directing the NCI's major research effort related to the treatment of cancer. The Division encompasses programs for intramural laboratory research. The Division also is responsible for extramural (grants, contracts and cooperative agreements) activities related to its mission. It is anticipated that the Division will have a budget of approximately \$275 million and approximately 473 full-time permanent personnel in fiscal year 1982.

This is a Civil Service position in the Senior Executive Service (SES), with a salary range from \$54,755 to \$61,300 (currently limited to \$58,500 per annum.) Candidates may be eligible for Physician's Comparability Pay up to \$10,000 per year. The individual selected, if not presently in the SES, must serve a one-year probationary period. (Alternately, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service.)

The mandatory professional/technical qualifications for the position require that candidates: (1) meet the minimum educational requirements for Medical Officer, GS-602, or Health Scientist, GS-601, or equivalent combination of experience and training, as defined by the U.S. Office of Personnel Management Handbook X-118 (Qualifications Standards for Positions under the General Schedule) which is available in Federal personnel offices; and (2) have research experience and knowledge of research programs in one or more areas related to the treatment of cancer. The managerial/executive qualifications are: experience in the leadership/ management of a research program, demonstrating competence to assume leadership responsibilities in: (1) assuring that national and agency goals and priorities are considered in carrying out the functions and responsibilities of the organization; (2) establishing and maintaining relationships with key individuals and groups outside the organization; (3) directing and guiding programs and projects, including long-term and short-term planning and establishing objectives and priorities; (4) establishing procedures for the development and defense of the organization's budget, and allocating fiscal and personnel resources to support program implementation; (5) developing and implementing procedures for monitoring program performance, including periodic analysis and evaluation; and (6) developing processes and overseeing activities to implement EEO objectives and to assure the fair and equitable employment of qualified persons.

Candidates who meet the mandatory requirements will be evaluated by the Search Committee on the following factors: scientific reputation/peer recognition; training and education; and honors and awards, and the degree to which they exceed the minimally qualified level of the mandatory professional/technical and managerial/executive qualifications. Additional information may be obtained from **Ms. Dreama Chapman, Supervisory Personnel Management Specialist, NCI, (301) 496-6862**.

Applications (Personal Qualifications Statement, SF-171) are to be sent to the above individual at this address: **National Cancer Institute, Building 31, Room 3A34, Bethesda, Maryland 20205**. A current curriculum vitae and bibliography must accompany all applications. Applications of women and/or minority group members are especially solicited.

The National Institutes of Health is an EQUAL OPPORTUNITY EMPLOYER.

Applications must be postmarked no later than March 31, 1982.

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available to study membrane conductances and postsynaptic receptor mechanisms in isolated vertebrate photoreceptors and retinal interneurons using gigaseal patch clamp techniques. Salary: \$14,800 to \$16,700 for 2 years. Starting date: between 1 July 1982 and 1 January 1983. Send curriculum vitae and three letters of reference before 1 May 1982 to: **G. L. Fain, Jules Stein Eye Institute, University of California, Los Angeles, Medical School, Los Angeles, Calif. 90024.** *The University of California is an Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH ASSOCIATE IN MOLECULAR NEUROBIOLOGY.** To study synaptic molecules with monoclonal antibodies. Annual salary: \$14,000 plus fringe benefits. Send résumé and two letters of recommendation to: **Dr. A. L. De Blas, Department of Neurobiology and Behaviour, State University of New York (SUNY), Stony Brook, Stony Brook, N.Y. 11794.** *SUNY is an Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCH POSITION** in pharmacology to help develop cardiovascular and neurophysiological techniques to study the effects of antihypertensive and other agents on carotid baro- and chemoreceptor function. Experience in electrophysiological recording and perfusion techniques helpful. Two-year appointment, renewable; starting date: summer or fall 1982. Send curriculum vitae and three letters of reference to: **Dr. W. R. Woolees, Department of Pharmacology, School of Medicine, East Carolina University, Greenville, N.C. 27834.** *An Equal Opportunity Employer through Affirmative Action.*

