

## Books Received

**Advances in Cancer Research.** Vol. 35. George Klein and Sidney Weinhouse, Eds. Academic Press, New York, 1981. x, 350 pp., illus. \$45.

**Advances in Human Clinical Nutrition.** Joseph J. Vitale and Selwyn A. Broitman, Eds. John Wright-PSG, Boston, 1982. xii, 218 pp., illus. \$22.50.

**The Age of Television.** Martin Esslin. Freeman, San Francisco, 1982. vi, 138 pp., illus. Cloth, \$15.95; paper, \$7.95.

**Analogue et Connaissance.** Tome 2, De la Poésie à la Science. Papers from a meeting. André Lichnerowicz, François Perroux, and Gilbert Gadoffre, Eds. Maloine, Paris, 1981. 272 pp. Paper, 98 F.

**Animal Nutrition.** P. McDonald, R. A. Edwards, and J. F. D. Greenhalgh. Longman, New York, ed. 3, 1981. viii, 480 pp., illus. Paper, \$24.

**Annual Reports on NMR Spectroscopy.** G. A. Webb, Ed. Vol. 11B, Nitrogen NMR Spectroscopy. M. Witanowski, L. Stefaniak, and G. A. Webb. Academic Press, New York, 1981. x, 502 pp., illus. \$99.50.

**Annual Review of Entomology.** Vol. 27. Thomas E. Mittler, Frank J. Radovsky, and Vincent H. Resh, Eds. Annual Reviews, Palo Alto, Calif., 1982. x, 504 pp. \$22.

**Basic Neurochemistry.** George J. Siegel, R. Wayne Albers, Bernard W. Agranoff, and Robert Katzman, Eds. Little, Brown, Boston, ed. 3, 1981. xviii, 858 pp., illus. \$27.95.

**Behavior in Excess.** An Examination of the Volitional Disorders. S. Joseph Mulé. Free Press (Macmillan), New York, and Collier Macmillan, London, 1981. xvi, 396 pp. \$25.

**Biocontrol of Medical and Veterinary Pests.** Papers from a symposium, Kyoto, Japan, Aug. 1980. Marshall Laird, Ed. Praeger, New York, 1981. xx, 236 pp., illus. \$29.50.

**Biocultural Aspects of Disease.** Henry Rothschild and Charles F. Chapman, Eds. Academic Press, New York, 1981. xx, 654 pp., illus. \$65.

**Biology and Pathology of Nerve Growth.** H. Mei Liu. Academic Press, New York, 1981. xii, 308 pp., illus. \$35.

**Biology of Desert Invertebrates.** Clifford S. Crawford. Springer-Verlag, New York, 1981. xvi, 314 pp., illus. \$39.30.

**The Biology of Race.** James C. King. University of California Press, Berkeley, ed. 2, 1981. x, 180 pp. \$15.95.

**Biology of the Chemotactic Response.** Papers from a symposium. J. M. Lackie and P. C. Wilkinson, Eds. Cambridge University Press, New York, 1981. xiv, 178 pp., illus. Cloth, \$39.95; paper, \$17.95. Society for Experimental Biology Seminar Series, 12.

**Childbirth.** Alternatives to Medical Control. Shelly Romalis, Ed. University of Texas Press, Austin, 1982. x, 262 pp. Cloth, \$22.50; paper, \$8.95. The Dan Danciger Publication Series.

**Chimpanzee Visual Communication.** Facial, Gestural and Postural Expressive Movement in Young, Captive Chimpanzees (*Pan troglodytes*). Susana Berdecio and Leanne T. Nash. Arizona State University Department of Anthropology, Tempe, 1981. xviii, 160 pp., illus. Paper, \$8.50. Arizona State University Anthropological Research Papers No. 26.

**Chronicles of Drug Discovery.** Vol. 1. Jasjit S. Bindra and Daniel Lednicer, Eds. Wiley, New York, 1982. xvi, 284 pp., illus. \$32.50.

**Climate and History.** Studies in Past Climates and Their Impact on Man. Papers from a conference, Norwich, England, July 1979. T. M. L. Wigley, M. J. Ingram, and G. Farmer, Eds. Cambridge University Press, New York, 1982. xii, 530 pp., illus. \$59.95.

**Cognition and the Symbolic Processes.** Vol. 2. Papers from a conference, University Park, Pa., May 1977. Walter B. Weimer and David S. Palermo, Eds. Erlbaum, Hillsdale, N.J., 1982. x, 390 pp. \$29.95.

**Cognition in Human Motivation and Learning.** Festschrift for J. (R.) Nuttin. Gery d'Ydewalle and Willy Lens, Eds. Leuven University Press, Leuven, Belgium, and Erlbaum, Hillsdale, N.J., 1981. xiv, 290 pp. \$29.95.

**Cognitive Psychology.** Michael G. Wessells. Harper and Row, New York, 1982. xii, 404 pp., illus. \$20.50.

**The Collection, Fractionation, Quality Control, and Uses of Blood and Blood Products.** World Health Organization, Geneva, 1981 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 126 pp. Paper, \$7.50.

**College Algebra with Applications.** Mustafa A. Munem and David J. Foulis. Worth, New York, 1982. xiv, 410 pp., illus. \$18.95.

**Combination Antibiotic Therapy in the Compromised Host.** Jean Klastersky and M. J. Staquet, Eds.

Raven, New York, 1981. x, 250 pp. \$28.50. Monograph Series of the European Organization for Research on Treatment of Cancer, vol. 9.

**Composite Materials.** Mechanics, Mechanical Properties and Fabrication. Papers from a conference, Tokyo, Jan. 1981. Kozo Kawata and Takashi Akasaka, Eds. Japan Society for Composite Materials, Tokyo, 1981 (U.S. distributor, ISBS, Beaverton, Ore.). xii, 562 pp., illus. \$90.

**The Condon Question.** Captive or Forever Free? David Phillips and Hugh Nash, Eds. Friends of the Earth, San Francisco, 1981. 298 pp., illus. Cloth, \$15.95; paper, \$6.95.

**Construction of Nuclear Power Plants.** V. Dubrovsky, Ed. Translated from the Russian edition (Moscow, 1979) by A. Kuznetsov. Mir, Moscow, 1981 (U.S. distributor, Imported Publications, Chicago). 280 pp., illus. \$11.

**The Copper Industry in Zambia.** Foreign Mining Companies in a Developing Country. Simon Cunningham. Praeger, New York, 1981. xxii, 344 pp. \$34.95.

**Curves and Symmetry.** Vol. 1. J. Lee Kavanau. Science Software Systems, Los Angeles, 1982. xviii, 430 pp., illus. Paper, \$19.95.

**Cytochrome Oxidase.** A Synthesis. Märten Wikström, Klaas Krab, and Matti Saraste. Academic Press, New York, 1981. xii, 198 pp., illus. \$30.

**Databases.** Proceedings of a conference, Cambridge, England, July 1981. S. M. Deen and P. Hammersley, Eds. Halsted (Wiley), New York, 1981. x, 206 pp. \$39.95.

**Depressive Illness.** Biological and Psychopharmacological Issues. Papers from a symposium, Amsterdam, Sept. 1980. J. Mendlewicz, A. Coppen, and H. M. van Praag, Eds. Karger, Basel, 1981. viii, 242 pp., illus. Paper, \$44.50.

**The Dermatology and Syphilology of the Nineteenth Century.** John Thorne Crissey and Lawrence Charles Parish. Praeger, New York, 1981. viii, 440 pp., illus. \$47.50.

**Design and Management for Energy Conservation.** A Handbook for Energy Managers, Plant Engineers and Designers. Paul W. O'Callaghan. Pergamon, New York, 1981. xvi, 344 pp., illus. \$37.50.

**Design for Sport.** Gerald A. Perrin. Butterworths, Boston, 1981. xii, 164 pp., illus. \$49.95. The Butterworths Design Series for Architects and Planners.

**Developmental Biology Using Purified Genes.** Proceedings of a symposium, Keystone, Colo., Mar. 1981. Donald D. Brown, Ed. Academic Press, New York, 1981. xxii, 702 pp., illus. \$58. ICN-UCLA Symposia on Molecular and Cellular Biology, vol. 23.

**Developmental Toxicology.** Carole A. Kimmel and Judy Buelke-Sam, Eds. Raven, New York, 1981. xiv, 340 pp. \$38.50. Target Organ Toxicology Series.

**A Dictionary of Energy.** Martin Counihan. Routledge and Kegan Paul, Boston, 1981. x, 158 pp., illus. \$14.95.

**A Dictionary of Minicomputing and Microcomputing.** Philip E. Burton. Garland, New York, 1981. xx, 348 pp., illus. \$42.50.

**Dictionary of the History of Science.** W. F. Bynum, E. J. Browne, and Roy Porter, Eds. Princeton University Press, Princeton, N.J., 1982. xxxiv, 494 pp., illus. \$40.

**Digging up Bones.** The Excavation, Treatment and Study of Human Skeletal Remains. D. R. Brothwell. British Museum (Natural History), London, and Cornell University Press, Ithaca, N.Y., ed. 3, 1981. xii, 208 pp., illus. Paper, \$14.95.

**Digital Communications by Satellite.** Modulation, Multiple Access and Coding. Vijay K. Bhargava, David Haccoun, Robert Matyas, and Peter P. Nuspl. Wiley-Interscience, New York, 1981. xxii, 570 pp., illus. \$45.

**Digital Logic Design.** B. Holdsworth. Butterworths, Boston, 1982. xiv, 338 pp., illus. \$49.95.

**Digital Telephony.** John Bellamy. Wiley-Interscience, New York, 1982. xviii, 526 pp., illus. \$45.

**Energy Metabolism of the Cell.** A Theoretical Treatise. J. G. Reich and E. E. Sel'kov. Academic Press, New York, 1981. viii, 346 pp., illus. \$74.

**The Environment.** Issues and Choices for Society. Penelope ReVelle and Charles ReVelle. Willard Grant Press (Wadsworth), Boston, 1981. xxii, 762 pp., illus. \$20.

**Environmental Aspects of Housing for Animal Production.** J. A. Clark. Butterworths, Boston, 1981. xvi, 512 pp., illus. \$107.

**Epidemiologic Reviews.** Vol. 3. Neal Nathanson and Leon Gordis, Eds. Johns Hopkins University Press, Baltimore, 1982. vi, 254 pp. \$16.50.

**Ethology.** The Mechanisms and Evolution of Behavior. James L. Gould. Norton, New York, 1982. xviii, 544 pp., illus., + appendix. \$18.95.

**Europe under Stress.** Convergence and Divergence in the European Community. Yao-su Hu. Published for the Royal Institute of International Affairs by Butterworths, Boston, 1981. xii, 120 pp. \$29.95. Butterworths European Studies.

**Evaluating the Quality of Learning.** The SOLO Taxonomy (Structure of the Observed Learning Outcome). John B. Biggs and Kevin F. Collis. Academic Press, New York, 1982. xiv, 248 pp., illus. \$26.50. Educational Psychology.

**Fetal Endocrinology.** Papers from a symposium, Beaverton, Ore., May 1981. Miles J. Novy and John A. Resko, Eds. Academic Press, New York, 1981. xvi, 424 pp., illus. \$36. ORPRC Symposia on Primate Reproductive Biology.

**The Fetus and Independent Life.** Papers from a symposium, London, Mar. 1981. Pitman, London, 1981 (U.S. distributor, Ciba Pharmaceutical Company, Summit, N.J.). x, 372 pp., illus. \$35. Ciba Foundation symposium 86.

**Fixation for Electron Microscopy.** M. A. Hayat. Academic Press, New York, 1981. xx, 502 pp., illus. \$50.

**The Food Additives Dictionary.** Melvin A. Benarde. Simon and Schuster, New York, 1981. 94 pp. Paper, \$4.95. A Wallaby Book.

**Foraging Behavior.** Ecological, Ethological, and Psychological Approaches. Papers from a symposium, Seattle, June 1978. Alan C. Kamil and Theodore D. Sargent, Eds. Garland, New York, 1981. xviii, 534 pp., illus. \$45. Garland Series in Ethology.

**Foundations of Northeast Archaeology.** Papers from a conference, Albany, N.Y., Feb. 1980. Dean R. Snow, Ed. Academic Press, New York, 1981. xiv, 270 pp., illus. \$19.50. Studies in Archaeology.

**Functionally Differentiated Cell Lines.** Gordon Sato, Ed. Liss, New York, 1981. x, 270 pp., illus. \$38.

**Fundamentals of Acoustics.** Lawrence E. Kinsler, Austin R. Frey, Alan B. Coppens, and James V. Sanders. Wiley, New York, ed. 3, 1982. xvi, 480 pp., illus. \$29.95.

**Glassy Semiconductors.** Z. U. Borisova. Translated from the Russian edition by J. George Adashko. Plenum, New York, 1981. xii, 506 pp., illus. \$69.50.

