

ponents. These exponents, denoted by Greek letters,  $\nu$ ,  $\alpha$ ,  $\beta$ ,  $\gamma$ , are ubiquitous in the book. They are, of course, very reminiscent of critical phenomena, and in chapter 10 de Gennes very clearly describes the analogy, first discovered by him, between the two. Briefly,  $N^{-1}$  plays the role of  $(T - T_c)/T$ , the deviation of the temperature from its critical value, and  $R$  is analogous to the correlation length which diverges at  $T_c$ ;  $\nu = \frac{1}{2}$  then corresponds to a mean field exponent.

The above is intended to give some flavor of the calculational complexity in the book. The book in general contains very few computational details. The author steadfastly keeps his eyes on the universal features and ignores "numerical coefficients in most formulas, where they would obscure the main line of thought." As further stated in the introduction the book "is meant for experimentalists in polymer science who wish to incorporate the recent advances into their modes of thinking." In my opinion "experimentalists" is far too restrictive. I recommend the book to all scientists, experienced or beginning, interested in the subject of polymers.

JOEL L. LEBOWITZ

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## Control Theory

**A History of Control Engineering, 1800-1930.** S. BENNETT. Published on behalf of the Institution of Electrical Engineers by Peter Peregrinus Ltd., Stevenage, England, 1979 (U.S. distributor, INSPEC/IEEE, Piscataway, N.J.). x, 214 pp., illus. \$35. IEE Control Engineering Series 8.

Applications of the concept of feedback developed in three stages. The first extended from antiquity to the invention of the mechanical governor at the end of the 18th century; the second was the development of control theory as a scientific discipline, before the advent of electronic control; and the third runs from around 1930 to the present. The first period was the subject of Otto Mayr's *Origins of Feedback Control*, which MIT Press published (in translation from the German original) in 1970. The present volume traces the second period, with some overlap at either end. The history of the third period remains to be written.

Although control theory is regarded largely as a branch of electrical engineering nowadays, it is appropriate that this account, which was commissioned by Britain's Institution of Electrical Engi-

neers (IEE), was written by a mechanical engineer. From him we learn that control theory was first elaborated on the basis of mechanical devices such as regulators of the speed of steam engines and other prime movers; that the use of the governor by scientists led them to study its dynamics and to formulate stability criteria; that the first servomechanisms were steam steering engines that came into use in the 1860's, closely followed by hydraulic servos for the control of torpedos and ship stabilizers, decades ahead of the gyroscopes developed by Sperry and others in the early years of the 20th century; and that the first electrical applications were in the control not of rotating machinery but of the gap width of arc lights. To be sure, Bennett does not merely chronicle "firsts" (although they are recounted and meticulously documented), he takes us through a *catalogue raisonné* of the contributions made by Airy, Poncelet, Maxwell, Vyshnegradsky, Stodola, Lyapunov, and above all Edward John Routh (1831-1907), the Canadian-born mathematician who was senior wrangler in the Cambridge mathematical tripos of 1854, the year Maxwell came second. In recent years Routh, who was Airy's son-in-law, has come to be regarded as the founder of stability theory and his *Treatise on the Stability of a Given State of Motion, Particularly Steady Motion* (1877) as a seminal work. In the U.S.S.R., he is recognized as Lyapunov's precursor; and in 1977 the IEE commemorated the centenary of the *Treatise* by a Routh centennial lecture, which was given by E. I. Jury of Berkeley.

The principal discoveries are painstakingly traced in two long chapters, "Towards an understanding of the stability of motion" and "The development of servomechanism," which occupy half the book. The book is in no wise a popularized account; differential equations and engineering drawings abound, as do references and notes (216 in these two chapters alone) and extended quotations. Some of the quotations are set rather abruptly at the head of chapter sections, without exegesis; and one could have wished for the dates of birth and death of the engineers and scientists mentioned. But these are minor faults of an otherwise fine book, packed with information and full of illuminating insights by an engineer who is also an expert historian of technology and of one of its parent sciences, mechanics.

CHARLES SÜSSKIND

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## BOOKS RECEIVED

**Advances in Microbial Ecology.** Vol. 3. M. Alexander, Ed. Plenum, New York, 1979. xii, 226 pp., illus. \$24.50.

**Advances in Nutritional Research.** Vol. 2. Harold H. Draper, Ed. Plenum, New York, 1979. xiv, 250 pp., illus. \$27.50.

**Advances in Pesticide Science.** Abstracts and Addendum from the Fourth International Congress of Pesticide Chemistry. Zurich, July 1978. H. Geissbühler, P. C. Kearney, and G. T. Brooks, Eds. Pergamon, New York, 1979. Two volumes. Various pages, illus. Paper, \$60.

**Advances in Polymer Science.** Vol. 32. H.-J. Cantow and 12 others, Eds. Springer-Verlag, New York, 1979. iv, 158 pp., illus. \$47.50.

**Agrometeorology.** J. Seemann, Y. I. Chirkov, J. Lomas, and B. Primault. Springer-Verlag, New York, 1979. viii, 324 pp., illus. \$53.90.

**The Algebra of Econometrics.** D. S. G. Pollock. Wiley, New York, 1979. xvi, 360 pp. \$45.

**Astronomy of the Ancients.** Kenneth Brecher and Michael Feirtag, Eds. MIT Press, Cambridge, Mass., 1979. x, 206 pp., illus. \$12.50.

**Beryllium Science and Technology.** Vol. 2. Dennis R. Floyd and John N. Lowe, Eds. Plenum, New York, 1979. xvii, 438 pp., illus. \$49.50.

**Biochemistry and Physiology of Plant Hormones.** Thomas C. Moore. Springer-Verlag, New York, 1979. xii, 274 pp., illus. \$22.80.

**Chemindustry Experiments.** Experiments Based on Industrial Processes and Principles of Applied Chemistry. Brenda W. Hill. Franklin Institute Press, Philadelphia, 1979. vi, 214 pp., illus. Paper, \$8.95.

**The Chemistry and Physiology of the Human Plasma Proteins.** Proceedings of a conference, Boston, Nov. 1978. David H. Bing, Ed. Pergamon, New York, 1979. xii, 404 pp., illus. \$40.

**A Choice of Catastrophes.** The Disasters That Threaten Our World. Isaac Asimov. Simon and Schuster, New York, 1979. 378 pp. \$11.95.

**Circulant Matrices.** Philip J. Davis. Wiley-Interscience, New York, 1979. xviii, 250 pp. \$18.95. Pure and Applied Mathematics.

**Classical Banach Spaces II.** Function Spaces. Joram Lindenstrauss and Lior Tzafriri. Springer-Verlag, New York, 1979. x, 246 pp. \$39. *Ergebnisse der Mathematik und ihrer Grenzgebiete* 97.

**The Classification of Endogenous Psychoses.** Karl Leonhard. Translated from the 5th German edition by Russell Berman. Eli Robins, Ed. Irvington, New York, and Halsted (Wiley), New York, 1979. xxii, 452 pp. \$24.50.

**Clinical Genetics.** A Source Book for Physicians. Laird G. Jackson and R. Neil Schimke, Eds. Wiley, New York, 1979. xii, 652 pp., illus. \$35.

**Currents in Submarine Canyons and Other Seavalleys.** Francis P. Shepard, Neil F. Marshall, Patrick A. McLoughlin, and Gary G. Sullivan. American Association of Petroleum Geologists, Tulsa, Okla., 1979. viii, 174 pp., illus. Paper, \$11; to AAPG-SEPM members, \$9. AAPG Studies in Geology No. 8.

**The Cyclostomata.** An Annotated Bibliography. Supplement 1973-1978. G. Tandler, M. A. Jones, and F. W. H. Beamish, Eds. Junk, The Hague, 1979. xii, 296 pp. \$78.95.

**The Dangers of Nuclear War.** Papers from a

symposium, Toronto, May 1978. Franklyn Griffiths and John C. Polanyi, Eds. University of Toronto Press, Buffalo, N.Y., 1979. xiv, 198 pp. Cloth, \$15; paper, \$5.95.

**Decisions in Marine Mining.** The Role of Preferences and Tradeoffs. William W. L. Lee. Ballinger (Harper and Row), Cambridge, Mass., 1979. xviii, 212 pp., illus. \$18.50.

**Drug and Alcohol Abuse.** A Clinical Guide to Diagnosis and Treatment. Marc A. Schuckit. Plenum, New York, 1979. xviii, 212 pp. \$16.95. Critical Issues in Psychiatry.

**Economic Development in Retrospect.** The Italian Model and Its Significance for Regional Planning in Market-Oriented Economies. Allan Rodgers. Winston, Washington, D.C., and Halsted (Wiley), New York, 1979. xvi, 206 pp., illus. \$16.75. Scripta Series in Geography.

**The Edge of the Sea.** Rachel Carson. Illustrations by Bob Hines. Houghton Mifflin, Boston, 1979. xii, 276 pp. Paper, \$4.95. Reprint of the 1955 edition.

**Efficient Comfort Conditioning.** The Heating and Cooling of Buildings. Papers from a AAAS symposium. Walter G. Berl and W. Richard Powell, Eds. Published for the American Association for the Advancement of Science by Westview Press, Boulder, Colo., 1979. xxx, 278 pp., illus. \$20. AAAS Selected Symposia Series, 27.

**Energy.** The Next Twenty Years. Ballinger (Harper and Row), Cambridge, Mass., 1979. xxviii, 628 pp. Cloth, \$25; paper, \$9.95.

**Energy Flow and Power Factor in Non-sinusoidal Circuits.** W. Shepherd and P. Zand. Cambridge University Press, New York, 1979. xiv, 284 pp., illus. \$49.50.

**Evaluating Federal Social Programs.** An Uncertain Art. Sar A. Levitan and Gregory K. Wurzburg. W. E. Upjohn Institute for Employment Research, Kalamazoo, Mich., 1979. xii, 148 pp. Cloth, \$5.50; paper, \$3.50.

