

five headings: Taxonomy, Evolution and Zoogeography, Medical and Veterinary, Physiology and Morphology, and Ecology and Faunistics.

The only taxonomic presentation is that of Traub, dealing with the complex family Pygiopsyllidae. In it six new genera and three new subgenera are erected and a key to many of the taxa is provided.

Important papers under Evolution and Zoogeography include accounts of some adaptive modifications in fleas by Traub and of the function of combs in ectoparasitic insects by Marshall; an extensive treatment of zoogeography and evolution in fleas, lice, and mammals, also by Traub; and a study of the host associations and zoogeography in the genus *Pulex* by Hopla. All are thoughtful treatments of their subjects and synthesize much material from diverse sources, although not necessarily all reaching the same conclusion.

Interesting presentations dealing with the medical and veterinary aspects of fleas include an account of the control of flea vectors of disease by Gratz; a review of studies on fleas in the U.S.S.R. by Bibikova and Zhovtyi; an account of the ecology of murine typhus by Traub, Wisseman, and Farhang-Azad; and two papers on the transmission of myxomatosis by the European rabbit flea by Shepherd and by Mead-Briggs and Vaughan.

Two particularly interesting contributions included under Physiology and Morphology deal with how bloodsucking insects perforate the skin of their hosts (Wenk) and the morphological similarities between the skeletal structures of Siphonaptera and Mecoptera (Schlein).

The nine presentations included under Ecology and Faunistics include three abstracts and six papers dealing mainly with distribution and ecological and host preferences. Two of these are in French.

A few of the papers included in this volume constitute major contributions to our knowledge of the order Siphonaptera, and most of the remainder are appropriate for inclusion, albeit somewhat parochial. Both the binding and the type are pleasing to the eye, and for a publication of this type the book is remarkably free of mechanical flaws. However, though this is a book that will appeal to students of the order Siphonaptera, it is not likely to attract a broad audience in the more applied fields of medical and veterinary entomology.

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## Genetics

**Gene Expression.** Second edition. Vol. 2, Eukaryotic Chromosomes. BENJAMIN LEWIN. Wiley-Interscience, New York, 1980. xviii, 1160 pp., illus. Cloth, \$45; paper, \$25.

The first and third volumes of this work on gene expression are devoted to prokaryotes and to plasmids and phages, whereas the volume under review deals with eukaryotic chromosomes. The author intends to delineate the current state of knowledge of the structure of the chromosome and the dynamics of its reproduction as well as the expression of the genes contained in it. The treatment is brought to the molecular level wherever the necessary information is available. To put these issues in context there are extensive treatments of the cell skeleton, the cell cycle, and chromosome segregation in mitosis and meiosis before the structure of chromatin itself is discussed. The treatment of chromatin structure includes discussion of DNA sequence organization as well as of the physical conformation of the nucleoprotein strands. Gene expression is considered at the levels of the transcription apparatus, messenger RNA structure, messenger RNA processing, and RNA splicing. This is an unusually broad array of subject matter to bring together in the detail with which it is treated here. Nevertheless, Lewin actually does bring the reader abreast of the whole advancing front in a thorough and balanced way.

The book is remarkably up to date, especially considering the rapidity with which this subject has grown recently and the ambitious scope of the book. This feat is the more impressive in light of the author's reliance on primary research reports rather than derivative material. Nearly all the references are from the 1970's, including many from 1979. So much has been learned in the seven years since the publication of the first edition (for example, about nucleosome structure and interrupted genes) that the present book ought to be thought of as new.

The book is easy to read because of its straightforward style. When comprehensive coverage of rapidly developing subjects is attempted, exposition often becomes disjointed as a result of the inclusion of information whose significance is still obscure. Lewin has avoided this pitfall and produced smoothly integrated stories. Somehow, he has maintained the momentum of his developing thoughts without obscuring discrepancies and controversies. He explains the different positions in a controversy and states his

position and the reasons for it without appearing to force the argument. I believe the reader will come away with balanced views whether he or she always agrees with Lewin or not. Despite the commendable reliance on primary research data, which helps the reader to distinguish fact from interpretation, the volume has the flavor of a textbook. I suspect this is inevitable in light of the primary objectives of the book. Lewin is a master at integration and reconciliation, and I doubt that he intended to be a bold blazer of new trails. In any case, the emphasis is on balance and broad perspective more than on insight and incision.

For anyone with elementary biochemical and biological preparation, the book would be a first-class instrument for learning current (1979) knowledge, and doing so with perspective. Similarly, it would be a useful means for researchers to broaden and consolidate the context in which they work out their specialties, although it would be of less value to the specialist in those sections that deal more narrowly with his or her specialty.

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## Books Received

**Advances in the Study of Behavior.** Vol. 11. Jay S. Rosenblatt, Robert A. Hinde, Colin Beer, and Marie-Claire Busnel, Eds. Academic Press, New York, 1980. xii, 378 pp., illus. \$35.

**Agenda for Progress.** Examining Federal Spending. Eugene J. McAllister, Ed. Heritage Foundation, Washington, D.C., 1981. viii, 376 pp. Paper, \$6.95.

**Alcohol and Drug Problems in Women.** Oriana Josseau Kalant, Ed. Plenum, New York, 1980. xxii, 762 pp., illus. \$55. Research Advances in Alcohol and Drug Problems, vol. 5.

**American Genesis.** The American Indian and the Origins of Modern Man. Jeffrey Goodman. Summit, New York, 1981. 288 pp., illus. \$11.95.

**The Amphibian Embryo in Transplantation Immunity.** E. Peter Volpe. Karger, Basel, 1980. x, 148 pp., illus. \$74.25. Monographs in Developmental Biology, vol. 14.

**Baalbek.** Friedrich Ragette. Noyes, Park Ridge, N.J., 1980. 128 pp., illus. \$21.

**Ballistic Materials and Penetration Mechanics.** Roy C. Laible, Ed. Elsevier, New York, 1980. x, 298 pp., illus. \$73.25. Methods and Phenomena, vol. 5.

**Basic Anatomy for the Allied Health Professions.** Royce L. Montgomery. Urban & Schwarzenberg, Baltimore, 1981. viii, 456 pp., illus. \$19.50.

**Basic Chemistry.** William S. Seese and Guido H. Daub. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1981. xiv, 596 pp., illus. + index. \$19.95.

**Basic Corrosion and Oxidation.** John M. West. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 248 pp., illus. \$69.95.

**Basic Medical Microbiology.** Robert F. Boyd and Bryan G. Hoerl. Little, Brown, Boston, ed. 2, 1980. x, 766 pp., illus. \$19.95. Laboratory Manual. x, 182 pp., illus. Paper, \$7.95.

**Cluster Analysis.** Brian Everitt. Published for Social Science Research Council by Heinemann, London, and Halsted (Wiley), New York, ed. 2, 1980. viii, 136 pp., illus. Paper, \$16.95.

**Cluster Analysis Algorithms for Data Reduction and Classification of Objects.** Helmut Späth. Translated from the German edition (1977) by Ursula Bull. Owen Hanson and Biran Meek, Transl. Eds. Horwood, Chichester, England, and Halsted (Wiley),

(Continued on page 962)



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Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsement by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 866A and 962I) and placing it in the mailbox. Postage is free.

—RICHARD G. SOMMER

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## Ergometers for Muscle Physiology

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## Literature

*Thin Layer Chromatography* describes techniques, products, and accessories including the Uniplate line. Analtech. Circle 794.

*Recorder* features the Profiler, a multi-channel, and x-y recorder for research applications. Kazmierowicz Instrument. Circle 795.

*Advances in Analysis* is a packet of instrument literature for NMR, FFT IR, and EPR spectrometry; electrochemistry; liquid chromatography; and data acquisition. IBM Instruments. Circle 796.

*Ultrafiltration Membranes* are featured in a brochure devoted to molecular separation. Nuclepore. Circle 797.

*Thermometers* describes a line of laboratory apparatus for temperature measurement. Palmer Instruments. Circle 798.

*BioResearch and Chromatography Products* is a handbook and general catalog. Pierce Chemical. Circle 799.

*Environmental Chemical Standards* is devoted to 22 kits for laboratory or field analyses. Chem Service. Circle 812.

*Rare & Fine Chemicals* lists numerous reagents, biologicals, enzymes, surfactants, chromatography products, and other laboratory materials. ICN K & K Laboratories. Circle 813.

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## BOOKS RECEIVED

(Continued from page 914)

New York, 1980. 226 pp., illus. \$56.95. Ellis Horwood Series in Computers and Their Applications.

**COBOL. A Vehicle for Information Systems.** Robert T. Grauer. Prentice-Hall, Englewood Cliffs, N.J., 1981. xvi, 432 pp., illus. \$18.95.

**Colorectal Cancer.** Papers from a symposium, Leiden, The Netherlands, June 1979. K. Welvaart, L. H. Blumgart, and J. Kreuning, Eds. Leiden University Press, The Hague, 1980 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 290 pp., illus. \$58. Boerhaave Series for Postgraduate Medical Education, vol. 18.

**The Columbia River Salmon and Steelhead Trout. Their Fight for Survival.** Anthony Netboy. University of Washington Press, Seattle, 1981. xii, 180 pp. + plates. \$13.95.

**Combined Heat and Power.** Whole City Heating—Planning Tomorrow's Energy Economy. Papers from a conference, London, Nov. 1979. W. R. H. Orchard and A. F. C. Sherratt, Eds. Godwin, London, and Wiley, New York, 1980. xiv, 234 pp., illus. \$59.95.

**The Coming of the Age of Iron.** Theodore A. Wertime and James D. Muhly, Eds. Yale University Press, New Haven, Conn., 1980. xx, 556 pp., illus. \$22.50.

**Differential Equations with Small Parameters and Relaxation Oscillations.** E. F. Mishchenko and N. Kh. Rozov. Translated from the Russian edition (Moscow, 1975) by F. M. C. Goodspeed. Plenum, New York, 1980. x, 228 pp., illus. \$29.50. Mathematical Concepts and Methods in Science and Engineering, 13.

**Digital Television.** Bandwidth Reduction and Communication Aspects. R. H. Stafford. Wiley-Interscience, New York, 1980. xvi, 388 pp., illus. \$34.95.

**Disordered Thinking and Communication in Children.** Mahin Hassibi and Harry Breuer, Jr., Plenum, New York, 1980. vi, 208 pp. \$25.

**The Ecosystem of the "Sick" Child.** Implications for Classification and Intervention for Disturbed and Mentally Retarded Children. Suzanne Salzinger, John Antrobis, and Joseph Glick, Eds. Academic Press, New York, 1980. xviii, 308 pp. \$25.

**Exercise Physiology.** Energy, Nutrition, and Human Performance. William D. McArdle, Frank I. Katch, and Victor L. Katch. Lea and Febiger, Philadelphia, 1981. xii, 508 pp., illus. \$17.50.

**Experimental High-Resolution Electron Microscopy.** John C. H. Spence. Clarendon (Oxford University Press), New York, 1981. xii, 370 pp., illus. \$74. Monographs on the Physics and Chemistry of Materials.

**The Fabrics of Culture.** The Anthropology of Clothing and Adornment. Papers from a congress, Chicago, 1973. Justine M. Cordwell and Ronald A. Schwarz, Eds. Mouton, The Hague, 1980 (U.S. distributor, Walter de Gruyter, Hawthorne, N.Y.). xiv, 520 pp., illus. \$23.50. World Anthropology.

**The Geology of Europe.** Derek V. Ager. Halsted (Wiley), New York, 1980. xx, 536 pp., illus. \$44.95.

**Glutamine.** Metabolism, Enzymology, and Regulation. Proceedings of a symposium, Querétaro, Mexico, Nov. 1979. Jaime Mora and Rafael Palacios, Eds. Academic Press, New York, 1980. xx, 334 pp., illus. \$28.

**Gravitation, Quanta and the Universe.** Proceedings of a symposium, Ahmedabad, India, Jan. 1979. A. R. Prasanna, J. V. Narlikar, and C. V. Vishveshwara, Eds. Halsted (Wiley), New York, 1980. xvi, 326 pp., illus. \$34.95.

