

membranes, fast axoplasmic transport offers the opportunity to learn about movement of membranes to a variety of destinations. For those interested in growth and development, axonal transport is the traffic system for intercellular signals and cellular building blocks.

These two volumes arise from a single meeting held in Bavaria in 1981. One volume would have been equally appropriate. *Axoplasmic Transport* is claimed to be "the first volume in which all basic aspects of axoplasmic transport and its mechanisms are comprehensively discussed" and "a complete treatise on the properties of axoplasmic transport in a variety of neuronal systems"—an embarrassingly tall order. The two books contain 78 papers averaging less than nine pages. The number of papers allows for a variety of topics to be covered; the length of the papers means that they are far from comprehensive. Much of the presented material is available elsewhere in the literature, but the compilation is useful nevertheless.

One of the subjects covered in *Axoplasmic Transport* is the mechanism of fast transport. Recent data reviewed in the book contribute to confusion rather than enlightenment concerning that mechanism. Alternatively, the mechanism may be more complex than most realize. The spotlight has shifted from earlier data and models emphasizing microtubules as the major structural component to data suggesting a role for actin (Isenberg *et al.*; Schwartz and Goldberg). Interestingly, models of the mechanism of chromosome movement have undergone similar changes (Brinkley and Brenner). The suggestions concerning a mechanism of fast axonal transport are more varied than are those concerning a mechanism of chromosome movement. Axoplasmic smooth endoplasmic reticulum (SER) was postulated years ago to be involved in transport (Droz and others), and detailed models now postulate roles for the SER ranging from being a mere depositor during the saltatory movement of other vectors to being itself motile (Hammerschlag and Stone, Droz and Rambourg, Morré, and others). The bias of the editor is shown in the greater space allotted to chromatographic or microstream models. Of the major structural constituents of axoplasm, only neurofilaments (10-nanometer intermediate filaments in axons) have been largely ruled out as playing a major role (but see Levine *et al.*) in the mechanism of fast transport (Papasozomenos *et al.*, this volume, and Griffin *et al.*, other volume).

Axoplasmic Transport in Physiology

and *Pathology* emphasizes more clinically related topics. Pfenninger nicely summarizes his work, which demonstrates that new plasma membrane is inserted at the tips of growing neurons. Some insights into the long-recognized and intriguing relationship between the rate of slow transport (SCb or group IV) and the rate of nerve regeneration are given by Cancalon *et al.* and complement well the ongoing studies from Lasek's lab.

Hints that the disruption of axoplasmic transport plays a role in the etiology of Alzheimer's disease (Dustin and Flament-Durand) are worth strong follow-up because of the increasing incidence of the disorder in an aging U.S. population.

Overall, the pair of books are a good collection of research papers and brief reviews in a dynamic field of biological research.

DAVID L. WILSON

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Books Received

Atlas of Sectional Human Anatomy. Frontal, Sagittal, and Horizontal Planes. J. G. Koritké and H. Sick. Urban & Schwarzenberg, Baltimore, 1983. Two volumes. Vol. 1, Head, Neck, Thorax. xx, 166 pp., \$89.50. Vol. 2, Abdomen, Pelvis. xx, 152 pp., \$89.50. The set, \$165.

Augustine's Laws and Major System Development Programs. Norman R. Augustine. American Institute of Aeronautics and Astronautics, New York, 1982. viii, 214 pp., illus. \$14.95.

Axioms and Principles of Plant Construction. Proceedings of a symposium, Sydney, Aug. 1981. R. Sattler, Ed. Nijhoff/Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). iv, 186 pp., illus. \$35. First published as *Acta Biotheoretica*, vol. 31A.

Clinical Management of Melanoma. H. F. Seigler, Ed. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). x, 522 pp., illus. \$75. Developments in Oncology, 5.

Clinical Neuropathology. R. O. Weller, M. Swash, D. L. McLellan, and C. L. Scholtz. Springer-Verlag, New York, 1983. xviii, 330 pp., illus. \$45.

Community Noise Rating. Theodore J. Schultz. Applied Science Publishers, London, ed. 2, 1982 (U.S. distributor, Elsevier, New York). xii, 386 pp., illus. \$74.

Design and Analysis in Dental and Oral Research. Neal W. Chilton. Praeger, New York, ed. 2, 1982. xvi, 444 pp., illus. \$44.50.

Encyclopedia of Computer Science and Engineering. Anthony Ralston and Edwin D. Reilly, Jr., Eds. Van Nostrand Reinhold, New York, ed. 2, 1982. xxxii, 1664 pp., illus. \$87.50.

Encyclopedia of Physics. S. Flügge, Ed. Vol. 31, Corpuscles and Radiation in Matter. I. W. Mehlhorn, Ed. Springer-Verlag, New York, 1982. xii, 630 pp., illus. \$105.

Energy Analysis and Agriculture. An Application to U.S. Corn Production. Vaclav Smil, Paul Nachman, and Thomas V. Long II. Westview, Boulder, Colo., 1983. xvi, 192 pp., illus. \$25. Westview Special Studies in Agriculture Science and Policy.

Energy Reviews. Nuclear Power Systems. Vol. 1. L. A. Melentiev, Ed. Translated from the Russian. Harwood, New York, 1982. x, 334 pp., illus. \$175. Soviet Technology Reviews, Section A.

Environmental Epidemiology. Papers from three seminars, Tlloires, France, 1979, 1980, and 1981. Paul E. Leaverton, Ed. Praeger, New York, 1982. xvi, 176 pp., illus. \$23.50.

Environmental Factors and Cultural Measures Affecting the Nitrate Content in Spinach. T. Breimer. Nijhoff/Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 102 pp., illus. Paper, \$22. Reprinted from *Fertilizer Research*, vol. 3, No. 3.

Fluid and Electrolyte Abnormalities in Exocrine Glands in Cystic Fibrosis. Papers from a conference, San Diego, Mar. 1982. Paul M. Quinton, J. Ricardo Martinez, and Ulrich Hopfer, Eds. San Francisco Press, San Francisco, 1982. vi, 298 pp., illus. \$18.75.

Genetic Recombination. Understanding the Mechanisms. Harold L. K. Whitehouse. Wiley-Interscience, New York, 1982. x, 416 pp., illus. \$54.95.

Genetics of Neurological and Psychiatric Disorders. Papers from a meeting. Seymour S. Kety, Lewis P. Rowland, Richard L. Sidman, and Steven W. Matthysse, Eds. Raven, New York, 1982. xii, 300 pp., illus. \$39.50. Research Publications: Association for Research in Nervous and Mental Disease, vol. 60.

Geological Evolution of the Earth During the Precambrian. Lazarus J. Salop. Translated from the Russian edition (Leningrad, 1982) by V. P. Grudina. Springer-Verlag, New York, 1983. xii, 460 pp., illus. \$65.80.

Haemophilus influenzae. Epidemiology, Immunology, and Prevention of Disease. Papers from a conference, Pinehurst, N.C., Mar. 1981. Sarah H. Sell and Peter F. Wright, Eds. Elsevier, New York, 1982. xxii, 322 pp., illus. \$50.

Handbook of Group Therapy. Martin Grotjahn, Frank M. Kline, and Claude T. H. Freidmann, Eds. Van Nostrand Reinhold, New York, 1983. x, 288 pp. \$24.95.

Handbook of Psychopharmacology. Vol. 15, New Techniques in Psychopharmacology. Leslie L. Iversen, Susan D. Iversen, and Solomon H. Snyder, Eds. Plenum, New York, 1982. xiv, 426 pp., illus. \$55.

How Life Learned to Live. Adaptation in Nature. Helmut Tributsch. Translated from the German edition (Stuttgart, 1976) by Miriam Varon. MIT Press, Cambridge, Mass., 1983. xii, 218 pp., illus. \$19.95.

Hypertension, Fluid-Electrolytes, and Tubulopathies in Pediatric Nephrology. Proceedings of a seminar, Bal Harbour, Fla., Jan. 1981. José Strauss, Ed. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 260 pp., illus. \$39.95.

Ionizing Radiation. Sources and Biological Effects. United National Scientific Committee on the Effects of Atomic Radiation 1982 Report to the General Assembly, with annexes. United Nations, New York, 1982 (distributor, Unipub, New York). vi, 774 pp., illus. Paper, \$63.

Kwashiorkor. H. C. Trowell, J. N. P. Davies, and R. F. A. Dean. Academic Press, New York, 1982. xlii, 308 pp., illus. \$35. Reprint with new material of 1954 edition. The Nutrition Foundations' Reprints.

Laser Annealing of Semiconductors. J. M. Poate and James W. Mayer, Eds. Academic Press, New York, 1982. xii, 564 pp., illus. \$67.

A Late Formative Irrigation Settlement below Monte Albán. Survey and Excavation on the Xoxocotlán Piedmont, Oaxaca, Mexico. Michael J. O'Brien, Roger D. Mason, Dennis E. Lewarch, and James A. Neely. Institute of Latin American Studies (University of Texas), Austin, 1982 (distributor, University of Texas Press, Austin). xiv, 240 pp., illus. \$25.

The Laws of Energy Consumption in Nutrition. Max Rubner. Translated from the German edition (Leipzig, 1902) by Allan Markoff and Alex Sandri-White. Robert J. T. Joy, Ed. With a biography by William H. Chambers. Academic Press, New York, 1982. xxxiv, 372 pp., illus. \$42.50. Nutrition Foundations' Reprints.

Light Reaction Path of Photosynthesis. Francis K. Fong, Ed. Springer-Verlag, New York, 1982. xii, 342 pp., illus. \$64. Molecular Biology, Biochemistry and Biophysics, 35.

Light Scattering in Solids I. Introductory Concepts. M. Cardona, Ed. Springer-Verlag, New York, ed. 2, 1983. xvi, 364 pp., illus. Paper, \$29. Topics in Applied Physics, vol. 8.

Models of Learning, Memory, and Choice. Selected Papers. William K. Estes. Praeger, New York, 1982. xiv, 396 pp. \$28.95. Centennial Psychology Series.

Molecular Electronic Devices. Papers from a workshop, Washington, D.C., Mar. 1981. Forrest L. Carter, Ed. Dekker, New York, 1982. xii, 386 pp., illus. \$65.

Molecular Theory of Capillarity. J. S. Rowlinson and B. Widom. Clarendon (Oxford University Press), New York, 1982. xii, 328 pp., illus. \$59. The International Series of Monographs on Chemistry, 8.

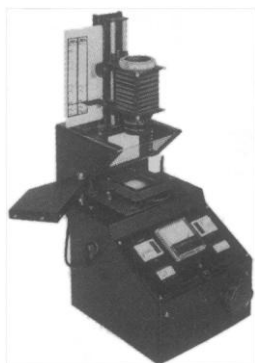
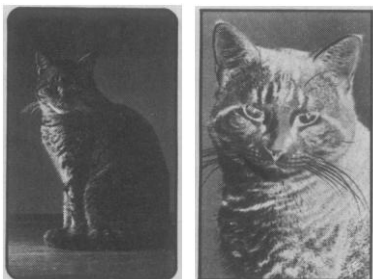
Myocardial Infarction. Measurement and Intervention. Galen S. Wagner, Ed. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 552 pp., illus. \$59.50. Developments in Cardiovascular Medicine, vol. 14.

Negev. Land, Water, and Life in a Desert Environment. Daniel Hillel. Praeger, New York, 1982. xx, 270 pp., illus. Cloth, \$29.95; paper, \$11.95.

Neuroendocrinology of Vasopressin, Corticotiberin and Opiomelanocortins. Proceedings of a symposium, Geneva, Mar. 1982. A. J. Baertschi and J. J. Dreifuss, Eds. Academic Press, New York, 1982. xvi, 368 pp., illus. \$33.

(Continued on page 749)

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time status displays of all chromatographic conditions are presented. While the 5500 is analyzing with one method, the operator can create the next method simultaneously. The pump accommodates microbore, normal, and semipreparative methodology. Varian Associates, Instrument Group. Circle 569.

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Labtech 70 is designed for numerical manipulation, data acquisition, and information networking in the laboratory. It offers FORTRAN86 which implements floating-point calculations on the Intel 8087 VLSI chip. The 8087 works as a coprocessor with the 8088 on the STD bus so other add-on boards may be accommodated. The Intel iRMX/86 operating system provides for data acquisition and monitoring as well as multitasking. Number crunching and data analysis may proceed simultaneously. Software includes graphics-plotting, linear and nonlinear regression, and curve-fitting packages. A gas chromatography package is in development as is a scientific word-processing package. Laboratory Technologies. Circle 573.

Literature

Accessories for Mass Spectrometers and Gas Chromatographs ranges from adapter flanges and anti-vibration mounts to water chillers and filament wire. Vacumetrics. Circle 574.