**The Global Eradication of Smallpox.** Final Report of the Global Commission for the Certification of Smallpox Eradication. Geneva, December 1979. World Health Organization, Geneva, 1980 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 122 pp., illus. Paper, \$5.50.

**Graph Theory and Applications.** H. N. V. Temperley. Horwood, Chichester, England, and Halsted (Wiley), New York, 1981. 130 pp., illus. \$44.95. Ellis Horwood Series in Mathematics and Its Applications.

**The Grasses of Baja California, Mexico.** Frank W. Gould and Reid Moran. San Diego Society of Natural History, San Diego, Calif., 1981. 140 pp., illus. Paper, \$14. San Diego Society of Natural History Memoir 12.

**Greenwich Forum VI.** World Shipping in the 1990s. Papers from a conference, Greenwich, Apr. 1980. M. B. F. Ranken, Ed. Westbury House, Guildford, Surrey, England, 1981 (U.S. distributor, Butterworth, Woburn, Mass.). xii, 234 pp., illus. \$62.95.

**The Handbook of Earth Shelter Design.** Mike Edelhart. Drawings by Efrén Rosado. Doubleday, Garden City, N.Y., 1982. xx, 236 pp., illus. Paper, \$11.95. A Dolphin Book.

**Health Risk Analysis.** Proceedings of a symposium, Gatlinburg, Tenn., Oct. 1980. Chester R. Richmond, Phillip J. Walsh, and Emily D. Copenhaver, Eds. Franklin Institute Press, Philadelphia, 1981. x, 484 pp., illus. \$40.

**Hemoglobins in Development and Differentiation.** Proceedings of a conference, Airlie House, Va., June 1980. George Stamatoyannopoulos and Arthur W. Nienhuis, Eds. Liss, New York, 1981. x, 526 pp., illus. \$72.

**Hemophilia and Hemostasis.** Papers from a symposium, Washington, D.C., May 1981. Doris Ménaché, Douglas MacN. Surgenor, and Harlan D. Anderson, Eds. Liss, New York, 1981. xxiv, 282 pp., illus. \$30. Progress in Clinical and Biological Research, vol. 72.

**The Historical Development of Experimental Brain and Spinal Cord Physiology before Flourens.** Max Neuberger. Translated from the German edition (Stuttgart, 1897) and edited, with additional material, by Edwin Clarke. Johns Hopkins University Press, Baltimore, 1982. xxviii, 392 pp. \$20.

**Human Memory and Amnesia.** Laird S. Cermak, Ed. Erlbaum, Hillsdale, N.J., 1982. xii, 388 pp., illus. \$36.

**Multilingual Glossary of Automatic Control Technology.** English-French-German-Russian-Italian-Spanish-Japanese. David T. Broadbent, Masami Masubuchi, and five others, Eds. Published for the International Federation of Automatic Control by Pergamon, New York, 1981. Various pagings. \$45.

**Neurobiology of the Leech.** Kenneth J. Muller, John G. Nicholls, and Gunther S. Stent, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1981. x, 320 pp., illus. \$36.

(Continued on page 328)



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### Literature

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*Frequency and Time Standards* features cesium and quartz frequency standards, precision oscillators, and timing receivers. Frequency and Time Systems. Circle 579.

*Laboratory Products* lists items for clinical and medical research laboratories for collecting blood and microorganisms. Becton, Dickinson Vacutainer Systems. Circle 580.

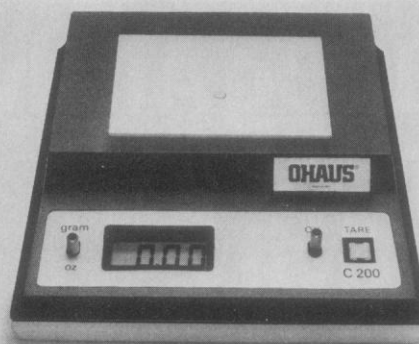
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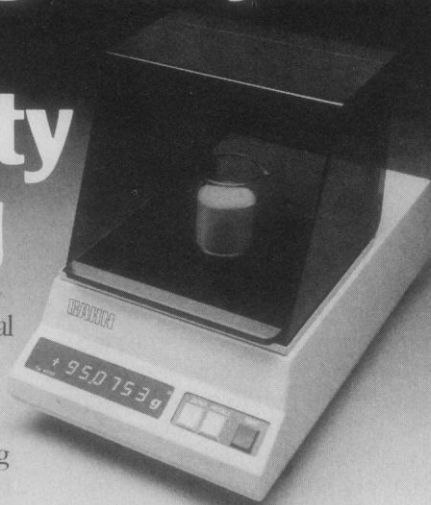
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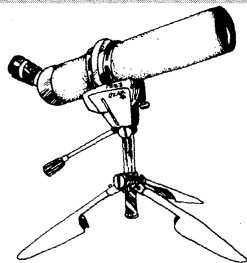
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**Neuronuclear Medicine.** O. Juge and A. Donath, Eds. Karger, Basel, 1981. viii, 176 pp., illus. \$93. Progress in Nuclear Medicine, vol. 7.

**Neurotransmitters, Seizures, and Epilepsy.** Papers a workshop, Onzain, France, May 1981. P. L. Morselli, K. G. Lloyd, W. Löscher, B. Meldrum, B. Chir, and E. H. Reynolds, Eds. Raven, New York, 1981. xvi, 362 pp., illus. \$42.

**Pascal.** Adversary and Advocate. Robert J. Nelson. Harvard University Press, Cambridge, Mass., 1981. x, 286 pp. \$22.50.

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**Passive Cooling.** Proceedings of a conference, Miami Beach, Nov. 1981. Arthur Bowen, Eugene Clark, and Kenneth Labs, Eds. American Section of the International Solar Energy Society, New York, 1981. x, 1052 pp., illus. Paper, \$125.

**Peat Stratigraphy and Climatic Change.** A Palaeoecological Test of the Theory of Cyclic Peat Bog Regeneration. K. E. Barber. Balkema, Rotterdam, 1981 (U.S. distributor, Merrimack Book Service, Salem, N.H.). xii, 220 pp., illus., + plates. \$29.

**Pediatric Anesthesia.** Current Practice. Vol. 1. M. Ramez Salem, Ed. Academic Press, New York, 1981. x, 158 pp. \$27.50.

**The Penguin Dictionary of Microprocessors.** Anthony Chandor. Penguin, New York, 1981. 184 pp. Paper, \$5.95.

**People and Employment.** A. K. Whitehead and L. Baruch with contributions from E. M. Wilson, O. D. Jones, and D. Golding. Butterworths, Boston, 1981. xiv, 278 pp., illus. \$26.95.

**The Perception of Evolution.** Essays Honoring Joseph B. Birdsall. Larry L. Mai, Eugenia Shanklin, and Robert W. Sussman, Eds. University of California Department of Anthropology, Los Angeles, 1981. viii, 274 pp., illus. Paper, \$10; to institutions, \$15. Anthropology UCLA, vol. 7.

**Perception of Print.** Reading Research in Experimental Psychology. Ovid J. L. Tzeng and Harry Singer, Eds. Erlbaum, Hillsdale, N.J., 1981. xii, 324 pp., illus. \$29.95.

**Perspectives in Running Water Ecology.** Maurice A. Lock and D. Dudley Williams, Eds. Plenum, New York, 1981. xii, 430 pp., illus. \$49.50.

**Photochemical Conversion and Storage of Solar Energy.** Proceedings of a conference, Boulder, Colo., Aug. 1980. John S. Connolly, Ed. Academic Press, New York, 1981. xii, 444 pp., illus. \$34.50.

**Photons and Nuclei.** A. I. Kitaigorodsky. Translated from the Russian edition (Moscow, 1979) by George Yankovsky. Mir, Moscow, 1981 (U.S. distributor, Imported Publications, Chicago). 236 pp., illus. \$6.60. Physics for Everyone, Book 4.

**Physical Metallurgy.** A. Gluyev. Translated from the Russian edition (Moscow, 1978) by V. Afanasyev. Mir, Moscow, 1981 (U.S. distributor, Imported Publications, Chicago). Two volumes. illus. 334 pp. and 316 pp. \$11.

**Physics for Technology.** John E. Betts. Reston (Prentice-Hall), Reston, Va., ed. 2, 1981. xii, 676 pp., illus. \$22.95.

**Physics of Plasmas Close to Thermonuclear Conditions.** Proceedings of a school, Varenna, Italy, Aug. 1979. B. Coppi, G. G. Leotta, D. Pfirsch, R. Pozzoli, and E. Sindoni, Eds. Published for the Commission of the European Communities by Pergamon, New York, 1981. Two volumes. xx, 874 pp., illus. Paper, \$80.

**Physiological Ecology.** An Evolutionary Approach to Resource Use. Colin R. Townsend and Peter Calow, Eds. Sinauer, Sunderland, Mass., 1981. xii, 394 pp., illus. Cloth, \$38; paper, \$23.60.

**Pictorial Handbook of Medically Important Fungi and Aerobic Actinomycetes.** Michael R. McGinnis, Richard F. D'Amato, and Geoffrey A. Land. Praeger, New York, 1982. xii, 160 pp. Spiral bound, \$17.50.

**Planning for Rare Events.** Nuclear Accident Preparedness and Management. Proceedings of a workshop, Laxenburg, Austria, Jan. 1980. John W. Lathrop, Ed. Pergamon, New York, 1981. xii, 268 pp., illus. \$55. IASA Proceedings Series, 14.

**Planning Models for Colleges and Universities.** David S. P. Hopkins and William F. Massy. Stanford University Press, Stanford, Calif., 1981. xxx, 544 pp., illus. \$29.50.

**Plant Speciation.** Verne Grant. Columbia University Press, New York, ed. 2, 1981. xii, 564 pp., illus. Cloth, \$40; paper, \$15.

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**Security for Small Businesses.** David L. Berger. Butterworths, Boston, 1981. vi, 194 pp., illus. \$15.95.

**SEM Atlas of Cells and Tissues.** Tsueno Fujita, Keiichi Tanaka, and Junichi Tokunaga. Igaku-shoin, New York, 1981. vi, 332 pp. \$90.

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**Setting Municipal Priorities, 1982.** Charles Brecher and Raymond D. Horton, Eds. Russell Sage Foundation, New York, 1981 (distributor, Basic Books, New York). xx, 444 pp. \$29.95.

**Seventeen Simple Lectures on General Relativity Theory.** H. A. Buchdahl. Wiley-Interscience, New York, 1981. xvi, 174 pp. \$23.95.

**Short-Term Bioassays in the Analysis of Complex Environmental Mixtures II.** Proceedings of a symposium, Williamsburg, Va., Mar. 1980. Michael D. Waters, Shahbeg S. Sandhu, Joellen Lewtas Huisingsh, Larry Claxton, and Stephen Nesnow, Eds. Plenum, New York, 1981. xvi, 524 pp., illus. \$59.50. Environmental Science Research, vol. 22.

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**Sky Atlas 2000.0.** 26 Star Charts, Covering Both Hemispheres. Wil Tirion. Cambridge University Press, New York, and Sky Publishing Corporation, Cambridge, Mass., 1981. Spiral bound, \$29.95.

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**The Solar Alternative.** An Economic Perspective. A. L. Walton and E. H. Warren, Jr. Prentice-Hall,

Englewood Cliffs, N.J., 1982. xiv, 174 pp., illus. Paper, \$9.95.

**Solar Cell Device Physics.** Stephen J. Fonash. Academic Press, New York, 1981. xx, 332 pp., illus. \$35. Energy Science and Engineering.

**Solar Heating and Cooling.** Active and Passive Design. Jan F. Kreider and Frank Kreith. Hemisphere, Washington, D.C., and McGraw-Hill, New York, ed. 2, 1982. xvi, 480 pp., illus. \$29.95.

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**Solid-Liquid Separation.** Ladislav Svarovsky, Ed. Butterworths, Boston, ed. 2, 1981. xiv, 556 pp., illus. \$75. Butterworths Monographs in Chemistry and Chemical Engineering.

**Solitons and the Inverse Scattering Transform.** Mark J. Ablowitz and Harvey Segur. SIAM (Society for Industrial and Applied Mathematics), Philadelphia, 1981. x, 426 pp., illus. \$54.50. SIAM Studies in Applied Mathematics.

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**Space Activities in the Eighties.** Giovanni Dondi. European Space Agency, Paris, 1981. 3 vols. 290 pp., 534 pp., and 258 pp. Paper, 300 F. ESA SP-1012.

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**Structural Biomaterials.** Julian F. V. Vincent. Halsted (Wiley), New York, 1981. xii, 206 pp., illus. Paper, \$24.95.

**Structure and Approximation in Physical Theories.** Proceedings of a colloquium, Osnabrück, Germany, June 1980. A. Hartkämper and H.-J. Schmidt, Eds. Plenum, New York, 1981. viii, 256 pp. \$39.50.