**Hagan and Bruner's Infectious Diseases of Domestic Animals.** With Reference to Etiology, Pathogenicity, Immunity, Epidemiology, Diagnosis, and Biologic Therapy. James Howard Gillespie and John Francis Timoney. Comstock (Cornell University Press), Ithaca, N.Y., ed. 7, 1981. 852 pp., illus. \$39.50.

**Handbook of the Hypothalamus.** Vol. 3, Behavioral Studies of the Hypothalamus. Part A. Peter J. Morgane and Jaak Panksepp, Eds. Dekker, New York, 1980. xvi, 500 pp., illus. \$93.50.

**Heart Creatine Kinase.** The Integration of Isozymes for Energy Distribution. Papers from a symposium, Baltimore, June 1979. William E. Jacobus and Joanne S. Ingwall, Eds. Williams and Wilkins, Baltimore, 1980. xiv, 198 pp., illus. \$39.

**The International Energy Relations of China.** Kim Woodard. Stanford University Press, Stanford, Calif., 1980. xxii, 718 pp. \$50.

**International Review of Cytology.** Vol. 69. G. H. Bourne, J. F. Danielli, and K. W. Jeon, Eds. Academic Press, New York, 1981. x, 340 pp., illus. \$38.

**The Interpretation of Ionic Conductivity in Liquids.** Stuart I. Smedley. Plenum, New York, 1980. xvi, 196 pp., illus. \$25.

**Interpretation of Mass Spectra.** F. W. McLafferty. University Science Books, Mill Valley, Calif., ed. 3, 1980. xx, 304 pp., illus. \$13.

**Interval Mathematics 1980.** Proceedings of a symposium, Freiburg, Germany, May 1980. Karl L. E. Nickel, Ed. Academic Press, New York, 1980. xvi, 554 pp. \$29.50.

**Introduction to Perturbation Techniques.** Ali H. Hsan Nayfeh. Wiley-Interscience, New York, 1981. xvi, 520 pp. \$29.95.

**Introduction to Queueing Theory.** Robert B. Cooper. North Holland, New York, ed. 2, 1981 (distributor, Elsevier North-Holland, New York). xviii, 348 pp. \$24.95.

**Introductory Structured COBOL Programming.** Gary S. Popkin. Van Nostrand Reinhold, New York, 1981. xviii, 472 pp., illus. \$18.95.

**Key Papers in Information Science.** Belver C. Griffith, Ed. Published for the American Society for Information Science by Knowledge Industry Publications, White Plains, N.Y., 1980. viii, 440 pp., illus. \$25.

**Laboratory Safety.** Theory and Practice. Anthony A. Fuscaldo, Barry J. Erlick, and Barbara Hindman, Eds. Academic Press, New York, 1980. xiv, 358 pp., illus. \$39.50.

**Light Scattering in Liquids and Macromolecular Solutions.** Proceedings of a workshop, Milan, May 1979. V. Gecgiorgio, M. Corti, and M. Giglio, Eds. Plenum, New York, 1980. x, 296 pp., illus. \$35.

**Locating Language in Time and Space.** William Labov, Ed. Academic Press, New York, 1980. xxii, 272 pp., illus. \$24.50. Quantitative Analyses of Linguistic Structure.

**Lysosomes and Lysosomal Storage Diseases.** Proceedings of a conference, Toronto, Oct. 1979. John W. Callahan and J. Alexander Lowden, Eds. Raven, New York, 1980. xxii, 434 pp., illus. \$42. Advances in Pediatric Research.

**Malignant Lymphoproliferative Diseases.** J. G. van den Tweel, C. R. Taylor, and F. T. Bosman, Eds. Leiden University Press, The Hague, 1980 (distributor, Kluwer Boston, Hingham, Mass.). xiv, 508 pp., illus. \$76. Boerhaave Series for Postgraduate Medical Education, vol. 17.

**The Molecular Genetics of Development.** Terrance Leighton and William F. Loomis, Eds. Academic Press, New York, 1980. xxiv, 480 pp., illus. \$49.50.

**Multivariate Techniques in Human Communications Research.** Papers from a conference, Monterey, Calif., Apr. 1977. Peter R. Monge and Joseph N. Capella, Eds. Academic Press, New York, 1980. xxiv, 552 pp., illus. \$45. Human Communication Research Series.

**The Narcissistic Pursuit of Perfection.** Arnold Rothstein. International Universities Press, New York, 1980. xiv, 288 pp. \$22.50.

**The Natural History of the Mind.** Gordon Rattray Taylor. Penguin, New York, 1981. xiv, 370 pp. Paper, \$4.95. Reprint of the 1979 edition.

**Nerve and Muscle Excitation.** Douglas Junge. Sinauer, Sunderland, Mass., ed. 2, 1981. xiv, 240 pp., illus. Paper, \$12.95.

**Neurological Anatomy in Relation to Clinical Medicine.** A. Brodal. Oxford University Press, New York, ed. 3, 1981. xviii, 1054 pp., illus. \$35.

**Neurophysiology.** Donald B. Stratton. McGraw-Hill, New York, 1981. xii, 388 pp., illus. \$19.95.

**New Foundations for Asian and Pacific Security.** Joyce E. Larson, Ed. National Strategy Information Center, New York, 1980 (distributor, Transaction Books, New Brunswick, N.J.). xxxii, 260 pp. Paper, \$8.95.

**New Roots for Agriculture.** Wes Jackson. Friends of the Earth, San Francisco, 1980. vi, 162 pp. Paper, \$4.95.

**The Next Whole Earth Catalog.** Access to Tools. Stewart Brand, Ed. Random House, New York, 1980. 608 pp., illus. Paper, \$12.50.

**Nickel in the Environment.** Jerome O. Nriagu, Ed. Wiley-Interscience, New York, 1980. xiv, 834 pp., illus. \$65.

**Nim.** Un Chimpanzé qui a appris le Language Gestuel. Herbert S. Terrace. Translated from the English edition (New York, 1979) by Antoinette Armand. Margada, Brussels, 1980. 334 pp., illus. Paper, 550 BFB. Psychologie et Sciences Humaines, 87.

**Nonlinear Programming Codes.** Information, Tests, Performance. Klaus Schittkowski. Springer-Verlag, New York, 1980. viii, 242 pp. Paper, \$19. Lecture Notes in Economics and Mathematical Systems, vol. 183.

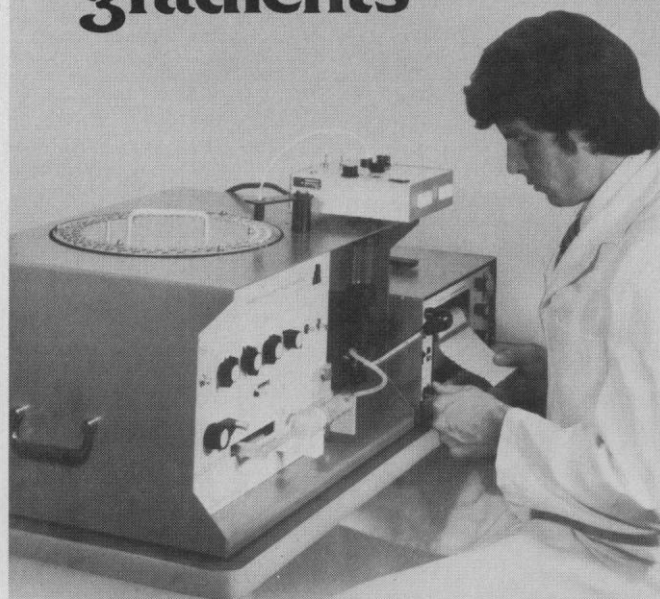
**Opioid Dependence.** Mechanisms and Treatment. Abraham Wikler. Plenum, New York, 1980. xiv, 256 pp. \$27.50.

**Oral Premalignancy.** Proceedings of a symposium, Iowa City. Ian C. Mackenzie, Erik Dabelsteen, and Christopher A. Squier, Eds. University of Iowa Press, Iowa City, 1980. x, 354 pp., illus. \$32.50.

**Parent-Child Interaction.** The Socialization Process Observed in Twin and Singleton Families. Hugh Lytton. Plenum, New York, 1980. xx, 364 pp. \$35.

**Pentacoordinated Phosphorus.** Robert R. Holmes. American Chemical Society, Washington, D.C., 1980. Two volumes. Vol. 1, Structure and Spectroscopy. xii, 480 pp., illus. \$92. Vol. 2, Reaction

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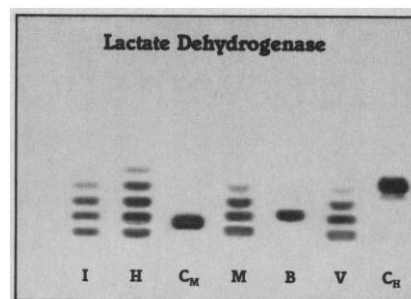


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Mechanisms. xii, 238 pp., illus. \$52. ACS Monograph, 175 and 176.

**Proceedings of the 1979 JINR-CERN School of Physics.** Hungarian Academy of Sciences and Central Research Institute for Physics, Budapest, 1980. Two volumes. Vol. 1. viii, 376 pp., illus. Paper. Vol. 2, iv, 110 pp. Paper.

**Proceedings of the Seventh International Symposium on Olfaction and Taste and of the Fourth Congress of the European Chemoreception Research Organization.** H. van der Starre, Ed. IRL Press, London, 1980 (U.S. distributor, Information Retrieval Inc., New York). x, 500 pp., illus. \$50.

**Processing of Visible Language 2.** Proceedings of a conference, Niagara-on-the-Lake, Ontario, Canada, Sept. 1979. Paul A. Kolars, Merald E. Wroldstad, and Herman Bouma, Eds. Plenum, New York, 1980. xviii, 616 pp., illus. \$49.50. NATO Conference Series III, vol. 13.

**Product Labeling and Health Risks.** Papers from a meeting, May 1980. Louis A. Morris, Michael B. Mazis, and Ivan Barofsky, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1980. xvi, 328 pp., illus. \$54. Banbury Report 6.

**Programming Language Standardization.** I. D. Hill and B. L. Meek, Eds. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 262 pp. \$65.

**Progress in Biomass Conversion.** Vol. 2. Kyosti V. Sarkanen and David A. Tillman, Eds. Academic Press, New York, 1980. x, 216 pp. \$19.50.

**Progress in Nucleic Acid Research and Molecular Biology.** Vol. 24. Waldo E. Cohn, Ed. Academic Press, New York, 1980. xiv, 280 pp., illus. \$42.50.

**The Psychoanalytic Study of the Child.** Vol. 35. Albert J. Solnit, Ruth S. Eissler, Anna Freud, Marianne Kris, and Peter B. Neubauer, Eds. Yale University Press, New Haven, Conn., 1980. xxii, 466 pp. \$27.50.

**Pulmonary Circulation in Health and Disease.** G. Cumming and G. Bonsignore, Eds. Plenum, New York, 1980. x, 442 pp., illus. \$47.50. Ettore Majorana International Science Series, vol. 3.

**Race, IQ and Jensen.** James R. Flynn. Routledge and Kegan Paul, Boston, 1980. vi, 314 pp. \$27.50.

**Readings about the Social Animal.** Elliot Aronson, Ed. Freeman, San Francisco, ed. 3, 1981. xxii, 458 pp., illus. Cloth, \$19.95; paper, \$9.95.

**Real-Time Medical Image Processing.** Papers from a seminar. Tokyo, Oct. 1978. Morio Onoe, Kendall Preston, Jr., and Azriel Rosenfeld, Eds. Plenum, New York, 1980. xvi, 244 pp., illus. + plates. \$35.

**Smoking and Health.** A Comprehensive Bibliography. Compiled by Alberta D. Berton assisted by K. Bernice Odom. IFI/Plenum, New York, 1980. vi, 530 pp. \$95. Biomedical Information Guides, vol. 3.

**Sociobiology and the Preemption of Social Science.** Alexander Rosenberg. Johns Hopkins University Press, Baltimore, 1981. xii, 228 pp. \$16.50.

**Software Engineering.** Proceedings of a workshop, Albany, Troy, and Schenectady, N.Y., May 1979. Herbert Freeman and Philip M. Lewis II, Eds. Academic Press, New York, 1980. x, 244 pp., illus. \$21.