High Pressure Liquid Chromatography Columns describes the design, performance specifications, and applications of the Soft Seal Universal column system. Scientific Systems. Circle 575.

Gas Chromatograph-Mass Spectrometer features the MS 25/DS 55 instrument described as "the alternative with magnetism." It includes a fully integrated data system. Kratos Analytical Instruments. Circle 576.

Analytical Instruments covers products for thermal analysis, titration, and measurement of density, weight, mass and specific gravity. Mettler Instrument. Circle 577.

IR-VIS-UV Accessories lists spectroscopic crystals; polarizers; solid, liquid and gas samplers; transmission accessories and more. Harrick Scientific. Circle 578.

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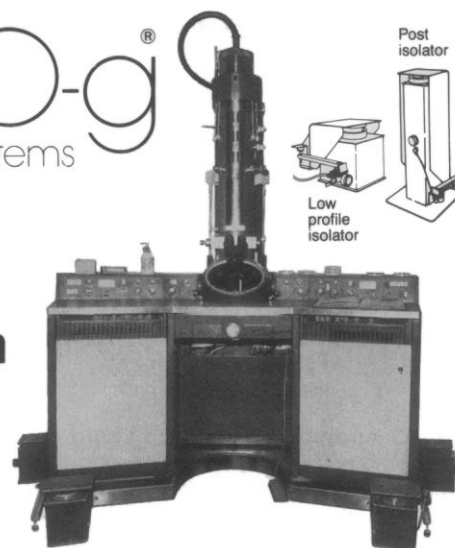
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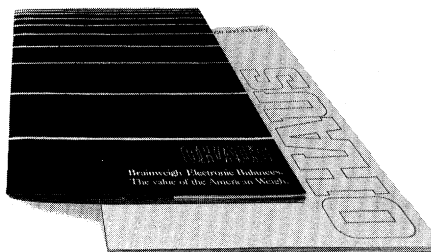


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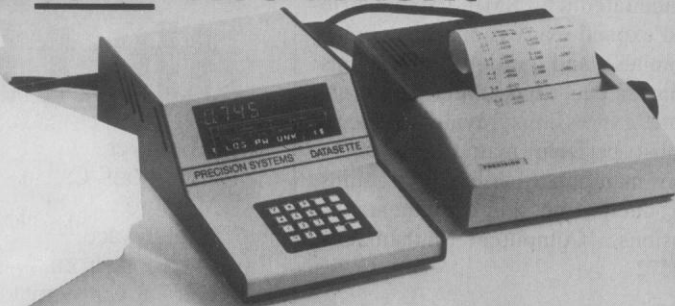
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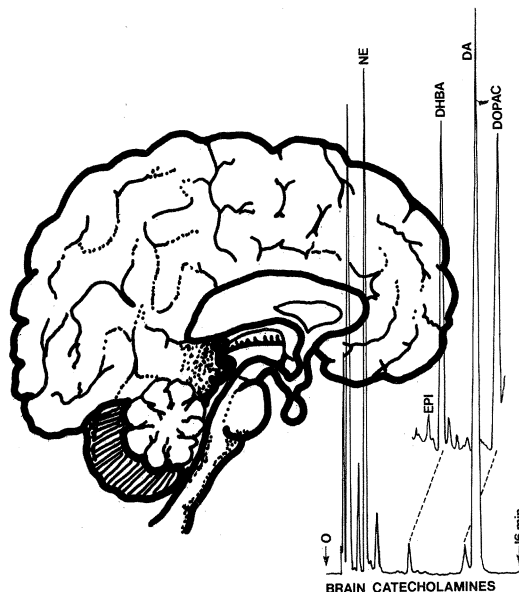
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BOOKS RECEIVED

(Continued from page 710)

Neurophysiological Aspects of Color Vision in Primates. Comparative Studies on Simian Retinal Ganglion Cells and the Human Visual System. Eberhart Zrenner. Springer-Verlag, New York, 1983. xvi, 218 pp., illus. \$37. Studies of Brain Function, 9.

Neuro-physiologie des Instincts et de la Pensée. Pierre Nelson. Maloine, Paris, 1982. 176 pp., illus. Paper, 80 F. Recherches Interdisciplinaires.

New Trends in Health Sciences Education, Research, and Services. The McMaster Experience. J. F. Mustard, V. R. Neufeld, W. J. Walsh, and J. Cochran, Eds. Praeger, New York, 1982. iv, 204 pp. \$25.95.

NMR of Aromatic Compounds. J. D. Memory and Nancy K. Wilson. Wiley-Interscience, New York, 1982. xiv, 252 pp., illus. \$39.95.

Non-Relativistic Quantum Electrodynamics. W. P. Healy. Academic Press, New York, 1982. viii, 192 pp., illus. \$38.

The Northern Yellowstone Elk. Ecology and Management. Douglas B. Houston. Macmillan, New York, and Collier Macmillan, London, 1982. xxii, 474 pp., illus. \$48.

Nuclear Energy Synergetics. An Introduction to Conceptual Models of Integrated Nuclear Energy Systems. A. A. Harms and M. Heindler. Plenum, New York, 1982. xiv, 238 pp., illus. \$35.

Nuclear Fission Reactors. I. R. Cameron. Plenum, New York, 1982. x, 390 pp., illus. \$42.50.

Nuclear Physics, Nuclear Power. Seminar on the Teaching of Physics in Schools, Balatonfüred, Hungary, Sept. 1981. George Marx, Ed. Akademiai Kiadó, Budapest, 1982 (U.S. distributor, Heyden, Philadelphia), 632 pp., illus. \$46.

Power Plant Cost Escalation. Nuclear and Coal Capital Costs, Regulation, and Economics. Charles Komanoff. Van Nostrand Reinhold, New York, 1982. iv, 324 pp., illus. \$24.95.

Principles of Data Security. Ernst L. Leiss. Plenum, New York, 1982. x, 228 pp. \$25. Foundations of Computer Science.

Principles of High Resolution NMR in Solids. M. Mehring. Springer-Verlag, New York, ed. 2, 1983. viii, 342 pp., illus. \$38.

Renal Insufficiency in Children. Papers from a conference, Cologne, May 1981. Monika Bulla, Ed. Springer-Verlag, New York, 1982. xviii, 236 pp., illus. Paper, \$38.40.

Research and Development on Radioactive Waste Management and Storage. First Annual Progress Report of the European Community Programme 1980-1984. Published for the Commission of the European Communities by Harwood, New York, 1982. vi, 130 pp. \$19.75. Radioactive Waste Management, vol. 4.

Research Frontiers in Aging and Cancer. International Symposium for the 1980's. Proceedings of a symposium, Washington, D.C., Sept. 1980. National Cancer Institute, Bethesda, Md., 1982 (available from the Superintendent of Documents, Washington, D.C.). xii, 302 pp., illus. \$15. National Cancer Institute Monograph 60.

The Shape and Structure of Molecules. C. A. Coulson. Revised by Roy McWeeny. Clarendon (Oxford University Press), New York, ed. 2, 1982. x, 94 pp., illus. Cloth, \$18.95; paper, \$8.95. Oxford Chemistry Series, 30.

Special Education Law. A Guide for Parents, Advocates, and Educators. Steven S. Goldberg. Plenum, New York, 1982. xiv, 230 pp. \$24.50.

Stability and Switching in Cellular Differentiation. Proceedings of a workshop, Edinburgh, Sept. 1981. R. M. Clayton and D. E. S. Truman, Eds. Plenum, New York, 1982. xii, 484 pp., illus. \$62.50. Advances in Experimental Medicine and Biology, vol. 158.

Traceable Temperatures. An Introductory Guide to Temperature Measurement and Calibration. J. V. Nicholas and D. R. White. New Zealand Department of Scientific and Industrial Research, Wellington, 1982. 226 pp., illus. \$NZ18.50. DSIR Bulletin 234.

Variability of Plants Regenerated from Tissue Culture. Papers from a seminar, Orsay, France, July 1980. Elizabeth D. Earle and Yves Demarly, Eds. Praeger, New York, 1982. xx, 392 pp., illus. \$35.

Variational Methods in Elasticity and Plasticity. Kyuichiro Washizu. Pergamon, New York, ed. 3, 1982. xvi, 630 pp., illus. \$100.

Variational Methods in Theoretical Mechanics. J. T. Oden and J. N. Reddy. Springer-Verlag, New York, ed. 2, 1983. xii, 310 pp. Paper, \$20. University text.

Volts to Hertz . . . the Rise of Electricity. From the Compass to the Radio through the works of Sixteen Great Men of Science Whose Names Are Used in Measuring Electricity and Magnetism. Sanford P. Bordeaux. Burgess, Minneapolis, 1982. x, 308 pp., illus. \$21.25.



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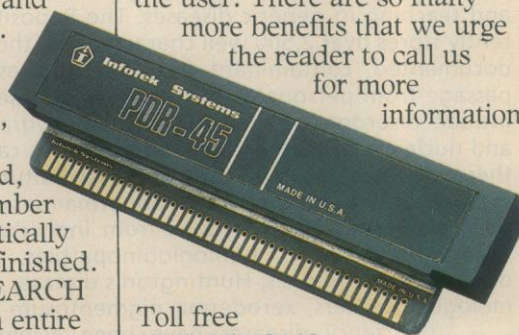
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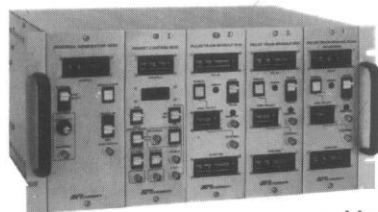
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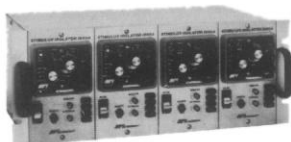


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* High Specific Activity
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of dTMP incorporation

* Free of Detectable RNase

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For making
Full length cDNA

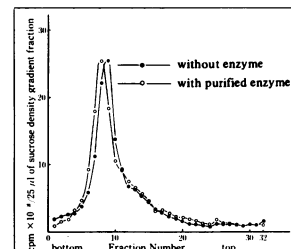


Fig. Residual RNase Activity
8.3 μg ^3H -28S rRNA were incubated with 97 units of reverse transcriptase in 0.01 M Tris, pH 7.4, 0.15 M NaCl at 37°C for 1 hr and the reaction was stopped with final 0.25% SLS. The mixture was layered over 15-30% sucrose gradient in 0.15 M sodium acetate, 0.1% SLS, pH 5.0 and centrifuged at 50,000 rpm for 4.0 hrs at 4°C in a SW 50.1 rotor with spinco Model L5.

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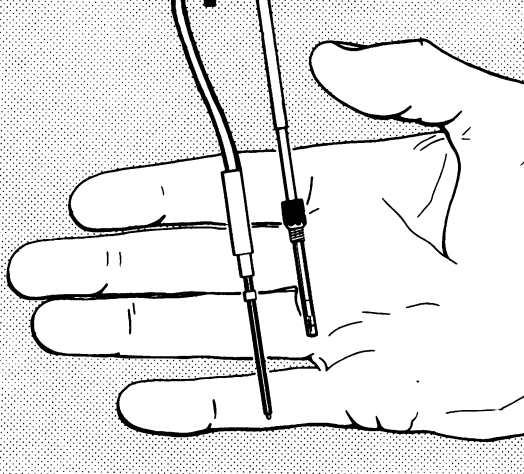
The NIH—National Institute of General Medical Sciences

Human Genetic Mutant Cell Repository

The National Institute of General Medical Sciences founded the Human Genetic Cell Repository in 1972 at the Institute for Medical Research, Camden, New Jersey for the purpose of facilitating research, diagnosis and teaching in genetic diseases. The Repository currently stores over 2,500 well characterized, thoroughly documented, contaminant free cell cultures in low passage from persons with hereditary diseases. These include disorders of amino acid, carbohydrate, lipid and nucleic acid metabolism, heterozygous carriers of these diseases, normal controls, and cultures from individuals with chromosomal abnormalities. In addition, extensive cell collections from individuals with psychiatric disorders, hemoglobinopathies, collagen diseases, cystic fibrosis, Huntington's disease, ophthalmologic disorders, xeroderma pigmentosum and immune deficiency diseases have been assembled. A catalog summarizing information on cell cultures stored in the Repository details the procedures for submitting and obtaining cell cultures. It may be obtained by contacting:

Dr. Arthur E. Greene
Institute for Medical Research
Copewood and Davis Streets
Camden, NJ 08103, USA
Phone (609) 966-7377
Cable address: INMDRES

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CLASSIFIED ADVERTISING DEADLINES:

3 June issue (mailed 27 May): **13 May**
10 June issue (mailed 3 June): **20 May**
17 June issue (mailed 10 June): **27 May**
24 June issue (mailed 17 June): **3 June**

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): \$9.80 per millimeter, \$245 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.