**Supplement to the Handbook of Middle American Indians.** Victoria Reiffer Bricker, Ed. Vol. 1, Archaeology. Jeremy A. Sabloff, Ed. University of Texas Press, Austin, 1982. xii, 464 pp., illus. \$55.

**Surveying.** Francis H. Moffitt and Harry Bouchard. Harper and Row, New York, ed. 7, 1982. xiv, 834 pp., illus. \$31.50. The Harper and Row Series in Civil Engineering.

**Technology and International Affairs.** Joseph S. Szyliowicz, Ed. Praeger, New York, 1981. xiv, 288 pp. \$32.95.

**A Technology for Test-Item Writing.** Gale H. Roid and Thomas M. Haladyna. Academic Press, New York, 1982. xiv, 248 pp. \$25. The Educational Technology Series.

**Toddler's Behaviors with Agemates.** Issues of Interaction, Cognition, and Affect. Wanda C. Bronson. Ablex, Norwood, N.J., 1981. xvi, 128 pp. \$14.95. Monographs on Infancy, vol. 1.

**The Transition to Statehood in the New World.** Papers from a conference, Clinton, N.Y., Jan. 1979. Grant D. Jones and Robert R. Kautz, Eds. Cambridge University Press, New York, 1981. x, 254 pp., illus. \$27.50. New Directions in Archaeology.

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**Understanding Computer Systems.** Harold W. Lawson, Jr. Computer Science Press, Rockville, Md., 1982. viii, 164 pp., illus. Paper, \$9.95.

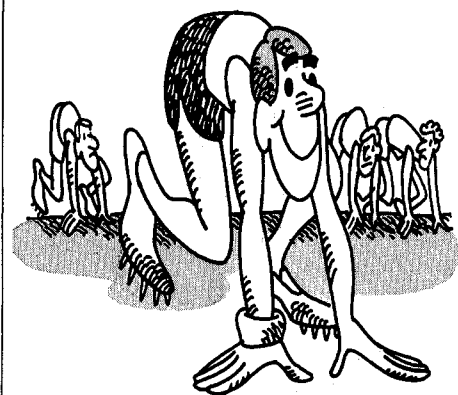
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**Immunologist/Microbiologist, Ph.D. 1981,** 7 years of research experience in biochemistry, mammalian cell genetics, molecular and cellular immunology, and bacterial pathogenicity. Seeking position in administration, management, or industrial research development. Box 101, SCIENCE X

**Microbiology/Virology, M.S., May 1982.** Seeking academic assistantship or research position in the medical sciences. Skills include microbiological/biochemical techniques. Box 105, SCIENCE. X

## POSITIONS OPEN

**ANIMAL PHYSIOLOGIST.** Indiana State University, Terre Haute. The Department of Life Sciences invites applications for a position as assistant professor (tenure-track, tentative, dependent upon budgetary approval) in animal physiology beginning as early as fall 1982. Persons with teaching and research interests in neuroendocrinology and/or developmental biology are encouraged to apply. Please send a résumé, research papers, and three letters of reference by 30 May 1982 to: Dr. William Brett, Chairperson, Department of Life Sciences, Indiana State University, Terre Haute, Ind. 47809. Applicant must have interest in teaching at undergraduate and graduate levels, and conduct and direct research in a doctoral program. *Indiana State University is an Equal Opportunity/Affirmative Action Employer.*

The Ohio State University College of Medicine, Department of Medical Microbiology and Immunology, invites applications for two **tenure-track positions**. One is in the area of **ANIMAL VIROLOGY**, with a preference for a person working with herpesviruses. The second position is for a **TUMOR IMMUNOLOGIST** with experience in the preparation of monoclonal antibodies. Minimum requirement is a Ph.D. degree with postdoctoral training. These individuals will participate in the medical and graduate teaching programs of the department and will be expected to develop a productive research program. Send curriculum vitae and three letters of recommendation to:

Ronald Glaser, Ph.D.  
Department of Medical Microbiology  
and Immunology  
The Ohio State University  
333 West 10 Avenue  
Columbus, Ohio 43210

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**ASSISTANT OR ASSOCIATE PROFESSOR—Lipoprotein Biochemistry.** The Department of Physiology and Biochemistry is seeking a lipoprotein biochemist for a regular tenure-track appointment in teaching and research. The post will become available 1 July 1982, but the appointment can begin at any time during the 1982-1983 academic year. The salary and academic rank will depend on experience. Please send curriculum vitae to: Dr. Julian B. Marsh, Department of Physiology and Biochemistry, THE MEDICAL COLLEGE OF PENNSYLVANIA, 3300 Henry Avenue, Philadelphia, Pa. 19129. *An Equal Opportunity/Affirmative Action Employer.*

**VISITING ASSISTANT PROFESSOR OF BIOLOGY.** One-year replacement position begins 23 August 1982. Subject area: ecology, comparative vertebrate morphology, and related mutually acceptable courses. Requires Ph.D. or equivalent and background suitable to broad undergraduate instruction. Ten-member department with 100 plus majors. Equipped for modest research activity. Send résumé and statement of interest and direct three letters of reference to: R. M. Crowell, Search Chairman, Biology Department, St. Lawrence University, Canton, N.Y. 13617. Closing date: 15 May 1982 or until filled. *An Equal Opportunity/Affirmative Action Employer.*

## ASSISTANT PROFESSOR/GEOLOGY

The Department of Geology, University of South Carolina, invites applications for a tenure-track appointment of assistant professor or a 1-year temporary appointment, beginning in late August 1982. Individuals from all areas of geology will be considered but with special interest in the areas of geophysics, seismic stratigraphy, coastal processes. Candidates must have strong commitment to research. Send curriculum vitae, summary of present and proposed research, and the names of three reference sources to: Dr. Michael A. Arthur, Search Committee Chairman, Department of Geology, University of South Carolina, Columbia, S.C. 29208. *The University of South Carolina is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### ASSISTANT/ASSOCIATE PROFESSOR OF BIOCHEMISTRY

A tenure-track position will become available in September 1982. Preference will be given to candidates with 2 or more years of postdoctoral experience, previous faculty status, established record of productivity, and funded or pending research grants. Salary and position are dependent upon background and experience. Candidates conducting research in any area are encouraged to apply but preference will be given to individuals with a strong interest in the area of molecular biology. Duties will involve teaching graduate and medical biochemistry courses. Please submit curriculum vitae, research synopsis (two to three pages), and three letters of reference by 31 May 1982. Send material to: Dr. Edward Bresnick, Department of Biochemistry, University of Vermont College of Medicine, Burlington, Vermont 05405. *The University of Vermont is an Equal Opportunity/Affirmative Action Employer. Women and minority candidates are encouraged to apply.*

### ASSISTANT PROFESSOR OF PHYSICS

Eastern Oregon State College (EOSC) anticipates that a 9-month continuing appointment will become available beginning September 1982. Applicants must have a Ph.D. in experimental physics, and have a strong commitment to undergraduate teaching, both to nonscience majors and to physics/engineering majors. Applicants must be able to teach a laboratory course in modern electronics instrumentation, including microprocessors. The successful candidate should expect to participate in such activities as student advising, campus committees, curriculum development, and meeting regional needs as determined by the institution. Research is expected. Salary is negotiable. Applicants should send a letter of application, a résumé, a graduate transcript, and three letters of reference to: Paul Stephas, Chairman, Physics Search Committee, School of Arts and Sciences, Eastern Oregon State College, La Grande, Oregon 97850. Application deadline is 3 May 1982. *EOSC is an Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT RESEARCHER—PEANUT PATHOLOGIST.** The Department of Plant Pathology, Oklahoma State University, has a nontenure-track position with an initial appointment period of 3 years. Appointee will conduct research on the etiological, epidemiological, and physiological relationships of the pod-rot complex of peanuts to derive recommendations for control. Applicants with a Ph.D. degree in plant pathology or in soil microbiology with training in plant pathology will be considered. Closing date for applications is 1 May 1982 or until suitable candidate is selected. Send résumé, transcripts, and three letters of recommendation to: Dr. W. L. Klarman, Professor and Head, Department of Plant Pathology, Oklahoma State University, Stillwater, Okla. 74078. *Oklahoma State University is an Affirmative Action/Equal Opportunity Employer.*

**ASSISTANT RESEARCH PHARMACOLOGIST—**Molecular pharmacologist with experience in membrane topography and organization procedures to study the structure and function of multiple opiate receptors. Experienced in procedures used to solubilize, purify, and reconstitute receptors, and to analyze pharmacological interactions among them. Ph.D. required. Must be willing to do scientific editing. Salary: \$22,900 per year. Send curriculum vitae and five letters of reference to: B. Halperin, Pharmacology Department, University of California, San Francisco, Calif. 94143. Deadline: 1 June 1982. *An Equal Opportunity/Affirmative Action Employer. Women and minorities are encouraged to apply.*

The Rhode Island Hospital is seeking a **CHIEF** for the Laboratory of Biochemistry and Cell Biology in the newly established Division of Orthopaedic Research. A major area of interest is articular cartilage physiology with particular respect to proteoglycan synthesis and degradation. Minimum requirements include: a Ph.D. in biochemistry or related field, a minimum of 3 years of postdoctoral experience in connective tissue biochemistry, and special interest in proteoglycan and cartilage degradation.

The candidate eventually selected must qualify for a full-time research faculty position at Brown University at the rank of assistant or associate professor in the Section of Surgery.

Interested individuals should send curriculum vitae by 30 June 1982 to: Roy K. Aaron, M.D., Surgeon-in-Charge, Division of Orthopaedic Research, Rhode Island Hospital, Providence, R.I. 02902.

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## Monoclonal Antibody Scientist

### Postdoctoral Research Positions

The Lawrence Livermore National Laboratory, a leading Laboratory in flow cytometry and mammalian genetics, has two Postdoctoral openings in a monoclonal antibody laboratory to work primarily making anti-hemoglobin antibodies for use in studying hemoglobin mutational variants in humans. One aspect of the work includes making monkey-mouse hybridomas. Another aspect involves participation in a division-wide immunology facility collaborating on a variety of research projects. All immunology projects utilize fluorescent antibody labeling of cells for flow cytometric analysis. Applicants should have a strong background in cell biology, biochemistry, immunology, flow cytometry, and/or genetics. Specific monoclonal antibody experience is desired. Will have frequent contact with senior scientist in these fields and full access to the extensive Biomedical Sciences Division instrumentation. Please send curriculum vitae to: Earl G. Morrell, Employment Division, Lawrence Livermore National Laboratory, P.O. Box 5510, L-425, Livermore, CA 94550. U.S. Citizenship is required. An equal opportunity employer, m/f/h.

University of California



**Lawrence Livermore  
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THE AUSTRALIAN NATIONAL UNIVERSITY invites applications from persons with Ph.D. degrees (or equivalent qualifications) and expertise in any areas of research listed below for up to ten appointments as **POSTDOCTORAL FELLOW GRADE 1, RESEARCH FELLOW** or **SENIOR RESEARCH FELLOW** in JOHN CURTIN SCHOOL OF MEDICAL RESEARCH. **Department of Biochemistry** (Head: Professor F. Gibson): Electron transport; energy-transducing ATPase; molecular biology; multifunctional enzymes; phosphate transport; gene expression. **Department of Experimental Pathology** (Head, from July 1982: Professor P. C. Doherty): Inflammation; wound healing; blood vessels; tumour growth and metastasis; cell movement; immunopathology; viral pathology; genetic basis of disease process; neuropathology. **Department of Human Biology** (Head: Dr. R. L. Kirk): Tissue typing; genetic markers; biochemical characterization of genetic variants in humans and human population genetics. **Department of Immunology** (Head: Professor B. Morris): Ontogeny of the immune response; genetics of disease resistance; reproduction and developmental biology; tissue transplantation; lymphocyte physiology. **Department of Medicine and Clinical Science** (Head: Professor W. F. Doe): Mediation of mucosal tissue injury; macrophage differentiation; mucosal immunity; colon cancer; diarrhoeal diseases; mucosal inflammation; cell regulation; malignant hyperpyrexia; asthma; atheroma; haemostasis. **Department of Microbiology** (Head: Professor G. L. Ada): Histocompatibility antigens; viruses; carcinogenesis; immunity to and epidemiology of viral infections. **Department of Pharmacology** (Head: Professor D. R. Curtis): Mammalian central transmitters; pain and analgesia; mammalian peripheral sympathetic synapses; nerve growth factors. **Department of Physical Biochemistry** (Head: Professor L. W. Nichol): Biological macromolecules; interacting protein systems; multienzyme complexes; enzymes of sulphur metabolism; protein conformation and hydration; secretory and blood proteins. **Department of Physiology** (Head: Professor P. O. Bishop): Visual system; neurophysiological, morphological, immunological and ophthalmological studies; contraction of skeletal muscle. **Medical Chemistry Group** (Head: Dr. D. J. Brown): Pteridines in disease; heterocyclic amplifiers of phleomycin; metal complex equilibria in medicine. **Experimental Neurology Unit** (Director: Professor R. Porter): Neurophysiology; spinal cord; synaptic transmission; control of movement. Appointment will be from late 1982 or early 1983. Salary in accordance with qualifications and experience within the ranges: senior research fellow, \$29,282 to \$34,928 per annum; research fellow, \$20,963 to \$27,539 per annum; postdoctoral fellow grade 1, \$18,068 to \$20,699 per annum. Current exchange rate: A\$1=U.S.\$1.07=U.K.£58p. Appointment will be: senior research fellow/research fellow up to 3 years with the possibility of extension to 5 years; and postdoctoral fellow, 2 years initially with possibility of extension to 3 years. Reasonable appointment expenses are paid; superannuation; assistance with housing. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, The Australian National University, P.O. Box 4, Canberra, Australia**, with whom applications close on 7 May 1982.