**Software for Roundoff Analysis of Matrix Algorithms.** Webb Miller and Celia Wrathall. Academic Press, New York, 1980. xii, 154 pp. \$18.50.

**The Soul of the Ghost Moth.** Paths of a Naturalist. Philip S. Callahan. Drawings by the author. Devin-Adair, Old Greenwich, Conn., 1981. xvi, 108 pp. \$7.95.

**Sourcebook on the Production of Electricity from Geothermal Energy.** Joseph Kestin, Ronald DiPippo, H. Ezzat Khalifa, and D. John Ryley, Eds. U.S. Department of Energy, Washington, D.C., 1980 (available from the Superintendent of Documents, Washington, D.C.). xviii, 998 pp., illus. Paper, \$14. DOE/RA/4051-1.

**Soviet Energy Technologies.** Planning, Policy, Research and Development. Robert W. Campbell. Indiana University Press, Bloomington, 1980. xii, 268 pp. \$22.50.

**Space.** Anthony Feldman. Facts on File, New York, 1980. 336 pp., illus. \$19.95.

**A Spatial Analysis of Urban Community Development Policy in India.** Derek Hall. Research Studies Press (Wiley), New York, 1980. x, 180 pp., illus. Paper, \$45. Geography and Public Policy Research Studies Series, 1.

**Speech and Language.** Advances in Basic Research and Practice. Vol. 4. Norman J. Lass, Ed. Academic Press, New York, 1980. xiv, 392 pp., illus. \$35.

**Sphere, Spheroid and Projections for Surveyors.** J. E. Jackson. Halsted (Wiley), New York, 1980. xiv, 138 pp., illus. \$37.95. Aspects of Modern Land Surveying.

**The Spinal Cord and Its Reaction to Traumatic Injury.** Anatomy—Physiology—Pharmacology—Therapeutics. William F. Windle, Ed. Dekker, New York, 1980. xiv, 384 pp., illus. \$45. Modern Pharmacology-Toxicology, vol. 18.

**The Squirrels of Canada.** S. E. Woods, Jr. National Museums of Canada, Ottawa, 1980 (U.S. distributor, University of Chicago Press, Chicago). 200 pp., illus. \$29.95.

**Statistical Analysis of Weather Modification Experiments.** Edward J. Wegman and Douglas J. DePriest, Eds. Dekker, New York, 1980. x, 146 pp., illus. Paper, \$24.75. Lecture Notes in Statistics, vol. 3.

**Thermal Energy Storage and Regeneration.** Frank W. Schmidt and A. John Willmott. Hemisphere, Washington, D.C., and McGraw-Hill, New York, 1981. xvi, 352 pp., illus. \$35.50.

**Thin Layer Chromatography.** Quantitative Environmental and Clinical Applications. Joseph C. Touchstone and Dexter Rogers, Eds. Wiley-Interscience, New York, 1980. xxii, 562 pp., illus. \$40.

**Time and Again.** A Systematic Analysis of the Foundations of Physics. Marinus Dirk Stafleu. Wedge, Toronto, and Sacum Beperk. Bloemfontein, South Africa, 1980. x, 238 pp. Paper, \$19.95. Wetenskaplike Studiereeks No. 2.

**Topics in Non-Ferrous Extractive Metallurgy.** A. R. Burkin, Ed. Halsted (Wiley), New York, 1980. x, 134 pp., illus. Paper, \$25.95. Critical Reports on Applied Chemistry, vol. 1.

**Toxicology.** Principles and Practice. Vol. 1. Andrew L. Reeves, Ed. Wiley-Interscience, New York, 1981. xii, 224 pp., illus. \$24.95.

**Transplantation and Clinical Immunology.** Vol. 12. Proceedings of a course, Lyon, June 1980. J. L. Touraine and six others, Eds. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier North-Holland, New York). x, 294 pp., illus. \$51.25. Symposia Fondation Merieux 4.

**Tropical Mycorrhiza Research.** Peitsa Mikola, Ed. Clarendon (Oxford University Press), New York, 1980. xii, 270 pp., illus. \$45.

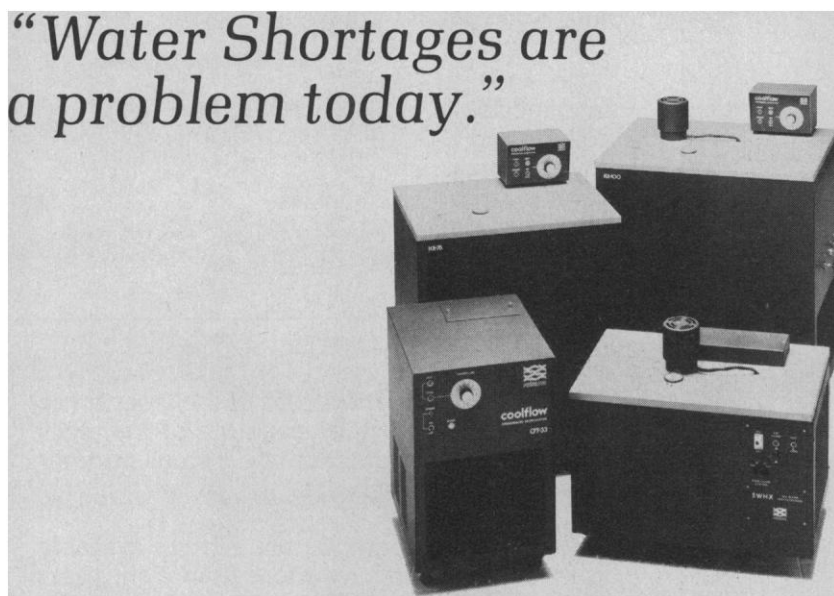
**Uprooting and Development.** Dilemmas of Coping with Modernization. George V. Coelho and Paul I. Ahmed, Eds. Plenum, New York, 1980. xxviii, 538 pp. \$27.50. Current Topics in Mental Health.

**Violence, Conflict, and Politics in Colombia.** Paul Oquist. Academic Press, New York, 1980. xiv, 266 pp. \$25.

**Wildlife Biology.** Raymond F. Dasmann. Wiley, New York, ed. 2, 1981. x, 212 pp., illus. \$17.95.

**Women and Violence.** Miriam F. Hirsch. Van Nostrand Reinhold, New York, 1981. xx, 386 pp. \$17.95.

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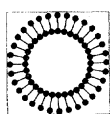
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**Endocrinology—Physiology—Biology.** Ph.D. 1977. Postdoctorate, 3 years. Research on corpus luteum function, maintenance of pregnancy, neuroendocrine control of gonadotropin secretion and ovulation, and biorhythms utilizing RIA and radioreceptor assay for hormones. Publications. Desires academic position with teaching and research responsibilities. Available fall 1981. Box 125, SCIENCE. X

**Insecticide Toxicologist/Entomologist.** Ph.D. Pesticide metabolism in plants and insects. Experience with HPLC, GC, TLC, and so forth. Knowledge of laboratory screening and field development of pesticides. Publications. Seeking permanent industrial/academic position. Box 126, SCIENCE. X

**Marine Biochemical/Physiological Ecologist.** Research assistant professor at medical school seeks research/teaching position in liberal arts institution. Postdoctoral research, teaching experience, grants, publications. Box 110, SCIENCE. 5/22, 29

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## POSITIONS OPEN

### ACADEMIC COMPUTER CENTER DIRECTOR

The University of California, Riverside, invites applications and nominations for the position of Academic Computing Center Director. Responsibilities include: (i) directing the activities of the Center, a campuswide organization providing diversified computing services in support of instruction and research, including real-time instrumentation; (ii) interacting closely with faculty in the operation, design, and development of academic computing facilities and programs; (iii) providing liaison between the Center and computing activities in individual academic departments; and (iv) developing and implementing plans to meet future computing objectives of the campus.

Qualifications: B.A., B.S., or higher degree required. Experience and broad interest in hardware and software applications in a university environment required. Demonstrated communication, managerial, and planning skills. Salary range: approximately \$32,700 to \$46,000, depending on experience and background. Excellent benefits package.

Submit résumé and the names of three references by 12 June 1981 to:

Eleanor Montague  
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4118 Administration Building  
University of California  
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**ANATOMY.** Two temporary 1-year positions are available at the assistant or associate professor level. Ph.D. required. Teaching responsibilities primarily gross and/or elementary anatomy. Research areas open. Apply to: Dr. W. R. Goodge, Department of Anatomy, University of Missouri—Columbia, School of Medicine, Columbia, Missouri 65212. *Equal Opportunity Employer.*

**AQUATIC BIOLOGIST**—Interest in basic research; strong theoretical and organismal background; research specialty open. Ability to teach introductory biological courses and to develop advanced courses. Direct M.S. and Ph.D. students. Research and grant activity expected. Requires Ph.D. with postdoctoral or equivalent experience. Rank (tenure-leading) and salary open; commences 17 August. Apply by 15 June with curriculum vitae, reprints, and three recommendation letters to: Robert B. Kaul, Chairman, Aquatic Biology Search Committee, School of Life Sciences, University of Nebraska—Lincoln, Lincoln, Nebr. 68588. *Affirmative Action/Equal Opportunity Employer.*

### ASSISTANT PROFESSOR, TOXICOLOGY

Boston University School of Public Health, Environmental Health Section, invites applications for position of assistant professor of toxicology, to begin October 1981. This is a nontenure-track position. Duties include teaching a basic course in toxicology to M.P.H. students and develop an active research program in toxicology, preferably in the area of chemical carcinogenesis. Applicants must have at least 2 years of postdoctoral experience and a doctorate in toxicology or closely allied field. Please submit curriculum vitae by 15 June 1981 to: Dr. David Ozonoff, Chief, Environmental Health Section, Boston University School of Public Health, 80 East Concord Street, Boston, Mass. 02118.

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### COMPUTER SCIENCE EDITOR

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## ENTREPRENEUR

Wanted: the president for a new company creating products utilizing monoclonal antibodies; prefer background in this technology and in business. Contact: Robert F. Johnston at 609-924-3131, or Johnston Associates Inc., Pretty Brook Road, Princeton, N.J. 08540.

## ASSOCIATE DIRECTOR FOR SCIENTIFIC PROGRAMS OF THE FRED HUTCHINSON CANCER RESEARCH CENTER

Applications and nominations are invited for the position of Associate Director for Scientific Programs of this comprehensive cancer research center. The associate director will be responsible to the director for the administration of the scientific programs and for recommendations on assignment of space and resources and appointments and promotions within the scientific programs of the Center.

The associate director must be a recognized leader in the scientific community with a capability for critical judgment in basic biological sciences and be supportive of the goals of a comprehensive cancer center. A competitive salary is available together with adequate space to develop facilities for the associate director's own research program.

Applications and nominations should be submitted as soon as possible to: **Dr. James K. McDougall, Chairman, Search Committee for Associate Director (Scientific), Fred Hutchinson Cancer Research Center, 1124 Columbia Street, Seattle, Washington 98104.**

*The Fred Hutchinson Cancer Research Center is an Equal Opportunity/Affirmative Action Employer, M/F/H.*

## CSIRO RESEARCH SCIENTIST/SENIOR RESEARCH SCIENTIST DIVISION OF LAND USE RESEARCH CANBERRA, A.C.T., AUSTRALIA

CSIRO has a broad charter for research into primary and secondary industry areas. The Organization has approximately 7400 employees, 2500 of whom are research and professional scientists, located at divisions and sections throughout Australia.

**FIELD:** Geomorphology, Geology, Palynology.

**GENERAL:** The division is engaged in research on land and water resources and their evaluation for various uses. Its current research is concerned *inter alia* with providing information for important utilization and conservation of these resources and to develop better methods of storing, analysing, and presenting information about land. Towards this end, the Environmental Survey sub-group is concerned with regional land use problems and the interrelationships of a wide range of uses and land resources. Work is presently focused on southeastern Australia.

**DUTIES:** The division is seeking a geomorphologist/geologist to undertake research in multidisciplinary land and water management projects. The appointee will have responsibility for the geomorphological component of these projects. This could involve the application of remote sensing, particularly LANDSAT imagery, to broad scale resource assessment.

**QUALIFICATIONS:** A Ph.D. or equivalent qualification together with an interest in vegetation dynamics from the Quaternary period to the present. Experience in a multidisciplinary research team would be an advantage.