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1515 Massachusetts Avenue, NW
Washington, D.C. 20005

POSITIONS WANTED

Ph.D. Biochemist (B.A. in mathematics); 21 years of experience: nucleic acid research, graduate administration, teaching. Seeking senior academic appointment, where good teaching is valued, or research management position. NBF, Biochemistry, 6723 Bertner Avenue, Houston, Texas 77030. X

Clinical Chemist. Ph.D. expected July 1983; 6 years of hospital experience including quality control and troubleshooting. Extensive enzymology research in glycoprotein biosynthesis using liquid scintillation counting, ion exchange and gel-filtration chromatography, GC/MS, and NMR. Box 118, SCIENCE. X

Drug Development: Ph.D. with outstanding record of pharmaceutical industry accomplishment in clinical research/NDA programs (neuropharmacology) seeks challenging senior level position. Box 101, SCIENCE. X

Microbiologist, Ph.D., mature American in excellent health, wishes to continue significant research on the metabolic effects of compounds from a medicinal plant. Experience in industry and teaching, recently 6 years at large university in South Africa. Needs access to nearby facilities for tissue culture and viruses and site for growing this semitropical plant. Suitably located college might do. Box 119, SCIENCE. 5/13, 20

Molecular Biologist seeks industrial position in R & D utilizing recombinant DNA techniques. Broad experience in recombinant DNA technology. Experience in clinical, industrial, and government laboratories. Experience includes biochemical/genetic manipulation of yeasts and fungi (*Escherichia coli*). Box 112, SCIENCE. 5/13, 20, 27

Product Development/Support System. Graduate from Wharton Business School seeks position in industry. Four years of research experience in heart and liver metabolism. Willing to relocate. Box 120, SCIENCE. X

POSITIONS WANTED

Ph.D. (human anatomy), D.V.M., M.S., desires position as **Human Anatomist** and concurrent employment as **Director of Animal Care Center** in school of medicine and/or health sciences university. Experience includes: teaching human anatomy, member of Animal Care Committee, experienced veterinarian with licenses, E.C.F.V.G. certification. Additional experience in electron microscopy and ultrastructure. For details, write to: Box 121, SCIENCE. 5/13, 20, 27; 6/3

Scanning Electron Microscope Technician/Operator/Laboratory Manager. B.S. degree, 7 years of electronics, 2 years as SEM laboratory manager. Interested in SEM laboratory setup and development. Able to set up, operate, troubleshoot, and manage all aspects of SEM laboratory operations. Seeking position in industry, government, academia. Box 117, SCIENCE. X

Technical Editor/Writer. M.A. Experience in molecular biology and medical diagnostic industry. Seeks position in industry. Mid-Atlantic region preferred. Box 116, SCIENCE. X

POSITIONS OPEN

ANATOMY—ASSISTANT PROFESSOR

One-year temporary position. Appointment after 30 June 1983 to 30 June 1984. Teaching responsibilities include laboratory instruction in gross anatomy, neuroanatomy, and/or histology depending upon departmental needs and applicant's expertise. Competency in gross anatomy essential. Research area open. Ph.D. required. Send curriculum vitae and names of three references to: **Dr. Neal A. Cross, Acting Chairperson, Department of Anatomy, University of New England, College of Osteopathic Medicine, Biddeford, Maine 04005.**

AQUATIC BIOLOGY. Tenure-track position open August 1983. Ph.D. with specialty in vertebrate physiology or genetics required; research interests and capabilities must be compatible with development of aquatic field facility. Active publication record, teaching experience, and success in obtaining outside funding expected. Teaching will include courses in introductory biology and area of specialization. Rank and salary open. Complete application must be received by 10 June 1983. Submit application, curriculum vitae, transcripts, and three letters of recommendation to: **Dr. Luther A. Knight, Jr., Chairperson, Aquatic Biology Search Committee, Department of Biology, University of Mississippi, University, Miss. 38677. Equal Opportunity Employer.**

ASSISTANT PROFESSOR OF RESEARCH NEUROLOGY. Nontenure-track position, available 1 July 1983. Candidates must have background and skills in receptor biochemistry. Position involves participation, as a member of a team, in laboratory research projects relevant to clinical neuromuscular diseases. Must bring part of salary support. Send résumé, bibliography, and three references to: **Dr. W. King Engel, Director, University of Southern California, Neuromuscular Center, 637 South Lucas Avenue, Los Angeles, Calif. 90017. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR. University of Connecticut Health Center, Department of Psychiatry, is recruiting for a faculty position at the assistant professor level. Candidates should possess a Ph.D. with a specialization in human neurophysiology and an interest in ERP research. Duties: to establish a neurophysiology laboratory, conduct independent research, and teach. Postdoctoral experience desirable. Send curriculum vitae, and three letters of reference to: **Dr. Victor Hesselbrock, Department of Psychiatry, University of Connecticut Health Center, Farmington, Conn. 06032. An Affirmative Action/Equal Opportunity Employer, M/W/H.**

ASSOCIATE EDITOR—MATHEMATICS—Springer-Verlag, New York, Inc., an internationally known publisher of books, journals, and audiovisual materials in the scientific, technical, and medical fields, is seeking an associate editor, mathematics. Requirements include an undergraduate degree and some graduate work in mathematics and a solid foundation in research-oriented mathematics. Experience in publishing or teaching is desirable but not required. Send résumé to: **Helen Salinger, Springer-Verlag, New York, Inc., 175 Fifth Avenue, New York, N.Y. 10010. We are an Affirmative Action/Equal Opportunity Employer.**

POSITIONS OPEN

MEMORIAL UNIVERSITY OF NEWFOUNDLAND DEPARTMENT OF BIOCHEMISTRY ASSISTANT PROFESSOR OF NUTRITION (Subject to availability of funds)

Requirements: Ph.D. degree with background in any area of nutrition, preferably with postdoctoral training and teaching experience. The candidate should be able to conduct independent research. The department offers under- and postgraduate degrees in biochemistry, nutrition, food science, and dietetics. *In accordance with Canadian Immigration policy, consideration, in the first instance, will be given to Canadian citizens and permanent residents of Canada.*

Application, including the names of at least three references, should be sent to: **Dr. S. S. Mookerjee, Professor and Head, Department of Biochemistry, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9, from whom further information can be obtained.**

CHIEF, ADULT BONE TUMOR SERVICE PRESBYTERIAN-UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER

The Department of Orthopaedic Surgery at the University of Pennsylvania School of Medicine is seeking applicants for a full-time academic position as chief of the Adult Bone Tumor Service at the Presbyterian-University of Pennsylvania Medical Center, a major teaching and research facility of the University of Pennsylvania. Candidates should have completed a year's fellowship in bone tumor surgery. Duties of the position include participation in the teaching and research programs of the department as well as the clinical responsibilities of running an adult bone tumor service. Applicants should submit their curriculum vitae and arrange to have three letters of recommendation sent directly to:

Carl T. Brighton, M.D., Ph.D.
Professor and Chairman
Department of Orthopaedic Surgery
University of Pennsylvania School of Medicine
Two Silverstein
3400 Spruce Street
Philadelphia, Pa. 19104

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CHIEF, ORTHOPAEDIC SURGERY SERVICE PRESBYTERIAN-UNIVERSITY OF PENNSYLVANIA MEDICAL CENTER

The Department of Orthopaedic Surgery at the University of Pennsylvania School of Medicine is seeking applicants for a full-time academic position as chief of the Orthopaedic Surgery Service at the Presbyterian-University of Pennsylvania Medical Center, a major teaching and research facility of the University of Pennsylvania. Duties of the position include participation in the teaching and research programs of the department as well as the clinical responsibilities of running a general orthopaedics service in a 328-bed hospital. Applicants should submit their curriculum vitae and arrange to have three letters of recommendation sent directly to:

Carl T. Brighton, M.D., Ph.D.
Professor and Chairman
Department of Orthopaedic Surgery
University of Pennsylvania School of Medicine
Two Silverstein
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The Department of Laboratory Medicine at Yale University School of Medicine is seeking a Board-certified or -eligible **CLINICAL PATHOLOGIST** for appointment at the rank of **assistant professor of laboratory medicine**. This is a full-time faculty position with major responsibilities for instrumentation, automation, and computer applications in clinical and research laboratory settings. We are seeking an applicant with a strong background and documented skills in engineering, electronics, instrumentation, and mathematics who is capable of establishing an independent research program in biomedical engineering. Funding for the appointment is guaranteed for 1 year. Deadline for applications is 27 May 1983. *Yale University School of Medicine is an Equal Opportunity/Affirmative Action Employer. Applications from women and minorities are encouraged.* Send curriculum vitae to: **David Seligson, M.D., Chairman, Department of Laboratory Medicine, 333 Cedar Street, New Haven, Conn. 06510.**

POSITIONS OPEN

ASSISTANT CURATOR (PALEONTOLOGY): The Department of Geology at the Field Museum of Natural History seeks an assistant curator with an active research program in paleontology. An invertebrate paleontologist is preferred but candidates in vertebrate paleontology and paleobotany will be seriously considered. The position requires a Ph.D. and is tenure-track; responsibilities are basic research and management of collections. There are opportunities for participation in exhibition and education programs. The department comprises seven curators and eight supporting staff; there is a strong paleontological emphasis and close ties with other major centers of paleontological research in the Chicago area. Departmental facilities include systematic collections of about 2 million specimens, a comprehensive library, rock and fossil preparation laboratories, SEM, and other support services. Please send curriculum vitae, bibliography, and the names of three referees to: **Dr. Peter Crane, Search Committee, Department of Geology, Field Museum of Natural History, Roosevelt Road at Lake Shore Drive, Chicago, Illinois 60605-2496.**

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ASSISTANT SPECIALIST—DEPARTMENT OF BIOCHEMISTRY. It is anticipated that funds will be available from a grant from the Department of Energy for 1 year, beginning 1 July 1983, with the possibility of renewals, to support a full-time assistant specialist (salary range: \$18,000 to \$21,000) to study lipid hydroperoxide levels in experimental animals and to develop methods for HPLC separation of cholesterol and lipids. Candidates should have had at least 3 years of postdoctoral experience and have demonstrated the ability to carry out top quality independent research as demonstrated by authorship of publications in refereed journals. In addition, expertise in the areas of HPLC, lipid metabolism, nucleic acids, and enzymology is essential. Qualified candidates should send applications and a list of references to: **Vice Chairman, Department of Biochemistry, University of California, Berkeley, California 94720**, on or before 31 May 1983. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ASSOCIATE RESEARCH SCIENTIST: Requires Ph.D. in psychology with 3 years of postgraduate training in behavioral neurology or equivalent combination of education and experience. Experience in clinical neuropsychologic assessment required. Several years of progressively responsible independent research work as evidenced by publications and grant sponsorship. Contact: **Virginia Shaffer, Department of Neurology, University of Iowa College of Medicine, Iowa City, Iowa 52241.** *The University of Iowa is an Affirmative Action/Equal Opportunity Employer.*

CHAIRMAN DEPARTMENT OF LABORATORY MEDICINE

The Yale University School of Medicine invites applications and nominations for the position of **professor and chairman** of the Department of Laboratory Medicine. The chairman also serves as director of Clinical Laboratories at the Yale-New Haven Hospital. Candidate must be a nationally recognized leader in the field and have proven ability as a scholar, teacher, and administrator. Appointment is to be effective in 1983.

Applications should be submitted prior to 1 August 1983. *Yale University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority group members are encouraged to apply.*

Curriculum vitae and bibliography should be sent to the chairman of the Search Committee: **Dr. Robert M. Donaldson, Department of Internal Medicine, Yale University School of Medicine, 33 Cedar Street, P.O. Box 3333, New Haven, Connecticut 06510.**

FACULTY POSITIONS IN NEUROBIOLOGY. The Department of Biology of New York University (NYU) invites applications for a tenure-track position in the area of neurobiology. The successful applicant will be expected to teach undergraduate and graduate courses and to maintain an active research program. Submit curriculum vitae and the names of three references to: **Dr. Herndon Dowling, Chairman, Neurobiology Search Committee, Department of Biology, New York University, 952 Brown Building, New York, N.Y. 10003.** *NYU is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

DEPARTMENTAL CRYSTALLOGRAPHER to coordinate and oversee the operation of facilities for x-ray structure determination. Responsibilities include scheduling of experiments, maintenance and improvement of hardware and software, instruction of users, and assistance in the solution of x-ray structures. The candidate should have an advanced degree in chemical crystallography and experience with automated single-crystal x-ray diffractometers. Familiarity with computing programming and interest in working with people essential. Opportunities for co-publication and professional travel. Salary competitive depending on background and experience. Submit résumé and two or three letters of reference to: **Professor W. Robert Scheidt, Department of Chemistry, University of Notre Dame, Notre Dame, Ind. 46556**, by 1 July. *The University of Notre Dame is an Equal Opportunity/Affirmative Action Employer.*

EVOKED POTENTIAL LABORATORIES UNIVERSITY OF CALIFORNIA, IRVINE

The University of California, Irvine, has openings for two **POSTDOCTORAL FELLOWS** to study mechanisms of auditory and cognitive evoked potentials in experimental animals. Knowledge of single unit techniques, field potential recordings, and computer programming required. One of the fellows will study the generators of auditory brainstem potentials. The second fellow will study cognitive evoked potentials in behaving animals.