**POSTDOCTORAL RESEARCH POSITIONS.** Studies on tubulin gene structure and expression (**Dr. Lyn Yarbrough**), mucosal immunology and synthetic vaccine development (**Dr. J. F. Halsey**), and genomic organization of a flavivirus using recombinant DNA techniques (**Dr. R. Padmanabhan**). Send curriculum vitae and names of three references to one of the above at: **Department of Biochemistry, University of Kansas College of Health Sciences, Kansas City, Kans. 66103.**

**POSTDOCTORAL SCIENTIST** position in our recently established Population Genetics Laboratory. Primary responsibility will be to a project directed by **Dr. Bennett Dyke**, involving computer modeling of demographic and mating structure of small human populations. Applicant must have training in population genetics and demography, and have facility with a high-level computer language on a large computer; experience with microcomputers would also be helpful. Opportunities exist also to do research on the population genetics of our large baboon colony. Salary without previous postdoctoral experience: \$16,536. Send résumé, university transcripts, statement of research interests and career goals, and the names and addresses of three references to: **Personnel Manager, Southwest Foundation for Research and Education, P.O. Box 28147, San Antonio, Texas 78284.**

## Protein Chemist

An experienced protein chemist is required immediately by the Connaught Research Institute at its Toronto facility. The specific area of employment will be in our genetic engineering program where the successful candidate will be concerned with protein purification, modification, and eventual industrial processing. Please send résumés to: **The Personnel Director, Connaught Laboratories Limited, 1755 Steeles Avenue West, Willowdale, Ontario, Canada M2R 3T4.**

**CONNAUGHT**  
where service complements research

## POSITIONS OPEN

**PROFESSIONAL RESEARCH series position** available in 1982-1983 in environmental physiology, cardiovascular physiology, or stress physiology. Ph.D. or M.D. and postdoctoral experience required. Potential for extramural funding helpful. Send résumé and names of three persons who can write a letter of recommendation to: **Steven M. Horvath, Institute of Environmental Stress, University of California, Santa Barbara, Calif. 93106.** *An Affirmative Action Employer.*

**PROFESSOR AND CHAIRMAN, DEPARTMENT OF BIOCHEMISTRY.** Applicants are invited for the position of professor and chairman of the Department of Biochemistry, University of Puerto Rico, San Juan, P.R. Applications are welcome from individuals with previous history of providing quality education to graduate students and medical students and who have demonstrated research productivity. The candidates should be committed to academic excellence and have administrative skills. Candidates should submit curriculum vitae and three references to: **Dr. W. C. De Mello, Chairman, Search Committee, Department of Pharmacology, Medical Sciences Campus, GPO Box 5067, San Juan, Puerto Rico 00936.**

**DEPARTMENT OF PSYCHOLOGY.** Tutor/senior tutor. Position involving assistance in the conduct of an introductory class in psychology in the Faculty of Science with an enrollment of about 120 students. Duties include arranging laboratory classes and tutorials and advising students. To commence 1 May 1982. Salary: tutor, \$A14,900 to \$A17,542 per annum, senior tutor, \$A18,068 to \$A20,699 per annum. Applications, including reference number 31213, curriculum vitae, and three references, should be sent to: **Registrar, Monash University, Clayton, Victoria 3168, Australia,** by 2 April 1982.

**RADIOLOGIC PHYSICIST** position available on 1 July 1982 at the University of California, Davis. Appointment will be at the associate professor or professor level. A Ph.D. and experience in teaching and research are required. Responsibilities include active involvement in educational and research programs; quality assurance activities; equipment calibration/certification; and development and application of new procedures and technologies. Submit curriculum vitae to: **Harold A. Baltaxe, M.D., Chairman, Department of Radiology, University of California Davis Medical Center, 4301 "X" Street, Room 109R, Sacramento, Calif. 95817.** Applications accepted through 31 May 1982. *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages application from members of minority groups and women.*

**RESEARCH ASSOCIATE (postdoctoral)** position available to study mechanisms of action and metabolism of cardiovascular toxin. Applicant must have experience in **CELL CULTURE SYSTEMS**, preferably smooth muscle and endothelial cells. Send curriculum vitae and names of three references to: **Dr. Paul J. Boor, Department of Pathology, University of Texas Medical Branch, Galveston, Texas 77550.** *An Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE IN BIOCHEMISTRY.** Research associate position available immediately in the area of membrane biochemistry. Studies involve the isolation and characterization of carrier proteins from kidney and intestine. Applicant should have Ph.D. in biochemistry, and experience in isolation of proteins, transport phenomena, membrane properties, and preparation of artificial membranes. Salary: \$17,000. Send résumé and names of two references to: **Georgia Department of Labor, P.O. Box 160(3), Augusta, Ga. 30912.** *An Equal Opportunity/Affirmative Action Employer.*