## ANNOUNCING DISTINGUISHED FELLOWSHIPS IN SCIENCE ICSU – UNESCO

The International Council of Scientific Unions (ICSU) and the United Nations Educational, Scientific and Cultural Organization announce the creation of the ICSU-Unesco Distinguished Fellowship Programme in Science. A small number of Fellowships have been established in the natural sciences, including their application to development, in order to strengthen the scientific capacity of developing nations. The Fellowships will be awarded to individuals who have demonstrated exceptional scientific ability at the level of Ph.D., or its equivalent, and who desire to advance their scientific knowledge in order to conduct basic research relevant to national needs.

Candidates will come from developing countries and will be under 35 years of age when the Fellowship begins. Candidates will, ordinarily, have had one year of post-doctoral experience; special consideration will be given to candidates who have done research in their native region. Fellowships will be awarded for one year, with extension for a second year in exceptional circumstances, and will be tenable in any centre of scientific excellence in the world. A letter will be required to show that the candidate will be accepted in the host department or laboratory where he proposes to study. In order to make sure that a position will be available when the Fellow returns to his native region, institutional commitment of a post will be required with the application as well as governmental approval of the application for Fellowship.

Stipend will depend upon the cost of living in the country in which the Fellowship will be tenable. If the Fellowship were to be held in the United States, for example, the stipend would be \$20,000 per year in addition to \$1,000 for each dependent (to a maximum of three). Tourist class travel will also be provided to the Fellow and his dependents (to three). There will also be an institutional allowance of \$2,000 to the host department for the purpose of covering expenses incidental to the Fellow's training and research.

An important feature of the award is the follow-up programme which includes a grant of up to \$5,000 (supplied by Unesco) to the Fellow for research materials and services to support a research project to be carried out in the Fellow's region of origin. Another feature is the award of two travel grants in the two to three-year period after completion of the Fellowship. These travel funds will allow one visit by the Fellow to his foreign, host institution as well as one lectureship for his foreign mentor, tenable in the country or region which the former Fellow's research project is being conducted.

Application forms for the ICSU-Unesco Distinguished Fellowships in Science will be available from the National Commissions for Unesco or from the Division of Scientific Research and Higher Education at Unesco, 7 Place de Fontenay, 75700 Paris, France. The forms will also be obtainable from the Unesco Regional Offices (Unesco Regional Office for Science and Technology for Africa, P.O. Box 3059, Nairobi, Kenya; Unesco Regional Office for Science and Technology for South and Central Asia, Unesco House, Jor Bagh, Lodi Road, New Delhi 110003, India; Unesco Regional Office for Science and Technology in Southeast Asia, United Nations Building, 2nd floor, Jalan Thamrin 14, 273/JKT Tromolpos, Jakarta, Indonesia; Unesco Regional Office for Science and Technology for Latin America and the Caribbean, 1320 Blv. Artigas, Casa Postal 859, Montevideo, Uruguay; Unesco Regional Office for Science and Technology in the Arab States, 7 Place de Fontenay, 75700 Paris, France).

Completed application forms should be sent to the Division of Scientific Research and Higher Education, Unesco, 7 Place de Fontenay, 75700 Paris, France. They should be received at Unesco not later than 1 August 1982.

Awards will be announced about 1 November 1982, and the first Fellowships will begin between 1 January and 30 June 1983.

## POSITIONS OPEN

### BIOCHEMICAL TOXICOLOGY— POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately for a biochemist (or equivalent) to study the effect of environmental chemicals on membranes, membrane proteins, and lipid-protein interactions. Research background in membrane or protein biochemistry and microsomal enzymes (particularly cytochrome P-450) preferred. Salary range: \$16,000 to \$18,500. Send curriculum vitae and three letters of recommendation before 14 May 1982 to: **Dr. Terry L. Miller, Environmental Health Sciences Center, Oregon State University, Corvallis, Oregon 97331. An Equal Opportunity/Affirmative Action Employer, in compliance with Section 504 of the Rehabilitation Act of 1973.**

**NEW FACULTY POSITION, Department of Biochemistry and Pharmacology, Tufts University Schools of Medicine, Dental Medicine, Veterinary Medicine, and the Sackler School of Graduate Biomedical Sciences, 136 Harrison Avenue, Boston, Mass. 02111.** A solid research background and the potential of developing an independent research program are essential. Responsibilities include basic research and participation in the teaching program. Candidates should have expertise in the application of physicochemical techniques to the solution of biochemical or pharmacological problems. Apply to: **Dr. Henry G. Mautner, Chairman, Tufts University is an Equal Opportunity/Affirmative Action Employer.**

**INSTRUCTOR-LEVEL POSITION, GENERAL BIOLOGY.** Beginning 23 August 1982. To assist professor in charge of audio-tutorial introductory biology courses. Duties include development, set-up, and presentation of demonstration laboratory materials, supervision of student teaching assistants and student contact in recitation and independent sessions. Requirements: Master's degree and background suitable to instruction in general biology required. Closing date: 15 May 1982, or until suitable candidate is found. Send résumé, transcripts, and three letters of recommendation to: **Dr. R. W. Cheney, Jr., Biology Department, St. Lawrence University, Canton, N.Y. 13617. An Equal Opportunity/Affirmative Action Employer.**

## POSITIONS OPEN

### BOTANIST—ECOLOGIST

Earlham College is offering a teaching internship at the assistant professor level during the fall quarter 1982. Applicants should be Ph.D. candidates or recent Ph.D.'s interested in working in an institution concerned with teaching excellence. The position includes team-teaching introductory ecological biology and teaching a plant kingdom survey course. There will be an opportunity to remain on a half-time basis through the winter and spring quarters as a team participant in teaching introductory cell biology and genetics. Submit a résumé, transcripts, and three letters of recommendation by 30 April 1982 to: **William Harvey, Convener, Biology Department, Earlham College, Richmond, Ind. 47374. An Affirmative Action/Equal Opportunity Employer.**

### DIRECTOR University of Maryland Cancer Center

The University of Maryland School of Medicine is seeking a director of its newly formed Cancer Center. This program was formerly an internal component of the National Cancer Institute, but located at the University of Maryland Hospital in Baltimore. Extensive clinical and laboratory space and facilities are available. The Center will provide patient care, and conduct both clinical and basic research in the area of human oncology. A highly respected leader in American cancer research with well developed administrative skills is being sought.

*The University of Maryland is an Equal Opportunity Employer and all qualified inquiries will be accepted.* Please send curriculum vitae promptly to: **Kenneth P. Johnson, M.D., Professor and Chairman, Department of Neurology, University of Maryland Hospital, 22 South Greene Street, Baltimore, Maryland 21201.**

### IMMUNOLOGY

**POSTDOCTORAL POSITION.** Cellular immunology in the R & D department in a leading clinical laboratory. Please send a letter describing research interest, résumé, and three letters of references to: **Richard Fisher, MetPath, 1 Malcolm Avenue, Teterboro, N.J. 07608. An Equal Opportunity Employer, M/F/H.**

## POSITIONS OPEN

**BIOCHEMIST—MOLECULAR ENDOCRINOLOGIST.** Research associate and postdoctoral positions available for research related to biochemistry of reproduction with emphasis on mechanism of hormone action, receptor purification, membrane biochemistry, glycoprotein hormone chemistry, and associated problem areas. Ph.D. in biochemistry preferred. Positions available immediately. Please forward curriculum vitae and names of three references to:

**Dr. Leo E. Reichert, Jr.  
Professor and Chairman  
Department of Biochemistry  
Albany Medical College  
Albany, New York 12208**

*An Equal Opportunity/Affirmative Action Employer*

### CHAIRMAN, DEPARTMENT OF MICROBIOLOGY AND CELL SCIENCE UNIVERSITY OF FLORIDA

The Institute of Food and Agricultural Sciences of the University of Florida invites applications for the position of **CHAIRMAN** of the Department of Microbiology and Cell Science. The successful candidate will be responsible for the leadership of a large (more than 20 faculty), multidisciplinary department with a strong research mission. Candidates must have fiscal and managerial experience. The deadline for applications is 1 July 1982. Send curriculum vitae and the names of five references to: **Dr. Arnold S. Bleiweis, Chairman, Search and Screen Committee, 1059 McCarty Hall, University of Florida, Gainesville, Florida 32611. Telephone: 904-392-5921.**

*An Equal Opportunity/Affirmative Action Employer*

### CHAIRPERSON, BIOCHEMISTRY LOUISIANA STATE UNIVERSITY

Anticipated opening for fall 1982 for individual with proven record of excellence in research in a biochemical area and in teaching at the graduate and undergraduate levels. Should be eligible for appointment as associate or full professor. Person with administrative experience preferred. The department is in the College of Chemistry and Physics. B.S., M.S., and Ph.D. programs are offered. By 15 June 1982, forward résumé, publication record with a concise summary of research interests, reprints or copies of three recent publications, administrative philosophy, and names of three references to:

**Biochemistry Chairman Search Committee  
c/o Dean, College of Chemistry and Physics  
Room 338 Choppin Hall  
Louisiana State University  
Baton Rouge, La. 70803  
Telephone: 504-388-4001**

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

**DEAN FOR THE SCHOOL OF FISHERIES AND SCIENCES AT THE UNIVERSITY OF ALASKA, JUNEAU.** The School has major emphasis on teaching and research in marine and anadromous fisheries. Major academic programs include B.S. degrees in both biology and fisheries and M.S. degree in fisheries science. The candidate should have a Ph.D. in marine or fisheries biology or related area and outstanding research credentials. The position will require awareness of and concern for Alaskan and national needs in fisheries and marine research. This is a 12-month, tenure-track administrative position with full university benefits. Placement is dependent upon qualifications. Beginning date is as soon as possible after 1 July 1982. Closing date is 1 June 1982, and may be extended until filled. Apply to: **Head, Search Committee, School of Fisheries and Sciences, University of Alaska, Juneau, 11120 Glacier Highway, Juneau, Alaska 99801. Telephone: 907-789-2101. The University of Alaska, Juneau, is an Equal Opportunity Employer and Educational Institution.**

### ELECTRON MICROSCOPIST

Experience in all facets of transmission electron microscopy, including fixation, ultramicrotomy, photographic procedures, and instrument operation. Research will involve the ultrastructure of living and fossil pollen and spores. B.S. degree in biological sciences or equivalent experience. A minimum of 1 year of training and experience in TEM is necessary. Salary range is \$13,560 to \$15,000 per year. Starting date: as soon as possible. Curriculum vitae including three letters of recommendation should be sent by 1 May 1982 to: **Dr. Thomas N. Taylor, Department of Botany, The Ohio State University, 1735 Neil Avenue, Columbus, Ohio 43210; telephone: 614-422-3564. An Affirmative Action/Equal Opportunity Employer.**

# MOLECULAR BIOLOGY SCIENTISTS

The Upjohn Company, Kalamazoo, Michigan, has openings for two scientists to participate in existing programs and initiate new areas of research in molecular biology. These positions are part of the growing Molecular Biology Unit which interacts with scientists throughout The Upjohn Company.

The positions require a Ph.D. in Biochemistry, Microbiology, or Cell Biology with postdoctoral experience in one of the following:

- Nucleic acid biochemistry, preferably with experience in preparation and cloning of cDNA, screening of libraries of cloned DNA, and/or expression of cloned genes in bacteria.
- Genetics of gram-positive bacteria, preferably with experience in DNA cloning in gram-positive bacteria.

The Upjohn Company offers excellent salary, benefits and work atmosphere in a city which provides an outstanding cultural, educational, and recreational environment. Please send your curriculum vitae in confidence to:

**Gerald L. Potratz • Department 14140**

## THE UPJOHN COMPANY

7000 Portage Road • Kalamazoo, MI 49001

Equal Opportunity Employer M/F

**Upjohn**



## RODENT CONTROL SPECIALIST TO THE DANIDA-SUPPORTED RODENT CONTROL PROJECT IN TANZANIA

(2nd advertisement).