There is an opening for an **ASSISTANT PROFESSOR IN RESIDENCE** to study cognitive evoked potentials in clinical disorders in humans. The individual must be Board-eligible in neurology with at least 2 years of experience after residency and Board-certified in EEG. Detailed knowledge of computer programming and evoked potential recording techniques are required.

Positions available 1 August 1983. *An Equal Opportunity/Affirmative Action Employer.* Send résumé and three letters of recommendation to: **Dr. Arnold Starr, University of California, Irvine, Neurology Department, Room 154/Med Surge I, Irvine, Calif. 92717.**

NATIONAL SCIENCE FOUNDATION (NSF)

NSF, Office of Scientific and Engineering Education, is seeking candidates for the position of **ASSOCIATE PROGRAM DIRECTOR IN THE SCIENCE EDUCATION IMPROVEMENT SECTION.** This is a rotational assignment for 1 to 2 years. The position is excepted from the competitive civil service with a salary range of \$34,930 to \$53,661 per annum (equivalent to GS-13/14). Appointment will begin during summer 1983. Candidates should have a Ph.D. in science, mathematics, or engineering or equivalent research experience at the college or university level. In addition, for the GG-13 (GS-13 equivalent) level, 4 years of teaching and research experience at the college or university level beyond the Ph.D. are required and for the GG-14 (GS-14 equivalent) level, 6 years of teaching and research experience at the college or university level beyond the Ph.D. are required. Preference will be given to candidates with a strong background in mathematics. Some administrative experience and familiarity with the teaching of mathematics at the precollege level are also desirable. Responsibilities include all aspects of proposal handling and review, evaluation, award and program administration, liaison with outside agencies, and representation of the Foundation in the scientific community. The incumbent will also contribute to the range of staff expertise available to advise on other activities of the Office. The closing date for applications is 10 June 1983. Applicants should submit résumé, indicating their current salary, to: **The National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, N.W., Washington, D.C. 20550**, attention: **E. Paul Broglio.** For further information, telephone: 202-357-7841. *NSF is an Equal Opportunity Employer.*

THE SMITHSONIAN INSTITUTION seeks a DIRECTOR for the NATIONAL ZOOLOGICAL PARK (NZP),

Washington, D.C. The NZP operates a public exhibition zoo of 168 acres in Washington's Rock Creek Valley and a conservation and research center of 3,100 acres near Front Royal, Virginia. It maintains a large and varied animal collection for exhibition, research, and education as well as for the conservation of endangered species. It also conducts active research programs in animal management, animal health, animal behavior and medicine, and animal propagation. Qualifications: scholarly distinction in biological sciences, veterinary medicine, animal ecology, animal refuge management, or natural resource management; professional experience in a zoological park management, research, or similar environment; and demonstrated administrative and managerial ability. Salary range: \$56,945 to \$78,184 (currently limited by statute to \$63,800). Send a Standard Form 171, Personal Qualifications Statement, and curriculum vitae and bibliography by 15 August 1983 to: **Dr. David Challinor, Chairman, NZP Search Committee, c/o Personnel Office, Smithsonian Institution, Washington, D.C. 20560**, attention: **MPA-EX-02-83.** *An Equal Opportunity Employer.*

Research Professorships in Biology

Applications are invited by the Department of Biology from highly qualified researchers in developmental biology, gene regulation, cell surface studies and vertebrate physiology. Selected applicants will be nominated for support as research scientists under the programs of the Alberta Heritage Foundation for Medical Research or other agencies for up to five years. Remuneration will be based on salary scales at the University and will depend on the academic rank to which successful candidates are appointed which is normally in the Assistant Professor range. Establishment Grants are available from the Foundation. Appointees are expected to devote at least 75% of their time to research although limited teaching duties and participation in Departmental affairs will be required.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents. However, others are encouraged to apply.

Interested applicants should forward their curriculum vitae before September 15, 1983 to:



**The Chairman
Scholarship and Fellowship
Review Committee
Department of Biology
The University of Calgary
2500 University Drive N.W.
Calgary, Alberta, T2N 1N4
Canada**

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Developing monoclonal antibodies to a variety of antigens, you will be involved in the development of novel methodology and protocols while exploring new immunoassay techniques. You'll need a Ph.D. in cellular immunology, and several years of hybridoma technology experience, including a strong background in immunoregulation, immunochemistry and biochemistry. Opportunity #135.

Senior Cellular Immunologist, Immunochemist, or Biochemist

In this challenging position, you will perform research in cell surface monoclonal antibodies. A Ph.D. with at least two years of post-doctoral experience in hybridoma technology and protein isolation is required. Opportunity #134.

Senior Biochemist

Exploring new immunochemical assay systems, you will be responsible for isolation and modification of antibodies and antigens. You must have a Ph.D. in biochemistry or immunology and a minimum of two years' post-doctoral experience in protein modification, immunoassay methods and instrumentation. Opportunity #314.

Senior Research Chemist

You will be responsible for defined aspects of an ongoing, highly focused, research and development program for new methods of enzyme immunoassay. You will develop assay optimization

procedures, analyze clinical samples, and develop new methods for protein and antibody purification. Specific tasks may include chemical modification of proteins, radio and enzyme immunoassay, and enzyme and antibody immobilization. A BS or MS in biochemistry is required, along with four years' relevant laboratory experience. You must be familiar with all standard biochemical laboratory procedures and instrumentation. Opportunity #267.

Senior Research Physicist

You'll need a Ph.D. in experimental physics, physical chemistry or an allied area, with up to five years of experience in conceptualization and design of optical and electronic instrumentation. Opportunity #137.

Senior Research Chemist

A Ph.D. in physical chemistry or an allied area is required, along with experience in integrating novel chemistries with optical and electronic instrumentation. Opportunity #287.

Senior Chemist

Investigating fundamental problems in assay development, you will also develop new assay methods, transfer technology from the research department, and assure transfer of products to operations. A BS/MS, or PhD with post-doctoral experience is required, along with three to five years' immunoassay development experience. You should have an organic synthesis background and/or protein modification background. Good oral and written communication skills required. Opportunity #309.

Syva offers an attractive benefits package that includes medical and dental insurance. For prompt consideration, send your resume, indicating appropriate Opportunity Number, to: Human Resource Staffing, Syva Company, P.O. Box 10058, Palo Alto, CA 94303. We are committed to an equal opportunity hiring policy m/f/h.

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DIVISION OF WATER AND LAND RESOURCES
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CSIRO conducts scientific and technological research in laboratories located throughout Australia and employs about 7,500 staff, of whom some 2,900 are professional scientists. The Organization's research activities are grouped into five institutes: Animal and Food Sciences, Biological Resources, Energy and Earth Resources, Industrial Technology, and Physical Sciences. The Division of Environmental Mechanics is part of the Institute of Physical Sciences.

GENERAL: Following recent internal and external reviews, the CSIRO Executive has given high priority to water resources research. The Division of Water and Land Resources, through various research programs, has the broad aim of promoting the better use of water and land resources in Australia. Included in these programs are: (i) catchment hydrology, which is particularly concerned with the definition of the processes by which water moves through natural systems, water quality, and the study of hydrologic systems; (ii) resource management, including conservation and forestry research, which involves ecological studies in a range of natural and anthropogenous ecosystems; and (iii) land resources research, which requires the development of methods for land resources data acquisition and analysis in a form suitable for use in land evaluation and land use decision-making.

DUTIES: To undertake research into the processes which determine the water status of catchments, with emphasis on transient water movement in hillslopes and its dependence on soil, vegetation, and topographic attributes. This work will be part of a research program aimed at developing an understanding of the role of spatial heterogeneity in soils and landscapes, and also the development of catchment modelling techniques that incorporate physically based algorithms of water movement in hillslopes. The appointee will collaborate with hydrologists and physicists within CSIRO and State Government agencies engaged in studies of interception loss, transpiration, and soil physics at forested sites disturbed by fire or harvesting.

QUALIFICATIONS: Ph.D. or equivalent qualifications in science or engineering, with majors in physics and mathematics.

TENURE: Indefinite with Australian Government superannuation benefits available.

APPLICATIONS: Stating full personal and professional details, the names of at least two referees, and quoting reference Number A5744, should reach:

The Chief
CSIRO Division of Water and Land Resources
P.O. Box 1666
Canberra City, ACT 2601
Australia

by 3 June 1983.

POSITIONS OPEN

BASIC SCIENCE FACULTY POSITION NORTHWESTERN UNIVERSITY MEDICAL AND DENTAL SCHOOLS

Applications are invited from animal cell virologists with research expertise in molecular biology for a **tenure-track ASSISTANT PROFESSORSHIP**. We are particularly interested in candidates experienced in application of molecular genetics to research in oncogene function, bioactive peptides, or growth control mechanisms. Potential for developing a strong research program, directing doctoral research, and teaching at the postgraduate level will be considered. Please send curriculum vitae, bibliography, an outline of research plans, and names/addresses of three referees to:

Dr. Carl Waltenbaugh
Faculty Search Committee
Department of Microbiology-Immunology
Northwestern University Medical School
303 East Chicago Avenue
Chicago, Illinois 60611

CHAIRPERSON AND PROFESSOR VEGETABLE CROPS

Nominations and applications are invited for a tenured position at the University of California at Davis to serve as chair of the Department of Vegetable Crops and associate professor or professor of vegetable crops. The chair will also have some research, teaching, and advising responsibilities. The usual appointment as chairperson is for 5 to 7 years, subject to renewal on review. Upon completion of service as chair of department, the faculty member may return to full-time teaching and research. The position is available 1 September 1983.

Qualifications include a Ph.D. in horticulture, plant physiology, genetics, or other plant science disciplines; proven leadership and management qualities; and a record of scholarly and academic achievement.

Applicants should submit curriculum vitae with a bibliography and reprints of pertinent publications, statement of research, teaching, and administrative interests, and the names and addresses of at least three references to: **Dr. C. O. Qualset, Associate Dean and Search Committee Chair, College of Agricultural and Environmental Sciences, 228 Mrak Hall, University of California, Davis, California 95616.** Applications must be received by 30 June 1983. Applications received later will not be considered unless the position is reopened for recruitment.

We are an Equal Opportunity/Affirmative Action Employer and invite applications from all qualified individuals.

The Bionetics Corporation has immediate openings for the following positions:

FIELD BIOLOGIST—M.S., 3 years of experience in environmental monitoring. Assist in designing, coordinating, and implementing field data collection in terrestrial and aquatic systems. Environmental impact analysis, report preparation experience highly desirable.

DATA MANAGER/ANALYST—M.S., 3 years of experience in data management. Fortran programming required and experience in utilization of HP-1000, RTE VI is desirable.

CHEMIST—Ph.D., 3 years, or M.S. with appropriate experience to set up analytical laboratory to conduct and coordinate analyses of soils, water, sediment, and plant/animal tissues.

CHEMIST—M.S., 3 years, or B.S., 5 years of experience to prepare samples, conduct analyses of soils, water, sediment, and plant/animal tissues. Required to operate, without supervision, Perkin-Elmer 3030 Atomic Absorption Spectrophotometer, HP 5970A Mass Spectrophotometer, Kontron 620 High-Pressure Liquid Chromatograph, Kjeldahl Unit, and other appropriate laboratory equipment.

Qualified applicants send curriculum vitae to: **J. R. Puleo, Mail Code BIO-1, Kennedy Space Center, Fla. 32899.** Deadline for receipt of application is 31 May.

FRESHWATER ECOLOGIST. Unity College in Maine seeks an assistant professor to teach freshwater ecology and other undergraduate courses integrating with fisheries and ecology programs. Completion or near completion of Ph.D. and successful teaching experience required. Research and the ability to obtain independent funding expected. Position begins August 1983. Send letter of application, résumé, and names of three references (include telephone numbers) by 3 June to: **Dr. Roger A. Rulifson, Chair, Search Committee, Center of Environmental Sciences, Unity College, Unity, Maine 04988.** Telephone: 207-948-3131, extension 215.