### RESEARCH PHYSICIST AND INSTRUCTOR OREGON GRADUATE CENTER

The Department of Applied Physics and Electronic Science invites applications for the above position, for an initial appointment period of 12 months from July 1982. The position requires a person with Ph.D. in experimental aspects of crystalline semiconductors, and experience with semi-insulating III-V materials. Successful applicant will work on characterization of such materials, by photocurrent spectroscopy and related techniques; and should be able to contribute to the graduate instructional programs of the department. To apply, send résumé, application letter with names of three references, and salary history to: **D. Stuart, Personnel Administrator, Oregon Graduate Center, 19600 Northwest Walker Road, Beaverton, Oregon 97006.** Closing date: 2 April 1982. *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available July 1982. Areas of research presently investigated are the following: mechanism of integration, excision and amplification of polyoma virus DNA in transformed cells; viral and host control of gene expression in DNA tumor viruses, polyoma, and SV40; use of polyoma virus as a eukaryotic vector for gene amplification; and transcription of specific cellular genes in the cell cycle. Background in molecular biology, virology, or cell genetics desirable. Salary open. Send curriculum vitae and names of references to: **Dr. Claudio Basilico, Department of Pathology, New York University (NYU) School of Medicine, 550 First Avenue, New York, N.Y. 10016.** *NYU is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITIONS** available in December 1982 involving research in DNA replication and repair in mammalian cell-virus systems, and the effects of chemical carcinogens. Salary: \$15,500 to \$17,500. Please send curriculum vitae to:

**Liebe F. Cavallieri, Ph.D., Sloan-Kettering Institute Walker Laboratory 145 Boston Post Road Rye, New York 10580**

**POSTDOCTORAL POSITION IN INVERTEBRATE IMMUNITY** available immediately to study mechanisms of cellular responsiveness to metazoan parasites in their snail host. Applicant should be creative and open-minded, have practical experience with TEM, and some background in vertebrate immunology and/or tissue culture methods; \$14,000 plus benefits. Send résumé and two letters of recommendation to: **Dr. T. P. Yoshino, Department of Zoology, University of Oklahoma, 730 Van Vleet Oval, Norman, Oklahoma 73019.**

### POSTDOCTORAL POSITION

The Department of Anatomy has a position available on a training grant in neuroanatomy to support a postdoctoral fellow interested in cellular structure and neuronal connections in the mammalian nervous system. Send curriculum vitae and the names of two references to: **Dr. Alan Peters, Department of Anatomy, Boston University School of Medicine, 80 East Concord Street, Boston, Mass. 02118.** *An Equal Opportunity/Affirmative Action Employer, M/F.*

**POSTDOCTORAL POSITION** for research on cell biology and physiology of ion transporting epithelia. Current research areas include stimulus-secretion coupling, ion transport mechanisms, EM and immunocytochemistry. Background in any of above areas, or in tissue culture, preferred. Send curriculum vitae and names of three references immediately to: **Dr. Stephen A. Ernst, Department of Anatomy and Cell Biology, University of Michigan, Ann Arbor, Mich. 48109.**

**RESEARCH ASSOCIATE OR POSTDOCTORAL POSITIONS** pertaining to molecular genetics of the nervous system, with possibility for long-term appointments after 2 years, are available. Competence in recombinant DNA technology is required. Preference given to applicants with experience in cell free translation, 2-D gel electrophoresis, and in situ nucleic acid hybridization. Salary range: \$18,000 to \$28,000. Telephone: 303-394-5604 for details. To apply, send curriculum vitae, copies of recent papers, and names of three referees to: **William E. Hahn, Professor, Department of Anatomy (B-111), University of Colorado, School of Medicine, Denver, Colo. 80262.**