**SALARY:** Research scientist/senior research scientist, A\$17,972 to A\$26,109 per annum. Appointment at a higher level may be considered for outstanding applicants.

**TENURE:** Indefinite with superannuation.

**APPLICATIONS:** In writing, stating full personal and professional details, the names of at least two referees, and quoting reference number A3136 should reach: **The Chief, Division of Land Use Research, CSIRO, P.O. Box 1666, Canberra City, A.C.T. 2601, Australia, by 22 June 1981.**

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## CSIRO—INSTITUTE OF BIOLOGICAL RESOURCES DIVISION OF WILDLIFE RESEARCH CANBERRA, A.C.T., AUSTRALIA

**CHIEF OF THE DIVISION.** Applications are invited for the position of Chief, Division of Wildlife Research, from scientists who have an outstanding record of personal research achievement and leadership in wildlife research or other appropriate fields of science. The position of chief will become vacant due to the retirement of Dr. H. J. Frith, AO FAA FTS.

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 has grouped its research activities in five Institutes, and the Division of Wildlife Research is one of the divisions within the Institute of Biological Resources.

The Division of Wildlife Research has its headquarters in Canberra, A.C.T., and currently has field stations at Darwin, Northern Territory, and Helena Valley, Western Australia. The total divisional staff of 134 includes 31 research scientists and 20 other professional staff.

The main objective of the Division is an understanding of the biology of vertebrates, both native and introduced, in relation to wildlife management and pest control. The general objects of the research are to study the status and basic biology of species and their interactions with their environments, to provide information about fundamental principles in animal ecology, behaviour and physiology, and to show how this knowledge may be applied in the management of wildlife populations.

A chief of a division is responsible for the leadership, development, scientific direction and integration of the division's research programs, and is encouraged to promote active collaboration with other divisions, research bodies, and agencies working in associated areas.

The salary for the position of chief is negotiable, but will not be less than A\$41,658 per annum.

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 typically of 5 to 7 years, with subsequent options for a further term, if mutually desired.

Further information on the Division is contained in a booklet available on request from the Secretary (Personnel), CSIRO, at the address below, and 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 may be contacted at the address below.

Applications stating full personal and professional details, the names of at least three professional referees, and quoting reference number A5692 should reach: **The Secretary (Personnel), CSIRO, P.O. Box 225, Dickson, A.C.T. 2602, Australia, by 22 June 1981.**

## CSIRO RESEARCH SCIENTIST/SENIOR RESEARCH SCIENTIST (RESEARCH FELLOW) DIVISION OF FISHERIES RESEARCH MARINE LABORATORIES SYDNEY, N.S.W., AUSTRALIA

CSIRO has a broad charter for research into primary and secondary industry areas. The Organization has approximately 7400 employees, 2500 of whom are research and professional scientists, located in divisions and sections throughout Australia.

**FIELD:** Fisheries Biology.

**GENERAL:** The CSIRO Marine Laboratories, which include the Division of Fisheries Research and the Division of Oceanography, and a joint technical and administrative services group, is Australia's principal marine research institution with about 100 scientists investigating the physical, chemical, and biological features, including fisheries, of the oceans around Australia.

The appointee will join a team of 30 scientists investigating fisheries resources and will be located at Cronulla, Sydney, initially, but within 4 years the team will be transferred to Hobart, Tasmania.

**DUTIES:** To develop and undertake a research programme on marine fish resources around Australia. Initially, attention will be directed to demersal and pelagic resources associated with the continental mass. Field investigations on the division's vessels and on fishing vessels in the open sea will be involved. Temporary posting to other parts of Australia may be required.

**QUALIFICATIONS:** A Ph.D. or equivalent qualification in one of the ecological sciences or fisheries, with formal training in mathematics and statistics and relevant postdoctoral research experience. Demonstrable research ability and the ability to work effectively at sea are essential.

**SALARY:** Research scientist/senior research scientist (research fellow), A\$17,972 to A\$26,109 per annum. Appointment at a higher level may be offered to an outstanding applicant.

**TENURE:** 3 to 5 years. Superannuation benefits available.

**APPLICATIONS:** In writing, stating full personal and professional details, the names of at least two referees, and quoting reference number A2395 should reach:

**The Acting Chief  
Division of Fisheries Research  
CSIRO  
P.O. Box 21  
Cronulla, N.S.W. 2230, Australia**

by 22 June 1981.



## POSITIONS OPEN

**ASSISTANT PROFESSOR.** Colby College invites applications for the position of assistant professor as a sabbatical replacement to teach biochemistry for 1981-1982. Additional duties include a one-semester, nonmajors course and helping in organic laboratory. Curriculum vitae, transcripts, and supporting materials should be sent as soon as possible to: **Professor Paul E. Machemer, Chairman, Department of Chemistry, Colby College, Waterville, Maine 04901.** Applicants should arrange to have three letters of recommendation sent independently. *Colby College is an Affirmative Action/Equal Opportunity Employer.*

### FACULTY POSITION IN THE DEPARTMENT OF OCEAN ENGINEERING, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (MIT), IN THE FIELD OF HYDRODYNAMICS

Applications are invited from highly qualified individuals with a commitment to teaching and research in areas of hydrodynamics related to ocean engineering and naval architecture. Teaching responsibilities include participation in graduate subjects in marine hydrodynamics. Research activities may be in the broad area of interest to the Department of Ocean Engineering, including viscous flows, cavitation, lifting surfaces, wave resistance of ships, wave-body interactions, interfacial hydrodynamics of oil and water, and stochastic hydrodynamics.

Desirable qualifications include a broad knowledge of fluid mechanics and its application to the field of ocean engineering. Rank will be commensurate with experience, but an appointment at the assistant professor level is most likely, with a starting salary of \$24,000 for the academic year.

*Applications from all qualified candidates are welcome; minorities and women are encouraged to apply.* Applications, including a résumé, names of references, and copies of abstracts of publications, should be sent to: **Dr. Ira Dyer, Chairman, Department of Ocean Engineering, MIT, Building 5-228, Cambridge, Mass. 02139.**

The starting date for this appointment will be between 1 July and 1 September 1981.

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

### CSIRO RESEARCH SCIENTIST/SENIOR RESEARCH SCIENTIST DIVISION OF MATHEMATICS AND STATISTICS SYDNEY, N.S.W., AUSTRALIA

CSIRO has a broad charter for research into primary and secondary industry areas. The Organization has approximately 7400 employees, 2500 of whom are research and professional scientists, located in divisions and sections throughout Australia.

#### FIELD: Probability/Statistics.

**GENERAL:** The Division of Mathematics and Statistics has 104 staff, 75 of whom are professional scientists. Scientists of the division advise on the mathematical, numerical, and statistical aspects of research projects undertaken by other divisions of CSIRO as well as conducting basic research.

**DUTIES:** The appointee will be located with the division's group in Sydney and will participate in the research and consulting activities of that group. In particular, there will be responsibility to advise on statistical and mathematical problems arising in the Division of Applied Physics.

**QUALIFICATIONS:** A Ph.D. degree or equivalent qualifications. Preference will be given to applicants with experience in stochastic modeling and/or consulting experience in the physical sciences.

**SALARY:** Research scientist/senior research scientist, A\$17,972-A\$26,109 per annum.

**TENURE:** Indefinite with superannuation.

**APPLICATIONS:** In writing, stating full personal and professional details, the names of at least two referees, and quoting reference number A3576 should reach:

The Chief  
Division of Mathematics and Statistics  
CSIRO  
P.O. Box 965  
Canberra City, A.C.T. 2601, Australia  
by 22 June 1981.

## POSITIONS OPEN

### CHAIRMAN DEPARTMENT OF PATHOLOGY UNIVERSITY OF WASHINGTON

The University of Washington seeks a person with a distinguished academic record for the position of Chairman of the Department of Pathology to succeed Dr. Earl Benditt who has announced his retirement from administrative responsibilities. Send nominations and applications to:

**Robert E. Kalina, M.D.**  
Chairman, Pathology Search Committee  
Department of Ophthalmology, RJ-10  
University of Washington  
Seattle, Wash. 98195

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### University of California Cooperative Extension ENTOMOLOGY SPECIALIST Location: Berkeley Campus

Cooperative Extension career appointment to provide leadership for off-campus educational programs and to conduct applied research in entomology of deciduous fruit, nut, and greenhouse ornamental crops and to assure Affirmative Action in development/delivery of programs. Ph.D. in entomology preferred. Contact: **Cooperative Extension, Academic Personnel, 331 University Hall, University of California, Berkeley, Calif. 94720.** Closes 19 June 1981. Refer to Number 8108.

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**FISHERIES BIOLOGIST** to teach ichthyology, limnology, and general biology courses. Required: Ph.D. or ABD. Terms: assistant professor, tenure-earning or temporary (renewable for a maximum of 3 years) depending on qualifications, 9-month appointment, starting 20 August 1981. From a base salary of \$15,500. Letters of application, official transcripts, curriculum vitae, and three letters of recommendation should be sent by 19 June 1981 to:

**R. Leon Dinkins, Ph.D.**  
Chairperson of Search Committee  
Department of Biology  
Pittsburg State University  
Pittsburg, Kansas 66762

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### FOREST ECOLOGIST DEPARTMENT OF NATURAL RESOURCES CORNELL UNIVERSITY

Assistant professor of forest resources, available on or before February 1982. This 12-month, tenure-track appointment requires a Ph.D. in applied forest ecology. Responsibilities include conducting research on Northeastern forest ecosystems and advising graduate students (60 percent) and teaching in upper level forest ecology course, helping conduct a seminar in natural resources, and advising undergraduate students (40 percent). Research/teaching is expected to contribute toward policy and planning as well as an understanding of forest ecosystems.

Applications must be received no later than 28 August 1981. Send letter of application, including a statement of research and teaching interests, with résumé, transcripts, and names of at least three references, to:

**Dr. James P. Lassoie**  
Chairman of Search Committee  
Department of Natural Resources  
Fernald Hall  
New York State College of Agriculture  
and Life Sciences  
Cornell University  
Ithaca, New York 14853

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

## POSITIONS OPEN

### MOREHOUSE SCHOOL OF MEDICINE

**BIOCHEMISTRY**—Applications are invited for positions of assistant or associate professor commencing on or about 1 July 1981.

**MICROBIOLOGY AND IMMUNOLOGY**—The Department is seeking a virologist and an immunologist for faculty positions at the assistant professor level commencing on or about 1 July 1981. Candidates for all positions should possess the Ph.D. degree, have experience in and evidence of a commitment to excellence in teaching, as well as the ability to conduct an independent biomedical research program. Please send curriculum vitae, a brief statement of research and teaching experience and interests, and addresses of three references by 5 June 1981 to: **Thomas E. Norris, Ph.D., Associate Dean for Academic Affairs, Morehouse School of Medicine, 830 Westview Drive, SW, Atlanta, Ga. 30314.**

**EXPERIMENTAL ATMOSPHERIC CHEMIST.** To conduct independent research likely to include marine measurements, tropospheric and stratospheric sampling, global chemical cycles and related areas, and management of research group. Requires majority of: Ph.D. or equivalent in chemistry, oceanography, atmospheric science, or related discipline; extensive experience with laboratory and/or field measurements related to atmospheric chemistry; outstanding skill in experimental techniques for gas measurements; recognized publication record; demonstrated skill at supervising experimental scientists and interacting productively with theorists. Level and term of appointment will depend on qualifications. Minimum term: 5 years; salary range: \$34,400 to \$56,800. Apply by submitting résumé and publication list. For more information or to apply, contact: **Margareta Domecki, NATIONAL CENTER FOR ATMOSPHERIC RESEARCH, P.O. Box 3000, Boulder, Colorado 80307. Telephone: 303-494-5151, extension 581.** *An Equal Opportunity/Affirmative Action Employer.*

### FACULTY POSITION IN BIOCHEMISTRY

The Department of Biochemistry and Molecular Biology at The University of Texas Health Science Center at Houston invites applications for a faculty position from qualified individuals with a commitment to teaching and research in biochemistry and molecular biology. Responsibilities will include participation in the medical school curriculum and in the graduate training program within the Graduate School of Biomedical Sciences, as well as developing and conducting an independent research program. The area of research and the level of appointment are open; applicants should have postdoctoral research experience. Applicants should send curriculum vitae, list of publications, and a summary of research interests, and have three letters of recommendation submitted on their behalf to: **Dr. John A. DeMoss, Department of Biochemistry and Molecular Biology, The University of Texas Medical School at Houston, P.O. Box 20708, Houston, Texas 77025.** Application deadline: 15 June 1981. *An Equal Opportunity/Affirmative Action Employer.*

### FACULTY POSITION AVAILABLE OCCUPATIONAL HEALTH ENGINEERING/ INDUSTRIAL HYGIENE University of California, Irvine

Applications are invited for a possible position at the tenure level in occupational health engineering (OHE) in the School of Engineering pending approval of the State of California Budget in July 1981.