On request of the Tanzanian Government the Danish International Development Agency (DANIDA) invites applications from suitable candidates for the above post:

### PRIMARY RESPONSIBILITY:

To develop rodent control strategies appropriate to conditions present in agricultural areas of Tanzania, based upon the basic biological and ecological data.

### SPECIFIC DUTIES:

1. Testing of rodenticides against pest species.
2. Planning execution of field trials of rodenticides accompanied by appropriate insecticides.
3. Participation in training of local personnel in rodent control procedures.
4. Development of simple methods for assessment of rodent damage to stored and growing crops.
5. Testing of simple methods for rodent proofing of food storage structures and containers.

### QUALIFICATIONS:

University degree at M.Sc. or Ph.D. level. The incumbent should be able to provide support in basic biological studies of rodents and assist in data collection, storage and analysis.

Competence in maintaining and operating laboratory and field equipment under tropical conditions is desirable, as is previous overseas experience in field research projects.

### DUTY STATION:

Morogoro, Tanzania. The incumbent will be required to undertake extensive travelling in Tanzania.

### EMPLOYMENT CONDITIONS:

Tax-free salary in the UN scale according to qualifications and experience. Free travel to and from post.

### DATE REQUIRED:

As soon as possible for a period of two years.

### CLOSING DATE FOR APPLICATIONS:

20 May, 1982.

For further information, particulars and official forms please contact:

Ref.No. 104.Tanz.72.d.  
Udenrigsministeriet, Danida  
Asiatisk Plads 2, 1448 København K.  
Tlf. (01) 92 02 22 or (01) 92 02 18.

The International Laboratory for Research on Animal Diseases (ILRAD), Nairobi, Kenya, is an internationally funded institution, with the mandate to develop improved methods of control for two major diseases of livestock, trypanosomiasis and theileriosis, through an integrated program of multidisciplinary research. Disciplines include biochemistry, molecular biology, immunology, cell biology, pathology, and parasitology with appropriate support units.

Applications for the following positions are invited from suitably qualified scientists:

#### PARASITOLOGIST (Reference: L1/82/1)

To investigate parasitological and immunological aspects of *Trypanosoma vivax* infections in domestic ruminants and laboratory animals. This will include a study of the antigenicity of the parasite and the epidemiology of *T. vivax* infections.

Applicants should have a first degree in biology, medicine, or veterinary medicine, a doctorate in parasitology or parasitic disease, and 5 to 10 years of research experience. Preference will be given to candidates with experience in protozoology and biochemistry or immunology.

#### BIOCHEMIST (Reference: L4/82/2)

To investigate structural and functional characteristics of enzymes, proteins, peptides, and lipids from bloodstream and metacyclic forms of African trypanosomes and their hosts, with particular reference to the induction of skin reactions during the initial stages of infection.

Applications should have a first degree in biology, medicine, or veterinary medicine, a doctorate in biochemistry, and experience in protein and peptide chemistry, as well as isolation and characterization of enzymes.

#### CELL BIOLOGIST (Reference: L3/82/2)

To develop technology for in vitro cultivation of *Trypanosoma vivax*, and to provide expertise for cultivation of other pathogenic trypanosomes for biochemical, immunological, and chemotherapeutic investigations.

Applicants should have a doctorate in cell biology or tissue culture and preferably 5 to 10 years of experience in the cultivation of pathogenic protozoa, preferably trypanosomes. A sound knowledge of immunology or biochemistry would be advantageous.

#### IMMUNOLOGIST (Reference: L6/82/2)

To study the role of cell-mediated immunity in the acquisition of resistance by cattle to *Theileria parva* and develop techniques to distinguish between bovine lymphoid cells infected with antigenically different parasite populations.

Applicants should have a first degree in veterinary science, medicine, or biology, and a doctorate in cell-mediated immunity and/or cell surface antigen characterization. Additional postdoctoral experience in the role of cellular immunology in disease or identification of cell surface antigens relevant to the induction of cell-mediated immunity would be advantageous.

#### VETERINARY PARASITOLOGIST (Reference: L5/82/3)

To join an established program on the epidemiology of African theileriosis with the objective of developing and applying methods of immunological control. The research includes parasite isolation and characterization, assessment of their potential as immunogens, the application of control methods in the field and the elucidation of epidemiological relationships between the pathogenic species of African *Theileria*.

Applicants should have a first degree in veterinary medicine and a doctorate in a relevant area of veterinary parasitology. Preference will be given to candidates with experience in tick-borne protozoa, especially in vitro cultivation and host-vector-parasite interactions.

The above positions are ILRAD international staff positions and salaries will be paid in U.S. dollars. Successful candidates are expected to contribute to the training program. Initial salary levels will be determined by qualifications and experience. Moving, housing, commutation, and education allowances are paid and there are medical and retirement benefits. Applications should include current curriculum vitae and the names and addresses of three referees. Applications, citing the position reference number, should be sent by 7 May 1982 to: Chief Personnel Officer, ILRAD, P.O. Box 30709, Nairobi, Kenya.

# Associate Veterinary Editor

Merck Sharp & Dohme Research Laboratories, a world leader in the development of pharmaceutical and biological products, is currently seeking an Associate Veterinary Editor to join our department of Veterinary Publications, Animal Science Research, located in Rahway, New Jersey.

We are seeking an individual with a D.V.M. (or equivalent) with research experience and considerable experience in the clinical aspects of the veterinary field as well.

Responsibilities include providing technical and professional literary skills for the planning and preparation of a variety of Animal Science Research publications and services such as the editorial preparation of the Merck Veterinary Manual and the preparation of the efficiency and target animal safety sections of New Animal Drug Applications, etc.

Excellent salary, benefits and career growth accompany this key position. Send resume with salary requirements to Ms. J. Y. Zeltner,



**MERCK & CO., INC.**

P.O. Box 2000  
Rahway, New Jersey 07065

An equal opportunity employer, m/f.

## POSITIONS OPEN

**DIRECTOR, ANDROLOGY LABORATORIES**—The Department of Obstetrics and Gynecology, University of Oklahoma, Tulsa Medical College, a clinical branch of the University of Oklahoma Health Sciences Center College of Medicine, is seeking a director, Andrology Laboratories, to establish, develop, and operate laboratories necessary for the support of an *in vitro* fertilization and embryo transfer program. Specifically an andrology laboratory, a female steroid hormone chemistry laboratory will be required. The Tulsa Medical College will establish such a program in collaboration with an affiliated hospital. Applicants must have a doctoral degree in an appropriate field and must have experience in operation of the above named laboratories. Salary will be commensurate with experience and rank. Deadline for applications is 1 May 1982. Please send curriculum vitae to: **Steven Saltzman, M.D., Chairman, Search Committee, University of Oklahoma, Tulsa Medical College, 2808 South Sheridan Road, Tulsa, Oklahoma 74129.**

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

**MOLECULAR BIOLOGIST.** A research associate position is available in the Division of Virology to participate in the molecular biology and genetics of replication of a large DNA virus. Applicants should have at least 2 years of postdoctoral experience in molecular biology with a working knowledge of recombinant DNA methodology. Salary is commensurate with training and experience. Please send curriculum vitae, including the names of three references, to: **Dr. Allan Granoff, St. Jude Children's Research Hospital, Division of Virology, P.O. Box 318, Memphis, Tenn. 38101.** *Affirmative Action Employer.*

### BIO-RESEARCH LABORATORIES, LIMITED MONTREAL, CANADA NEUROBIOLOGICAL RESEARCH SCIENTIST AND STATISTICIAN

Two positions are available in a large interdisciplinary R & D program in neurotoxicology with behavioural, biochemical, and morphometric components. The neurobiologist should have a Ph.D. and 3 years of experience in morphology and morphometry (using computerized image analysis) of the nervous system. The statistician should have experience in biometry.

Salaries and benefits are competitive in an industrial setting. Applications, including curriculum vitae, salary expectations, three references, and publications, should be sent to:

**Dr. G. Losos  
87 Senneville Road  
Senneville, Quebec, Canada H9X 3R3  
Telephone: 514-457-2280**

### OCCUPATIONAL MEDICINE

The University of California, Davis, announces a position for a senior academic physician to direct the Davis component of the State of California funded Northern California Occupational Health Center, a program involving faculty from the Schools of Medicine and Veterinary Medicine and the College of Agricultural and Environmental Sciences. The program will focus upon clinical service, teaching, and research in occupational medicine as related to the agricultural and rural workplace. Academic rank and salary commensurate with credentials with academic appointment in appropriate department of the School of Medicine. Research background in occupational health and medicine required. Past administrative experience or strong administrative potential necessary. Ability to work across multidisciplinary lines involving faculty from all three schools is necessary.

Unique responsibility and potential. Position open until filled. Send résumé with list of three references to:

**Chair, Search Committee for Occupational Medicine  
c/o Office of the Dean  
School of Medicine  
MSI-C, Room 110  
University of California  
Davis, California 95616**

*In compliance with federal and state laws and University policy, the University of California does not discriminate on the basis of race, color, national origin, religion, sex, handicap, age, or against disabled veterans of the Vietnam era. The University of California is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

**DIRECTOR, APPLIED MARINE RESEARCH LABORATORY.** The Applied Marine Research Laboratory (AMRL) is seeking a person to assume the position of director of AMRL beginning in summer 1982. The director will have the responsibility for securing external grant and contract funding for scientists and engineers in diverse disciplines of the marine sciences. A personal research program by the director is not precluded. The Applied Marine Research Laboratory is supported by nonstate funds and is dedicated to serving the applied marine science needs of the Commonwealth of Virginia. The mission of AMRL is to promote applied science research in the disciplines of the marine sciences and to provide a mechanism for the University to address the needs of government, business, and industry. Salary is negotiable. Curriculum vitae and a list of three references should be sent by 15 May 1982 to: **AMRL Director Search Committee, Office of the Dean, School of Sciences and Health Professions, Old Dominion University, Norfolk, Va. 23508-8508.** *An Affirmative Action/Equal Opportunity Employer.*

University of Michigan Medical School, Department of Obstetrics and Gynecology, is seeking a faculty member at the level of **INSTRUCTOR THROUGH PROFESSOR** who has an M.D. degree, postdoctoral training, Board-qualification or -certification in obstetrics and gynecology, and preferably interest in adolescent/pediatric gynecology. The position involves the supervision of primary health care of both inpatient and outpatient obstetric and gynecologic patients coupled with the teaching of residents and medical students in Women's Hospital in Ann Arbor. Please direct inquiries and curriculum vitae to: **Alan E. Beer, M.D., Professor and Chairman, Department of Obstetrics-Gynecology, Women's Hospital, Room L2122, University of Michigan Medical Center, Ann Arbor, Michigan 48109.** *A nondiscriminatory, Affirmative Action Employer. Code 29HO.*

**MATHEMATICIAN.** One-year, full-time position for an adjunct lecturer with a background in computer-information science and/or physics to teach courses in the introductory mathematics program and participate in computer-assisted instruction and computer literacy programs. Minimum qualifications: Ph.D. and teaching experience, particularly with minority students. Salary: \$18,552. Effective fall 1982. Provide curriculum vitae, three letters of reference, and a cover letter relating teaching and research interests and experience to: **Science Faculty Search Committee, Oakes College, University of California, Santa Cruz, Calif. 95064.** Deadline is 3 May 1982.

*An Affirmative Action/Equal Opportunity Employer*

**MICROBIOLOGY/MOLECULAR GENETICS.** The Department of Microbiology at The University of Chicago seeks scientists for advanced research and teaching in the areas of microbiology or molecular genetics. Individuals with an interest in a tenure-track appointment at any level are invited to apply. Address inquiries to: **Chairman, Search Committee, Department of Microbiology, The University of Chicago, 920 East 58 Street, Chicago, Illinois 60637.** *The University of Chicago is an Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL ASSOCIATE

Position open for a recent Ph.D. trained in protein chemistry with a working knowledge of organic synthesis to work in a cancer chemotherapy program focused on isolation and characterization of proteins, chemical and enzymatic modification of drugs, drug binding and specific effects on the mammalian cytoskeletal system. Send résumé and names of three referees to: **Dr. A. Kirshan, Scientific Director, Comprehensive Cancer Center, University of Miami Medical School, P.O. Box 016960 (D8-4), Miami, Florida 33101.** *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION IN HORMONE ACTION.** Position available immediately to study the biochemistry of hormone action in liver and fat cells which focuses on the hormone-sensitive adenylate cyclase system. Ph.D. in biochemistry/pharmacology required and experience in hormone action desirable. Salary range: \$15,000 to \$17,500 plus fringe benefits. Send curriculum vitae and three letters of reference to: **Dr. Craig C. Malbon, Department of Pharmacological Sciences, School of Medicine, Health Sciences Center, State University of New York (SUNY) at Stony Brook, Stony Brook, N.Y. 11794.** *SUNY, Stony Brook, is an Equal Opportunity/Affirmative Action Employer. AK 341.*

## POSITIONS OPEN

### MICROBIOLOGIST

Applications are invited for a tenure-track appointment at the assistant or associate professor rank. We seek candidates with proven teaching ability and an active research program in microbiology. Supplementary areas of interest include molecular genetics and/or microbial ecology and/or virology. Starting date for the appointment is August 1982, but we will consider this date negotiable.