**RESEARCH ASSOCIATE** to study antigen determinates of intermediate filament polypeptides. Seek recent Ph.D. with immunochemistry background. Position includes administrative responsibilities as well. Send curriculum vitae and three references to: **Dr. Samuel W. French, University of California, Davis, School of Medicine, Department of Medical Pathology, Davis, Calif. 95616.** *The University of California, Davis, is an Equal Opportunity/Affirmative Action Employer.*

**RESEARCH ASSOCIATE** to participate in evoked potential and regional cerebral blood flow research. Yearly renewable appointment available immediately. Knowledge of biomedical instrumentation and programming skills highly desirable. Send curriculum vitae to: **Dr. A. C. Papanicolaou, Division of Neurosurgery, E17, The University of Texas Medical Branch (UTMB), Galveston, Texas 77550,** before 15 May. *UTMB is an Affirmative Action/Equal Opportunity Employer.*

## NATIONAL SCIENCE FOUNDATION Head, Molecular and Genetic Biosciences Section

The Directorate for Biological, Behavioral and Social Sciences is seeking qualified applicants for position of **Head, Molecular and Genetic Biosciences Section, Division of Physiology, Cellular and Molecular Biology**. The incumbent is responsible to the division director for the overall planning, management, and commitment of budgeted funds for the section, which includes programs in biochemistry, biophysics, genetic biology, and metabolic biology. Person selected will receive either a permanent career appointment or a 2-year rotational appointment (requiring leave of absence from current employment). This position is part of the Senior Executive Service with a salary currently limited by law to \$58,500 per annum.

Qualification requirements include: (i) Ph.D. or equivalent professional experience in the biological sciences; (ii) substantial research experience and strong evidence of scholarship in one or more areas of molecular and genetic biosciences, including publication of research; (iii) familiarity with relevant academic community and recognized professional standing in the molecular and genetic biosciences community as evidenced by publications and/or professional awards; and (iv) supervisory and managerial experience for the achievement of organizational objectives through subordinates.

Applicants should **telephone: Margaret Cademartori on 202-357-7857** to request announcement EPB 82-5 for a permanent appointment or announcement EPB 82-15 for a rotational appointment. Announcements contain qualification requirements and instructions concerning the supplemental narrative required with SF-171 as application. Send SF-171 and narrative to: **National Science Foundation, Executive Personnel Section, Room 212, 1800 G Street, NW, Washington, D.C. 20550 (attention: EPB 82-5 or EPB 82-15)**. Applications must be received by 30 April 1982.

*Equal Opportunity Employer*

ADVERTISEMENT

## DIRECTOR

### BERN BRANCH SWITZERLAND

## THE LUDWIG INSTITUTE FOR CANCER RESEARCH

The Ludwig Institute is a charitable organization dedicated exclusively to the conduct of cancer research by its full-time staff in its own facilities in conjunction with qualified hospitals. Each Branch conducts laboratory and clinical research, and locations are selected to ensure that the Branches are in a strong research and academic setting. The mutually agreed upon program of a Branch is developed by the Institute with its Branch Director and the hospital. This program and its accompanying five year budget is based on review and approval by the Institute's Scientific Advisory Committee and Board of Directors respectively.

The Institute has a Branch at Bern in conjunction with and located at the Bern Inselspital as well as having an association with the University of Bern. Priority areas of cancer research interest for the Bern Branch include molecular biology, cell biology and developmental biology. Within these broad areas considerable flexibility of program development exists, though it is also expected that Branch programs deal with important problems of common human cancers.

The Institute is seeking a fulltime Director for the Bern Branch. Candidates must have an M.D. or a Ph.D. and have demonstrated research productivity of highest excellence in one of the above scientific areas. They must be able to attract outstanding young investigators to participate in the Branch program and have high ability to lead the group. Preferences will be given to candidates 40 years of age and younger.

The Bern Branch is engaged in investigations involving clinical trials and associated laboratory research in pathology, biochemistry and endocrinology. These laboratory programs may be modified. Facility in the German language is preferred.

The Institute follows the policies and practices existent at the location of a Branch. Thus, salaries retirement benefits, insurance, etc. are matched as closely as possible to those present where the Branch is located.