Candidates must have an earned doctorate degree in engineering of a closely related field, and significant experience in both the research and practical aspects of the engineering control of health related physical, chemical, and biological stresses. Special interests should preferably fall within the areas of the engineering of controls of process modifications for occupational health related problems.

The OHE program is part of the overall environmental engineering program and is one of the focal programs in the University of California Southern Occupational Health Center, as well as being part of the NIOSH-established Educational Resource Center for Region IX at University of California, Irvine.

Responsibilities include teaching graduate and undergraduate courses, conducting scholarly research, and conducting field studies in cooperation with the medical and nursing programs within the center.

Applicants are encouraged to reply as soon as possible. *The University of California is an Affirmative Action/Equal Opportunity Employer.* Write to: **Professor Jan Scherfig, Environmental Engineering, University of California, Irvine, California 92717.**

**CSIRO  
RESEARCH SCIENTIST/SENIOR RESEARCH SCIENTIST  
(RESEARCH FELLOW)  
DIVISION OF ATMOSPHERIC PHYSICS  
ASPENDALE, VICTORIA, AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The Organization has approximately 7400 employees, 2500 of whom are research and professional scientists, located in divisions and sections throughout Australia.

**FIELD: Geophysical Fluid Dynamics.**

**GENERAL:** The CSIRO Division of Atmospheric Physics maintains an active Geophysical Fluid Dynamics group, with a well-equipped laboratory containing a wide range of apparatus for experimental studies of rotating and stratified fluids. Recent laboratory studies include stratified flow past topography, turbulence in rotating systems, studies of plume rise and cumulus cloud simulation, internal wave-mean flow interaction, and modeling of oceanic boundary mixing. In addition, the group maintains an active program in theoretical studies of atmospheric dynamics, and makes a substantial commitment to a Cold Fronts Research Program. The division also maintains active research programs in climatology, radiation and cloud physics, and various branches of atmospheric chemistry. It maintains close ties with the other meteorological research institutions in the Melbourne area, including the Australian Numerical Research Centre, the Bureau of Meteorology, and various departments of Melbourne and Monash Universities.

**DUTIES:** The appointee will join the geophysical fluid dynamics group to undertake research in atmospheric (and/or oceanic) dynamics, based on laboratory experimental work and theoretical studies.

**QUALIFICATIONS:** A Ph.D. or equivalent qualification is required, and experience with laboratory experimental work is desirable.

**SALARY:** Research scientist/senior research scientist (research fellow), A\$17,972 to A\$26,109 per annum.

**TENURE:** Three years initially. Superannuation benefits available.

**APPLICATIONS:** In writing, stating full personal and professional details, the names of at least two referees, and quoting reference number A1155 should reach:

The Chief  
Division of Atmospheric Physics  
CSIRO  
P.O. Box 77  
Mordialloc, Victoria 3195, Australia

by 22 June 1981.

**CSIRO  
RESEARCH SCIENTIST/SENIOR RESEARCH SCIENTIST  
(RESEARCH FELLOW)  
DIVISION OF PLANT INDUSTRY  
CANBERRA, A.C.T., AUSTRALIA**

CSIRO has a broad charter for research into primary and secondary industry areas. The Organization has approximately 7400 employees, 2500 of whom are research and professional scientists, located in divisions and sections throughout Australia.

**FIELD: Photosynthesis and Photochemistry.**

**GENERAL:** The division conducts pure and applied research in biochemistry, microbiology, genetics, plant breeding, genetic resources, plant nutrition, ecology, crop adaptation, soil fertility, and plant introduction.

The position is in the Biochemistry Section where current research includes biochemical and biophysical studies on chloroplast membranes, photosynthetic carbon metabolism, the biochemistry and physiology of seed proteins, protein and nucleic acid metabolism in chloroplast, and haemoproteins involved in nitrogen fixation. (Other research interests include the isolation and characterization of chlorophyll-protein complexes, their location across and among thylakoids, and their reconstitution into liposomes.)

**DUTIES:** To undertake research on the relationship between the molecular organization of chlorophyll-protein complexes, thylakoid membrane structure, and photosynthetic capacities of plants grown under different light climates. This fundamental research project is intended to provide a rational basis for an understanding of how the photosynthetic yields of plants could be increased by modifications of their primary photosynthetic processes.

**QUALIFICATIONS:** Ph.D. or equivalent in an appropriate field. Previous biochemical research experience with chloroplast membranes is essential; some experience with biophysical techniques would be desirable.

**SALARY:** The appointment will be made within the salary range of research scientist/senior research scientist (research fellow), A\$17,972 to A\$26,109 per annum.

**TENURE:** The appointment will be for a fixed term of 3 years. Superannuation benefits available.

**APPLICATIONS:** In writing, stating full personal and professional details, the names of at least two referees and quoting reference number A4525 should reach: The Chief, Division of Plant Industry, CSIRO, P.O. Box 1600, Canberra City, A.C.T. 2601, Australia, by 22 June 1981.

# PhD

## MOLECULAR BIOLOGIST

SmithKline Corporation, a diversified multinational pharmaceutical firm, located in Philadelphia, PA, is seeking a person to develop host-vector systems for cloning and expression of eukaryotic genes. This position is located at our suburban facility, 17 miles from Philadelphia.

The successful candidate for this new position should be capable of directing a research program on molecular genetics and become a leader in cloning and expression of eukaryotic genes. This person should have a PhD in Biological Sciences with experience in modern DNA technology as applied to one of the following areas: yeast host-vector systems, gene expression, or synthesis of cDNA.

SmithKline offers an excellent compensation program and opportunity for professional growth. Please send resume with salary history to: Mr. William Groves, SMITH KLINE & FRENCH LABORATORIES, A Division Of SMITHKLINE CORPORATION, 1594 Spring Garden Street, P.O. Box 7929, Philadelphia, PA. 19101. We are an equal opportunity employer, M/F/H/V

**SmithKline**  
Smith Kline & French Laboratories

## RESEARCH ASSISTANT

Applications are invited for the position of Research Assistant in the Central Nervous System Research Unit. This position would require follow-up studies on lead compounds by receptor binding assay, enzymatic assay, radioimmunoassay, GC/MS and HPLC.

Qualifications include a minimum of an MS or BS degree in Biochemistry with training in CNS Pharmacology and experience in procedures used with small laboratory animals. Additional training in Computer Science is desirable.

Kalamazoo is a mid-size, southwestern Michigan community providing immediate access to an excellent mix of cultural/recreational pursuits. Excellent benefits and salary program. Please submit resume in confidence to:

Lance D. Williams

**Upjohn**

**The Upjohn Company**  
7000 Portage Road  
Kalamazoo, Michigan 49001

An Equal Opportunity Employer M/F

## POSITIONS OPEN

### FACULTY POSITION IN VIRAL ONCOLOGY

Applications are invited for a faculty position at the University of Pennsylvania School of Veterinary Medicine. The position is to conduct research primarily on the bovine leukemia virus system. The appointee will be expected to develop an active and independent research program in coordination with the ongoing studies in the Leukemia Unit. Candidates should have a strong background and experience both in the molecular and biological aspects of RNA tumor viruses. Minimum qualifications are a Ph.D., D.V.M., or M.D. Rank and salary will depend on qualification and experience. The position is available immediately. Applicants should submit curriculum vitae, copies of representative publications, and the names of three referees to:

**Dr. Jorge F. Ferrer**  
Chief, Comparative Leukemia Studies Unit  
University of Pennsylvania  
School of Veterinary Medicine  
New Bolton Center  
Kennett Square, Pa. 19348

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

### FIELD DIRECTOR Institute of Arctic and Alpine Research Mountain Research Station

Three-year appointment, resident field director of the Mountain Research Station, Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, and an affiliation with an academic department most appropriate to the interests of the candidate at the assistant or associate professor level.

Applicants should have a Ph.D., a record of environmental research and a continuing interest in research in one or more of the following fields: glaciology/snow hydrology; remote sensing/cartography; periglacial geomorphology; climatology; plant, animal, or microbial ecology; and limnology.

The field director is responsible to the director of INSTAAR for operating and developing the Mountain Research Station of the University of Colorado as a research and teaching facility and for participating in environmental research of an interdisciplinary nature with other members of INSTAAR.

Send letter of application, curriculum vitae, and supporting material, including names and addresses of three referees, to:

**Dr. Nelson Caine**  
Institute of Arctic and Alpine Research  
University of Colorado  
Campus Box 450  
Boulder, Colorado 80309

The closing date for completed applications is 12 June 1981. The appointment should start 1 September 1981. *The University of Colorado is an Equal Opportunity/Affirmative Action Employer.*

### RESEARCH ASSOCIATE Institute of Arctic and Alpine Research Mountain Research Station

Three-year, renewable appointment as resident research associate at the Mountain Research Station, Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder. Applicants should have a Ph.D., an active record of environmental sciences research and an interest in long-term ecological research in any of the following fields: glaciology/snow hydrology; remote sensing/cartography; periglacial geomorphology; climatology; plant, animal, or microbial ecology; and limnology. The research associate will report to the field director of the Mountain Research Station and will be expected to develop own research program, to participate in interdisciplinary environmental research with other members of INSTAAR, to interact with and advise resident graduate students, and to contribute to the teaching program at the Mountain Research Station.

Twelve-month starting salary, commensurate with experience, up to \$24,000 in the professional exempt category. Closing date for applications is 12 June 1981. Possible starting date as early as 1 July 1981. *The University of Colorado is an Equal Opportunity/Affirmative Action Employer.*

Send letter of application, curriculum vitae, and supporting material, including names and addresses of three referees, to:

**Dr. Patrick J. Webber, Director**  
Institute of Arctic and Alpine Research  
University of Colorado  
Campus Box 450  
Boulder, Colorado 80309

## POSITIONS OPEN

### FACULTY POSITIONS IN PHARMACOLOGY UNIVERSITY OF CALIFORNIA, IRVINE

Applications are invited for two tenure-track or tenured faculty positions in cardiovascular pharmacology and neuropharmacology. Candidates should be outstanding scholars and investigators with research interests at the molecular level and with demonstrated commitment to medical and graduate education. A Ph.D. in pharmacology, biochemistry, or a related area, or M.D. is required. Level of appointment and salary will be commensurate with achievement and experience.

Curriculum vitae, references, and a summary of research interests should be sent before 15 July 1981 to: **Dr. Larry Stein, Chairman, Department of Pharmacology, College of Medicine, University of California, Irvine, California 92717.** *The University of California is an Equal Opportunity Employer.*

### HUMAN BIOCHEMICAL GENETICS

Postdoctoral position is available in a program studying the biochemistry and molecular genetics of Huntington's disease. Studies use cell cultures to analyze the role of GABA in peripheral nonneuronal tissues and to determine the chromosomal location of the HD gene(s). Experience in cell hybridization and mammalian molecular genetics desirable. Send résumé and names of three references to: **Peter N. Gray, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190.**

*An Equal Opportunity/Affirmative Action Employer*

### IMMUNOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

The Division of Research Immunology in the Department of Pathology and Laboratory Medicine seeks to fill a tenure-track position at the level of assistant professor. This would involve individuals with demonstrated research activities and interests in the area of molecular immunology. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Please send curriculum vitae, résumé, and three references to:

**Darcy B. Wilson**  
Head, Division of Research Immunology  
Department of Pathology and Laboratory Medicine  
University of Pennsylvania  
School of Medicine/G3  
Philadelphia, Pa. 19104

### IMMUNOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

The Department of Pathology and Laboratory Medicine seeks to fill two tenure-track positions for physician/scientists at the level of assistant or associate professor. This would involve individuals with research interests in basic aspects of human cellular immunology or in molecular immunology, and the training and proven ability to fill service responsibilities in either clinical immunology or immunopathology. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Please send curriculum vitae, résumé, and three references to:

**Dr. Leonard Jarett, Chairman**  
Department of Pathology and Laboratory Medicine  
Hospital of the University of Pennsylvania  
3400 Spruce Street/G1—Box 671  
Philadelphia, Pa. 19104

### PATHOLOGY FACULTY POSITIONS

The Department of Pathology and Laboratory Medicine of the University of Pennsylvania is interested in recruiting two junior faculty to strengthen and expand research activity in the pathobiology of heart, blood vessels, and lung. Candidates must have M.D. or M.D.-Ph.D. degrees and qualified training to actively participate in the diagnostic and teaching activities of the Autopsy Division. Excellent opportunities for collaborative research exist on campus but the applicants are expected to have or develop independent research programs and to successfully compete for grant support.