**Evaluation of Clinical Biofeedback.** William J. Ray, James M. Raczynski, Todd Rogers, and William H. Kimball. Plenum, New York, 1979. xii, 330 pp. \$25.

**Evolving.** The Theory and Processes of Organic Evolution. Francisco J. Ayala and James W. Valentine. Benjamin/Cummings, Menlo Park, Calif., 1979. xii, 452 pp., illus. \$16.95.

**Exploration of the Oceans.** An Introduction to Oceanography. John G. Weihaupt. Macmillan, New York, and Collier Macmillan, London, 1979. xiv, 590 pp., illus. \$16.95.

**Facies Models.** Roger G. Walker, Ed. Geological Association of Canada, Toronto, 1979. iv, 212 pp., illus. Paper, \$7.50. Geoscience Canada, Reprint Series 1.

**Facilitating Children's Development.** A Systematic Guide for Open Learning. John H. Meier and Paula J. Malone. University Park Press, Baltimore, 1979. Two volumes. Vol. 1, Infant and Toddler Learning Episodes. xvi, 332 pp. Paper, \$17.95. Vol. 2, Learning Episodes for Older Preschoolers. xii, 308 pp. Paper, \$19.50.

**Geophysical Fluid Dynamics.** Joseph Pedlosky. Springer-Verlag, New York, 1979. xii, 626 pp., illus. \$39.80.

**Glucocorticoid Hormone Action.** J. D. Baxter and G. G. Rousseau, Eds. Springer-Verlag, New York, 1979. xx, 640 pp., illus. \$64.90. Monographs on Endocrinology, vol. 12.

**Helium and Neon.** Gas Solubilities. H. Lawrence Clever, Ed. Pergamon, New York, 1979. xxii, 392 pp. \$100. IUPAC Solubility Data Series, vol. 1.

**Industrial Energy Conservation.** Melvin H. Chigiogio. Dekker, New York, 1979. xxii, 604 pp., illus. \$45. Energy, Power, and Environment, 4.

**Industrial Lubrication.** A Practical Handbook for Lubrication and Production Engineers. Michael Billett. Pergamon, New York, 1979. viii, 136 pp., illus. \$20.

**Infants.** Robert B. McCall. Harvard University Press, Cambridge, Mass., 1979. xiv, 170 pp., illus. \$10.

**Inferring from Language.** Leonard G. M. Noordman. Springer-Verlag, New York, 1979. xii, 172 pp. \$19.90. Springer Series in Language and Communication, vol. 4.

**Information Transmission in the Nervous System.** A. M. Uttley. Academic Press, New York, 1979. xiv, 112 pp., illus. \$15.50.

**Infrared and Raman Spectroscopy of Biological Molecules.** Proceedings of a NATO Advanced Study Institute, Athens, Aug. 1978. Theo M. Theophanides, Ed. Reidel, Boston, 1979. x, 372 pp., illus. \$47. NATO Advanced Study Institutes Series C, vol. 43.

**Inorganic Molecular Dissymmetry.** Yoshihiko Saito. Springer-Verlag, New York, 1979. x, 170 pp., illus. \$42.90. Inorganic Chemistry Concepts, vol. 4.

**Large Amplitude Motion in Molecules.** Two volumes. Vol. 1, iv, 182 pp., illus. \$49.80. Topics in Current Chemistry 81. Vol. 2, iv, 186 pp., illus. \$44.80. Topics in Current Chemistry 82. Springer-Verlag, New York, 1979.

**Learning.** A. Charles Catania. Prentice-Hall, Englewood Cliffs, N.J., 1979. x, 406 pp., illus. \$15.95.

**Learning about Epilepsy.** William B. Svoboda. University Park Press, Baltimore, 1979. xii, 240 pp. Paper, \$14.95.

**The Logico-Algebraic Approach to Quantum Mechanics.** Vol. 2, Contemporary Consolidation. Reidel, Boston, 1979. xx, 466 pp. Cloth, \$69; paper, \$24. University of Western Ontario Series in Philosophy of Science, vol. 5.

**A Mixed-Longitudinal Interdisciplinary Study of Growth and Development.** Birte Prah Andersen, Charles J. Kowalski, and Paul H. J. M. Heydendaal, Eds. Academic Press, New York, 1979. xxii, 772 pp., illus. \$42.

**Modern Cardiac Surgery.** Papers from a course, London, 1977. D. G. Longmore, Ed. University Park Press, Baltimore, 1979. xiv, 394 pp., illus. \$29.50.

**Modification of the Mother-Child Interchange in Language, Speech, and Hearing.** Gilliam Clezy with chapters by Ronald J. Balthazor and Michael J. Cevette. University Park Press, Baltimore, 1979. xiv, 162 pp., illus. Paper, \$9.95.

**Modulators, Mediators, and Specifiers in Brain Function.** Interactions of Neuropeptides, Cyclic Nucleotides, and Phosphoproteins in Mechanisms Underlying Neuronal Activity, Behavior, and Neuropsychiatric Disorders. Proceedings of a symposium, St. Louis, Nov. 1978. Yigal H. Ehrlich, Jan Volavka, Leonard G. Davis, and Eric G. Brunngraber, Eds. Plenum, New York, 1979. xvi, 328 pp., illus. \$35. Advances in Experimental Medicine and Biology, vol. 116.

**The Molecular Basis of Optical Activity.** Optical Rotatory Dispersion and Circular Dichroism. Elliot Charney. Wiley-Interscience, New York, 1979. xii, 364 pp., illus. \$27.50.

**The Molecular Biology of Picornaviruses.** Proceedings of a NATO Advanced Study Institute, Maratea, Italy, Sept. 1978. R. Pérez-

Bercoff, Ed. Plenum, New York, 1979. xvi, 372 pp., illus. \$39.50. NATO Advanced Study Institutes Series A, vol. 23.

**Multiple Electron Resonance Spectroscopy.** Martin M. Dorio and Jack H. Freed, Eds. Plenum, New York, 1979. xii, 512 pp., illus. \$49.50.

**Neutron Capture Gamma-Ray Spectroscopy.** Proceedings of a symposium, Upton and Stony Brook, N.Y., Sept. 1978. Robert E. Chrien and Walter R. Kane, Eds. Plenum, New York, 1979. xx, 880 pp., illus. \$69.50.

**New Pathways in Laboratory Medicine.** Papers from a seminar, Düringen, Switzerland, Oct. 1977. S. B. Rosalki, Ed. Hans Huber, Bern, 1978. 142 pp., illus. Paper, \$18.

**Phonological Process Analysis.** Frederick F. Weiner. University Park Press, Baltimore, 1979. xiv, 182 pp., illus. + appendix. Spiral bound, \$19.95.

**Photochemical and Photobiological Reviews.** Vol. 4. Kendrick C. Smith, Ed. Plenum, New York, 1979. x, 334 pp., illus. \$35.

**Photoferroelectrics.** Vladimir M. Fridkin. Springer-Verlag, New York, 1979. x, 176 pp., illus. \$32.50. Springer Series in Solid-State Sciences, vol. 9.

**Photosynthesis and Plant Development.** Proceedings of a conference, Diepenbeek, Belgium, July 1978. R. Marcelle, H. Clijsters, and M. Van Poucke, Eds. Junk, The Hague, 1979. x, 376 pp., illus. Dfl. 130.

**Phylogenetic Systematics.** Willi Hennig. Translated from the German by D. Dwight Davis and Rainer Zangerl. University of Illinois Press, Urbana, 1979. xvi, 264 pp., illus. \$20. Reprint of 1966 edition with new foreword.

**The Physical Environment.** B. K. Ridley. Horwood, Chichester, England, and Halsted (Wiley), New York, 1979. 236 pp., illus. \$24.95.

**Radiometry.** Franc Grum and Richard J. Becherer. Academic Press, New York, 1979. xiv, 336 pp., illus. \$34. Optical Radiation Measurements, vol. 1.

**Rate Processes of Extractive Metallurgy.** Hong Yong Sohn and Milton E. Wadsworth, Eds. Plenum, New York, 1979. xii, 472 pp., illus. \$42.50.

**Recent Advances in Group Theory and Their Application to Spectroscopy.** Proceedings of a NATO Advanced Study Institute, Antigonish, Nova Scotia, Canada, Aug. 1978. John C. Donini, Ed. Plenum, New York, 1979. xii, 692 pp. \$59.50. NATO Advanced Study Institutes Series B, vol. 43.

**Recent Results of Cancer Treatment in Japan.** Tamaki Kajitani, Yoshiyuki Koyama, and Yoichiro Umegaki, Eds. Japan Scientific Societies Press, Tokyo, and University Park Press, Baltimore, 1979. viii, 222 pp., illus. \$44.50. Japanese Cancer Association GANN Monograph on Cancer Research No. 22.

**Workshop on Ursodeoxycholic Acid.** Cortina d'Ampezzo, Italy, Mar. 1978. R. H. Dowling, A. F. Hofmann, and L. Barbara, Eds. University Park Press, Baltimore, 1979. 88 pp., illus. \$9.95.

**Work Time and Employment.** A Conference Report. Washington, D.C., Oct. 1978. National Commission for Manpower Policy, Washington, D.C., 1978 (available from the Superintendent of Documents, Washington, D.C.). iv, 446 pp. Paper, \$8. Special Report No. 28.

**Zeolites and Clay Minerals as Sorbents and Molecular Sieves.** R. M. Barrer. Academic Press, New York, 1978. viii, 498 pp., illus. \$52.50.