Interested candidates who meet qualifications should supply their C.V., bibliography and résumé (and three selected recent reprints). A short outline of a program of interest by the candidates may be included if desired. Documentation should be sent to the:

**Medical Director  
Ludwig Institute for Cancer Research  
Neustadtgasse 7  
8001 Zürich  
Switzerland**

ADVERTISEMENT

## DIRECTOR

### OF A NEW BRANCH AT LONDON, ENGLAND

## LUDWIG INSTITUTE FOR CANCER RESEARCH

The Ludwig Institute is a charitable organization dedicated exclusively to the conduct of cancer research by its full-time staff in its own facilities in conjunction with qualified hospitals. Each Branch conducts both laboratory and clinical research, and locations are selected to ensure that the Branches are in a strong research and academic setting. The mutually agreed upon program of a Branch is developed by the Institute with its Branch Director and the hospital. This program and its accompanying five year budget is based on review and approval by the Institute's Scientific Advisory Committee and Board of Directors respectively.

The Institute is planning a new Branch in conjunction with and located at St. George's Hospital. The Institute's priority areas of cancer research interest for this Branch include molecular biology, cell biology and developmental biology. Within these broad areas considerable flexibility of program development exists, though it is also expected that Branch programs will deal with important problems of common human cancers. Both laboratory and clinical investigations will deal with important problems of common human cancers. Both laboratory and clinical investigations will constitute the program of the Branch.

The Institute is seeking a fulltime Director for the Branch. Candidates must have an M.D. or a Ph.D. and have demonstrated research productivity of highest excellence in one of the above areas. They must be able to attract outstanding young investigators to participate in the Branch program and have high ability to lead the group. Preferences will be given to candidates 40 years of age and younger.

The Institute follows the policies and practices existent at the location of a Branch. Thus, salaries, retirement benefits, insurance, etc. are matched as closely as possible to those present where the Branch is located.

Interested candidates who meet qualifications should supply their C.V., bibliography and résumé (and three selected recent reprints). A short outline of a program of interest by the candidates may be included if desired. Documentation should be sent to the:

**Medical Director  
Ludwig Institute for Cancer Research  
Neustadtgasse 7  
8001 Zürich  
Switzerland**

## AAAS Memberships and Subscriptions

• Whenever you write us about your membership or subscription, please attach a **Science** address label to ensure prompt service.

• **Mail to:** Membership and Subscription Records, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005.

☐ **Change of Address:** Please provide 6 weeks' notice. Paste an address label from a recent issue in the space provided. Print new address below.

☐ **Query:** If you have a question, place your address label here and attach this form to your letter.

• **To join or subscribe:** Mail this form with your payment, mark the appropriate boxes, and print your name and address in the space below. (For renewals, attach label.)

☐ **Membership rates** (individual only)  
☐ \$43 USA    ☐ \$67 Canada, PUAS    ☐ \$70 Foreign  
☐ \$98 air-surface delivery via Holland

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

☐ Payment enclosed    ☐ Bill me later

Name Please print

Address

City State    Zip    MX03

**ATTACH  
LABEL  
HERE**

## POSITIONS OPEN

**RESEARCH POSITION** available immediately for individual with Ph.D. or M.D. Experience in tissue culture and/or recombinant DNA technology preferred. To join ongoing research related to differentiation and viral gene expression. Send résumé and three letters of reference to: **Dr. George Acs or Dr. Judith Christman, Department of Biochemistry, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 11029. An Equal Opportunity Employer.**

### SENIOR RESEARCH ASSOCIATE POSITION IN PROTEIN CRYSTALLOGRAPHY

Protein crystallographer with Ph.D. and extensive research experience, to direct investigation into use of synchrotron radiation in this field at Stanford Synchrotron Radiation Laboratory; scientific/working knowledge in design of complex computer-controlled data acquisition systems. Projects include (i) development of a fast multiwire area detector system, for efficient protein crystallographic data acquisition at multiple x-ray wavelengths across elemental absorption edges, to investigate use of enhanced anomalous scattering for phase determination; (ii) design and implementation of a tunable high-intensity wiggler beam-line and rotation camera system, optimized for macromolecular crystallography, for high-speed/high-resolution photographic data collection; and (iii) improvements to existing CAD-4 diffractometer system. In addition to pursuing own structural studies in biophysics, responsibilities include development of above national facilities, advising visiting user groups, and coordinating facility improvements. Additional projects include development of an energy-dispersive EXAFS spectrometer and to investigate kinetic EXAFS studies in biophysics and materials science. Physics background and experience in anomalous scattering techniques and synchrotron radiation research desirable. Extensive experience in electronic, mechanical, software, and x-ray optics design essential. Salary determined by years of applicable experience with a range from \$34,000 to \$36,000.