Salary is commensurate with training and experience. Fringe benefits are excellent. Qualified applicants send curriculum vitae and names of references to: **Giuseppe G. Pietra, M.D., Director, Division of Autopsy Pathology, Box 750, Hospital of the University of Pennsylvania, 3600 Spruce Street, Philadelphia, Pa. 19104.**

*The University of Pennsylvania is an Equal Opportunity Employer.*

## POSITIONS OPEN

**LEWIS AND CLARK COLLEGE FACULTY POSITIONS.** Full-time position for a Ph.D. **PHYSICAL CHEMIST** to teach three terms of physical chemistry lecture, one term of physical laboratory with emphasis on instrumentation, and two terms of general chemistry laboratory. This non-tenure-track, assistant professor position starts 1 September 1981. A second opening is a full-time, one-term position for a **BIOCHEMIST** to teach biochemistry lecture and laboratory. This non-tenure-track, assistant professor position begins 15 March 1982. The department has laboratories equipped for teaching and research in both physical chemistry and biochemistry and is listed in *Research in Chemistry at Private Undergraduate Colleges*, second edition. Lewis and Clark is an undergraduate, liberal arts institution. Submit a résumé, undergraduate and graduate transcripts, a statement on undergraduate research and teaching, and three recommendations by 15 June 1981 to: **Dr. William J. Randall, Chairman, Department of Chemistry, Lewis and Clark College, Portland, Oregon 97219.** *Lewis and Clark College is an Equal Opportunity Employer and invites the candidacy of qualified minority persons and women.*

### GENETIC ENGINEERING

#### Project Leaders

Young, rapidly growing biotechnology company in the Boston area is seeking highly qualified candidates to lead projects involving the application of recombinant DNA technology to medical, agricultural, and chemical fields. Applicants should have a doctorate and at least 2 years of research experience with recombinant DNA techniques. We offer an attractive working environment close to the major academic centers in Boston-Cambridge, competitive salary and benefits, and stock ownership. If you are interested in becoming a partner in a young, expanding company run by scientists, send a résumé and references to: **Box 119, SCIENCE.**

### UNIVERSITY OF WESTERN AUSTRALIA PERTH

#### LECTURER IN PHYSIOLOGY

Applications are invited for appointment to the above position in the Department of Physiology. Applicants with experience in any area of physiology will be considered. Those with an interest in sensory physiology and/or biophysics will be especially welcome. The department has excellent facilities for auditory research and an active group, headed by Associate Professor B. M. Johnstone, working in this area.

Duties will include teaching physiology at undergraduate levels to medicine, science, and dentistry students, engaging in research and supervising graduate student research projects. The appointment may be taken up from 1 January 1982. Further information may be obtained from the head of the department, Professor E. H. Morgan.

Current salary range: A\$19,132 to A\$25,132 per annum. Benefits include superannuation, fares to Perth for appointee and dependent family, removal allowance, study leave and long service leave, and housing loan scheme. Conditions of appointment are available from the acting staffing officer.

Applications in duplicate stating full personal particulars, qualifications, and experience should reach: **The Acting Staffing Officer, University of Western Australia, Nedlands, Western Australia, 6009, Australia, by 20 June 1981.** Candidates should request three referees to write immediately to the acting staffing officer.

**MOLECULAR BIOLOGIST** to work on the genetics and regulation of nitrogen fixation in *Azotobacter vinelandii* as part of an ongoing team effort, primarily concerned with understanding the mechanism of the process. Send résumé and other relevant information to: **Dr. William E. Newton, C. F. Kettering Research Laboratory, Yellow Springs, Ohio 45387.**

**PATHOLOGIST—ACADEMIC POSITION.** The Department of Pathology, University of South Carolina School of Medicine, invites application for appointment at the level of assistant or associate professor. Applicants must have M.D. degree or equivalent. The position involves teaching medical students and establishing an active research program. Send replies and curriculum vitae to: **Dr. J. B. Caulfield, Chairman, Department of Pathology, University of South Carolina, Columbia, S.C. 29208.** *An Affirmative Action/Equal Opportunity Employer.*

# Neurochemist/ Pharmacologist

We have an excellent opportunity for a Biochemical Pharmacologist with a minimum of 2 years experience beyond the Ph.D. level. Specific interests should include IN VITRO radio receptor ligand methodology, in addition to experience in other aspects of biochemical pharmacology.

The successful applicant will be given appropriate facilities and technical staff to actively participate in drug development research within our expanding neuropsychopharmacology program.

Located near Albany, N.Y., we offer excellent salary, benefits and the opportunity for career growth within a dynamic professional environment.

Please send resume including salary requirements in confidence to Personnel Administrator



**STERLING-WINTHROP  
RESEARCH INSTITUTE**  
Division of Sterling Drug Inc.  
Columbia Turnpike  
Rensselaer, New York 12144  
An equal opportunity employer, M/F

# NEN

New England Nuclear, a world leader in the manufacture of radioactive chemicals for medical research and diagnosis is growing rapidly. We are your opportunity to contribute to a better, healthier world while giving yourself a better career at the same time.

## Biochemist

Reporting directly to the Technical Director, the successful candidate will design, conduct, and coordinate development projects aimed at producing new research systems (kits). In conjunction with other departments, will initiate proposals for new products and provide technical support to a professional level staff.

We are seeking a highly motivated individual with a PhD in Biochemistry/Molecular Biology and postdoctoral experience preferably in molecular biology. Experience should include use of state of the art techniques in the field.

NEN offers competitive salaries and a comprehensive, benefit package including Health and Dental Plans, Life Insurance and Relocations.

Interested applicants should submit resume to Carol Rondonanski, New England Nuclear, 549 Albany Street, Boston, MA 02118.



**New England Nuclear**

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Come to the Exciting World  
of

International Health Care

## THE KING FAISAL SPECIALIST HOSPITAL AND RESEARCH CENTRE THE CANCER THERAPY INSTITUTE RIYADH, SAUDI ARABIA

Managed by the Hospital Corporation of America group, this modern regional acute care specialty and referral centre is expanding its services and research capabilities. At this time qualified personnel are being sought to bring the newly constructed *CANCER THERAPY INSTITUTE* on-line, which will ultimately employ a staff of approximately 135 personnel in Radiation Therapy/Patient treatment, applied clinical research and manufacture of radio-pharmaceuticals.

Start-up personnel are needed for the following departments:

*Administration*  
Deputy Director  
Asst. for Technical Affairs

*Radionuclide Production  
and Distribution*  
Department Head  
Radiochemists

*Cyclotron Operations*  
Operators  
Technologists  
Machinists/Model Makers

*Services*  
Department Head  
Sr. Data Analyst  
(Computer Systems)  
Data Analyst  
(Computer Systems)

*Medical Physics*  
Medical Physicists

*Radiation Biology*  
Department Head  
Scientists

Benefits for a 2 year contract include: exceptional compensation; free transportation; 30 day annual paid vacation; free furnished housing; educational tuition for eligible dependents; bonus pay and leave; and more. (Depending on available position, contract may be single status only).

If you wish to become a member of this multi-national Health Care team, we would like to hear from you. Please call toll-free 800-251-1229 or indicate the position in which you are interested by sending your resume and salary history to: Steven H. Ludlam, Sr. International Representative, Hospital Corporation International, One Park Plaza, Nashville, TN 37202, An Equal Opportunity Employer.

# HOSPITAL CORPORATION INTERNATIONAL

## POSITIONS OPEN

The University of Michigan Medical School, Department of Anesthesiology may have, from time to time, **SEVERAL POSITIONS AVAILABLE AT THE INSTRUCTOR THROUGH PROFESSOR LEVEL.** Board-certified or -eligible anesthesiologist qualified to obtain Michigan licensure. Research, clinical, didactic experience necessary. Reply to: **Box 120, SCIENCE.** A nondiscriminatory, Affirmative Action Employer.

### MICROBIAL GENETICS/GENETIC ENGINEERING

Seeking a full-time, tenure-track faculty member to begin September 1981 or January 1982; rank and salary commensurate with experience. This person will be expected to participate in undergraduate and graduate teaching and to develop an active research program in the area of microbial genetics/genetic engineering. There will be an opportunity to work with other faculty to establish an interdepartmental program in genetic engineering. Teaching load variable dependent upon research activities. Ph.D. and postdoctoral experience required. Applicants should submit curriculum vitae, a statement of research and career goals, and the names of three references to: **Harold B. Moore, Chairman, Department of Microbiology, San Diego State University, San Diego, California 92182.** Closing date for applications will be 15 August 1981.

**MOLECULAR BIOLOGY.** Tenure-track assistant professor for Ph.D. in biochemistry or molecular biology. Evidence of research activity and productivity is necessary. A strong commitment to research is expected. Teaching involves both medical and graduate teaching and to develop an active research statement of research plans and have three letters of recommendation sent by 1 July 1981 to: **Dr. Guilford Rudolph, Head, Department of Biochemistry, Louisiana State University Medical Center, Box 33932, Shreveport, La. 71130.** Equal Opportunity Employer.

**PATHOLOGY.** Targeted research project in cancer field available for Ph.D. with experience in cytoskeleton and cell surface protein biochemistry. Salary (mid-\$20,000's) available for 1 year, after which successful candidate must obtain grant support. Send curriculum vitae, list of publications, and three letters of recommendation to: **Dr. Harold F. Dvorak, Chief, Department of Pathology, Beth Israel Hospital, Boston, Mass. 02215.** The Beth Israel Hospital is an Equal Opportunity/Affirmative Action Employer.

### PHYSIOLOGIST University of California, Irvine (UCI)

Director, Neonatal Physiology Research Laboratory, UCI Medical Center. Department of Pediatrics faculty position at the assistant/associate level. Requirements: Ph.D., published clinical or laboratory research in the field of cardiopulmonary physiology, with special emphasis on both invasive and noninvasive techniques; background in systemic and tissue oxygenation; microcirculation/skin physiology related to dermal heat and mass transport; electrochemical sensors and transcutaneous gas monitoring. Responsibilities include directing ongoing research program, teaching, administration, and writing of grant proposals and scientific papers. Send résumé and names/addresses of three references to: **Robert F. Huxtable, M.D., Department of Pediatrics, University of California Irvine Medical Center, 101 City Drive South, Orange, Calif. 92668.** An Affirmative Action Employer. Closes 26 June 1981.

### PLANT GENETICS/CELL BIOLOGY

Auburn University is seeking qualified applicants for a tenure-track teaching and research position at the assistant professor level beginning 15 September 1981, or soon thereafter. The individual selected will teach in a general biology program and will develop a graduate research program in plant genetics/cell biology. Individuals with training and experience in plant cell culture techniques are encouraged to apply. A person with competence and interests in higher plant systems but with training in microbiology or molecular biology will be considered. Salary is commensurate with training and experience. Please submit transcripts, a brief statement of teaching and research interests, curriculum vitae, and a list of at least three professional references before 1 July 1981 to:

Search Committee  
Department of Botany, Plant Pathology,  
and Microbiology  
Auburn University, Alabama 36849

Auburn University is an Equal Opportunity/Affirmative Action Educational Institution.