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**Aquatic/Marine Science Administrator.** B.Sc. (fisheries), M.Sc. (ecological fish parasitology). Development, design, maintenance of educational and recreational marine exhibits. Some teaching experience. Extensive administrative, supervisory, and budgetary responsibilities in public aquarium/oceanarium management. Box 138, SCIENCE. 6/6, 13

**Biochemist/Nutritionist/Ph.D.** Extensive experience in nutritional-environmental toxicology/chemical carcinogenesis and human cancer. Several independent publications. Many years of diverse teaching experience. Presently, senior research associate, nutrition and cancer, at Cornell. Seeks suitable position. 105 Parklane, Ithaca, N.Y. 14850. X

**Biochemist.** Ph.D. 1976. Seeking research position, industry or government. Extensive experience in magnetic resonance spectroscopy, protein purification, biochemical assays, enzyme kinetics. Postdoctoral experience. Publications. Box 143, SCIENCE. 6/6, 13

**Electron Microscopist.** Returning to United States after gaining wide experience in research techniques and operating and maintaining equipment for some years in Great Britain. Seeks research position in medical center, university, industry, or government. East Coast preferred. Box 140, SCIENCE. X

**Physics and Biophysics.** Ph.D. 1972, M.S.E.E. 1963. Broad background in laser applications, electron devices, electron and photon optics, Fourier optics, interferometry and spectroscopy. Seeks research position in biophysics/chemistry instrumentation development and application. Honors and publications; 15 years of industrial R & D; 6 years of government laboratory R & D, plus program management. Telephone: 415-447-7507. X

**Research Associate/Photographer** seeks position in area of field biology/ecology, American or foreign. Résumé available on request. M. Lent, P.O. Box 24799, Los Angeles, California 90024. Telephone: 213-391-7683 (evenings). X

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### ANATOMY

A full-time position to teach courses in general and ocular anatomy will be available 1 July 1980 in a health professions college in southern California. Ph.D. required. Applicants should have strong commitment to teaching and research. Please send curriculum vitae to:

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### ANATOMY/PHYSIOLOGY POSITIONS

Two permanent full-time teaching positions at associate/assistant professor level. Ph.D. preferred. Salary negotiable. Send résumé, transcripts, three letters of recommendation by 23 June 1980 to: **Academic Dean, Sherman College of Straight Chiropractic, Box 1452, Spartanburg, South Carolina 29304.** *Sherman College is an Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR

The University of California, Irvine, Department of Pathology, is recruiting for a faculty position at the assistant professor level. Required: M.D., Board-certified/eligible in clinical pathology. Duties: service and administrative responsibilities in blood banking and cellular immunology, teach medical students and house staff, and research. Send curriculum vitae and references to: **Dr. H. C. Pirkle, Department of Pathology, University of California, Irvine, 101 City Drive South, Orange, California 92678** by 14 July 1980. *Affirmative Action Employer.*

**ASSISTANT PROFESSOR,** cancer cell biologist with interest in viral oncology or nucleic acid biochemistry.

The McGill Cancer Centre is inviting applications for a tenure-track position in the Faculty of Medicine. Applicants should have postdoctoral research experience and be familiar with modern research techniques in molecular biology and biochemistry. Successful candidate will be expected to set up an independent research program and obtain grant support. Applications will be considered until the position is filled. Send covering letter, curriculum vitae, and names of three references to: **Dr. Phil Gold, Director, McGill Cancer Centre, 3655 Drummond, Montreal, Québec, Canada H3G 1Y6.**

Case Western Reserve University, Department of Macromolecular Science, has a regular tenure-track opening at **ASSISTANT or ASSOCIATE PROFESSOR** level for an individual whose research interests are in the field of recombinant DNA and its applications. A résumé, including research plans and names of persons who will provide letters of reference, should be sent to: **Dr. J. Lando, Chairman, Department of Macromolecular Science, Case Western Reserve University, Cleveland, Ohio 44106.** *Case Western Reserve University is an Equal Opportunity Employer.*

The Department of Physics, Arizona State University, seeks a **VISITING ASSISTANT PROFESSOR** with a research specialization in laser spectroscopy. Experience with biopolymers would be an advantage. Candidates must have completed, or be about to complete, a Ph.D. degree. The appointment is to commence on 1 July 1980, or as soon thereafter as is feasible, but in any case no later than 15 August. The appointment terminates on 30 June 1981.

Some teaching will be required in fall 1980 and spring 1981 semesters. Applications, together with curriculum vitae and three letters of recommendation, should be sent by 27 June 1980 to: **Dr. S. M. Lindsay, Physics Department, Arizona State University, Tempe, Ariz. 85281.** *Arizona State University is an Affirmative Action/Equal Opportunity Employer.*

### McGILL UNIVERSITY BIOCHEMISTRY DEPARTMENT

**ASSISTANT PROFESSORSHIP** to teach graduate and undergraduate courses, supervise students, and maintain an active independent research program commencing September 1981. Preference will be given in the area of molecular biology. Candidates should have at least 2 years of postdoctoral experience. Curriculum vitae, including the names of at least three persons who can be contacted for letters of reference, should be sent to:

**Dr. A. F. Graham, Search Committee  
Department of Biochemistry  
McIntyre Medical Sciences Building  
McGill University  
3655 Drummond Street  
Montreal, Quebec, Canada H3G 1Y6**

## POSITIONS OPEN

**ASSISTANT PROFESSOR,** Ph.D. Liberal arts college seeks applicants for tenure-track position to teach genetics and developmental biology, with participation in introductory biology courses. Nine-month appointment; summers free. Send résumé and three letters of recommendation before 20 June 1980 to: **L. H. Durkee, Chairman, Search Committee, Biology Department, Grinnell College, Grinnell, Iowa 50112.** *Grinnell College is an Affirmative Action/Equal Opportunity Employer.*

**ASSISTANT OR ASSOCIATE ADJUNCT PROFESSOR OF ENVIRONMENTAL CHEMISTRY.** The Laboratory for Energy-Related Health Research and Department of Physiological Sciences, School of Veterinary Medicine, University of California, Davis, are seeking a Ph.D. chemist with demonstrated experience in the analytical chemistry of inorganic compounds, particularly those that may be associated with fossil fuel combustion. Emphasis will be on the application of inorganic chemistry to biomedically relevant properties of potentially toxic materials, analysis of compounds in biological systems, speciation of compounds and reaction products, and the chemical dosimetry associated with chemical toxicology. This team research position will be at the academic research level equivalent to assistant or associate professor commensurate with qualifications. Teaching responsibilities to be arranged. Send curriculum vitae and the names of three references to: **Dr. Marvin Goldman, Laboratory for Energy-Related Health Research, University of California, Davis, Calif. 95616.** Applications will be accepted through 20 June 1980, or until the position is filled.

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**ASSISTANT OR ASSOCIATE ADJUNCT PROFESSOR OF PATHOLOGY/TOXICOLOGY.** The Laboratory for Energy-Related Health Research and Department of Pathology, School of Veterinary Medicine, University of California, Davis, are seeking an experienced experimental pathologist/toxicologist for studies in experimental animals and appropriate in vitro systems of the biological effects of energy-related pollutants. Emphasis will be on evaluation of mechanisms of pathogenesis and carcinogenesis, as well as on planning and execution of experiments on the acute and chronic effects of toxicants. The candidate should have an interest in inhalation toxicology and associated organ and tissue pathology. Desirable qualifications include a doctor of veterinary medicine degree, ACVP Board-certification, and research training equivalent to Ph.D. with demonstrated experience. This team research position will be at the academic research level equivalent to assistant or associate professor commensurate with qualifications. Teaching responsibilities to be arranged. Send curriculum vitae and the names of three references to: **Dr. Marvin Goldman, Laboratory for Energy-Related Health Research, University of California, Davis, Calif. 95616.** Applications will be accepted through 20 June 1980 or until the position is filled.

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### CURATOR OF LEARNING LABORATORY

Can you visually interpret scientific ideas and information for translation through a variety of communication media? Do you have experience in designing, developing, and evaluating learning modules? Would you like to translate your expertise into developing multimedia modules as a major educational resource for an innovative program in medical education? Have you had formal education in human anatomy, physiology, and pathology? If answers are yes, send your curriculum vitae to: **Office of the Dean, Mercer University, School of Medicine, Macon, Georgia 31207.**

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### ASSISTANT PROFESSOR OF BIOCHEMISTRY

Qualified individuals are invited to apply for a faculty position available 1 September 1980. Applicants should have postdoctoral experience and be capable of developing a vigorous independent research program and participating in teaching at the undergraduate and graduate levels. Please send curriculum vitae, statement of research interests, and names of three references to:

**M. K. Jacobson, Ph.D.**  
Division of Biochemistry  
Department of Chemistry  
North Texas State University  
Denton, Texas 76203

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### ASSISTANT PROFESSOR OF BIOMEDICAL ENGINEERING

Applications are invited for a tenure-track position at the assistant professor level. Applicants should have a doctoral degree, postdoctoral experience, an active research program, close interactions with the medical community, evidence of success in obtaining extramural funding, and experience and an active interest in graduate education. A strong biochemical background and interests and capabilities in both neurophysiology and biomaterials are desired. Applicants please submit curriculum vitae and a summary of current and future research by 1 August 1980 to: **Dr. L. C. Sheppard, Chairman, Department of Biomedical Engineering, University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294.** *An Equal Opportunity/Affirmative Action Employer.*

**BIOCHEMIST, Ph.D. or M.S.**—Expertise desired in proteoglycan, glycosaminoglycan chemistry to pursue basic structured studies pertaining to the immunobiology of cartilage. Faculty position. Salary open. Applicants should send curriculum vitae and arrange for three letters of recommendation to be sent to: **Dr. Jerome H. Herman, Professor of Medicine, Immunology Division, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267.** Telephone: 513-872-4701.

## POSITIONS OPEN

### ASSISTANT PROFESSOR, IMMUNOGENETICS

The Department of Medical Genetics of the University of British Columbia invites applications for a tenure-track faculty appointment from individuals with a background in immunogenetics. Experience in the genetics of cellular response is desirable. Applicants should send up-to-date curriculum vitae and the names of three referees, before 1 November 1980 to:

**Dr. P. A. Baird, Head**  
Department of Medical Genetics  
235-5804 Fairview Crescent  
The University of British Columbia  
Vancouver, British Columbia, Canada V6T 1W5

*The University of British Columbia offers Equal Opportunity for Employment to qualified male and female candidates.*

The Department of Anatomy, College of Medicine, at the University of South Florida, Tampa, invites applications for a tenure-track position at the **ASSOCIATE PROFESSOR** level beginning 1 January 1981. Applicants should hold an M.D. degree and be qualified to teach gross anatomy and histology to medical and graduate students. Applicants must have the ability to perform independent and collaborative research in neuroendocrinology, specifically with relation to the neural regulation of the pituitary LH and prolactin release. Applicants should also be familiar with stereotaxic procedures for brain surgery, lesion, stimulation, and extracellular recording and radioimmunoassay of gonadotrophins. Evidence of ongoing extramurally funded research program also required.