Candidates should submit curriculum vitae which includes a list of publications and a statement concerning interests and objectives in both teaching and research. Samples of published work should be included and three letters of reference requested. Send materials to: **Dr. Patricia Johnson, Chairman, Department of Biology, Box 377, VASSAR COLLEGE, Poughkeepsie, N.Y. 12601.** Application deadline is 8 May 1982. *An Equal Opportunity/Affirmative Action Employer.*

### PHARMACOLOGIST/TOXICOLOGIST

A faculty vacancy is available in biochemical pharmacology or biochemical toxicology. The position, which will be contractually limited, is at the rank of assistant professor and is available on 1 July 1982. Responsibilities will include undergraduate teaching in pharmacology and/or toxicology in veterinary medicine (D.V.M.) and in the newly established B.Sc. honours toxicology. The incumbent would be expected to participate in graduate teaching and in contract research with the Ontario Ministry of Agriculture and Food. Applicants should have a Ph.D. degree and some experience in a relevant field. A D.V.M. degree would be an advantage but is not essential.

The salary and the terms of the appointment are negotiable and subject to final budgetary approval. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

Enquiries and applications should be directed to: **Dr. P. Eyre, Chairman, Department of Biomedical Sciences, University of Guelph, Guelph, Ontario, Canada N1G 2W1.** Telephone: 519-824-4120, extension 2668.

### PHYSIOLOGIST

The Department of Physiology, Michigan State University, invites applications for a tenure-stream position at the assistant professor level. Candidates should have a doctoral degree and postdoctoral experience in cardiovascular physiology. Duties include teaching in the undergraduate, graduate, and/or professional programs and maintaining an active, independent research program of high quality. Applicants should send their curriculum vitae and names of three references to: **Chairman, Physiology Department, 111 Giltner Hall, Michigan State University, East Lansing, Mich. 48824.** *Michigan State University is an Equal Opportunity/Affirmative Action Employer.* Applications will be accepted through 1 June 1982, or until a suitable candidate is identified.

The Reproductive Biology Program, Colorado State University, has openings for **POSTDOCTORAL FELLOWS.** Training is offered in the areas of reproductive endocrinology; neuroendocrinology; cell biology; seminal physiology; fertilization, culture, surgical manipulation, and transfer of embryos; and mechanisms of steroid, peptide, and protein hormone action. Interested candidates should send curriculum vitae and three letters of recommendation immediately to: **Dr. G. D. Niswender, Department of Physiology and Biophysics, Colorado State University, Fort Collins, Colo. 80523.** Positions will be filled by 1 July 1982. *Colorado State University is an Equal Opportunity/Affirmative Action Employer. Equal Opportunity Office, 315 Student Services Building.*

### POSTDOCTORAL FELLOW

Postdoctoral position funded by an NIH Training Grant available in an ongoing program in biochemical mechanism of cardiac glycoside action. Emphasis is on Na,K-ATPase. A major area is in isolation of endogenous peptides that regulate ouabain binding and the sodium pump. Consideration will be given to those who have skills in protein isolation and chemical modification of proteins. U.S. citizenship or permanent visa required. Send curriculum vitae and names of three references to: **Dr. Arnold Schwartz, Department of Pharmacology and Cell Biophysics, University of Cincinnati College of Medicine, 231 Bethesda Avenue, Cincinnati, Ohio 45267.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**POSTDOCTORAL ASSOCIATE** position available to study functional diversity of subsets of human T cells; their roles in immune responses and regulatory products of the major histocompatibility complex. Candidate should have a Ph.D. with comprehensive knowledge in cellular biology and particularly in human immunogenetics and should be familiar with various immunological and tissue culture techniques, especially with the cloning of human T cells. Candidate should have at least one year of postdoctoral experience, be able to demonstrate ability to independently investigate, and have made previous scientific contributions in immunobiology or related fields. Salary: \$16,000 per year. Send curriculum vitae to: Nancy Thompson, 2-38, MDES, 309 Second Avenue South, Minneapolis, Minn. 55401. An Equal Opportunity Employer.

**POSTDOCTORAL POSITION** at the University of California, Irvine, in the laboratory of Dr. Kevin P. Bertrand to work on the molecular genetics of: (i) tetracycline resistance in *Escherichia coli*, (ii) antibiotic resistance in *Bacteroides fragilis*, or (iii) plasmids in *Halobacterium halobium*. Experience with recombinant DNA techniques and/or biochemical characterization of membrane proteins desirable. Send curriculum vitae and letters of reference to:

Dr. Kevin P. Bertrand  
University of California, Irvine  
College of Medicine  
Department of Microbiology  
Irvine, Calif. 92717

An Affirmative Action/Equal Opportunity Employer

**POSTDOCTORAL POSITION** available July 1982 for study of the protein and proteoglycan metabolism of human rheumatoid tissues at the cellular and modular level. Background in protein chemistry, tissue culture, and some experience in molecular biology preferred. Starting salary: \$15,000 per year. Send curriculum vitae and names of three references to: Douglas R. Miller, Ph.D., Department of Orthopaedics, Louisiana State University Medical Center, 1542 Tulane Avenue, New Orleans, La. 70112. An Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### TWO POSTDOCTORAL POSITIONS OPEN:

- 1) Position in development of plasmid vectors for *Rhizobium japonicum*, and
- 2) Position in molecular cloning of stress tolerance genes.

Background in recombinant DNA technology, biochemical genetics, or biochemistry preferred. These positions are available immediately. Send curriculum vitae and three letters of reference to: Dr. R. C. Valentine, Plant Growth Laboratory, University of California, Davis, Calif. 95616. An Equal Opportunity/Affirmative Action Employer.

**POSTDOCTORAL POSITION** to investigate the effect of thyroxine treatment on myocardial substrate utilization. Cardiac physiology, especially subcellular cardiology.

Send curriculum vitae and names of three references to: Dr. Glenn A. Langer, M.D., Department of Physiology, University of California, Los Angeles, Calif. 90024.

An Equal Opportunity/Affirmative Action Employer. Minority and women candidates are encouraged to apply.

**POSTDOCTORAL POSITION** open for Ph.D. or M.D. with experience in culture of neoplastic stem cells. Send curriculum vitae with three letters of reference to either: Dr. Ross B. Mikkelsen or Dr. Donald F. H. Wallach, Division of Radiotherapy, Therapeutic Radiology Department, Tufts New England Medical Center, 171 Harrison Avenue, Boston, Mass. 02111. An Equal Opportunity Employer.

### POSTDOCTORAL POSITION Peptide Isolation and Identification

Zoecon Corporation seeks a Ph.D. in biochemistry/chemistry to isolate biologically active peptides.

Experience in peptide isolation, identification, and sequencing required.

Send curriculum vitae, including references and list of publications, to: M. Heath, Zoecon Corp., P.O. Box 10975, Palo Alto, Calif. 94303. Equal Opportunity Employer, M/F.

Zoecon

## POSITIONS OPEN

### POSTDOCTORAL POSITION AVAILABLE

Available for 1 to 2 years, beginning September to December 1982, for research on control of cerebral circulation with Doctors O. U. Scremin, E. H. Rubinstein, and R. R. Sonnenschein. Previous experience in cardiovascular physiology desirable. Stipend dependent on postdoctoral experience.

Send curriculum vitae and references to: Dr. R. R. Sonnenschein, Department of Physiology, School of Medicine, University of California, Los Angeles, Calif. 90024.

An Affirmative Action/Equal Opportunity Employer. Minority and women candidates are encouraged to apply.

**POSTDOCTORAL POSITION** available beginning 1 June 1982 in the Developmental Biology Center, University of California, Irvine. Recent Ph.D. required, preferably in the area of cell biology, molecular biology, developmental biology, or genetics. Research will be conducted in the laboratories of P. J. Bryant, J. L. Marsh (molecular genetics of *Drosophila* development, using molecular cloning and/or hybridomas), or R. Campbell (cell behavior and morphogenesis). The University of California is an Equal Opportunity/Affirmative Action Employer. Submit résumé and brief description of research interests and experience, together with the names of three individuals willing to write on your behalf, to: Peter J. Bryant, Developmental Biology Center, University of California, Irvine, Calif. 92717, by 1 May 1982.

**POSTDOCTORAL POSITION** available immediately in glycoprotein biochemistry. Projects include:

- 1) Biosynthesis of liquid intermediates
- 2) Characterization of processing glycosidases, and
- 3) Changes in biosynthesis and structure of cell surface glycoproteins related to growth, differentiation, and malignancy.

Send curriculum vitae and names of three references to:

Dr. Annette Herscovics  
McGill Cancer Centre  
3655 Drummond Street  
Montreal, Quebec, Canada H3G 1Y6

## The University of California, Davis announces The Albert Holmes Rowe Chair of Human Genetics

Applications are now invited for the Albert Holmes Rowe Chair of Human Genetics, an endowed position in the School of Medicine and Department of Genetics of the College of Agricultural and Environmental Sciences at the Davis Campus of the University of California. The Rowe Chair is being established to provide impetus and focus for the development of the fields of mammalian/human genetics on the Davis Campus.

Applicants should be physicians who have made significant scholarly contributions in the fields of mammalian/human genetics. Applicants should have the ability to conduct basic research that offers the opportunity for training of graduate and professional students and the potential for development of collaborations with campus colleagues. The person selected will be expected to lead the development of a medical sub-curriculum in mammalian/human genetics including courses of instruction at the undergraduate and graduate levels, and involving the training of residents and clinical fellows. Since the Rowe Chair will form the nucleus of a program in mammalian/human genetics, applicants must have the administrative ability and interest to recruit additional faculty and to assist in their academic development.

The formal appointment will be to a tenured Professorship in the faculty of the School of Medicine and the Department of Genetics of the College of Agricultural and Environmental Sciences.

Applications in the form of a letter describing research and teaching interests and background, together with a curriculum vitae and the names of three referees, should be submitted by November 1, 1982, to:

James J. Castles, M.D.  
Associate Dean for Academic Affairs  
School of Medicine  
Medical Sciences I—Building C  
University of California  
Davis, California 95616

In compliance with federal and state laws and University policy, the University of California does not discriminate on the basis of race, color, national origin, religion, sex, handicap, age, or against disabled veterans or veterans of the Viet Nam era. The University of California is an Affirmative Action/Equal Opportunity Employer.

Biology

## Tissue Culture Scientist

G. D. Searle Research & Development Division has a position available immediately for a cell culture scientist in the Department of Biological Research. Qualified candidates should have a M.S. or equivalent degree with a minimum of 4 years experience in cell culture methodology. The individual would have the responsibility of supervising the cell culture laboratory and would be a member of a multi-disciplinary group that conducts research focused on discovery of new drugs for treating allergic and inflammatory diseases.