Send résumé to: **Mary C. Clark, Bechtel International Center, P.O. Box 5816, Stanford University, Stanford, Calif. 94305.**

## COURSES

### BERMUDA BIOLOGICAL STATION announces SUMMER COURSES AND SCHOLARSHIPS

- 1) Physiology of Marine Vertebrates, 1 to 19 June
  - 2) Tropical Marine Ecology, 8 June to 10 July
  - 3) Tropical Marine Phycology, 22 June to 10 July
  - 4) Tropical Marine Invertebrates, 13 July to 14 August
  - 5) Biological Telemetry, 13 July to 7 August
  - 6) Analysis of Marine Pollution, 10 to 28 August
- For information, telephone: 809-297-1880, or write airmail: **Bermuda Biological Station, Ferry Reach 1-15, Bermuda.**

## PROGRAMS

**POSTDOCTORAL (M.D. or Ph.D.) LUNG PHARMACOLOGY AND PATHOPHYSIOLOGY TRAINING PROGRAM.** Funded by NHLBI. Postdoctoral traineeships available July 1982 for 1 or 2 years. Applicants must be U.S. citizens or permanent residents. Areas of research training: nonrespiratory and biochemical functions of lung, pharmacology of airway and vascular smooth muscle, mediators of response to injury. Contact: **C. N. Gillis, Ph.D., Department of Pharmacology, Yale University School of Medicine, 333 Cedar Street, New Haven, Connecticut 06510. Yale University is an Affirmative Action/Equal Opportunity Employer.**

**DOCTORAL PROGRAM IN PHARMACOLOGY AND TOXICOLOGY.** Several predoctoral positions are available beginning August 1982. Research areas of emphasis include: chemical and biochemical pharmacology and toxicology, drug metabolism, pharmacological applications of NMR, analytical toxicology using GC/MS, endocrine pharmacology, neuropharmacology, neuropsychopharmacology, renal pharmacology, and drug transport and distribution. Various fellowships and assistantships are available. For applications, write: **Dr. L. C. Waite, Department of Pharmacology and Toxicology, Health Sciences Center, University of Louisville, Louisville, Ky. 40292.**

## TRAVEL GRANTS

### TRAVEL GRANTS

Faculty members in colleges in Florida, Kentucky, Louisiana, North Carolina, South Carolina, and Tennessee may apply for supplemental small grant assistance (about \$400) for travel to use facilities and equipment not available locally and needed in research. Write: **Small Grants Program, Southern Regional Education Board, 1340 Spring Street, NW, Atlanta, Georgia 30309.**

## TRAINEESHIPS

### POSTDOCTORAL TRAINEESHIPS IN NEURAL AND BEHAVIORAL SCIENCES

Traineeships are available in anatomy, pharmacology, physiology and biophysics, psychology, zoology, and related disciplines through an interdisciplinary USPHS-NIMH Neurobehavioral Sciences Program Grant. Applicants should have a strong commitment to research in the neural and behavioral sciences. Applications, consisting of a statement of research interests, curriculum vitae, and three references must be made by 1 May 1982. Apply to: **The Neural and Behavioral Sciences Committee, 201J Gilmore Hall, The University of Iowa, Iowa City, Iowa 52242. The University of Iowa is an Equal Opportunity Employer.**

### POSTDOCTORAL PROGRAM FOR FACULTY DEVELOPMENT IN CLINICAL PHARMACY.

Pharm.D., Ph.D., or M.D. Two-year multidisciplinary fellowship program directed toward improving analytical, research, teaching, and clinical practice skills. Intensive research and learning opportunities in clinical pharmacokinetics, drug metabolism and disposition, analytical toxicology, clinical toxicology, and clinical drug studies. Application deadline is 30 May and program begins in August. For further information, write to: **Dr. Arthur G. Lipman, College of Pharmacy, University of Utah, Salt Lake City, Utah 84112. Telephone: 801-581-5941. An Equal Opportunity/Affirmative Action Employer.**