Salary is dependent upon qualifications and experience. Applicants are invited to submit curriculum vitae, names and addresses of three references, and a letter describing research and teaching interests to: **Dr. J. Rhodin, Department of Anatomy, College of Medicine, University of South Florida, 12901 North 30 Street, Tampa, Florida 33612.**

Deadline for receipt of applications is 1 July 1980.

*University of South Florida is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### BIOLOGY TEACHING OVERSEAS AMERICAN UNIVERSITY OF BEIRUT

Research-teaching positions in biology available October 1980 or February 1981 in the following specialties: plant physiology and developmental biology. Ph.D. required; rank and salary depend on experience and qualifications. Usual contract is for 3 years, renewable, with round-trip travel and other fringe benefits. Curriculum vitae and three letters of recommendation should be air mailed to: **Chairman, Biology Department, American University of Beirut, Beirut, Lebanon.** *An Affirmative Action/Equal Opportunity Employer.*

**BIOMASS FERMENTATION.** Postdoctoral position available immediately for 2 to 3 years to study ethanol production from 5- and 6-carbon sugars derived from wood and other lignocellulosic wastes. Ph.D. in biochemistry/microbiology. Experience with bacteria, yeast, 5-carbon metabolism, and wood pretreatment preferred. Involves industrial collaboration and recombinant DNA techniques. Send résumé, list of three references, and synopsis of research interests to: **Dr. I. Altosaar, Fermentation Laboratories, University of Ottawa, 40 Somerset Street East, Ottawa, Ontario, Canada K1N 9B4.**

### CAREER RESEARCH OPPORTUNITY

For a creative NIH-funded scientist to pursue research activities within the framework of a cancer research center devoted to developmental biology. Superb laboratory facilities, ample space, and stimulating scientific colleagues support this opportunity. Please send inquiries to: **Chairman, Search Committee, La Jolla Cancer Research Foundation, 2945 Science Park Road, La Jolla, Calif. 92037.** *An Equal Opportunity Employer.*

### CELL OR MOLECULAR BIOLOGIST OR PHARMACOLOGIST

A temporary 2-year appointment at the **ASSISTANT PROFESSOR** level is available in the Biology Department, The University of Alabama. Applicants must have the Ph.D. and substantial training in cell and molecular biology or pharmacology and be willing to interact with current faculty in their ongoing research. Ability to teach introductory pharmacology/toxicology is desirable.

Send curriculum vitae, including reprints, statement of research and teaching interests, graduate and undergraduate transcripts, and three letters of reference, by 1 July 1980 to:

**William H. Darden, Chairman**  
Department of Biology  
The University of Alabama  
P.O. Box 1927  
University, Ala. 35486

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

### CHAIRPERSON DEPARTMENT OF BIOCHEMISTRY

The University of Rochester School of Medicine and Dentistry is seeking an individual with an outstanding record of achievement in research and demonstrated abilities in teaching and administration to chair the Department of Biochemistry. The department has a range of scientific interests and activities in medical, graduate, and undergraduate education. Nominations and applications, with curriculum vitae and names of three or more references, should be submitted before 1 August 1980 to: **Dr. Jack Mani-loff, Chairman, Biochemistry Search Committee, University of Rochester Medical Center, Department of Microbiology, Box 672, Rochester, New York 14642.** *An Equal Opportunity Employer, M/F.*

The National Air and Space Museum seeks a **CURATOR** to do research in the history of space science and technology since 1945, to acquire and maintain a collection of artifacts and documents bearing on postwar space history, and to help mount exhibits. The preferable candidate will hold a Ph.D. in history of science or technology, focused in an area of aeronautics and space, or a Ph.D. in a science or engineering with subsequent professional historical work. Salary: GS-11 (\$20,611 to \$26,794). Send Federal Standard Form 171, three letters of recommendation from scholars in field, and cover letter by 30 June to: **Smithsonian Institution, Office of Personnel Administration, 900 Jefferson Drive, SW, Room 1483, attention: Bruce Boyd, Washington, D.C. 20560.** *Equal Opportunity/Affirmative Action Employer.* Note: This is a federal Civil Service position. The candidate selected will be required to be certified by the U.S. Office of Personnel Management.

## Manager Statistical Services

(Ann Arbor)

Exciting pharmaceutical research work is going on at our Ann Arbor labs. We need to establish the safety and efficacy of new drugs under investigation, using relevant clinical experimentation data.

As the Manager of Statistical Services, you would utilize your Ph.D. in Biostatistics (or equivalent), 6-10 years of related statistical experience, and 2+ years in supervision. While working closely with R&D scientists and physicians regarding statistical consulting/collaboration, experimental design, and other statistical support, you would coordinate and motivate the statistical staff. Additionally you would evaluate R&D work for validity, relevancy, and scientific merit, communicating the findings to the appropriate personnel.

We provide excellent compensation-benefits, a stimulating work environment, and career development opportunities. For confidential consideration, send your Curriculum Vitae to:

**Mr. D. Misner, Personnel Supervisor**  
Pharmaceutical Research Division  
**WARNER-LAMBERT/PARKE-DAVIS**  
2800 Plymouth Road  
Ann Arbor, Michigan 48105

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Abbott Laboratories, an international leader in the development, manufacture and marketing of sophisticated health care products, has been growing at a steady pace. In 1980, our momentum should carry us to the \$2 billion mark in worldwide sales. And our success has created openings for individuals to work in the following areas:

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- Expertise in recombinant DNA techniques, molecular genetics and/or protein chemistry.

### CELL BIOLOGY

- Group leader for monoclonal antibody research.

### PHARMACOLOGY

- Development of assay procedures to study arachidonic acid metabolism.
- Screening compounds for diuretic activities in laboratory animals, hemodynamic research.

### MEDICINAL CHEMISTRY

- Organic synthesis research using Chromatography, IR, and NMR spectra. Initial assignments on antiarthritic and antihypertension projects.

### ANALYTICAL CHEMISTRY

- Methods development for analysis of bulk drugs, intermediates and chemicals.
- Structural identification of mixture components using GC and Mass Spectrometry.

### BIOCHEMISTRY

- Development/implementation of immuno-assays for diagnostic kits.
- Technical support positions involving process development.

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We offer an excellent salary and full benefits package that includes profit sharing and relocation assistance. If you have a degree in Biochemistry, Chemistry, Biology, Microbiology or a related field (MS or Ph.D. preferred), we invite you to explore these growth opportunities today. Send a resume with salary history in confidence to:

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*Abbott is an Affirmative Action Employer*

## INFORMATION EXPERT

The National Institutes of Health, Public Health Service, through the Developmental Therapeutics Program (DTP), a Division of Cancer Treatment, National Cancer Institute is seeking applicants for an Information Expert to develop and manage an information program.

The DTP has major operational responsibility for a formal drug development program relating to all aspects of preclinical cancer treatment research. It conducts fundamental investigations in the design, synthesis, evaluation, and mechanisms of action of potential antitumor agents. It performs the acquisition, storage, and testing of these compounds. It maintains and develops comprehensive files of the resulting data. It has developed computational models to predict antitumor activity. It serves both the in-house staff and outside researchers.

The incumbent will organize the newly established Information Technology Branch to meet the needs of the DTP. These needs have been met, for the past several years, by separate chemical and biological systems. The incumbent is thus not expected to develop a new system, but to improve existing ones where warranted, to best meet the needs of the user population.

Applicants should have advanced training and considerable experience in Computer Science, together with higher degree(s) in a chemical

and/or biological science. The ability to organize and manage a branch with major service responsibility is required. Candidates must have extensive experience in the design, development and management, on a large scale, of structural chemical data and of biological data. Preference will be given to an applicant able to demonstrate successful implementation, in the past, of innovative approaches.

The initial appointment is for a term of up to two years, with the possibility of two additional one year extensions. The responsibilities and pay are equivalent to that of a GS-13-14 in the Civil Service. The salary range will be \$29,000 to \$45,000, depending on expertise and experience of the individual selected for the position. Applicant selected will be covered by Civil Service Retirement and will be eligible for life insurance and health benefits.

Interested persons should respond by July 7, 1980 to Dr. Vincent T. Oliverio, Associate Director, Developmental Therapeutics Program, DCT, NCI, Blair Building, Room 5A03, 8300 Colesville Road, Silver Spring, MD 20910. Please include a complete curriculum vitae. It would be appreciated if persons active in this field, and who know individuals who may be qualified, interested, and available would transmit this notice appropriately. An Equal Opportunity Employer.

**NATIONAL INSTITUTES OF HEALTH**



## POSITIONS OPEN

Full-time position available for a **CHEMIST** with clinical and research skills in RIA or radio-pharmaceuticals; must also supervise radioisotope safety program of the hospital. Close institutional affiliation with College of Medicine, University of South Florida. The position is in the federal Civil Service. Candidates will be required to qualify for federal appointment. For further information, contact: **Personnel Service (05), James A. Haley Veterans Hospital, 13,000 North 30 Street, Tampa, Fla. 33612. Telephone: 813-971-4500, extension 576. An Equal Opportunity Employer.**

### DEAN COLLEGE OF FOOD AND NATURAL RESOURCES UNIVERSITY OF MASSACHUSETTS-AMHERST

Applications are invited for the joint position of Dean of the College, Director of the Agricultural Experiment Station, and Director of the Cooperative Extension Service. Appointment and tenure in an academic department possible.