We offer a liberal salary and benefits package. Candidates are encouraged to send a resume, including a summary of research experience and the names of three references to:

Sheila Copeland  
8220-016

Research & Development Division  
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Chicago, IL 60680

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**SEARLE**

## POSITIONS OPEN

**POSTDOCTORAL POSITION IN FETAL AND NEONATAL BIOLOGY.** Fields of investigation include the physiology, biochemistry, and pharmacology of the cardiovascular, respiratory, renal, endocrine, and central nervous systems. Emphasis is on both experimental and theoretical (mathematical modeling) studies. The fellowship commences 1 July 1982, and is available for 2 years. Please send curriculum vitae and bibliography to: **Dr. Lawrence D. Longo, Division of Perinatal Biology, School of Medicine, Loma Linda University, Loma Linda, Calif. 92350.**

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

**POSTDOCTORAL RESEARCH ASSOCIATE.** Position available for 1 to 3 years for research on erythrocyte membrane receptors for invasion by the malaria parasite. Previous research experience in isolation of cell surface glycoproteins, especially those of the erythrocyte, is desirable. Background in parasitology is not required. Send curriculum vitae and statement of research experiences and interests to: **Dr. Jerome Vanderberg, Division of Parasitology, Department of Microbiology, New York University Medical School, 550 First Avenue, New York, N.Y. 10016.**

**POSTDOCTORAL OR RESEARCH ASSOCIATE POSITION** available immediately for studying the mechanisms of action of neuroactive peptides in the spinal cord slice preparation by using electrophysiological methods. Salary negotiable, depending on experience. Send curriculum vitae and three letters of recommendation to: **Dr. M. Randic, Department of Veterinary Physiology and Pharmacology, Iowa State University, Ames, Iowa 50010. Iowa State University is an Equal Opportunity Employer.**

### POSTDOCTORAL RESEARCH ASSOCIATE—NEUROBIOLOGY

Position available beginning June or September 1982 for highly motivated cellular neurophysiologist interested in studies of gated membrane channels and/or synaptic mechanisms using voltage clamp, patch electrodes, photometry, and computer processing. Send curriculum vitae with names and telephone numbers of three referees to: **Dr. R. Eckert, Department of Biology, University of California, Los Angeles, Los Angeles, Calif. 90024, by 7 May.**

### POSTDOCTORAL RESEARCH ASSOCIATE IN IMMUNOLOGY

Immediate opening. Ph.D. or equivalent required. Major project: activation of human lymphocytes by immune complexes. Added project and temporary Temple University Immunology appointment for qualified advanced candidate. Write or contact at FASEB meeting: **Harold W. Lischner, M.D., Director, Immunology Laboratory, St. Christopher's Hospital for Children, Fifth and Lehigh Avenue, Philadelphia, Pa. 19133. Telephone: 215-427-5284. Equal Opportunity Employer.**

**POSTDOCTORAL RESEARCH POSITION**—University of California, Los Angeles (UCLA), Department of Medicine/Center for Ulcer Research and Education (CURE). Position open to produce and use monoclonal antibodies as probes of gastrointestinal hormone and neuropeptide function. Applicant should have Ph.D. with experience in cell culture and radioimmunoassay; prefer direct experience in monoclonal antibody production. Position open for up to 3 years. Salary range: \$15,936 to \$19,848. Send résumé to: **John H. Walsh, M.D., CURE, VA Wadsworth Center, Building 115, Room 115, Los Angeles, Calif. 90073. UCLA is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are urged to apply.**

**PROJECT ASSOCIATE:** Ph.D. degree in biochemistry required to conduct research on the molecular biology of RNA insect viruses, particularly characterization, genome structure, and function. Extensive experience required in protein purification and characterization, in vitro protein synthesis and cloning and sequencing of viral RNA. Full time; 40 hours per week. Salary: \$15,120 per year. Send résumé and letter of application to: **Sath Menon, Job Service, 206 North Broom Street, Madison, Wis. 53703.**

## POSITIONS OPEN

### POSTDOCTORAL SCIENTISTS

Two positions available, 1 September 1982, to study: (i) the mode of action of vitamin K and (ii) ubiquinone biosynthesis and regulation. Ph.D. in biochemistry with experience in lipid chemistry and enzyme purification required. Send curriculum vitae and three letters of recommendation to:

**Dr. Robert E. Olson  
Department of Biochemistry  
University of Pittsburgh School of Medicine  
Pittsburgh, Pa. 15261**

**RESEARCH ASSOCIATE/EM COORDINATOR.** Duties include operation, maintenance, and supervision of a multi-user electron microscope facility; assisting researchers choose, develop, learn, and apply electron microscope techniques suitable for their particular research problems; performing techniques such as negative staining, sectioning, shadow casting, and darkroom techniques; and administering the budget of the facility. Incumbent will have complete responsibility for the operation of the EM unit and will report directly to the department chairman. Requirements include B.S. in biology or related field, or equivalent; 2 years of training and 2 years of experience, or any combination thereof, in the above techniques; and the ability to work closely with several investigators and to independently organize facilities and work schedule. Salary \$18,000 per year; 40 hours per week. Send résumé to: **M. Molineaux, Job Order Number 2274, Division of Employment Security, C. F. Hurley Building, Boston, Mass. 02114.**

### UNIVERSITY OF MARYLAND Department of Physics and Astronomy Research Associate in Observational Astrophysics

The Department of Physics and Astronomy of the University of Maryland invites applications for the position of research associate within the Amplitude Interferometry Program. This research area involves the application of modern electro-optical techniques to develop unique instrumentation for the support of our astrometric and astrophysical observational programs. The research includes developing, fabricating, and testing several new approaches in high accuracy astrometry. These instruments will then be used in observing programs, both at the University of Maryland in conjunction with the U.S. Naval Observatory. A second area of study is amplitude interferometry, a technique for obtaining extremely high angular resolution through the earth's atmosphere. This is primarily directed to stellar diameter and surface features. The applicant should have significant experience in some of the areas of optical systems, photoelectric detectors, interferometry, and computer programming. The position will be a 2-year appointment with a third year renewal expected. Salary will be appropriate to the experience of the appointee. Résumé and bibliography should be sent as soon as possible to: **Professor Douglas G. Currie, Department of Physics and Astronomy, University of Maryland, College Park, Maryland 20742. The University of Maryland is an Equal Opportunity/Affirmative Action Employer.**

### VICE PRESIDENT—AGRICULTURAL ADMINISTRATION AND EXECUTIVE DEAN OF AGRICULTURE HOME ECONOMICS AND NATURAL RESOURCES THE OHIO STATE UNIVERSITY

The Ohio State University is seeking applications and nominations for Vice President—Agricultural Administration and Executive Dean of Agriculture, Home Economics, and Natural Resources. Major responsibilities include serving as academic dean of agriculture and having administrative responsibility for programs in agriculture, home economics, natural resources, the Ohio Agricultural Research and Development Center, the Cooperative Extension Service, and the Agricultural Technical Institute. Candidates should have an earned doctorate, broad academic experience in a discipline within the science of agriculture, and a demonstrated record of administrative/leadership ability, generally consonant with the complexity of a large land-grant university.

Nominations and letters of interest with pertinent supporting materials must be received by 1 May 1982 and should be addressed to: **Dr. Francille Firebaugh, Chairperson of the Search Committee, 235B Campbell Hall, 1787 Neil Avenue, The Ohio State University, Columbus, Ohio 43210.**

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

## POSITIONS OPEN

**RESEARCH ASSOCIATE IN BIOCHEMISTRY.** Position available immediately for Ph.D. with experience in tissue culture, protein purification, and membrane biochemistry. Experience in molecular biology and RIA is desirable. Area of research concerns folate metabolism. Send résumé, brief statement of research experience, and names of three professional references to: **Dr. S. P. Rothenberg, Brooklyn VA Medical Center, 800 Poly Place, Brooklyn, New York 11209. An Equal Opportunity/Affirmative Action Employer.**

Position available for **RESEARCH ASSOCIATE.** This position is available immediately for a medicinal/analytical chemist (Ph.D.) with at least 2 years of postdoctoral training in drug metabolism studies. The successful candidate should have experience in phenothiazine and stimulant drug metabolism and should possess the analytical skills to be used for the identification and quantification of metabolites from biological samples. This position will require a strong synthetic background for the purpose of providing internal standards and authentic reference standards of potential new drug metabolites. A working knowledge of HPLC and GC/MS is essential. An understanding of drug metabolism and the mode of CNS drug action is desirable. Please reply to: **Judy Perry, Business Manager, Biological Sciences Research Center, University of North Carolina School of Medicine, Chapel Hill, N.C. 27514. Closing date for applications: 1 May 1982.**

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

**RESEARCH POSITION** is available immediately for Ph.D. in biochemistry. Work involves synthesis and structure-activity relationship studies in polypeptides. Send résumé and three letters of reference to: **Chairman, Department of Biochemistry, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 10029. An Equal Opportunity Employer.**

**RESEARCH SCIENTIST** for multidisciplinary program on CNS regulation of cerebral blood flow and metabolism. Experience in areas of CNS/autonomic physiology, neurotransmitter or CV pharmacology, or circulatory physiology desirable. Curriculum vitae and bibliography to: **Dr. Donald Reis, Laboratory of Neurobiology, Cornell University Medical College, 1300 York Avenue, New York, N.Y. 10021.**

**SUPERVISOR OF ELECTRON MICROSCOPE LABORATORY,** which includes three transmission (Philips 301, Philips 201, and Siemens 1A) and two scanning (Philips 505 and JEOL JSM-2) electron microscopes and a Balzers Freeze Etch-Freeze Fracture unit. The successful candidate should have a thorough knowledge of electron microscopy and be willing to assume responsibilities associated with the general operation of the laboratory. Send curriculum vitae and three letters of recommendation to: **Dr. William A. Turner, Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202. Equal Opportunity/Affirmative Action Employer.**

### SYSTEMATIC MALACOLOGIST

The Department of Invertebrate Zoology of the California Academy of Sciences anticipates adding an assistant, associate, or full curator to its staff with appointment to commence on 15 August 1982. The position is a permanent, full-time appointment which carries both research and curatorial responsibilities.

Application is solicited only from persons with primary interest in and commitment to active research in systematic malacology and the curation, operation, and development of a major mollusk collection. Candidates must have a Ph.D., an active research program, and be prepared to participate in curatorial duties. Breadth of expertise and interest is of prime importance. Salary and level of appointment will depend on qualifications and experience.

Applicants should forward curriculum vitae, including employment and grant histories, description of research experience and future research plans, reprints of their three most significant publications, and the names of three references (with addresses and telephone numbers) whom we may contact, to:

**Dr. Welton L. Lee, Chairman  
Department of Invertebrate Zoology  
California Academy of Sciences  
San Francisco, California 94118**

Closing date for receipt of applications is 15 May 1982.

*The California Academy of Sciences is an Equal Opportunity Employer.*



## ENVIRONMENTAL CONSULTING SAUDI ARABIA

NUS Corporation, Environmental Services Division, is staffing a consulting team for environmental activities in Saudi Arabia. Consultants will work within a Saudi organization to provide technical expertise, management guidance and training of Saudi staff. Personnel for the following environmental disciplines are required:

**Marine Ecology  
Terrestrial Ecology  
Air Quality**

Applicants should have 3-5 years of practical experience. Ability to develop programs, evaluate contracts, and manage projects is required.

Extended bachelor status can be anticipated. Compensation commensurate with skill and Saudi Arabian competitive levels.

For consideration, please submit resume in confidence to:

**NUS Corporation**  
Personnel Department  
Box RH  
910 Clopper Road  
Gaithersburg, Maryland 20878  
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## RESEARCH MICROBIOLOGISTS

Campbell Soup Company, a major food corporation and a leading mushroom grower, has 2 research openings in the area of mushroom microbiology.

### SR. RESEARCH MICROBIOLOGIST

Will direct and conduct research on the microbiology of mushroom production. Must have a PhD in Microbial Ecology or a related field and demonstrated experience in fungal physiology research. The candidate must be a self starter and able to direct and motivate others. The ability to develop, initiate, and successfully complete a research program and effectively communicate research results are essential.

### RESEARCH MICROBIOLOGIST

Will conduct research on the microbiology of mushroom production. MS degree preferred, although a BS degree with experience will be considered. Research experience with fungi preferred but not essential.

Send curriculum vitae and 3 letters of recommendation to:

**Dr. W. R. Reinert**  
Manager—Biotechnology  
Campbell Institute for  
Research and Technology  
CAMPBELL SOUP COMPANY  
Campbell Place  
Camden, NJ 08101

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## U.S. DEPARTMENT OF ENERGY POSTGRADUATE RESEARCH TRAINING

### FOSSIL ENERGY TECHNOLOGIES Morgantown Energy Technology Center Pittsburgh Energy Technology Center

The U.S. Department of Energy fossil energy research and development facilities in Morgantown, West Virginia, and Pittsburgh, Pennsylvania, offer challenging opportunities to recent postgraduates for research participation and training in a broad range of fossil energy research and engineering activities directed toward the use of fossil fuels. The centers offer unique combinations of specialists, facilities, and programs for advancing the training of scientists and engineers.

Inquiries are invited from scientists and engineers who have received the M.S. or Ph.D. degree within the past three years in the physical or earth sciences or engineering.

Information and application materials may be obtained from

Fossil Energy Postgraduate  
Research Training  
University Programs  
Oak Ridge Associated Universities  
P.O. Box 117  
Oak Ridge, Tennessee 37830

This is an equal opportunity program open to qualified persons without regard to race, sex, creed, color, handicap, or national origin. Applicants must be U.S. citizens or permanent resident aliens.

Applications are accepted continuously.

## Microbial Physiologist/Biochemist

Pfizer Inc., a leader in the field of biotechnology with broad interests in chemical, pharmaceutical and agricultural applications, has an outstanding opportunity for an innovative Microbial Physiologist/Biochemist in its Fermentation Research and Development Department. Candidates should hold a Ph.D. in Microbiology or a related discipline and have a minimum of 3-5 years postdoctoral or industrial experience. At Pfizer, the successful candidate will become part of a multidisciplinary team charged with responsibility for conceptualization and implementation of projects leading to new products and processes. Experience with enzymology, regulation and intermediary metabolism is essential.