## POSITIONS OPEN

**POSTDOCTORAL INDIVIDUAL** with cell biological and biophysical interests for work on cellular factors controlling translational mobility of molecules on surfaces and/or within the cytoplasm of living cells. The work will involve the following techniques: fluorescence recovery after photobleaching (FRAP or FPR), fluorescence microscopy and image analysis, and biochemical and cell biological methods. Contact:

Dr. Ken Jacobson  
Laboratories for Cell Biology  
Department of Anatomy  
University of North Carolina  
Chapel Hill, N.C. 27514  
Telephone: 919-966-5703

An Equal Opportunity/Affirmative Action Employer

**POSTDOCTORAL POSITION** available immediately for study of membrane transport in bacterial and animal cells. Areas of interest include genetic, biochemical, and physiological approaches to analysis of ion-coupled transport, including ATPases and substrate cotransport. Send letter with curriculum vitae and names of references to: **Peter C. Maloney, Department of Physiology, Johns Hopkins Medical School, Baltimore, Maryland 21205.**

**POSTDOCTORAL POSITION** available immediately for NIH-supported, biochemical-genetic study of mechanisms of translational regulation by bacteriophage T4; for example, see *J. Virol.* 32, 905 (1979). Desirable (but not obligatory) background: microbial genetics, in vitro translation, protein and nucleic acid purification. Send résumé, plus letters directly from three or more references, to: **Dr. John Wiberg, Department of Radiation Biology and Biophysics, University of Rochester School of Medicine, Rochester, N.Y. 14642.** Telephone: 716-275-3841.

**POSTDOCTORAL POSITIONS.** Two positions available immediately, one in Ottawa and one in Edmonton, Alberta, to join a group conducting cytochemical, immunoelectronmicroscopic, and biochemical analysis of nuclear activation in lymphocyte stimulation. Background in tissue culture, monoclonal antibodies, protein and/or chromatin biochemistry or in electron microscopy, immunolabeling desirable. Salary range: \$14,000 to \$16,000, plus benefits. Send curriculum vitae, representative publications, and letters of reference to: **Dr. David L. Brown, Department of Biology, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5.**

**POSTDOCTORAL POSITION** starting this summer to the middle of 1984. Role of cyclic nucleotides, especially phosphodiesterase, in the light response of phycomyces. Purification, identification, and characterization of relevant proteins. Isolation and characterization of mutant strains. Candidate must have appropriate experience in biochemistry. Salary negotiable. Send curriculum vitae and names of three references to: **Dr. Robert J. Cohen, Department of Biochemistry and Molecular Biology, College of Medicine, University of Florida, Gainesville, Fla. 32610.**

**POSTDOCTORAL TRAINING POSITION**—Electrophysiological and biophysical approaches toward cellular cardiac function. Applicants (M.D. or Ph.D.) should send curriculum vitae to: **Dr. Alan R. Freeman, Chairman, Department of Physiology, Temple University School of Medicine, Philadelphia, Pa. 19140.** Equal Opportunity/Affirmative Action Employer.

One-year appointment as **SABBATICAL REPLACEMENT** to commence 1 September 1981. Ph.D., expertise, and teaching ability required in two or more of the following areas: animal physiology, electron microscopy, endocrinology, entomology, general biology, ornithology, and plant ecology. Send curriculum vitae, three letters of recommendation, and transcripts by 15 June to: **Dr. Joseph A. J. Orkiszewski, Department of Biology, Villanova University, Villanova, Pa. 19085.** An Affirmative Action/Equal Opportunity Employer.

### SENIOR SCIENTISTS

- 1) **PRINCIPAL INVESTIGATOR** to take over ongoing Animal Bioassay Program. Experience important; excellent salary.
- 2) **MOLECULAR GENETICIST** with established program. Fully equipped Biotechnology Laboratory available.

All appointments gain joint academic rank where qualified. Generous fringe benefits.

Papanicolaou Cancer Research Institute  
P.O. Box 016188, Miami, Florida 33101  
Attention: Dr. Julius Schultz

## POSITIONS OPEN

### PROFESSOR

Department of Environmental Health  
Harvard School of Public Health

Applications are invited from persons with leadership qualities for a professorship in the Department of Environmental Health, Harvard School of Public Health, Boston, Massachusetts. This department is comprised of five existing units: Physical and Engineering Sciences, Occupational Health, Pulmonary Biology, Radiobiology, and Toxicology.

The applicant must have either a M.D. or Ph.D. or equivalent degree as well as a distinguished research and publication record in an appropriate field, and skills as a teacher and administrator. The successful candidate is expected to assume leadership of the department for a defined term. The person accepting the position must be dedicated to fostering excellence in research and teaching in the area of environmental health.

Applications and nominations, along with curriculum vitae, letter of application, and names and addresses of three references, should be sent to:

Dr. Robert P. Geyer  
Chairman, Search Committee  
Harvard School of Public Health  
665 Huntington Avenue  
Boston, Massachusetts 02115

Applicants should respond before 15 June 1981. Women and/or minority candidates are encouraged to apply.

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**RESEARCH ASSOCIATE** to study the mechanism of translation of genes using bacterial cells as model system, to understand cell transformation and proliferation of tumors. The synthesis of nucleic acid analogs, for example, aminoacyl oligonucleotides; aminoacylation of tRNA or its fragments; use of radioisotopes; isolation of enzymes involved in protein synthesis. Must be able to use laboratory equipment, such as high-pressure liquid chromatography; electrophoresis; ultracentrifuge; UV and NMR spectroscopy; scintillation counter, and so forth. Ph.D. in chemistry required. Salary: \$19,685 per year; 40-hour week. Contact: **Michigan Employment Security Commission, 7310 Woodward Avenue, Detroit, Michigan 48202, attention: C. Patterson.** Telephone: 313-876-5264.

A **RESEARCH ASSOCIATE** position is available at the Stanford Synchrotron Radiation Laboratory (SSRL) starting after 1 September 1981 to work with Consulting Professor R. Z. Bachrach. The renewable term appointment will be from 1 to 3 years.

Candidates should have experimental research experience in semiconductor surface physics and an interest in soft x-ray radiation physics and instrumentation.

The research associate will participate in experiments utilizing photoemission or surface EXAFS experiments to probe the atomic and electronic structure of semiconductor surfaces. In addition, the research associate will participate in a project designing and building a new high-resolution branch line soft x-ray spectroscopic capability on Beam Line V at SSRL.

Interested candidates should send curriculum vitae to: **Professor Robert Bachrach** at:

Stanford Synchrotron Radiation Laboratory  
Stanford Linear Accelerator Center  
SLAC Bin 69, P.O. Box 4349  
Stanford, Calif. 94305

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Please send curriculum vitae and three letters of recommendation to: **Dr. Stanley L. Manatt, 183-901, or Professional Staffing, Department E44, Jet Propulsion Laboratory, California Institute of Technology, 4800 Oak Grove Drive, Pasadena, Calif. 91109.** An Equal Opportunity Employer, M/F.



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A background in classical whole animal myocardial experimentation is essential and expertise in the biochemistry of myocardial functions is desirable. Candidates must have an established research record and excellent communication skills.

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Two Postdoctoral Research Associate positions will be available in October, 1981, in the Biology Department at Brookhaven National Laboratory.

One position is for study of photosynthetic mechanisms of nitrogen reduction in heterocysts of cyanobacteria. Optical and EPR spectroscopic techniques are applied to isolated heterocysts and photosynthetic membrane preparations. A Ph.D. in plant physiology or biochemistry, with experience in photohydrogen production, nitrogen fixation or hydrogen assimilation research, preferably in cyanobacteria, is desirable.

The other position is for study of electron flow and energy conversion mechanisms in higher plant photosynthesis. Techniques used include optical and EPR spectroscopy of intact chloroplasts and isolated membrane complexes. A Ph.D. in biochemistry, plant physiology or biophysics, with experience of bioenergetic and electron transport systems, preferably in photosynthesis, is desirable.

Initial appointments will be for one year, at a minimum salary of \$14,000 per year, with possibility of extension.

Candidates should send resume and names of three referees to Dr. Geoffrey Hind, Biology Department, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, N.Y. 11973

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## POSITIONS OPEN

**THE HARVARD SCHOOL OF PUBLIC HEALTH** is searching for a **MOLECULAR BIOLOGIST** for the Department of Tropical Public Health to work on problems of parasitology relevant to tropical medicine at the level of assistant professor. The candidate should have a doctoral degree and relevant postdoctoral experience in molecular biology as well as experience in handling protozoa and helminth parasites. Previous experience in immunology including techniques in the production of monoclonal antibodies and an acquaintance with handling of vectors is preferred. The position will entail both research and teaching. Although start-up funds for salary and supplies will be available, the individual will eventually have to obtain salary support and funds for research from grants. Applications should be sent to: **Dr. John David, c/o Dean's Office, Harvard School of Public Health, 677 Huntington Avenue, Boston, Mass. 02115. Affirmative Action/Equal Opportunity Employer.**

The Department of Neurology, Memorial Sloan-Kettering Cancer Center, is seeking a fully trained **RADIOCHEMIST** to produce short-lived cyclotron and generator-produced radionuclides for use in positron emission tomography (PET). The applicant should be well versed in both physical and organic chemistry; experience in "hot atom" chemistry is also desirable. Further, the applicant must demonstrate his/her ability to mount an effective PET radiochemistry program and eventually to attract outside grant support. Academic appointments and salary are negotiable. For further information, contact: **Dr. Jerome B. Posner, Chairman, Department of Neurology, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, N.Y. 10021. Telephone: 212-794-7047. Equal Opportunity/Affirmative Action Employer, M/F.**

**RESEARCH ASSISTANT POSITION** available immediately for an individual interested in research on clinical pharmacology of anesthetic agents. The successful applicant must have a B.S. degree in biochemistry or physiology and an excellent command of the English language. Salary is commensurate with experience. Qualified applicants should send a copy of their curriculum vitae to: **Elemer K. Zsigmond, M.D., Director of Research, Department of Anesthesiology, University of Illinois, 1740 West Taylor Street, Chicago, Ill. 60612. An Equal Opportunity/Affirmative Action Employer.**

**TENURE-TRACK POSITIONS, DEPARTMENT OF MEDICAL BIOLOGY, COLLEGE OF MEDICINE, THE UNIVERSITY OF TENNESSEE.** Applicants are sought for two tenure-track positions at the assistant professor level in the Department of Medical Biology, University of Tennessee Center for the Health Sciences, Knoxville Unit. These are full-time academic research positions. Primary responsibilities will be in research, but involvement in graduate and undergraduate education is required. Appointment requires Ph.D. with postdoctoral experience. The successful applicants will work in the laboratories of established investigators until extramural funding is obtained. Areas available are hematology with emphasis in thrombopoietin and erythropoietin research; biochemistry with emphasis in molecular toxicology, and nucleic acid research, or gene regulation of fetal hemoglobin; immunology with emphasis in cellular cytotoxicity, hybridoma techniques, human leukemia cell culture, and heterotransplantation of human tumors. Positions are available immediately. Salary commensurate with experience. Send letter of application, résumé, and two reference letters to: **Ernest W. Fuson, Ph.D., Department of Medical Biology, The University of Tennessee, Knoxville Unit, 1924 Alcoa Highway, Knoxville, Tennessee 37920. The University of Tennessee is an Equal Opportunity/Affirmative Action Employer.**

## ASSISTANTSHIPS

**GRADUATE ASSISTANTSHIPS** leading to Ph.D. in physiology available for 1981-1982 academic year. Specialize in membrane biophysics, endocrinology, neurophysiology, cardiovascular physiology, or exercise physiology. Stipends available. Write to: **Dr. Will Winder, Division of Biochemistry, Physiology, and Pharmacology, University of South Dakota School of Medicine, Vermillion, South Dakota 57069. An Equal Opportunity/Affirmative Action Employer.**

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**TRAINEESHIP, CANCER RESEARCH,** University of Miami Comprehensive Cancer Center. Opportunities for M.D.'s to obtain 2 years of research in broad range of disciplines related to cancer. Competitive stipends. U.S. citizens and permanent residents. Reply by letter with résumé to: **Dr. Marylou Ingram, Comprehensive Cancer Center (D8-4), University of Miami, School of Medicine, P.O. Box 016960, Miami, Fla. 33101.**