Candidates must have Ph.D. or equivalent and professional competence in an appropriate discipline. Working knowledge of the Land-Grant System is required. Applicants must have demonstrated administrative ability and be able to provide leadership. The dean must be an effective spokesman and advocate for the college and be able to maintain working relationships.

Submit a letter of application, detailed résumé, three letters of reference (to be sent by writer), plus the names and addresses of three additional references to:

**Dr. James B. Marcum  
312 Paige Laboratory  
University of Massachusetts  
Amherst, Mass. 01003  
Telephone: 413-545-2312**

Applications will be accepted until 15 July 1980, or until a successful candidate is selected.  
*An Equal Opportunity/Affirmative Action Employer*

University of Michigan Medical School. The Department of Family Practice has recruited a balanced faculty of family physicians and other health professionals/teachers. The residency is accredited and entering upon its second year and undergraduate educational programs are evolving rapidly. In reassigning faculty responsibilities the department is now seeking to identify a new **DIRECTOR OF THE FAMILY PRACTICE CENTER**. Academic rank will depend upon credentials and salary is negotiable and competitive. Interested individuals should apply to: **Terence C. Davies, M.D., Professor and Chairman, Department of Family Practice, University of Michigan Medical School, Ann Arbor, Michigan 48109. Code 500H0. A nondiscriminatory, Affirmative Action Employer.**

**ENVIRONMENTAL HEALTH.** Associate or assistant professor to direct program and teach undergraduate courses. Ph.D. and teaching experience preferred. Persons with master's and considerable work experience in an environmental field are urged to apply. Duties include advisement and teaching in basic sanitation, water supply and treatment, wastewater treatment and disposal, air pollution, and solid waste disposal. Send curriculum vitae, complete official transcript, and three letters of recommendation to: **Dr. Wilson Broach, Dean, College of Sciences, University of Arkansas at Little Rock, Little Rock, Arkansas 72204. An Affirmative Action Employer.**

### FACULTY POSITION IN INDUSTRIAL HYGIENE CHEMISTRY

Tenure-track position as **director of Environmental Health Laboratories**. To teach undergraduate and graduate students; develop, update, and monitor analytical and quality control methods; conduct research in occupational and environmental health.

Requirements include doctorate in chemistry with major in analytical chemistry; teaching experience and record of research accomplishment necessary; certification in comprehensive industrial hygiene practice or industrial hygiene chemistry with major laboratory experience is mandatory; knowledge of molecular biology, modern genetics, toxicology and/or pharmacology desirable. Position available immediately. *Women and minorities are encouraged to reply.* Send résumé and references to: **Kathryn Shuman, Assistant to the Chairman, Department of Environmental Health SC-34, School of Public Health, University of Washington, Seattle, Washington 98195; telephone: 206-543-6991.**

## POSITIONS OPEN

Brown University, Division of Biology and Medicine, is seeking an **EXPERIMENTAL PATHOLOGIST** for a tenure-track position at the assistant professor level. The successful candidate is expected to give a series of lectures in the general pathology course for medical students and to take the responsibility for a course in pathology for nonmedical students. Candidates should be prepared to establish an independent research program in experimental pathology involving the study of pathogenesis of disease. Preference will be given to candidates with training and research interests in experimental carcinogenesis or immunopathology. Applicants with other areas of expertise will be considered if their field makes possible interaction with existing research groups on campus and/or in the affiliated hospitals. The position requires an M.D. or Ph.D. degree and a minimum of 2 years of postdoctoral training in experimental pathology, preferably in the areas of interest mentioned above. Please send curriculum vitae, a description of career objectives and research plans, and the names of three references by 15 August 1980 to: **Dr. Nelson Fausto, Chairperson of Search Committee, Box G, Brown University, Providence, R.I. 02912. An Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITION IN ANATOMY FOR A NEUROANATOMIST

Rank up to associate professor, depending upon the applicant's qualifications. The position requires Ph.D. or M.D. degree, proficiency in teaching neuroanatomy and histology, and proven research productivity in neurobiology. Salary will be commensurate with appointed rank.

Please send complete curriculum vitae and the names of three individuals whom we may contact for reference to: **Dr. Anthony J. Schmidt, Chairman, Department of Anatomy, College of Health Sciences, Rush University, 600 South Paulina Street, Chicago, Illinois 60612.**

*Rush University is an Equal Opportunity/Affirmative Action Employer.*

Two **FACULTY POSITIONS**: (i) biochemistry-physiology and (ii) microbiology. One-year positions (1980-1981 academic year) at rank of visiting assistant professor. Applicants must have a Ph.D. and some teaching experience. Responsibilities include teaching physiology and biochemistry or microbiology, and freshman biology. Send curriculum vitae and three letters of reference by 1 July 1980 to: **Michael A. Poirrier, Department of Biological Sciences, University of New Orleans, Lakefront, New Orleans, La. 70122. (A member of the Louisiana State University System.) Equal Opportunity/Affirmative Action Employer.**

### FACULTY POSITIONS—PHARMACOLOGY

The New York State College of Veterinary Medicine at Cornell University announces faculty level openings in an expanded program in pharmacology/toxicology. Applicants should present evidence of successful experience in teaching and research. Title and salary commensurate with ability and experience.

Send complete curriculum vitae and references to: **Dr. William Hansel, New York State College of Veterinary Medicine, Cornell University, Ithaca, New York 14853. An Equal Opportunity Employer.**

### FACULTY POSITION

Assistant professor of anatomy. Tenure-track. Immediately available for medical histologist. Experience in the teaching of modern medical histology is required and ultrastructural research interest is highly recommended. Applicants should send statement of interest, curriculum vitae, and three letters of recommendation to: **Dr. Alvin S. Levine, Assistant Dean and Director, Terre Haute Center for Medical Education, Indiana University School of Medicine, 135 Holmstedt Hall, Terre Haute, Ind. 47809.**

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

Ph.D. in cell biology or virology with tissue culture experience needed to **HEAD A HUMAN LEUKOCYTE INTERFERON PRODUCTION LABORATORY**. Individual with previous experience in interferon work is preferred. Experience in laboratory management and administration is also desired. Excellent salary, fringe benefits, and bonus incentives. Reply: **c/o Miele, P.O. Box 1750, New York, New York 10001.**

## POSITIONS OPEN

### FACULTY POSITION IN MOLECULAR IMMUNOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

Applications are invited for a tenure-track position in molecular immunology, at the level of assistant professor, starting as early as January 1981. Applicants should have demonstrated research capabilities in this area and be well grounded in molecular biology, cell biology, and genetics. Further qualifications include the potential to secure funds for an independent research program and a serious commitment to instruction of medical and graduate students. The successful integration of all components of the University of Pennsylvania on a single urban campus offers a rich intellectual environment and many opportunities for collaborative and interdisciplinary experience. Please send: (i) curriculum vitae, (ii) names of three references, (iii) reprints of three papers, and (iv) a short account of professional background and future plans to:

**Microbiology Search Committee  
Department of Microbiology  
School of Medicine  
University of Pennsylvania  
Philadelphia, Pa. 19104**

*Equal Opportunity/Affirmative Action Employer*

**FOREST SOILS.** Assistant professorship: tenure-track, Ph.D. in soil science and preferably one degree in forestry. Initial diversion of effort will be 20 percent teaching, 80 percent research, with major effort in coleadership of regional research program in forest fertilization/tree nutrition. Close collaboration with faculty of the School of Forest Resources and conservation is expected. Salary: \$20,000 per annum or commensurate with qualifications and experience. Send complete résumé with transcripts and three letters of recommendation by 30 June to: **Dr. W. L. Pritchett, Search Committee, Soil Science Department, University of Florida, Gainesville, Fla. 32611.**

University of Michigan Medical School. **HEMATOLOGIST** with clinical and research interest in coagulation and/or platelets for faculty position in Division of Hematology/Oncology and Simpson Memorial Research Institute. Position to be available July 1980 (or later). Please send curriculum vitae and letter outlining areas of research interest to: **Albert F. LoBuglio, 102 Observatory Street, Ann Arbor, Michigan 48109. Code 400B0. A nondiscriminatory, Affirmative Action Employer.**

**TENURE-TRACK** position available immediately in **DEPARTMENT OF HUMAN ONCOLOGY**. M.D. or Ph.D. degree and academic experience required. Develop laboratory and clinical pharmacology program in oncology. Duties include conducting own laboratory research program, advising junior faculty in pharmacological research, and supervising graduate students and fellows in pharmacological research (if Ph.D.). If M.D., also conduct clinical phase I trials and attend on oncology service. Send curriculum vitae and references to: **Director, Wisconsin Clinical Cancer Center, K4/614 Clinical Science Center, 600 Highland Avenue, Madison, Wis. 53792. An Equal Opportunity/Affirmative Action Employer.**

### INSTRUCTOR IN PATHOLOGY

Applications are invited for an M.D. with training in anatomic pathology and cell genetics to supervise an interdepartmental core facility in quantitative cytology. Experience with flow microfluorescence and knowledge of fluorescence-activated cell sorter and related computer technology is essential. Send curriculum vitae, bibliography, and four letters of reference to: **George M. Martin, M.D., Department of Pathology, SM-30, University of Washington, Seattle, Wash. 98195.**

*Equal Opportunity/Affirmative Action Employer*

The University of Michigan Medical School, Department of Radiology, has **three positions** available 1 July 1980 for **INSTRUCTOR THRU PROFESSOR**. Must be Board-eligible or Board-certified. Entering level commensurate with qualifications and experience. The physician will take part in the program of patient care, teaching and research carried on in the Department of Radiology. He or she will supervise the activities of the resident staff and aid in the teaching of residents and medical students. Reply to: **Box 142, SCIENCE. Code 1700F0, 100H0, 500H0. A nondiscriminatory, Affirmative Action Employer.**

## Biochemical Technologist

Bell Laboratories, the Research and Development Unit of the Bell System, has an immediate career opportunity at its Murray Hill, New Jersey laboratory for a Biochemical Technologist. The successful candidate would be involved in the preparation of biochemical and biological specimens, and assist in making physical measurements on them.