NUTRITION RESEARCH

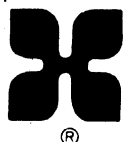
Hershey Foods Corporation, a Fortune 500 company located in beautiful south central Pennsylvania, has an immediate need for a **Manager of Nutrition Research** who will report to the Director, Life Sciences. This position is vacant due to the promotion of the previous Manager of Nutrition Research. We are seeking an experienced professional to manage the nutrition and toxicology research program for the Corporation including all laboratory functions associated with these programs as well as to function as a corporate spokesperson.

The successful candidate will possess a PhD in Nutrition with a minimum of 5 years of human nutrition experience as well as expert knowledge of nutrition and toxicology.

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Employee Relations Representative



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POSITIONS OPEN

**CHAIR
DEPARTMENT OF BIOLOGICAL CHEMISTRY
SCHOOL OF MEDICINE
UNIVERSITY OF CALIFORNIA,
LOS ANGELES (UCLA)**

The Department of Biological Chemistry is seeking a distinguished and able scientist to serve as chair. Applications and nominations are invited. The appointment is to be effective 1 July 1984. Applicants should have a record of significant research accomplishment and a strong commitment to medical and graduate education. Applications, including curriculum vitae and names of references or nominations, should be sent to:

**Dr. Irving Zabin
Chairman, Search Committee
Department of Biological Chemistry
UCLA School of Medicine
Los Angeles, California 90024**

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

The Dartmouth-Hitchcock Medical Center and the Norris Cotton Cancer Center are currently seeking to fill the position of **CHIEF** of the Section of Radiation Therapy and **ASSOCIATE DIRECTOR** of the Norris Cotton Cancer Center. Applicants must be Board-certified and have active interests in clinical radiation therapy, research, and teaching. Existing radiation therapy facilities, including radiobiology research laboratories, are located in the Norris Cotton Cancer Center. Compensation and faculty rank will be commensurate with experience. Please send your curriculum vitae and three references to: **L. Herbert Maurer, M.D., Search Committee Chairman, Dartmouth-Hitchcock Medical Center, Hanover, New Hampshire 03756.**

An Affirmative Action/Equal Opportunity Employer

FACULTY POSITION IN PHYSIOLOGY. Ph.D. physiologist to teach cardiovascular, pulmonary, muscle, and GI physiology to first-year medical students. Assist in teaching appropriate laboratories. Three-member Ph.D. department. Preference given to those with current successful teaching excellence in medical school. Research encouraged. Large modern campus hospital. Cultural suburban living. Rank and salary commensurate with qualifications. Begin July or August 1983. Send curriculum vitae, plus names, addresses, and telephone numbers of four current references, by 1 June to: **Dr. E. H. Whitten, Associate Dean, The University of Health Sciences, College of Osteopathic Medicine, 2105 Independence Boulevard, Kansas City, Missouri 64124.** Applications encouraged from all qualified persons.

FACULTY RESEARCH POSITION in analytical chemistry. Assistant professor, tenure-track (12 months), at Rutgers University's new Shellfish Research Laboratory, Bivalve, N.J., 110 miles south of main campus on Delaware Bay. Ph.D. in analytical chemistry or in a related field with equivalent analytical experience. Experience in analyses of animal tissues, water, and sediments essential. Requires performance and supervision of analyses involving appropriate gas and high-performance liquid chromatographic, infrared and atomic absorption procedures as well as usual analyses associated with environmental studies. Imaginative and innovative approaches to analytical problems involving a shellfish resource in a major estuary desired. Position available 1 August 1983. Send curriculum vitae, transcripts, and three letters of reference by 24 June 1983 to: **Dr. J. V. Hunter, Chairman, Search Committee, Department of Environmental Sciences, Cook College, Rutgers University, P.O. Box 231, New Brunswick, N.J. 08903.** *An Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITION AVAILABLE
NEW YORK UNIVERSITY
DEPARTMENT OF APPLIED SCIENCE**

The Department of Applied Science at New York University will appoint an assistant professor with tenure-track, effective 1 September 1983. The department offers graduate programs leading to the master's and Ph.D. degrees in energy sciences and atmospheric science. Applicants should have a Ph.D. degree and have a demonstrated record in research. Letters of recommendations and applications should be sent to:

**Professor Victor Zakkay, Chairman
Department of Applied Science
New York University
26-36 Stuyvesant Street
New York, N.Y. 10003**



Yale UNIVERSITY

invites applications and nominations
for the post of

DEAN OF THE SCHOOL OF MEDICINE

As leader of the faculty and chief academic and administrative officer of the School, the Dean is responsible for administration and supervision of all educational, research and service programs in the School. In addition to candidates for the M.D. degree, the School provides instruction for physician associates, public health students, pre- and postdoctoral trainees in the biomedical sciences, and post graduate students in the various medical specialties, as well as continuing education programs.

Candidate must be a nationally recognized leader in medicine or biomedical science and have proven ability as a scholar and administrator. Appointment is to be effective July 1, 1984.

Nominations and applications should be submitted prior to September 1, 1983. Curriculum vitae and bibliography should be sent to:

**Search Committee for Dean of the School of Medicine
Yale University, Woodbridge Hall
105 Wall Street, New Haven, CT 06520**

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

MS/PhD Skin Care

The Discovery Research Department of American Cyanamid's Consumer Products Research Division has positions available for scientists with experience and a demonstrated track record of productivity in the area of Skin Biology.

The successful candidates must have an MS or PhD degree in the Biological Sciences and a minimum of three years industry experience with consumer skin care products or dermatologicals. Working as part of an interdisciplinary team, you will be expected to conduct investigations on the biochemical and physical properties of skin and the mechanisms of skin homeostasis and to translate this information into new, innovative consumer products.

These intellectually stimulating positions provide the opportunity for both personal and professional growth with a company that is a leader in the Toiletory, Household and Fragrance fields. For consideration, please send your resume and salary history, in confidence to: **G. J. Stein, American Cyanamid Company, Consumer Products Research Division, 697 Route 46, Clifton, N.J. 07015.**



An equal opportunity employer, male/female

POSITIONS OPEN

Washington State University seeks individual experienced in **gene regulation and expression, and recombinant DNA technology and/or embryo manipulation**. Appointment effective 16 September 1983. Doctorate or equivalent; assistant or associate professor rank; salary open.

Application letter, curriculum vitae, and the names of three references addressed to:

Raymond W. Wright, Jr.
Chairperson Search Committee
Department of Animal Sciences
Washington State University
Pullman, Wash. 99164-6332

before 30 June 1983.

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

HEALTH PHYSICS FACULTY POSITION. Anticipated tenure-stream position for a full professor or below, beginning summer 1983. Duties: teaching graduate-level courses in basic radiation physics and applied health physics; developing health physics research program; enhancing ongoing radiation safety and emergency service program. Minimum requirements are doctoral degree and several years of experience in operational health physics and/or teaching. Board-certification in health physics and emphasis on occupational and environmental aspects of radiation protection preferred. Send curriculum vitae to: **Dr. Niel Wald, Chairman, Department of Radiation Health, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, Pa. 15261.**

IMMUNOLOGIST

Postdoctoral research position available to study malarial sporozoite-hepatocyte interactions. Experience in molecular biology, cell biology, or protein biochemistry essential. Send curriculum vitae and name of three references to:

Dr. Michael R. Hollingdale
Biomedical Research Institute
12111 Parklawn Drive
Rockville, Maryland 20852

IMMUNOLOGY—ANIMAL PHYSIOLOGY. The Biology Department, Central Michigan University (CMU), invites applications for a 1-year temporary assistant professor starting 22 August 1983. The position may be reclassified to tenure-track at a later date. Ph.D. required; also a strong interest in teaching/research. A résumé, transcripts, and three reference letters should be sent by 6 June to: **Personnel Committee, Biology Department, CMU, Mt. Pleasant, Mich. 48859.** CMU is an Equal Opportunity Institution and Employer.

INSTRUCTOR/ASSISTANT PROFESSOR—GENETICS: Temporary (9-month) position to begin August 1983. A strong background in genetics is essential; background in embryology is desirable. Ph.D. preferred. Candidates should send curriculum vitae, transcripts, and three professional references by 25 June to: **Dr. Michael Goodrich, Chairman, Department of Zoology, Eastern Illinois University, Charleston, Ill. 61920.**

One full-time position at the **INSTRUCTOR OR ASSISTANT PROFESSOR** level in the Department of Psychiatry, University of Michigan, as **staff psychiatrist** on an 18-bed child psychiatry unit. Responsibilities include attending physician duties; teaching and supervision of students, interns, house officers, and fellows; and development of programmatic research. Applicants must be Board-certified or -eligible in child psychiatry and must have demonstrated interest and accomplishments in biological research and basic neurosciences. Send curriculum vitae and names and addresses of three references to:

George C. Curtis, M.D.
Department of Psychiatry
University of Michigan Hospitals
Ann Arbor, Michigan 48109

Code 109HO. A nondiscriminatory, Affirmative Action Employer.

PSYCHIATRIST at instructor or assistant professor level to direct a psychobiology outpatient program. Duties include teaching and supervision of house officers and medical students, drug research, and patient care. Applicants must be Board-eligible or -certified in psychiatry and must have demonstrated interest and skills in programmatic research. Send curriculum vitae to: **Wieher H. van Houten, M.D., Ph.D., Department of Psychiatry, University of Michigan, Riverview Building, Ann Arbor, Michigan 48109.** Code 107HO. A nondiscriminatory, Affirmative Action Employer.

POSITIONS OPEN

FOOD ENGINEER. The Department of Food Science and Technology at Virginia Polytechnic Institute and State University (VPI & SU) has a tenure-track, calendar-year faculty research and teaching position for a food engineer. Applicants must have a Ph.D. in food engineering or a related field. Experience in obtaining grants and contracts is desired. Salary is dependent upon qualifications and rank. Applications will be accepted up to 15 July 1983 or until a suitable candidate is located. Send résumé, transcripts (only if Ph.D. received within last 5 years), and three letters of reference to: **Dr. Kent K. Stewart, Head, Department of Food Science and Technology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.**

VPI & SU is an Equal Opportunity/Affirmative Action Employer.

One full-time position at the **INSTRUCTOR OR ASSISTANT PROFESSOR** level in the Department of Psychiatry, University of Michigan, as **staff psychiatrist** with the Adolescent Psychiatry Service. Responsibilities include teaching and supervision of residents, fellows, and medical students in the Inpatient and Partial Hospitalization Programs. Involvement in ongoing research in affective disorders and other projects is desirable. Tenure-track appointment at academic rank appropriate to qualifications and experience. Send curriculum vitae and names and addresses of three references to: **Douglas Robbins, M.D., Department of Psychiatry, Box 050, University of Michigan Hospital, 300 North Ingalls, Ann Arbor, Michigan 48109.** A nondiscriminatory, Affirmative Action Employer. Code 100HO.

PRINCETON UNIVERSITY. The Departments of Biology and Biochemical Sciences invite applications for **junior and senior faculty positions** in the Program in Molecular Biology. Candidates should have interests in molecular approaches to problems of gene structure and function in prokaryotes or eukaryotes. Applicants for tenure-track assistant professorships should submit a brief description of their proposed research program. All candidates should submit complete curriculum vitae and list of references. Applications should be made by 15 July 1983 to:

Dr. S. J. Flint
Department of Biochemical Sciences
Princeton University
Princeton, N.J. 08544

Princeton University is an Affirmative Action/Equal Opportunity Employer.

MICROBIOLOGISTS

Martin Marietta's Corporate R & D Laboratories is rapidly expanding its research in the biosciences. Current openings pertain to three project areas: (i) algal biochemistry and physiology, (ii) higher plant/algal molecular biology, and (iii) phytochemistry and mass culture for plant products. The department is an interdisciplinary small group branching out into several emerging technology areas. Applicants should have a Ph.D. and zero to 5 years of experience in fields relevant to the above project areas. We also offer an excellent salary and benefits package. *Equal Opportunity Employer, M/F.*

If interested, send résumé to: **Monica C. Ballard, Martin Marietta Laboratories, 1450 South Rolling Road, Baltimore, Md. 21227.**

NEUROPHARMACOLOGISTS. Two positions as assistant professor/research associate are available in the Department of Neurology, Columbia University College of Physicians and Surgeons, for neuropharmacologists experienced in either the field of neurotransmitter receptors or in acetylcholine studies to work with a research group involved in basic and clinical research on movement disorders. Send curriculum vitae and names of three references to: **Dr. Stanley Fahn, Neurological Institute, 710 West 168 Street, New York, N.Y. 10032.** An Affirmative Action/Equal Opportunity Employer.