## FELLOWSHIPS

### POSTDOCTORAL RESEARCH FELLOWSHIP

available 1 July 1982 in the Division of Respiratory Physiology and Medicine, Harbor-University of California, Los Angeles (UCLA) Medical Center. Candidates interested in studies of the control of human respiration and metabolism are invited to send curriculum vitae and applications to: **Brian J. Whipp, Ph.D., A-15 Annex, Harbor-UCLA Medical Center, Torrance, Calif. 90509. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL FELLOWSHIPS** are available for training in: (i) cellular immunology to study the cellular events in the immune recognition of proteins and allergens; (ii) molecular immunology involving studies on the molecular basis of immune response to proteins and allergens; and (iii) protein chemistry and function with emphasis on conformation, chemical modification, sequence analysis, and peptide synthesis. Competitive stipend. Candidates must be U.S. citizens or permanent residents. Send curriculum vitae and three letters of recommendation to: **Dr. M. Z. Atassi, Department of Immunology, Mayo Medical School, Rochester, Minnesota 55901.**

*Mayo Foundation is an Equal Opportunity/Affirmative Action Institution.*

### POSTDOCTORAL FELLOWSHIP

**SYNTEX**, a leading multinational pharmaceutical/life sciences firm on the San Francisco peninsula, has a position available no later than June 1982 for research on fatty acids and prostaglandins in cardiovascular disease. Research topic is exploration of the role of nonesterified fatty acids and their biologically active eicosanoids in the fatal sequelae of myocardial infarction and atherosclerosis. Research will be conducted in a modern laboratory equipped for in-depth studies from whole animal work down to changes at the cellular and molecular level.

Ph.D. or equivalent qualifications in the lipid area and previous experience with gas-liquid chromatography of fatty acids preferred.

**SYNTEX** offers a superb scientific environment. Please send résumé to: **Dr. A. L. Willis, Room R2-101, SYNTEX, 3401 Hillview Avenue, Palo Alto, Calif. 94304. We are an Equal Opportunity Employer.**

## FELLOWSHIPS

### HARVARD SCHOOL OF PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS



Interdisciplinary Programs in Health (IPH) invites applications from promising graduates of advanced degree programs in the natural or social sciences interested in turning to research in environmental health and public policy. The program focuses on the scientific and analytical foundations for environmental decision-making.

Fellows will be appointed for terms of 1 or 2 years, possibly renewable. Deadline for applications is 15 April 1982. Decisions will be announced in May.

For information, write to:

**Professor Donald F. Hornig  
Director, IPH  
Harvard School of Public Health  
665 Huntington Avenue  
Boston, Massachusetts 02115**

### POSTDOCTORAL RESEARCH FELLOWSHIPS

are available in the Department of Pathology, University of Texas Health Science Center, San Antonio, for graduates in biology or biochemistry with a Ph.D. degree. Studies will involve the interactions of serum lipoprotein with vascular cells in culture. Specifically we are exploring the binding and uptake of purified lipoproteins by human blood monocytes and arterial smooth muscle cells in culture. Applicants must be either U.S. citizens or permanent residents. Send curriculum vitae and names of three referees to: **C. J. Schwartz, M.D., The University of Texas Health Science Center, 7703 Floyd Curl Drive, San Antonio, Texas 78284.**

*Equal Opportunity/Affirmative Action Employer*

### POSTDOCTORAL FELLOWSHIP POSITION

Opening for a postdoctoral fellow in immunogenetics. Two areas of work are available: genetic and biochemical studies of the structure and function of the major histocompatibility complex of the rat and the cytogenetic study of rat chromosomes. Interested candidates should write to: **Dr. Thomas J. Gill III, Professor and Chairman, Department of Pathology, University of Pittsburgh, School of Medicine, Room 716 Scaife Hall, Pittsburgh, Pa. 15261.**

### REPRODUCTIVE BIOLOGY PROGRAM NORTHWESTERN UNIVERSITY

Postdoctoral and predoctoral fellowships are available immediately for research training in reproductive biology. A diverse but cohesive program offers research in the biochemical, cellular, physiological, and behavioral aspects of reproduction. Support is available through an NIH training grant. Participating faculty include: **Erwin Goldberg, Mary Hunzicker-Dunn, William Klein, Neena Schwartz, and Fred Turek.** Send curriculum vitae and names of three references to: **Dr. Neena Schwartz, Department of Neurobiology and Physiology, Northwestern University, Evanston, Illinois 60201.**