This position requires a BS or MS degree in an appropriate discipline plus experience in all the routine biochemical techniques for isolation, purification and characterization of biological macromolecules and organelles.

Those interested should write, including resume and transcripts, to: Carol Daley, Bell Laboratories, Dept. 831-159, Whippany Road, Whippany, N.J. 07981.



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## The State of Michigan Wants You!



### SENIOR HEALTH SPECIALIST

Ph.D./M.D. in epidemiology, pharmacology, physiology, pathology, or other related health areas, plus 5 years of experience with emphasis on toxic substance issues.

### SENIOR TOXICOLOGIST

Ph.D. in chemistry, biochemistry, or related area. Emphasis on toxic substances and toxicology, plus 5 years of experience. Toxicologist certification not required.

*In Lansing!*

A comfortable salary . . . plus terrific fringes!

Telephone or send curriculum vitae to:

**PATRICIA COLE**

EXECUTIVE DIRECTOR

TOXIC SUBSTANCE

CONTROL COMMISSION

P.O. Box 30026

Lansing, Mich. 48909

**Telephone: 517-373-1031**

*An Equal Opportunity Employer, F/M/H/V*

### POSTDOCTORAL RESEARCH AWARDS

Sponsored by the  
**BALLISTIC RESEARCH LABORATORY**  
in association with  
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The National Research Council will make awards in 1980 for research under the Resident Associateship Program which provides awardees with opportunities to conduct experimental and theoretical research as visiting scientists and engineers in fields of:

- Applied Computer Sciences
- Applied Mathematics
- Combustion Research
- Continuum Mechanics
- Fluid Mechanics
- Materials Sciences
- Nuclear and Radiation Physics
- Physical Chemistry
- Probability Theory and Stochastic Processes
- Quantum Chemistry

in the laboratory complex located at the head of the beautiful Chesapeake Bay country of Maryland, within easy driving distance of the metropolitan centers of Philadelphia, Baltimore, and Washington, D.C.

Some programs are open to senior investigators as well as recent doctorates. Further details on research programs can be obtained from: **Dr. L. J. Puckett, Ballistic Research Laboratory, Aberdeen Proving Ground, Md. 21005; telephone: 301-278-2236.**

For application materials and details on specific research opportunities, write promptly, giving research areas of interest, to:

**Associateship Office (JH 608-H2)**  
**NATIONAL RESEARCH COUNCIL**  
2101 Constitution Avenue, NW  
Washington, D.C. 20418

## WANTED! SCIENTIFIC and TECHNICAL DIRECTOR

(Senior Executive Service Position)

This position requires, as a minimum, progressively responsible experience (preferably with professional education at the doctoral level) in one or more fields of marine-oriented sciences such as oceanography, geophysics, underwater acoustics, ocean technology, etc. This experience must have involved line management of marine-oriented scientific programs and supervision of professional, scientific and technical personnel at the second and/or higher supervisory levels. Salary Range: \$47,889 to \$50,112.50 per annum.

Send a resume and/or Standard Form 171 (Personal Qualifications Statement) available at your local U.S. Office of Personnel Management (OPM) to:

**U.S. Naval Oceanographic Office**  
**Civilian Personnel Office**  
**Code 2100 (DAS), Bldg. 1200: NOO-37(80)**  
**NSTL Station, Bay St. Louis, MS 39522**

Resumes/SF-171's must be received by 30 June 1980 in order to receive full consideration.

*An Equal Opportunity Employer*

## POSITIONS OPEN

### LABORATORY INSTRUCTOR, PHYSICS

The University of Pittsburgh at Johnstown (UPJ) seeks applicants for the position of laboratory instructor in physics for September 1980. A minimum of an M.S. in physics is required; previous teaching experience preferred. Duties include teaching introductory physics laboratories for life science and engineering technology majors. Occasional lecture responsibilities. Salary range: \$12,000 to \$14,000 for 8-month contract. Application deadline: 27 June. Send applications to: David G. Willey, Search Director, Natural Sciences Division, University of Pittsburgh at Johnstown, Johnstown, Pa. 15904.

UPJ is an Equal Opportunity/Affirmative Action Employer.

**ONCOLOGY FACULTY POSITION**—Assistant professor, Division of Clinical Oncology and Wisconsin Clinical Cancer Center, Department of Medicine, William S. Middleton VA Hospital, University of Wisconsin. Individual with clinical training in medical oncology and research training in an oncology-related discipline. Applicant should have defined research objective. Preference will be given to applicants with laboratory interest and expertise in immunology, virology, or pharmacology. The individual should be willing to establish a clinical program focused on bronchogenic or urologic malignancies. Laboratory and clinical activities will be primarily at VA Hospital; the physically contiguous locations of the VA and University hospitals assures maximal integration of research and clinical programs between the two institutions.

Applications to: Ernest C. Borden, M.D., Chief, Oncology, William S. Middleton VA Hospital, Madison, Wis. 53795.

An Equal Opportunity/Affirmative Action Employer

### PLANT MOLECULAR GENETICIST

Assistant or associate professor. Applications are invited for a faculty position in plant molecular genetics in the Department of Plant Pathology, Kansas State University. A Ph.D. degree with research interests and training in eukaryotic DNA isolation, manipulation, and parasexual transfer is required. Familiarity with recombinant DNA techniques would be helpful, and postdoctoral experience is preferred. This is essentially a full-time research position designated to implement modern DNA technology in the genetic modification of important cereal crops. The incumbent will complement ongoing programs of several additional scientists working in related areas both in terms of systems development and application. Candidates must have a demonstrated potential for excellence in independent research. Curriculum vitae, a statement of research interests as they pertain to this position, and three letters of reference may be sent by 1 July 1980 to: Dr. J. F. Shepard, Search Committee Chairman, Department of Plant Pathology, Kansas State University, Manhattan, Kans. 66506.

Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** available. Must have Ph.D., M.D., or D.V.M. in hand. Available 1 July 1980. Organ System Toxicology with emphasis on the kidney. Experience in drug metabolism and pharmacokinetics desirable. Salary commensurate with qualifications and experience. Send curriculum vitae and three letters of recommendation to:

Dr. Jerry B. Hook, Director  
Center for Environmental Toxicology  
Michigan State University  
East Lansing, Mich. 48824

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

**POSTDOCTORAL POSITION IN IMMUNOLOGY.** Available August 1980. Studies of autoregulation of immune responses via idiotype network interactions and studies of lymphocyte membrane markers. Ph.D. in biochemistry, microbiology, or related field. Salary: \$14,000. Send curriculum vitae and three letters of reference to: Dr. L. Scott Rodkey, Division of Biology, Kansas State University, Manhattan, Kans. 66506. Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

**POSTDOCTORAL POSITION IN MILLIMETER-WAVE RESEARCH** (position title: assistant research engineer; salary: \$19,700 to \$21,700 per annum, depending on qualifications), Electronics Research Laboratory, University of California, Berkeley. Full-time position available immediately; initial duration approximately 2 years with extension contingent on funding. To participate in the design, analysis, microfabrication, and application of integrated near-millimeter-wave receivers, as part of a group also interested in electromagnetics, infrared technology, and astronomical applications. Applicants must have Ph.D. degree and experimental proficiency, preferably in an area related to semiconductors or electromagnetics. Experience in semiconductor microfabrication is not required but position will involve development of expertise in this field. Send résumés to: Professor S. E. Schwarz, Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Calif. 94720. The University of California is an Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** for study of microbial iron metabolism, available 1 August. Strong chemical background and microbiological experience required. Send curriculum vitae and two letters of reference by 6 August to: Dr. Thomas Emery, Department of Chemistry and Biochemistry, Utah State University, Logan, Utah 84322. An Equal Opportunity/Affirmative Action Employer.

### POSTDOCTORAL POSITIONS

Two positions available from September through December 1980 for Ph.D. biochemists:

- 1) To study comparative membrane biochemistry of protozoan parasites, particularly *Leishmania*. Experience in isolation and purification of membrane components and cellular subfractionation techniques preferred.
- 2) To study biochemistry of immunological mediators and their interaction with the macrophage membranes. Experience in membrane biochemistry and purification and characterization of glycoconjugates preferred.

Send curriculum vitae and three references by 31 July 1980 to: Dr. John R. David, Harvard Medical School, The Seeley G. Mudd Building, 250 Longwood Avenue, Boston, Massachusetts 02115.

**POSTDOCTORAL POSITION** available 1 July 1980 to study the immunochemistry and metabolism of myelin basic protein. Experience in biochemistry and in vivo metabolism of proteins preferred. Salary: \$15,000. Please send curriculum vitae and names of three references by 15 July 1980 to: Dr. J. N. Whitaker, Department of Neurology, University of Tennessee Center for the Health Sciences, 956 Court Avenue, Memphis, Tenn. 38163. An Affirmative Action/Title IX/Section 504 Employer.

### POSTDOCTORAL POSITION AND GRADUATE ASSISTANTSHIP

Available August 1980 research in genetics and molecular biology. Expertise in cloning/recombinant DNA techniques or *D. melanogaster* genetics.

Research involves mutation studies/chromosome mechanics/RNA and DNA hybridization/cloning/oocyte transcription of *Drosophila* genes.

Salary negotiable; tenure for 1 to 3 years. Send curriculum vitae and references to: Dr. J. D. Proctor, Rice University, Department of Biology, Houston, Texas 77001.