PLANT PHYSIOLOGIST

Tenure-track position for assistant professor beginning August 1983 or January 1984. The candidate will be expected to teach plant physiology and a course in area of specialty, to maintain an active research program, and to participate in one or more areas of the department's doctoral program. Applicant should send curriculum vitae and three letters of reference to: **Dr. William J. Brett, Chairman, Department of Life Sciences, Indiana State University, Terre Haute, Indiana 47809,** by 20 June 1983.

Indiana State University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

UNIVERSITY OF EDINBURGH DEPARTMENT OF MOLECULAR BIOLOGY

Applications are invited for a **LECTURESHP** in which, initially, research will be the major role. Candidates should have demonstrated research ability in molecular genetics; an interest in genetic approaches to studies of microbial cell surfaces or membranes, or the broad area of gene mobility is desirable.

The salary will be on the lecturer scale, £6,375 to £13,505 per annum, with superannuation under the Universities Superannuation Scheme; the starting salary will depend on age, qualifications, and experience. Further information is available from: **The Secretary to the University, Old College, South Bridge, Edinburgh, Scotland EH8 9YL,** with whom applications (six copies), giving the names of two referees, should be lodged not later than 31 May 1983. Please quote reference number NB4. Exceptionally, late applications may be considered provided that notice of intention to apply (with names of referees) has been communicated by telephone before the closing date (**telephone: 031 667 1011, extension 4315, or Telex to 727442, UNIV ED G**).

The U.S. Department of Agriculture, National Animal Disease Center, Ames, Iowa, is seeking applications for the following positions:

Microbiologist/Molecular Virologist with experience in application of recombinant DNA technology in the characterization of viral proteins. Full-time permanent position in the Reproductive Disease of Swine (Pseudorabies) Research Unit.

Microbiologist/Molecular Biologist with experience in application of recombinant DNA technology in the identification and characterization of bacterial proteins. Full-time permanent position in the Leptospirosis Research Unit.

Immunologist/Physiologist with experience in immunology (mucosal immunity), mammalian physiology, infectious disease, microbiology, and cell biology. Full-time permanent position in the Colibacillosis of Swine and Calf Scours Research Unit.

Microbiologist/Molecular Virologist for 2-year research associate position with experience in the application of recombinant DNA technology. Primary objective is to map the genes for porcine parvovirus proteins.

Biochemist/Physiologist for 2-year position with experience in conducting studies of the mechanism of action of hormones. Primary objective is to study vitamin D metabolism in kidney and intestinal cells.

U.S. citizenship required; Ph.D. preferred. For application procedures, contact: **Diane Moseley, Personnel Office, National Animal Disease Center, P.O. Box 70, Ames, Iowa 50010, telephone: 515-232-0250, extension 277.** An Equal Opportunity/Affirmative Action Employer.

MOLECULAR AGING/SURFACE ANTIGENS

Applications are invited for a tenure-track position as **assistant professor** in a dynamic, interactive research environment focusing on molecular genetic studies of cellular aging in a university-VA medical complex. Preference given to those with background in HLA antigens, monoclonal antibodies, or related areas. Apply with curriculum vitae and names and addresses of three references to: **Dr. Samuel Goldstein or Dr. Robert Shmookler Reis, Slot 604, Departments of Medicine and Biochemistry, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72205.**

SLAVO/ITALY POSITIONS IN MOLECULAR BIOLOGY

Slavo, an ENI subsidiary, is a company specialized in the production of biological products for medical application.

Headquarters, plants, and applied research facilities are located in Siena in a very pleasant situation, and laboratories are modern and well equipped. A separate center for basic research has now been established. This center includes divisions of molecular biology, biochemistry, cell biology, and immunology. Since the Molecular Biology Department is now expanding, positions are available at the senior and junior level. Applicants are expected to have a productive research record in the fields of nucleic acids, genetic engineering, cell transformation, or virology. Salaries will be commensurate with experience and seniority of the applicants, in accordance with international standards. Send résumé and names of referees to:

Slavo Research Center
ISVT Slavo S.p.A.
Via Fiorentina 1
53100 Siena, Italy

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for appointment to the following positions:

POSTDOCTORAL FELLOW/RESEARCH FELLOW IN VISION in the **RESEARCH SCHOOLS OF BIOLOGICAL AND PHYSICAL SCIENCES**. The successful applicant will join a multidisciplinary team, including Dr. S. B. Laughlin and Professor A. W. Snyder, working on neural principles in vision. A strong interest in developing the mathematical principles of visual processing is essential, while experience in image processing and physiological or behavioural techniques is desirable. Enquiries may be made to: **Professor A. W. Snyder, Department of Applied Mathematics, Research School of Physical Sciences**. Closing date: 30 June 1983.

FELLOW/SENIOR FELLOW in **DEPARTMENT OF PHYSIOLOGY, JOHN CURTIN SCHOOL OF MEDICAL RESEARCH**. The above position in the Department of Physiology [head: Professor (Elect) P. W. Gage FAA] will be available from January 1984. A physiologist is sought with interests in basic phenomena involved in signal transmission in nerve and muscle cells. A strong background in physics and mathematics and/or extensive research experience-contraction coupling, is required. Further information is available from: **the Head of Department**. Closing date: 31 May 1983.

Salary in accordance with qualifications and experience within the ranges: senior fellow, A\$35,077 to A\$40,885 per annum; fellows, A\$26,148 to A\$35,031 per annum; research fellow, A\$22,430 to A\$29,467 per annum; postdoctoral fellow grade 1, A\$19,333 to A\$22,148 per annum. Current exchange rates: A\$1 = U.S.\$0.86 = U.K.\$8p. Appointment will be: senior fellow/fellow for an initial period of 5 years with the possibility, following review, of reappointment to retiring age; research fellow up to 3 years with the possibility of extension to 5 years; and postdoctoral fellow up to 2 years with possibility of extension to 3 years. Reasonable appointment expenses are 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**.

DEAN OF THE COLLEGE OF LIBERAL ARTS AND SCIENCES BUTLER UNIVERSITY

Butler University seeks a person to provide vigorous academic leadership and direction for the faculty of the College of Liberal Arts and Sciences, the largest college of the University. The arts and sciences full-time faculty number 79 in 16 disciplines representing the Humanities, Social Sciences and Natural Sciences. The College offers programs leading to degrees of Bachelor of Arts, Bachelor of Science, Master of Arts, and Master of Science.

The Dean of the College of Liberal Arts and Sciences reports to the Vice President for Academic Affairs. The Dean is responsible for developing and administering degree programs, recruiting faculty, planning budgets, evaluating faculty, coordinating curricula, representing the College in the community, and stimulating faculty development in an institution where the premium is on quality teaching, scholarship and research.

Founded in 1855, Butler University is an independent, non-sectarian, coeducational institution located on a handsome 254-acre campus in a residential section of Indianapolis. There are 4,030 full-time and part-time students. Of the 2,150 full-time students, 67% reside on campus.

In addition to the College of Liberal Arts and Sciences, the University includes the Colleges of Education, Business Administration, Pharmacy and Fine Arts; a University College; the Holcomb Research Institute dedicated to environmental research; and Clowes Memorial Hall, a 2,200-seat performing arts center.

Qualifications for the position include an earned doctorate, research and teaching experience, demonstrated administrative ability, and skill in communication. Women and minorities are urged to apply.

The position is available September 1, 1983, but a later starting date is possible. Salary is open. The deadline for nominations and applications is June 15, 1983.

Send applications and resumes to:

Dr. William C. Bonifield, Chairman
Search Committee for the Dean of the
College of Liberal Arts and Sciences
Butler University
4600 Sunset Avenue
Indianapolis, IN 46208

An Equal Opportunity Employer



BUTLER UNIVERSITY



THE NEW YORK COLLEGE OF OSTEOPATHIC MEDICINE NEUROSCIENTIST

DIRECTOR

**INSTITUTE FOR NEURO-MUSCULO-
SKELETAL DISORDERS**

Institute for Neuro-Musculo-Skeletal Disorders
through its parent organization

The New York College of Osteopathic Medicine
invites nominations and applications for the position of

DIRECTOR OF THE INSTITUTE

The responsibility of the Institute is to foster, conduct and support research, research training and clinical training in the causes, prevention, diagnosis and treatment of neurological, sensory and neuro-musculo-skeletal disorders.

The duties of the Director are, in general, in concert with carrying out the responsibilities of the Institute and include in brief, *all* aspects of instituting and maintaining complete and sophisticated basic and clinical research programs whose core is the neuro-musculo-skeletal interface.

This is an open-ended contractual agreement position, the periodicity of the renewable open-ended contracts and the salary to be mutually agreed upon at the time of negotiation. The successful candidate for the position is expected to assume responsibilities by November, 1983.

Applicants with earned PhD, DO or MD degrees are requested to send curricula vitae in prose or detailed outline form with all supportive information, i.e., letters of recommendation, award, affiliation, etc., to:

SEARCH COMMITTEE
OFFICE OF THE DEAN
PROVOST FOR MEDICAL AFFAIRS
NEW YORK COLLEGE OF OSTEOPATHIC MEDICINE
OLD WESTBURY, NEW YORK 11568

Candidates considered for interview will be
so notified and interviewed in August, 1983.

The New York College of Osteopathic Medicine of New York Institute of Technology
is an equal opportunity employer

SENIOR RESEARCH BIOCHEMIST PROTEIN PURIFICATION

Medical Products Research and Development Division of Mallinckrodt, Inc., a subsidiary of Avon Products, invites applicants for a position in the Radiolabeled Antibody Program. Responsibilities will include purifying, fragmenting and derivatizing monoclonal antibodies as well as isolating and purifying tumor antigens.

Qualifications include a doctorate in a biomedical science and 3 or more years of post doctoral experience as well as expertise in preparative HPLC of proteins, familiarity with membrane glycoprotein isolation and characterization, knowledge of proteinase enzymology, and knowledge of immunochemistry. Preference will be given to candidates with 1 to 2 years of industrial experience.

Qualified candidates should
send resume, pertinent reprints
and salary requirements to:

David F. Orf, Human Resources Associate

Mallinckrodt

675 McDonnell Blvd.
P.O. Box 5840
St. Louis, MO 63134

An equal opportunity employer, M/F

POSITIONS OPEN

PHYSIOLOGICAL OPTICS/VISUAL PSYCHOPHYSICS

ASSISTANT RESEARCH SCIENTIST I-III is desired, with one or more years of clinical and/or research experience in visual psychophysics or clinical vision testing, and Ph.D., M.D., or O.D. degree, for full-time appointment to active optometry/ophthalmology research laboratory in San Francisco Bay area. Duties will include research in various aspects of visual science, including new visual field techniques (layer-by-layer perimetry), for example, Stiles-Crawford functions, Westheimer sensitization paradigms, hyperacuity, accommodation studies, and so forth. Individual will assist in training graduate and postdoctoral students. Experience with PDP-11 laboratory computer is desirable, but not required. Salary range is from \$22,900 to \$25,200 per year, beginning 1 August 1983 or earlier. Please send curriculum vitae, statement of research interest and experience, and three references before 30 June 1983 (or until position is filled) to: **Professor Jay M. Enoch, Chairman, Search Committee, School of Optometry, University of California, Berkeley, Calif. 94720.** *An Equal Opportunity/Affirmative Action Employer.*

University of California, Los Angeles (UCLA) Biology and Molecular Biology POSTDOCTORAL FELLOW

Applications are invited for work on a project aimed at determining the function of a number of genes involved in early embryogenesis in *Drosophila*. An integrated approach, utilizing techniques of recombinant DNA, genetics, and immunology, will be used. Experience in nucleic acid biochemistry/recombinant DNA is highly desirable. Ph.D. required. Salary commensurate with experience.

Send curriculum vitae and three references to:

Dr. Judith Lengyel
Molecular Biology Institute
UCLA
Los Angeles, Calif. 90024

UCLA is an Equal Opportunity Employer.

POSTDOCTORAL FELLOW. Study subcellular regulation of calcium handling in cardiac muscle and changes with development and aging and in cardiac hypertrophy and myopathy. Ph.D. preferred. Candidates should send résumé with names and addresses of three references by airmail to: **Dr. M. Kircher, Department of Physiology/Biophysics, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 10029.** *An Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH FELLOW. One position will be available 1 July 1983 to candidates possessing a Ph.D. Applicants should have a strong background in virology and biochemistry. Research will be in the areas of antiviral therapy and virulence of herpes simplex viruses. Salary: \$14,040 to \$18,000. Send curriculum vitae and names of three references to: **William J. O'Brien, Ph.D., Departments of Ophthalmology and Microbiology, The Medical College of Wisconsin, 8700 West Wisconsin Avenue, Milwaukee, Wisconsin 53226.** *Affirmative Action/Equal Opportunity Employer.*

PROFESSOR OF STATISTICAL COMPUTING AND DIRECTOR OF THE HEALTH SCIENCES COMPUTING FACILITY

The Harvard School of Public Health is searching for a professor of statistical computing who will (i) lead a new academic program in applied biomedical computing within the Department of Biostatistics; (ii) direct the Health Sciences Computing Facility; and (iii) integrate the activities of the Computing Facility with the teaching and research programs of the School. The candidate should have a distinguished record of publications and teaching and the capability of supervising doctoral dissertations. It is essential that the candidate have collaborative experience with investigators on the application of statistics and computing to the health sciences and experience in directing a computer facility.