*An Equal Opportunity Employer*

## MARKETPLACE

**MEASUREMENTS**

Complete O<sub>2</sub> uptake system

**NEW!**

Clark-style miniature O<sub>2</sub> electrode

**NEW!**

O<sub>2</sub> Meter  
O<sub>2</sub> Needle and microelectrodes  
Phone collect  
(313) 769-1900  
FWX 810-223-2406

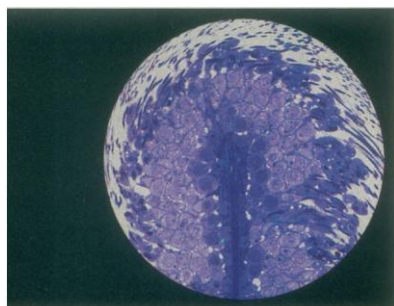
**TE** TRANSTECH ELECTRONICS CORPORATION

3850 Research Park Dr.  
Ann Arbor, Mich. 48106 USA

Circle No. 431 on Readers' Service Card



# NIKON VISIONS



## NIKON HIGH PERFORMANCE CF OPTICS. POSSIBLY THE FINEST EVER AVAILABLE.

Rat testis photographed with Nikon CF 40x oil plan apochromat. CF 5x photo eyepiece.

### INSTRUMENTATION

Nikon Optiphot microscope with CF objectives.

### SIGNIFICANCE

Nikon's revolutionary CF optics virtually eliminate chromatic aberration. Within this series, several high performance objectives significantly extend observation powers.

### SPECIFICS

While all Nikon CF objectives provide a dramatic improvement in resolution, color rendition and contrast over the old compensation system, the following lenses are exceptional. The unique CF 2x plan apochromat has excellent image flatness for low power photography. The CF 40x plan apochromat, N.A. 0.95, dry, produces exceptionally bright, high contrast images. Nikon's CF 100x NCG plan apochromat is designed to work without a cover glass. Its sharpness must be seen to be believed.

These remarkable optics are matched to a microscope body and illumination system equal to their performance—the Nikon Optiphot. This totally new design is extremely stable. A standard 50 watt halogen Koehler illumination system covers all magnifications without need for adjustment and the full range of Nikon accessories is available to match any assignment.

Extend your vision. Write: Nikon Visions, Nikon Inc. Instrument Division 623 Stewart Avenue Garden City, N.Y. 11530 (516) 222-0200

**Nikon**  
Extending Man's Vision

Circle No. 21 on Readers' Service Card







## Guide to gazing into inner space.

As the health sciences explore deeper into tissues and even cells, purer and more specialized biological stains and related products are needed. We offer 170 biological stains, 51 of them certified, plus fixatives, dehydrating agents, clearing agents, infiltration and embedding media, and solvents. These products are described in the brochure, "KODAK Biological Stains and Related Products," along with major uses and literature references. These are a few of the thousands of organic, inorganic, and biochemicals available through dealers. Write for our free guide on biological stains. Let it guide your imagination.



## The creative source.

**The ready source:** Dealers handling KODAK Laboratory Chemicals: American Scientific & Chemical; American Scientific Products; Bioclinical Laboratories NJ; BCL/New York; Brand-Nu Laboratories, Inc.; Bryant Laboratory, Inc.; CAMX Scientific; Fisher Scientific; Mays Chemical; Midland Scientific, Inc.; North-Strong Division; Preiser Scientific; Sargent-Welch Scientific; Scientific & Industrial Sales & Service, Inc.; Specialty Chemicals, Inc.; VWR Scientific Inc.; Ward's Natural Science Establishment, Inc.

© Eastman Kodak Company, 1981. Kodak Laboratory and Specialty Chemicals, Rochester, NY 14650

Eastman Kodak Company, Kodak Laboratory & Specialty Chemicals  
Dept. 412-L, Rochester, NY 14650.

Please send me a free copy of "Biological Stains and Related Products," Catalog JJ-281.

NAME \_\_\_\_\_ TITLE \_\_\_\_\_  
FIRM \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