**POSTDOCTORAL RESEARCH ASSOCIATE** position available in neuroanatomy. Seeking qualified individual with interest in central visual system and skills in electron microscopy, electrophysiology, or light microscopic tracing methods. Position available immediately; salary: \$16,500. Send curriculum vitae, letter, and references to: B. V. Updyke, Department of Anatomy, Louisiana State University Medical School, 1542 Tuland Avenue, New Orleans, La. 70112. An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL RESEARCH POSITION—CARDIAC ELECTROPHYSIOLOGY.** Available for Ph.D. (physiology or pharmacology) to conduct animal experiments. Experience in electrophysiology desirable but not essential. Send curriculum vitae and two references to:

Jaok Han, M.D.  
Professor of Medicine  
Albany Medical College  
Albany, N.Y. 12208

## POSITIONS OPEN

### ENVIRONMENTAL POLICY ANALYST

The Institute for Environmental Studies, University of Illinois at Urbana-Champaign. Tenure-track openings for environmental policy analysts at appropriate rank. Quantitative skills, plus interest in analyzing policy decisions in one or more environmental problems (for example, mutagens/carcinogens, energy development, environmental management, and so forth). Ability to develop research programs and potential for creating and analyzing policy options. Possible joint appointment in degree-granting department. Salary open. Ben B. Ewing, Institute for Environmental Studies, 408 South Goodwin Avenue, University of Illinois, Urbana, Illinois 61801. Telephone: 217-333-2503. Position available now; closing date: 1 July 1980 or until filled.

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

**POSTDOCTORAL RESEARCHERS.** The Department of Physiology, University of California, Irvine, is developing a postdoctoral candidate pool for possible openings during the 1980-1981 fiscal year. Openings may be available in the following research areas: ion channels in lipid bilayers, physical chemistry of membranes, mechanisms and regulation of steroid hormone biosynthesis, exercise physiology; in situ electrophoresis of membrane proteins; molecular properties of ion channels in excitable cell membranes. Salary is in accordance with current NIH, NSF postdoctoral stipends which are based upon qualifications and years of prior, relevant postdoctoral experience. Minorities and women are encouraged to apply. Send curriculum vitae and names of three references to: Professor Stephen H. White, Chairman, Department of Physiology, University of California, Irvine, California 92717.

**POSTDOCTORAL RESEARCH ASSOCIATE: DEVELOPMENTAL NEUROBIOLOGY.** To work on clonal analysis of the developing central nervous system. Salary and starting date open. Send curriculum vitae and names of three references to: Dr. Marcus Jacobson, Chairman, Department of Anatomy, University of Utah College of Medicine, Salt Lake City, Utah 84132. The University of Utah is an Equal Opportunity Employer.

### POSTDOCTORAL RESEARCH POSITION

Available immediately for M.D./Ph.D. investigating behavioral and metabolic aspects of human food and water intake regulation in diabetes and obesity. Strong interest and/or background in intermediary metabolism, catecholamine metabolism, physiologic psychology, neuropharmacology and/or neuroendocrinology is desirable. Send curriculum vitae and references to: Dr. Dean A. Thompson, University of Rochester School of Medicine, Monroe Community Hospital, Rochester, New York 14603. Telephone: 716-473-4080, extension 368.

**POULTRY SCIENCE.** Associate or professor—equal divisions in research and teaching. Applicant must have strong background in poultry and be equally supported by teaching and publication record. Ph.D. is required. Research will be management. Salary and rank negotiable. Available 1 July 1980. Application deadline: 1 July 1980 or until position is filled. Submit application to: James E. Hill, Head, Poultry Science Department, P.O. Box 5188, Mississippi State, Miss. 39762. Equal Opportunity Employer.

Genentech, Inc. has two immediate openings for individuals to study the regulation of expression of mammalian genes as part of our basic research program. Applicants for the position of **RESEARCH ASSISTANT** must have extensive experience in mammalian tissue culture techniques (cloning, primary cultures, cell fusion, and so forth). Applicants for the position of **SCIENTIST** should further have experience in the use of animal viruses and/or micro-injection techniques to introduce genes into tissue culture cells.

Genentech is located on the San Francisco peninsula and offers competitive salaries and excellent fringe benefits. Interested applicants should send a résumé and the names and addresses of three references to:

GENENTECH, INC.  
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Attention: Human Resources  
Equal Opportunity Employer, M/F/H



# Research Scientist

The Research and Development Division of G. D. Searle & Co., located in north suburban Chicago, has a position available in our Department of Product Safety Assessment for a Research Scientist. The incumbent will direct preclinical safety studies, plan and direct activities of the Genetic Toxicology laboratories, consult and advise company personnel on relevant scientific matters, as well as interact with individuals outside the company on various aspects of Genetic Toxicology.

Candidates must possess a Ph.D. in Toxicology or a related field with a minimum of 3-5 years experience in industry. 1-3 years supervisory experience desirable.

We offer in return a competitive starting salary, comprehensive benefits package, and a challenging work environment. For confidential consideration, send resume including salary history to:

Lana Roth

Research & Development Division

G. D. Searle & Co.

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## MARINE BIOLOGICAL LABORATORY

### Woods Hole, Massachusetts

#### Assistant Director, Administration and Development

The Laboratory invites applications from qualified candidates for the position of Assistant Director for Administration and Development. Desirable experience includes some, but not necessarily all of the following: a scientific background such as would be acquired by service as a faculty member or investigator; administrative skills, especially in education or in sponsored research; highly developed communications skills; fund raising and public relations.

Position responsibilities will to some extent depend upon the background and interests of the successful applicant, but will be concerned at least initially with administration and development. The appointee will work closely with the Laboratory Directorate. Salary is adjustable, within broad limits, to the applicant's age and experience.

Qualified persons willing to accept the challenge of management in a distinguished biological laboratory should write, including *curriculum vitae*, bibliography, and the names of three qualified referees to:

Assistant Director Search  
c/o Office of the Director  
Marine Biological Laboratory  
Woods Hole, MA 02543

Applications will be held strictly confidential.

The Marine Biological Laboratory is an Equal Opportunity Employer and welcomes applications from qualified women and minorities.

## CSIRO INSTITUTE OF BIOLOGICAL RESOURCES

### CHIEF DIVISION OF FOREST RESEARCH

#### CANBERRA, A.C.T.

Applications are invited for the position of chief, Division of Forest Research, from scientists who have an established record of personal research achievement and leadership in plant physiology or other appropriate fields of science.

CSIRO is Australia's largest and most comprehensive research organization, having approximately 7400 employees of whom 2500 are research and professional scientists. Its broad charter covers research into problems of primary and secondary industries and also such fields of community interest as human nutrition, the environment, and the development and use of natural resources. The organization's research is grouped into five Institutes. The Division of Forest Research is a Division of the Institute of Biological Resources.

The position of chief of the Division of Forest Research will become vacant upon the retirement of the present incumbent in December 1980. The total staff of the division is 244 which includes 34 professional scientists.

The Division of Forest Research is located at Yarralumla, Canberra, A.C.T. It has regional stations and groups in most Australian states.

The division's research programs on forest resource characterization, forest management and harvesting, forest ecology, tree breeding and genetics, and harvesting are designed to supply a scientific basis for balanced management of Australia's forest in relation to wood production, water supply, and ecosystem preservation. The research is to be centered around four core areas, namely forest ecology, silviculture (with particular emphasis on tree physiology), tree breeding and genetic resources, and harvesting. Natural and plantation forests, covering both native and exotic species, are to be studied.

The salary for the position is negotiable, but will not be less than A\$37,000 per annum.

A chief of a division is responsible for the leadership, development, scientific direction and integration of the research programs of the division, and is encouraged to promote active collaboration with other divisions, industry, and research bodies working in associated areas. A recent review of the division indicated the need to develop further the division's role in mission-oriented, strategic research. The chief will be expected to give attention to this.

Appointment to the organization is for an indefinite period and carries Commonwealth superannuation privileges subject to normal conditions. The position of chief is offered for a negotiable term of the order of 7 years, followed by a further term, if mutually agreed, or a senior position in the organization.

M. V. Tracey, AO, FTS, Director of the Institute of Biological Resources, would be pleased to discuss the position with potential applicants. He would also be pleased to receive advice concerning this appointment from people with a particular interest in it. He can be contacted at the address below.

Applications, stating full personal and professional details and names of at least two professional referees, and quoting reference number A2692, should reach:

The Secretary (Personnel)  
CSIRO  
P.O. Box 225  
DICKSON, A.C.T. 2602  
AUSTRALIA

by 26 June 1980.

## POSITIONS OPEN

The Department of Radiology, Medical University of South Carolina (MUSC), is seeking qualified applicants for a position in **RADIATION BIOLOGY** at the **instructor or assistant professor** level. The qualifications are a Ph.D. in a biological, biochemical, or biophysical science with a molecular orientation and some experience in radiation effects. The person chosen for the position will be engaged primarily in basic and applied research relating to cancer therapy and other associated areas. Some teaching responsibilities for residents in radiology and other fields will be required. The individual chosen for this position will also be responsible for development of the radiation biology section for the Basic Science Division.

The Department of Radiology of MUSC has clinical divisions of Diagnostic and Therapeutic Radiology and Nuclear Medicine and a Basic Radiation Sciences Division includes Physics, Biology, Engineering, and Radiation Safety. Some laboratory space and equipment for biology is available. Present research in this section is development of animal models for radiation and hyperthermia.

Interested persons should contact:

**J. O. Fenn, Ph.D., Director**  
Division of Basic Radiation Sciences  
Department of Radiology  
Medical University of South Carolina  
171 Ashley Avenue  
Charleston, South Carolina 29403  
Telephone: 803-792-3271

*The Medical University of South Carolina is an Equal Opportunity Employer, M/F/H.*

**RESEARCH ASSOCIATE/POSTDOCTORAL POSITION** available immediately for M.D. or Ph.D. interested in **MOLECULAR DEVELOPMENTAL BIOLOGY** to study the structure and regulation of the myosin heavy chain genes during differentiation of wild-type and mutant myoblast cell lines. Background on nucleic acid biochemistry (restriction, heteroduplex and R-loop mapping, DNA sequencing) and cell culture highly desirable but not indispensable. Salary up to \$19,000 per year, depending on qualifications. Send curriculum vitae and two references to: **Dr. Bernardo Nadal-Ginard, Department of Cell Biology, Albert Einstein College of Medicine, 1300 Morris Park Avenue, New York, N.Y. 10461. Telephone: 212-430-3512.**

### IMPERIAL CANCER RESEARCH FUND TISSUE/CELL RELATIONSHIPS LABORATORY

**RESEARCH FELLOW** to study control of growth of human normal and dysplastic breast epithelium in monolayer and 3-dimensional gel cultures. Areas include cell:cell, cell:substrate and growth factor interactions; experience in tissue culture and cell growth quantitation would be of advantage.