Applicants should send their curriculum vitae and the names of three referees to:

Dr. Joseph J. Harrington, Ph.D.
Chairman of the Search Committee/Biostatistics
Office of the Dean
Attention: J. Macdonald
677 Huntington Avenue
Boston, Mass. 02115

Harvard University is an Equal Opportunity Employer with an Affirmative Action Program.

POSITIONS OPEN

POSTDOCTORAL POSITION available 1 September for individual with research interest in cell biology. Individual should be capable of teaching in gross anatomy laboratory. Starting salary: \$19,320. Send curriculum vitae and names of three references by 15 June to:

Gary E. Wise, Ph.D.
Chairman, Department of Anatomy
Texas College of Osteopathic Medicine
Camp Bowie at Montgomery
Fort Worth, Texas 76107-2690

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITION available 1 June 1983 for studies of monoamine and neuropeptide dynamics in retina and brain. Individuals seeking this position should have biochemistry or pharmacology training, and experience using contemporary biochemical techniques (for example, HPLC, electrophoresis, radioimmunoassay). Send curriculum vitae and names and addresses of three references to: **Dr. John D. Fernstrom, WESTERN PSYCHIATRIC INSTITUTE AND CLINIC, University of Pittsburgh School of Medicine, 3811 O'Hara Street, Pittsburgh, Pa. 15213.** *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately to study inborn errors of metabolism in cell culture. Our emphasis is on genetic diseases that produce deficiencies of multienzyme complexes (that is, maple-syrup-urine disease) or that affect several sequential enzymes in a metabolic pathway (that is, hyperlysinemia type I). Recent Ph.D. with background in enzymology including enzyme purification and characterization and immunological techniques preferred. Starting salary: \$18,000 annually, with benefits. Send curriculum vitae and names and addresses of three references to: **Dr. David T. Chuang, Department of Medicine (151-W), VA Medical Center, 10701 East Boulevard, Cleveland, Ohio 44106.** *Cleveland VA Medical Center/Case Western Reserve University is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION available (1 July 1983) to collaborate in an NIH-sponsored research project on the "Control of Gene Expression in *Drosophila* Development and Senescence." Under investigation are the glycerol-3-phosphate dehydrogenase and catalase gene-enzyme systems. Applicants should have some experience in molecular genetics and recombinant DNA technology including cDNA and genomic cloning. Formal training in *Drosophila* genetics is not required. The position is for 1 year, renewable upon satisfactory performance. Send curriculum vitae, three letters of recommendation, and copies of reprints to: **Dr. Glenn C. Bewley, Department of Genetics, North Carolina State University, Box 5487, Raleigh, N.C. 27650.**

An Affirmative Action/Equal Opportunity Employer

MT. SINAI SCHOOL OF MEDICINE

POSTDOCTORAL POSITIONS IN ALCOHOL RESEARCH available July 1983 to study: (i) isolation and characterization of mammalian cytochrome P-450 and related enzymes involved in the metabolism of ethanol and other xenobiotics, (ii) kinetics of ethanol metabolism using both in vitro and in vivo model systems, and (iii) alterations of collagen and lipids, including lipoproteins, associated with alcohol abuse. Candidates should be familiar with research techniques applicable to any of the above areas of investigation. Salaries will be competitive and commensurate with background and experience. Applications, including curriculum vitae and three letters of reference, should be sent to: **Dr. Charles S. Lieber, Alcohol Research and Treatment Center, Bronx VA Medical Center, 130 West Kingsbridge Road, Bronx, N.Y. 10468.**

POSTDOCTORAL POSITION IN EXPERIMENTAL PATHOLOGY AT MAYO CLINIC to study the mechanisms for the initiation of carcinogenesis in human epithelial stem cells and murine proadipocyte stem cells. Focus of research will be to determine how defects in the integrated control of cell proliferation and differentiation mediate carcinogenesis. [See following references: *PNAS* 79, 845 (1982), *J. Cell Biology* 94, 394 (1982), and 94, 400 (1982), and *Cancer Research* 42, 5139 (1982).] Experience in one or more of the following areas required: mammalian cell culture, cell cycle analysis, protein purification and characterization, or molecular biology. Position available fall 1983. Candidates should send their curriculum vitae and three letters of recommendation to: **Robert E. Scott, M.D., Head, Section of Experimental Pathology, Mayo Clinic, Rochester, Minnesota 55905.** *Mayo is an Equal Opportunity/Affirmative Action Institution.*

POSITIONS OPEN

POSTDOCTORAL POSITION in cell biology available immediately to participate in an ongoing program investigating multiple cytochemical and immunofluorescent features, and chromatin structure of intact human cancer cells, to be applied in the identification, classification, and treatment monitoring of human bladder cancer by flow cytometry. Otherwise qualified candidates who are unfamiliar with flow cytometry instrumentation will be considered.

Résumé and names of three individuals who can supply letters of recommendation to:

Myron R. Melamed, M.D.
Investigative Cytology Laboratory
Memorial Sloan-Kettering Cancer Center
1275 York Avenue
New York, N.Y. 10021

POSTDOCTORAL RESEARCH ASSOCIATE. Position in cardiac electrophysiology available immediately; 2-year appointment. Studies will focus on physiology of cardiac conduction system and cardiac effects of toxins. Experience with transmembrane potential recording and familiarity with cardiac physiology will be given preference. Send curriculum vitae, summary of research interests, and names of three references to: **Dr. W. Thomas Woods, Department of Physiology and Biophysics, University of Alabama in Birmingham, University Station, Birmingham, Ala. 35294.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE IN SOIL ALUMINUM CHEMISTRY to examine thermodynamic and kinetic controls on aluminum uptake/release by forest soils. Part of an integrated comparative study of interactions between acidic deposition and aluminum biogeochemistry. Position available June 1983 to June 1986 at \$17,000 to \$18,500 (starting). Send résumé, transcripts, and three letters of recommendation to: **Dr. Christopher S. Cronan, Land and Water Resources Center, University of Maine, Orono, Maine 04469.** *Equal Opportunity/Affirmative Action Employer.*

RESEARCH PHYSICIST POSITIONS

The Department of Physics of the University of California, Irvine, has several positions available for research on new accelerator concepts. One experimental and one theoretical plasma physicist are required with a Ph.D. or equivalent experience. Positions are available 1 July. Send résumé, bibliography, and names of three professional references to: **Professor Norman Rostoker, Department of Physics, University of California, Irvine, Irvine, Calif. 92717.** *An Affirmative Action/Equal Opportunity Employer.*

RESEARCH ASSISTANT—MOLECULAR BIOLOGY. Prominent New York City medical center seeks individual with experience in molecular biology, preferably in the area of DNA, including cloning and characterization of DNA with restriction endonucleases. Some experience with DNA sequence analysis preferred. Candidate will be joining laboratory engaged in the study of molecular biology of DNA viruses. Ph.D. preferred. Good salary and benefits. Send résumé to: **L. Tarallo, Personnel Department, THE MOUNT SINAI MEDICAL CENTER, 19 East 98 Street, New York, N.Y. 10029.** *An Equal Opportunity Employer.*

TOXICOLOGIST BUSHY RUN RESEARCH CENTER UCC-CMU

Bushy Run Research Center (BRRC), operated by the Union Carbide Corporation (UCC) and Carnegie-Mellon University (CMU), is seeking a Ph.D. toxicologist with 2 to 3 years of experience at conducting subchronic and chronic toxicity/oncogenicity studies by oral/dermal exposure. Candidate should have relevant publications and a strong background in biostatistics. Primary responsibilities will include the design, implementation, analysis, interpretation, and technical supervision of toxicology studies done with multiple species. Study cost-estimating experience is desired.

BRRC is located 25 miles east of Pittsburgh in beautiful rolling countryside. The Laboratory has recently undergone a multimillion dollar renovation and has some of the most modern, state-of-the-art facilities available. BRRC is accredited by AALAS and by the Toxicology Laboratory Accreditation Board. Send résumé and references to: **D. L. Geary, Bushy Run Research Center, R.D. Number 4, Mellon Road, Export, Pa. 15632.**

BRRC is an Equal Opportunity/Affirmative Action Employer.

The Energy and Environment Division of the Lawrence Berkeley Laboratory's Passive Solar Project is offering these opportunities:

Staff Scientist I—Develop and implement heat transfer and optical algorithms to be incorporated into state-of-the-art building energy analysis computer programs used in the study of passively heated, cooled and lighted buildings. Develop, test and apply numerical techniques for studying convection heat and mass transfer in buildings. Assist in the identification of experiments to verify models and utilize the models in commercial building energy performance studies from which optical design parameters will be deduced. Responsible for reports on these duties. Must be familiar with conventional calculation techniques for conductive, radiative and convective heat transfer. Requires an understanding of numerical analysis methods for examining convective heat and mass transfer. Must be thoroughly familiar with FORTRAN programming, especially as it relates to numerical analysis. Past exposure to building energy analysis, optics and solar technologies desirable. Prefer an advanced degree in applicable engineering or scientific discipline. PLEASE SPECIFY JOB #A/0910.

Staff Scientist II—Responsible for the specification, development, validation and application of software for examining convection in buildings. Validate and apply software for energy analysis of passive solar buildings. Conduct research on heat transfer and fluid flow under natural and forced conditions and direct development of engineering characterizations of convection processes. Examine the applicability of passive heating, cooling and lighting strategies to the non-residential building sector. Publication of results is expected. Must have a thorough background in fluid mechanics, heat transfer and numerical analysis. Experience with state-of-the-art techniques for analyzing conductive, radiative and convective heat transfer as applied to building energy analysis is required. Prefer an advanced degree in engineering or science. PLEASE SPECIFY JOB #A/0909.

Please send two copies of resume to: **Employment Office, Building 65, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, CA. 94720.** An equal opportunity employer, m/f/h.

VACANCY ANNOUNCEMENT U.S. ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency invites applications for the position of **DIRECTOR, INHALATION TOXICOLOGY DIVISION, HEALTH EFFECTS RESEARCH LABORATORY**. This is a Civil Service position located at Research Triangle Park, N.C., with an annual salary at the GS-15 level (presently \$48,553 to \$63,115).

The Inhalation Toxicology Division conducts research with humans and animals to determine the health effects of inhaled environmental pollutants using highly sophisticated inhalation exposure facilities and multidisciplinary research teams consisting of physicians, physiologists, toxicologists, chemists, engineers, statisticians, and other types of professional scientists. Investigations center on determining the cause and effect relationships at pollutant concentrations which mimic those occurring in the environment, developing improved methods for assessing health effects of air pollutants, and devising techniques for improving the correlation between animal and human studies with particular emphasis on extrapolation models for better risk assessment.

The candidate must have the following proven scientific and managerial qualifications.

- Should possess an M.D. or Ph.D. in physiology, pharmacology, toxicology, or biochemistry with special training and experience in inhalation toxicology. At least 5 years of proven experience as evidenced by publications in the open literature and peer recognition by scientific community. High level of scientific stature with both national and international recognition as expert in inhalation toxicology.
- Proven ability in technical and managerial management of a large multidisciplinary research organization. Position involves a full range of managerial and supervisory responsibilities such as program direction, planning, organization, coordination of budget and personnel management and involves establishment of goals, general work schedules, and development of research plans and procedures.