## FELLOWSHIPS

### POSTDOCTORAL FELLOWSHIPS IN IMMUNOBIOLOGY

Positions available beginning fall 1981 to study various aspects of immunoregulation and lymphocyte physiology under normal and pathological conditions in the mouse model. Research focuses on idiotypic interactions among lymphocytes, abnormalities of tumor-bearing host, and infections with retroviruses. Experience in tissue culture desirable. Apply with curriculum vitae with names of references to: **Dr. Jan Cerny, Department of Microbiology, University of Texas Medical Branch, Galveston, Texas 77550.**

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Postdoctoral research positions (two) to study electrophysiology and pharmacology of normal and diseased human cardiac tissues and animal models of disease and dysrhythmia. Definition of changes resulting from disease and which might be expected to predispose to dysrhythmia are stressed. Studies employ standard glass microelectrode, ion selective electrode, and voltage clamp techniques. Experience with glass microelectrode methodology highly desirable. Excellent facilities and environment. Send curriculum vitae and three professional references to: **Dr. D. H. Singer, Department of Pharmacology, Northwestern University Medical School, 320 East Superior Street, Chicago, Ill. 60611.**

**POSTDOCTORAL FELLOWSHIP.** Two-year postdoctoral fellowship for research training in neuroendocrinology related to visual system. For U.S. citizens or permanent residents with Ph.D. or M.D. in scientific discipline related to endocrinology with research experience in radioimmunoassay techniques. Excellent collaboration with Endocrinology Division. Supported by NIH training grant. Send curriculum vitae to: **Bernard Schwartz, M.D., Ph.D., Chairman and Professor, Department of Ophthalmology, Tufts-New England Medical Center, 171 Harrison Avenue, Boston, Mass. 02111. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL FELLOWSHIP.** Two-year position for research concerning the biochemical consequences and therapy of lead and mercury poisoning. Preference will be given to candidates with experience with either or both of the following: HPLC, absorption spectrophotometry. The candidate will join a clinically oriented research group in the departments of Pediatrics and Pharmacology. Ph.D. in biochemistry, pharmacology, toxicology, or related area. Send curriculum vitae, statement of research interests, and names of three references to: **J. H. Graziano, Ph.D., Department of Pediatrics, Columbia University College of Physicians and Surgeons, 630 West 168 Street, New York, New York 10032.**

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## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIP** in immunology of Fc receptors for IgE on lymphocytes. Send curriculum vitae to: **Dr. H. L. Spiegelberg, Department of Immunopathology, Scripps Clinic and Research Foundation, La Jolla, Calif. 92037. An Equal Opportunity Employer.**

**SPECIAL GRADUATE FELLOWSHIP** will be awarded to an outstanding graduate student applicant to Molecular Biology Graduate Program, University of Arizona. Stipend of \$8000 per year, renewable for second and third years. Out-of-state tuition waiver. Available academic year 1981-1982. Apply in writing to: **Dr. J. W. Little, Admissions Committee, Department of Molecular and Medical Microbiology, University of Arizona, Tucson, Ariz. 85724.**

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### POSTDOCTORAL FELLOWSHIP IN ENDOCRINOLOGY AND METABOLISM

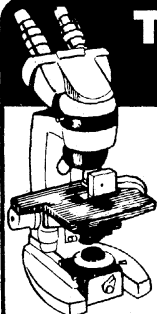
NIH-supported positions available July 1982 (one for 1981). One to three years of training in basic or clinical research in areas of secretion and action of pancreatic and gut hormones, diabetes mellitus, hypothalamic-pituitary-gonadal system, adrenal cortex, renin-angiotensin-aldosterone system; growth hormone structure-function relationship; collaboration with departments of Physiology and Biochemistry available. Applicants should have M.D. or Ph.D. and must have U.S. citizenship or immigration visa. For M.D.'s, includes training in clinical endocrinology and metabolism. Also, one institutionally funded position for M.D. at Wayne County General Hospital (WCGH), a major teaching hospital of the University of Michigan. WCGH provides clinical training and research opportunities in thyroid, diabetes, and catecholamine areas (U.S. citizenship not required). Contact with curriculum vitae to: **S. S. Fajans, M.D., Division of Endocrinology and Metabolism, University Hospital, Ann Arbor, Michigan 48109. Telephone: 313-764-4165. An Equal Opportunity/Affirmative Action Institution.**

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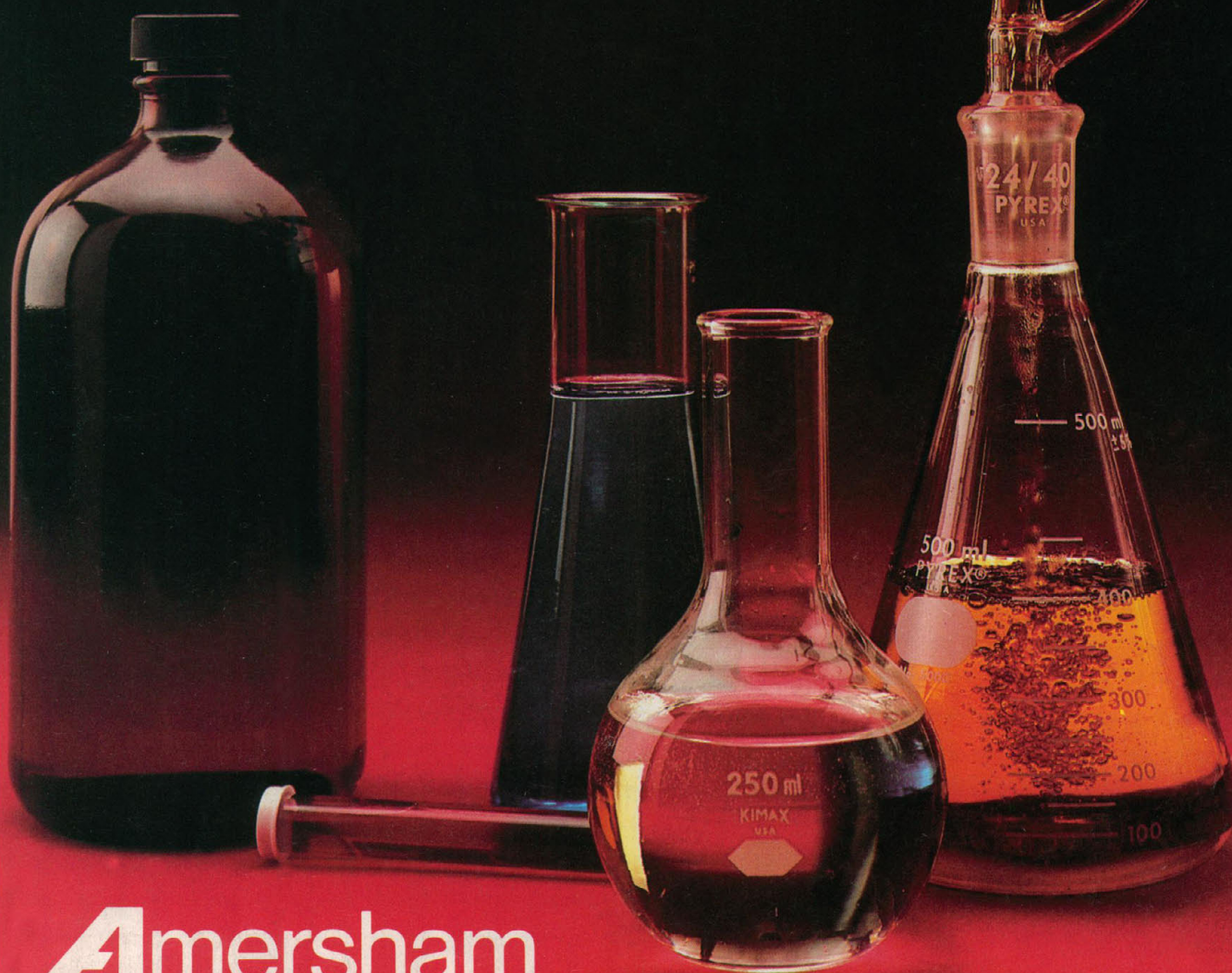
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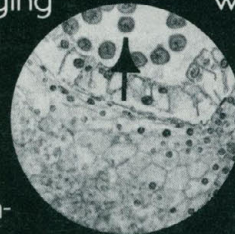
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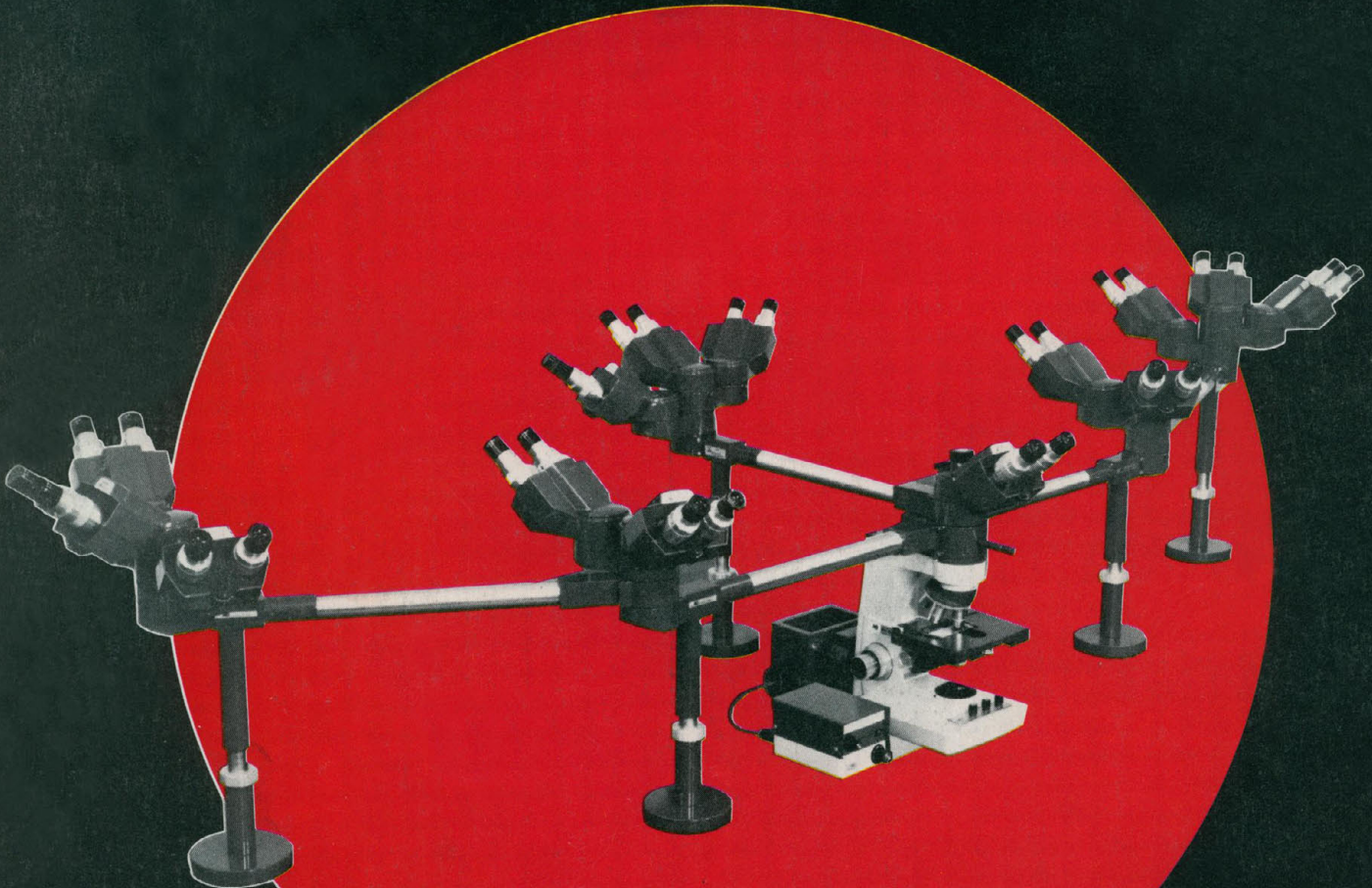
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