Appointment will be 3 years. Salary with entry according to qualifications and experience with range of £5792 to £8823.

Further information from: **Dr. Hallows (telephone: 01 242 0200, extension 307).** Applications, with curriculum vitae and names of two referees, should be sent to: **The Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2A 3PX, England** by 31 August 1980, quoting reference 216/80.

### UNIVERSITY OF QUEENSLAND SENIOR LECTURER/LECTURER IN ANATOMY

Applicants should be medical, dental, or science graduates. Preference given to graduates with a strong research record in any area of anatomy. Quote Reference Number 19880.

Salaries—senior lecturer: A\$22,842 to A\$26,623 per annum; lecturer: A\$17,024 to A\$22,364 per annum.

Additional information and application forms are obtainable from: **The Staff Officer, University of Queensland, St. Lucia, 4067, Queensland, Australia.**

**VIROLOGIST**—The Sidney Farber Cancer Institute and the Department of Microbiology and Molecular Genetics at Harvard Medical School invite applications for a new tenure position in the field of virology, with a particular emphasis on adenovirus, herpes, pox, or hepatitis A. The applicant should have an M.D. or Ph.D. degree with a strong background in genetics, molecular biology, and biochemistry. Please send curriculum vitae with copies of publications to: **Dr. Bernard Fields, Chairman, Search Committee, Department of Microbiology and Molecular Genetics, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115, before 1 July 1980. An Affirmative Action/Equal Opportunity Employer.**

## POSITIONS OPEN

### RESEARCH ASSOCIATE

Department of Physics, Massachusetts Institute of Technology (MIT), has an immediate opening for a Ph.D. scientist to participate in the study of phase transitions in gels and polymers, and of cataract disease. This candidate should have a strong background in the field of experimental physics. The salary ranges from \$16,000 to \$21,000 per year. Send curriculum vitae and the names of three references to: **Professor Toyochi Tanaka, Department of Physics, Room 13-2009, MIT, Cambridge, Mass. 02139. An Equal Opportunity/Affirmative Action Employer.**

### RESEARCH MANAGER

The Bioproducts Operation of Beckman is seeking an experienced scientific group leader to direct and manage programs for design, synthesis, and evaluation of novel organic compounds with specific biological activities.

This position involves directing a skilled team of scientists, managing relations with technical consultants, coordinating Research Department activities and budget, and representing this department at the operations staff level.

The successful candidate will have a minimum of 5 years of extensive experience beyond a Ph.D. in pharmacology or related science and proven ability as a technical team leader. Familiarity with peptide pharmacology is desirable.

Submit your résumé with compensation requirements and history to: **BECKMAN INSTRUMENTS, INC., 1117 California Avenue, Palo Alto, Calif. 94304. Telephone: 415-857-1150. An Equal Opportunity Employer.**

### BECKMAN

**WILDLIFE BIOLOGIST**, Virginia Polytechnic Institute and State University (VPI & SU), 12-month continuing appointment at assistant/associate/professor level. Teach appropriate courses in wildlife management, advise undergraduate students, direct graduate studies at M.S. and Ph.D. levels, develop applied research program in expertise, and complement other faculty in an ongoing integrated research program.

Candidate must possess a Ph.D. in wildlife management or closely related field. Ability to conduct applied research, publish results, and obtain research grants must be evident. For appointment at the associate or full professor level, a strong record of research and technically reviewed publication is essential. Candidate must have the ability and desire to teach.

Submit curriculum vitae, undergraduate and graduate transcripts, and names of three references. Informal inquiries from senior-level persons are invited. Applications will be accepted until position is filled. Send to: **Dr. Gerald H. Cross, Head, Department of Fisheries and Wildlife Sciences, VPI & SU, Blacksburg, Va. 24061. An Equal Opportunity/Affirmative Action Employer.**

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIPS IN PROTEIN CHEMISTRY.** Current research and physical chemistry of lipid binding proteins, and proteins of the blood coagulation process. Specific projects include identification of the congenital defects in abnormal prothrombins, studies of the structure and function of coagulation factor V, and the primary structure of  $\beta$ -hydroxybutyrate dehydrogenase. Send curriculum vitae and names of three references to: **Dr. Kenneth G. Mann, Hematology Research, Mayo Clinic/Mayo Foundation, Rochester, Minnesota 55901. Mayo Foundation is an Equal Opportunity/Affirmative Action Institution.**

**POSTDOCTORAL FELLOWSHIPS—MEMBRANE PATHOBIOLOGY.** An interdisciplinary group of investigators (members of the Departments of Biochemistry, Biology, Chemistry, Medicine, Pathology, Pediatrics, and Structural Biology) announce an NIH-funded research training program in membrane pathobiology for individuals with either **CLINICAL** or **RESEARCH BACKGROUNDS**. Training is in basic research in membrane biology as it relates to the pathological basis of a variety of disease states. Request applications from: **Membrane Pathobiology Program, Department of Pediatrics, Stanford University School of Medicine, Stanford, California 94305. Stanford University, an Equal Opportunity Employer, welcomes applications from women and minority group members.**

## FELLOWSHIPS

Department of Psychiatry, University of Pennsylvania, invites applications for one **RESEARCH TRAINING FELLOWSHIP** to begin 1 July 1980. Applicants must hold an M.D. or Ph.D. degree. An opportunity exists for a 1-year research training experience in a multidisciplinary alcoholism center, emphasizing collaboration between biomedical and behavioral sciences. Trainees receive a stipend from \$13,380 to \$17,040, depending on level of experience. Applicants should be U.S. citizens, noncitizen nationals, or have permanent visas at the time of appointment. Inquiries should include curriculum vitae and should be sent to:

**Michael Pertschuk, M.D.**  
Hospital of the University of Pennsylvania  
1148 Gates Building  
Philadelphia, Pennsylvania 19104

### POSTDOCTORAL FELLOWSHIP CEREBELLAR PHYSIOLOGY

A postdoctoral position is available for a qualified individual to study the cerebellar cortex and cerebellar afferent and efferent systems. Ph.D. is required. Send résumé and three references to: **James R. Bloedel, Department of Neurosurgery, University of Minnesota Medical School, Minneapolis, Minnesota 55455.**

## TRAINEESHIPS

### POSTDOCTORAL TRAINEESHIPS IN NEUROPLASTICITY

Positions are available for training in research related to the development and regeneration of the nervous system. The traineeships, supported by an NINCDS training grant, are available to individuals with a Ph.D. or M.D. degree beginning 1 July 1980. This multidisciplinary program has the following as available preceptors: Doctors N. Bertram, T. Cunningham, M. Goldberger, H. Murphy, M. Murray, L. Pubols, L. Ross, and B. Weiss. Applications consisting of a statement of research interests, curriculum vitae, and three references should be sent to:

**Dr. Leonard L. Ross**  
Department of Anatomy  
MEDICAL COLLEGE  
OF PENNSYLVANIA  
3300 Henry Avenue  
Philadelphia, Pa. 19129  
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# BIOCHEMICAL PHARMACOLOGIST

Applications are invited for the position of Biochemical Pharmacologist at Merrell Research Center located in Cincinnati, Ohio. The Biochemistry Department is seeking a PhD Scientist to participate in an on-going program of membrane receptor regulators.

Applicants should have formal training in biochemistry, pharmacology and chemistry. Experience MUST include HPLC quantitation of catecholamines, as well as micro dissection of brain regions.

Interested candidates should forward curriculum vitae with salary requirements in confidence to:

Director of Administration

**MERRELL RESEARCH CENTER  
MERRELL-NATIONAL LABORATORIES**

Division of Richardson-Merrell Inc.

**2110 East Galbraith Road,  
Cincinnati, Ohio 45215**

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**Merrell**

## Microbiologists

An opportunity to continue a successful research career is available with the Medical Research Division of American Cyanamid Company where our Infectious Disease Research Section is involved in the isolation of antigens from human bacterial pathogens and the evaluation of the immune response induced by experimental vaccines.

We seek a microbiologist with at least 3-5 years experience at the M.S. level or with 1-2 years experience at the Ph.D. level. The position requires an individual with a strong background in biochemistry and in contemporary immunological techniques. Experience with radioimmunoassays is preferred.

American Cyanamid offers competitive salaries and excellent benefits. Please send resume and salary history, in confidence, to:

**Ms. S. L. Johnson  
Medical Research Division  
American Cyanamid Company  
Lederle Laboratories  
Pearl River, N.Y. 10965**



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## OFFICE OF NAVAL RESEARCH CONTRACT RESEARCH DIRECTORATE

### DIRECTOR, RESEARCH PROGRAMS

The Director, Research Programs serves as the senior line manager of the substantial Contract Research Program conducted by the Office of Naval Research. His/Her major function is to ensure the contract research program is technically balanced, maintained at a high quality level, and meets the long and short term needs of the Navy. He/She provides scientific and intellectual leadership to the scientists and engineers of the seven divisions whose research programs cover the physical sciences, the social and life sciences.

The Director, Research Programs reports to the Technical Director and assists and supports him and the Chief of Naval Research in carrying out the mission of sponsoring all basic research activities for the Navy.

Candidates should possess outstanding capabilities in creative research leadership and management combined with established stature and reputation in the scientific community.

This is a Senior Executive Service (SES) position. Salary is dependent upon qualifications.

Interested persons should send a Standard Form SF-171, Personal Qualifications Statement (available at Federal Job Information Offices) by 30 July 1980 to:

**Office of Naval Research  
Personnel Services Division  
800 North Quincy Street, Room 823  
Arlington, Virginia 22217  
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