Further information about the position and qualification requirements may be obtained by contacting: **The Office of Personnel Management, Raleigh Area Office, P.O. Box 25069, Raleigh, N.C. 27611; telephone 919-755-4361.** Applications (SF-171, Personal Qualifications Statement), accompanied by current curriculum vitae and bibliography, should be submitted to the Raleigh Area Office prior to 15 June 1983. **Recruiting Bulletin Number AR-3-083.**

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POSTDOCTORAL POSITIONS to study the localization and functional regulation of specific mRNA sequences in sea urchin embryos. Two positions, available fall/winter 1983. Send résumé and names of three references to: **Drs. W. H. Klein and R. A. Raff, Department of Biology, Indiana University, Bloomington, Indiana 47405**, by 15 July 1983. *An Equal Opportunity/Affirmative Action Employer.*

TUMOR IMMUNOLOGY/VIROLOGY RESEARCH ASSOCIATES

Study exciting tumor immunology system. Experience with cellular immunology, lymphokines, T cell culture, immunochemistry, retrovirology desirable. Recent Ph.D. Send curriculum vitae, graduate transcript, three references, and statement of interests to: **Dr. S. Silagi, Cornell University Medical College, 515 East 71 Street, New York, N.Y. 10021**. *Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITION (research associate) available immediately in a research group studying molecular aspects of early mammalian embryogenesis, with emphasis on the teratocarcinoma cell system. Experience in molecular or cellular biology desirable. Please send curriculum vitae and two letters of reference to: **Chi Nguyen-Huu, Ph.D., Columbia University College of Physicians and Surgeons, Departments of Microbiology and Urology, 630 West 168 Street, New York, N.Y. 10032**. *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH POSITION available 1 June 1983 to study idiotype-anti-idiotype regulation of immune function during murine pregnancy. Experience in MLC, hybridoma, and T cell cloning is desirable. Send curriculum vitae and names of three references to: **Daniel Stites, M.D., M-523, University of California, San Francisco, Calif. 94143**.

POSITIONS OPEN

POSTDOCTORAL POSITIONS IN NEUROBIOLOGY AND NEUROPATHOLOGY available immediately. A multidisciplinary neurobiology group (Drs. N. K. Gonatas, W. F. Hickey, R. Hogue-Angeletti, V. M.-Y. Lee, W. W. Schlaepfer, and J. Q. Trojanowski) offers positions in a training program to individuals interested in endocytosis and intracellular transport of ligands in vitro and in vivo; immunological mechanisms mediating EAE; neurofilament protein structure, molecular biology, metabolism and expression in vitro and in vivo; molecular mapping of chromaffin granule membrane. Send résumé and names of three references to: **Dr. N. K. Gonatas, Director, Division of Neuropathology, 447 Johnson Pavilion/G2, University of Pennsylvania School of Medicine, Philadelphia, Pa. 19104**. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS IN IMMUNOBIOLOGY available immediately for Ph.D.'s or M.D.'s experienced in or interested in NK cell or T cell immunobiology. Principal research areas include genetic and biochemical definition of lymphocyte cell surface antigens. Salary is commensurate with experience. Two-year positions with opportunity for independent work in exciting and creative environment. Send curriculum vitae and names of references to: **Edward A. Clark, Ph.D., Immunobiology Division, Genetic Systems Corporation, 3005 First Avenue, Seattle, Wash. 98121**.

POSTDOCTORAL RESEARCH ASSOCIATE

Available immediately. Project involves isolation of tumor cysteine proteinase, development of monoclonal antibody, and RIA of ELIA assay for enzyme in human serum and/or urine. Ph.D. or M.D./Ph.D. in biochemistry preferred. Previous postdoctoral experience and/or demonstrated competence in area required. Expertise in protein purification, enzyme kinetics, monoclonal antibody, and RIA/ELIA development highly desirable. Salary range: \$15,000 to \$18,000 plus fringes, commensurate with experience. Send résumés to: **Dr. B. F. Sloane, Department of Pharmacology, Wayne State University, School of Medicine, Detroit, Michigan 48201**. *Wayne State University is an Equal Opportunity/Affirmative Action Employer.*

PROJECT ASSOCIATE in genetics. A molecular geneticist is required for an established program investigating immunoglobulin gene assembly. Applicants should be proficient in recombinant DNA techniques (at least 2 years of postdoctoral experience), have a working knowledge of molecular immunology, and expertise in cell culture and electron microscopy. Experience with in vitro enzymatic assay systems and PAGE is also required. This is a long-term position requiring proven research ability, organizational skill, and the ability to contribute fundable grant proposals to the group. Salary: \$15,436; 40 hours per week. Contact: **Bill Janeck, Wisconsin Job Service, 206 Broom Street, Madison, Wis. 53703**; telephone: 608-266-3678. This advertisement was not paid for by Job Service Funds. *This position is with an Equal Opportunity Employer.*

RESEARCH ASSOCIATE CHEMICAL PHYSICS PROGRAM JACKSON STATE UNIVERSITY

A research associate position is available to perform structural and dynamical studies on molecular systems. Previous research experience in electronic spectroscopy, laser-induced fluorescence, Raman, and a strong theoretical background is desirable. Appointment is available immediately for 1 to 3 years at a salary of \$20,000 per year. Send résumé, transcript, list of publications, and three references to: **Chemical Physics Program, P.O. Box 17364, Jackson State University, Jackson, Mississippi 39217**, attention: **Dr. James Perkins**. *Jackson State University is an Equal Opportunity/Affirmative Action Employer.*

Position available September 1983 for research on the behavioral pharmacology of opioid drugs and peptides in rodents and small primates. Applicants should have a recent doctorate in pharmacology or other basic medical science or in experimental psychology. Skill in stereotaxic surgery and in the use of microcomputers is desirable. Send résumé with names of three references by 30 June 1983 to: **Dr. Stephen G. Holtzman, Department of Pharmacology, Emory University School of Medicine, Atlanta, Ga. 30322**.

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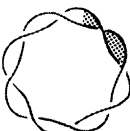
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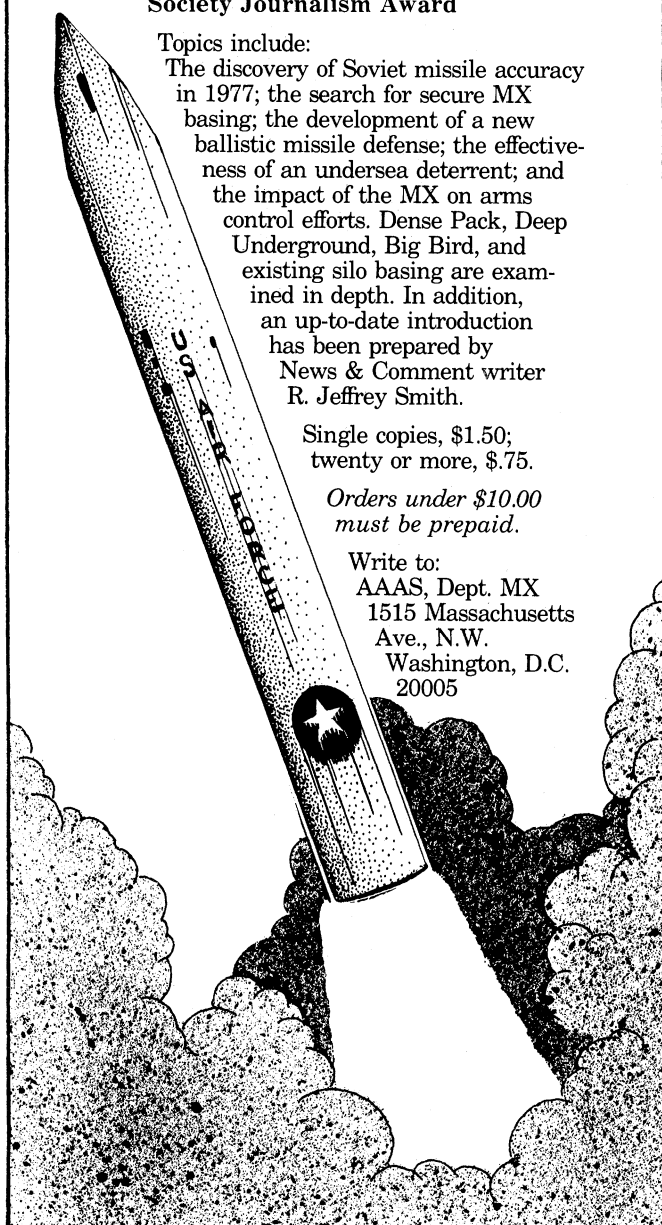
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SYMPOSIUM

GENETIC CONTROL OF ENVIRONMENTAL POLLUTANTS 31 July to 3 August 1983 at the University of Washington, Seattle

Sponsored by the University of Washington, Environmental Protection Agency, Office of Naval Research, National Toxicology Program, Department of Energy, and Council for Research Planning in the Biological Sciences.

This research conference will assess strategies for more effectively and safely managing wastes and toxic substances in the environment, in part through use of genetic engineering of microorganisms. Organizing Committee: A. M. Chakrabarty, Alexander Hollaender, Morris Levin, Oskar Zaborsky, and Gilbert S. Omenn.

Registration fee: \$195 (\$225 after 1 June); \$50 for students (\$70 after 1 June). Includes boat trip to Blake Island for traditional salmon bake dinner and symposium volume (Plenum Press). For details, contact:

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Department of Environmental Health, SC-34
Seattle, Wash. 98195
Telephone: 206-543-6991
Attention: Virginia Daigle

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The Smithsonian Tropical Research Institute in Panama has two 1-year **POSTDOCTORAL RESEARCH FELLOWSHIPS** for the study of the evolution, ecology, behavior, or physiology of marine organisms. Each will start between 1 October 1983 and 1 April 1984. The stipend is U.S.\$19,000, plus travel and research allowances. Send curriculum vitae, a five-page research proposal, and three letters of reference by 31 July 1983 to: **Marine Sciences Coordinator, Smithsonian Tropical Research Institute, APO Miami 34002.**

POSTDOCTORAL FELLOWSHIP, NEUROBIOLOGY OF NEUROMUSCULAR DISEASES. Available from 1 July 1983 for 2 years to study metabolic aspects, including membrane receptors, in human neuromuscular diseases. Ph.D. or M.D. and background in biochemistry required. Send résumé, bibliography, and three letters of recommendation to: **W. King Engel, M.D., Director, University of Southern California, Neuromuscular Center, 637 South Lucas Avenue, Los Angeles, Calif. 90017. An Equal Opportunity/Affirmative Action Employer.**

TRAINING GRANT

POSTGRADUATE RESEARCH DEPARTMENT OF BIOLOGY PRINCETON UNIVERSITY

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Applications should include curriculum vitae, references, and summary of research interest. Application closing date: 27 May 1983. Inquiries or applications should be sent to: **Dr. E. C. Cox, Chairman, Department of Biology, Princeton University, Princeton, N.J. 08544. Princeton University is an Equal Opportunity/Affirmative Action Employer.**

TRAINEESHIPS

POSTDOCTORAL TRAINEESHIPS IN ENVIRONMENTAL ONCOLOGY. The Department of Environmental Medicine invites applications for its postdoctoral training program in environmental oncology. The department emphasizes in vivo as well as in vitro studies in chemical and radiation carcinogenesis and DNA damage and repair. Applicants should have experience with modern biochemical and molecular biological techniques. Curriculum vitae and two letters of reference should be submitted by 1 June 1983 to: **Dr. Roy Albert, Director, Environmental Oncology Program, Institute of Environmental Medicine, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016. An Affirmative Action/Equal Opportunity Employer, M/F.**

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

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TRAINING PROGRAM

POSTDOCTORAL TRAINING PROGRAM—Applications are invited for the Institute's program of postdoctoral traineeships in basic science relevant to cancer research. These appointments are open to U.S. citizens, U.S. nationals, or persons who have been lawfully admitted to the United States for permanent residence and have in their possession a permanent visa at the time of appointment. Before appointment, an applicant must hold a Ph.D. or its equivalent in a field of training like physics, chemistry, biochemistry, immunology, microbiology, virology, pathology, genetics, molecular biology, developmental biology, or cellular biology and must also have had no more than 3 years of postdoctoral experience. Appointments will be for 1 year, renewable for a second year. Stipends are from \$14,040 per year, plus fringe benefits and certain travel and relocation allowances. The appointments are funded by the NIH and are subject to the National Research Service Act (Public Law 93-348). The traineeship program is organized around research in one or more of the laboratories of the participating staff members, and will include participation by trainees in special seminars and colloquiums focusing on fundamental problems of cancer research. Application forms can be obtained from: **Dr. Thomas F. Anderson, Coordinator, Postdoctoral Training Program, Institute for Cancer Research, 7701 Burholme Avenue, Philadelphia, Pa. 19111.** A completed application will also include undergraduate and graduate transcripts, list of publications, abstract of doctoral thesis (approximately 500 words), and letters of recommendation from three persons acquainted with your scientific work. *THE INSTITUTE FOR CANCER RESEARCH, FOX CHASE CANCER CENTER, is an Equal Opportunity/Affirmative Action Employer.*

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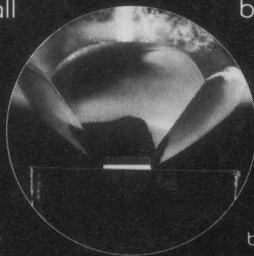
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