This position offers an excellent opportunity for professional recognition and career growth. We also offer a competitive compensation and benefit package and the opportunity to live in an attractive Connecticut shore community. Please send resume, description of research interests and a list of publications/references to: **Mr. F. G. Ziegler, Pfizer Central Research, Eastern Point Road, Groton, CT 06340**



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## POSITIONS OPEN

The Department of Preventive Medicine and Biometrics, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, Md., is seeking qualified applicants for the position of:

### TOXICOLOGIST

Minimum qualifications are an M.D. degree, a Ph.D. degree in toxicology, pharmacology, or related field, or a D.V.M. degree with substantial toxicology experience. In addition, the candidate must demonstrate substantial experience in teaching, administration, and research. Expertise should be reflected by a significant number of publications in scientific journals, presentations at scholarly meetings, and active membership in scholarly scientific societies. Responsibilities will include teaching, research, curriculum development, and supervision of medical students, graduate students, and postdoctoral assistants.

The position is in the Division of Environmental and Occupational Health. Academic rank will depend on individual qualifications. Deadline for receipt of applications is 15 June 1982. The position will be available around 1 October 1982.

Submit résumés to: **Chairman, Department of Preventive Medicine and Biometrics, Attention: Personnel, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20814.** Résumés will not be returned.

**VERTEBRATE BIOLOGIST.** Visiting assistant professor, one-year appointment, beginning 1 September 1982. Teaching responsibilities include co-teaching required freshman core courses and responsibility for a comparative vertebrate anatomy course in the fall and a vertebrate physiology course in the spring. Ph.D. preferable, but ABD considered. Send letter of application outlining interests and qualifications with current curriculum vitae. In addition, have transcript of graduate work and three letters of recommendation sent to: **Dr. Wayne McDuffett, Chairman, Department of Biology, Bucknell University, Lewisburg, Pa. 17837. Telephone 717-524-1322.**

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## PROGRAM

**APPLIED MOLECULAR BIOLOGY** with emphasis in recombinant DNA technology. Post-baccalaureate laboratory intensive program incorporating all major techniques in recombinant DNA research. This program has been established in collaboration with genetic engineering companies in the Baltimore-Washington-Frederick area and is designed to train science professionals for biotechnology industries. For information, contact: **Office of Admissions, University of Maryland Baltimore County, Catonsville, Md. 21228; telephone: 301-455-2291.**

## TRAVEL GRANTS

### TRAVEL GRANTS

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

## REQUEST FOR PROPOSALS

The U.S. Army Medical Research and Development Command requires the **synthesis of new antimalarial agents** as part of its ongoing Antimalarial Drug Development Program. Organizations interested in participating in this program should provide information on proposed research, supported by a compelling chemical, biochemical, biological, or pharmacological rationale. Applications for support for chemical research predicated on the condition that new compounds forthcoming will be submitted for screening cannot be supported. Applicants should include a title page, organizational and administrative information, a technical presentation including methods of approach, résumés for key personnel, and a description of facilities. This information should be provided, in three copies, within 30 days of the appearance of this advertisement to: **U.S. Army Medical Research and Development Command, Attention: SGRD-RMA (Ann E. May), Fort Detrick, Frederick, Md. 21701.**

## SYMPOSIUM

### THE NEURONAL CYTOSKELETON: ARCHITECTURE AND DYNAMIC PROPERTIES

30 MAY 1982  
DETROIT, MICHIGAN

The Neuroscience Program of Wayne State University will sponsor a one-day colloquium in which the biochemical, morphological, and immunological properties of the neuronal cytoskeleton will be discussed. The speakers are Doctors M. Ellisman, P. Gambetti, R. Goldman, R. Lasek, and W. Norton. For further information, contact: **Dr. R. Skoff, Department of Anatomy, Wayne State University School of Medicine, Detroit, Mich. 48201; telephone: 313-577-1165.**

## FELLOWSHIPS

### CELANESE BIOTECHNOLOGY POSTDOCTORAL FELLOWSHIPS AT YALE UNIVERSITY

A new interdisciplinary research program will begin with the appointment of four Celanese Fellows to postdoctoral positions at Yale University. The four research projects and the faculty members responsible for them are as follows: Novel directions in enzyme catalysis (J. Kozarich); Structure of catabolic microbial enzymes determined by x-ray diffraction (T. Steitz); Regulation of the synthesis of plant proteins (I. Sussex); and Isolation of genes for catabolic pathways from yeasts (L. N. Ornston).

Applicants will be expected to have demonstrated excellence in their fields and also must be able to communicate their results effectively with other members of the program. Salaries will be \$20,000 per annum. Applications, including curriculum vitae and two letters of recommendation, should be sent to: **L. Nicholas Ornston, Department of Biology, Kline Biology Tower, P.O. Box 6666, Yale University, New Haven, Connecticut 06511, by 30 June 1982.** Specific inquiries may be directed to other faculty members associated with the program. *Yale is an Affirmative Action/Equal Opportunity Employer.*

The Division of Molecular Hematology of the Department of Medicine at the University of California Medical Center is now accepting applications for **RESEARCH FELLOWSHIPS** beginning July 1983. Pre- and postdoctoral positions are available for research in the molecular genetics of hemoglobin biosynthesis, the biochemistry of blood clotting, and molecular biology of lymphomas and cancer. For information and applications, write: **Y. W. Kan, M.D., Division of Molecular Hematology, HSE 1504, University of California Medical Center, San Francisco, Calif. 94143.**

### Saint Mary's University, Halifax, Nova Scotia POSTDOCTORAL FELLOWSHIP

Synthesis of analogs of the antitumor drug DTIC and application of triazines in heterocyclic synthesis. Stipend at current NSERC rates (maximum: \$16,380 per annum).

Curriculum vitae and two letters of recommendation to be sent to:

**Professor Keith Vaughan  
Department of Chemistry  
Saint Mary's University  
Halifax, Nova Scotia, Canada B3H 3C3**

### POSTDOCTORAL FELLOWSHIP

Postdoctoral fellowship available at VA Medical Center/Stanford Medical Center, Palo Alto, Calif., September 1982, to study processing of growth hormone gene by U-1 RNA-containing small nuclear ribonucleoprotein particles (snRNPs). Prior experience in nucleic acid hybridization techniques, isolation of primary transcripts, restriction endonuclease analysis, nick translation, and cell culture required. Candidate should hold the Ph.D. or M.D. degree and be a U.S. citizen or permanent resident. Submit application letter, curriculum vitae, and names of three references to: **Dr. Thomas B. Okarma, Geriatric Research Education and Clinical Center (182B), Veterans Administration Medical Center, 3801 Miranda Avenue, Palo Alto, Calif. 94304. Palo Alto Veterans Administration Medical Center is an Affirmative Action/Equal Opportunity Employer.**

## FELLOWSHIPS

### POSTDOCTORAL FELLOWSHIP AVAILABLE IMMEDIATELY

Applications are invited for a fellowship in the "Molecular Biology of Economic Plants Directed Toward Applications in Agriculture" intercollegiate program at the University of Minnesota but supported by DEKALB AgResearch, Inc. The individual would join a group of faculty with interests in recombinant DNA technology, tissue culture, and genetic modification and would work with one or more members of that group. Send curriculum vitae by 15 May 1982 to one of the following: **B. G. Gengenbach, C. E. Green, or R. L. Phillips, Department of Agronomy and Plant Genetics; J. W. Messing, Department of Biochemistry; or I. Rubenstein, Department of Genetics and Cell Biology, University of Minnesota, St. Paul, Minn. 55108.** *The University of Minnesota is an Equal Opportunity Educator and Employer, and specifically invites and encourages applications from women and minorities.*

**POSTDOCTORAL FELLOWSHIP IN ENDOCRINOLOGY** at UCLA-Wadsworth VA Medical Center through NIH training grant starting July 1982. Research encompasses thyroid physiology and neuroendocrinology. Clinical training is optional. Open to U.S. citizens or permanent residents with M.D. or Ph.D. Send curriculum vitae to: **Dr. Jerome M. Hershman, Endocrinology-111D, Wadsworth VA Hospital, Los Angeles, Calif. 90073, or telephone: 213-824-4442.**

### POSTDOCTORAL FELLOWSHIP—INVERTEBRATE ELECTROPHYSIOLOGY

Postdoctoral fellowship available for invertebrate electrophysiologist to work on parasitic helminths. Position will be available by August 1982. Contact: **Dr. James L. Bennett, Department of Pharmacology, Michigan State University, East Lansing, Michigan 48824.** *Michigan State University is an Affirmative Action/Equal Opportunity Institution.*

### WILMOT CANCER RESEARCH FELLOWSHIPS

The University of Rochester School of Medicine offers research training to individuals with the M.D. degree and at least 1 year of postdoctoral experience. Research fellows may train for up to 3 years in any discipline relevant to the cause, diagnosis, treatment, or prevention of cancer. Training is available in fields such as: endocrinology, experimental therapeutics, genetics, hematology, immunology, microbiology, molecular and cellular biology, pathology, and radiation oncology.

Stipends range from \$27,000 to \$30,000, depending on the number of years since the M.D. degree was achieved. There is also an annual allowance of \$6000 for other research costs.

For further information, contact:

**WILMOT CANCER RESEARCH FELLOWSHIP PROGRAM  
Box 706  
University of Rochester  
School of Medicine and Dentistry  
601 Elmwood Avenue  
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**Dr. Raymond Y. Lau  
Showa University Research Institute  
For Biomedicine In Florida  
5180 113th Avenue North  
Clearwater, Fla. 33520  
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# High Tide in New Mexico

Tidal movements of the earth have long been a subject of man's speculation.

A remarkable oscilloscope inside "Frustration Mine" in the Manzano Mountains records the output of tiltmeters. Highly sensitive transducers send out analog signals which measure the slant of the earth's surface in nano-radians ( $1 \text{ nradian} = 57 \times 10^{-9}$  degrees). With digitizing rates as slow as 1 sample/200 seconds, the Nicolet digital oscilloscope captures and stores up to 72 days of continuous data without human intervention. (Figures 1 and 2).

Whether making measurements for months or microseconds, Nicolet oscilloscopes increase data accuracy. Figures 3 and 4 show pressure waves in a seismic core sample. Waves from separate trials with different core pressures are superimposed on the screen and plotted for comparison. The 1.05 microsecond difference in arrival times is easily read from the screen's numerics.

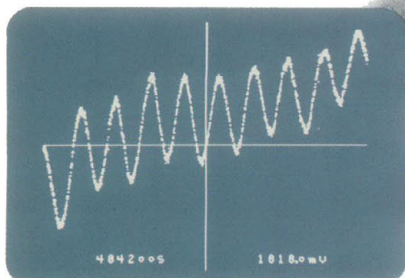


Fig. 1: 5-day section of earth tide record centered 2-1/2 days from start. Sun and moon are in phase (new moon).

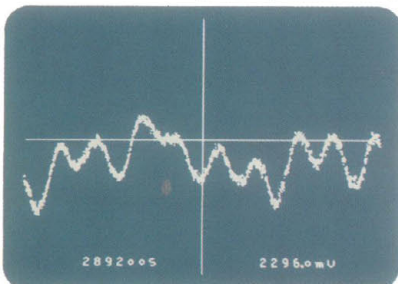


Fig. 2: 5-day section of earth tide record when sun and moon are in quadrature (6 hours apart).

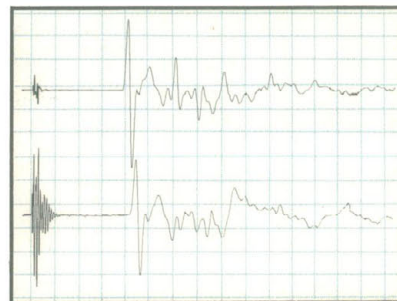


Fig. 3: Plot of pressure waves in seismic core samples.

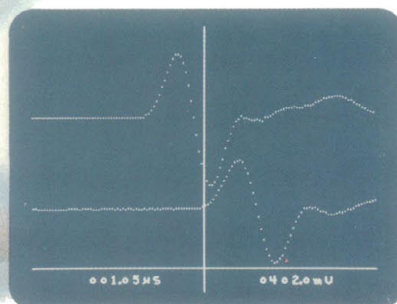


Fig. 4: Screen expansion of waveforms plotted in figure 3.

age or output to other computing devices via standard interfaces.

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Or write: Nicolet Instrument Corporation, Oscilloscope Division, 5225 Verona Road, Madison, Wisconsin 53711. In Canada: call 416/625-8302.

Whatever your analog signal measurement problem, Nicolet digital oscilloscopes offer resolution, precision, dynamic range and transient capture capabilities unobtainable in analog oscilloscopes. Signals can be viewed live, continuously compared to a reference waveform or stored for detailed examination. Continuous, normal and pre-triggered operation are offered as standard. Cursor-interactive time and voltage coordinates can be displayed concurrently with the signal in all modes. Stored waveforms can be displayed or plotted in XY or YT format, transferred to internal disk memory for permanent stor-

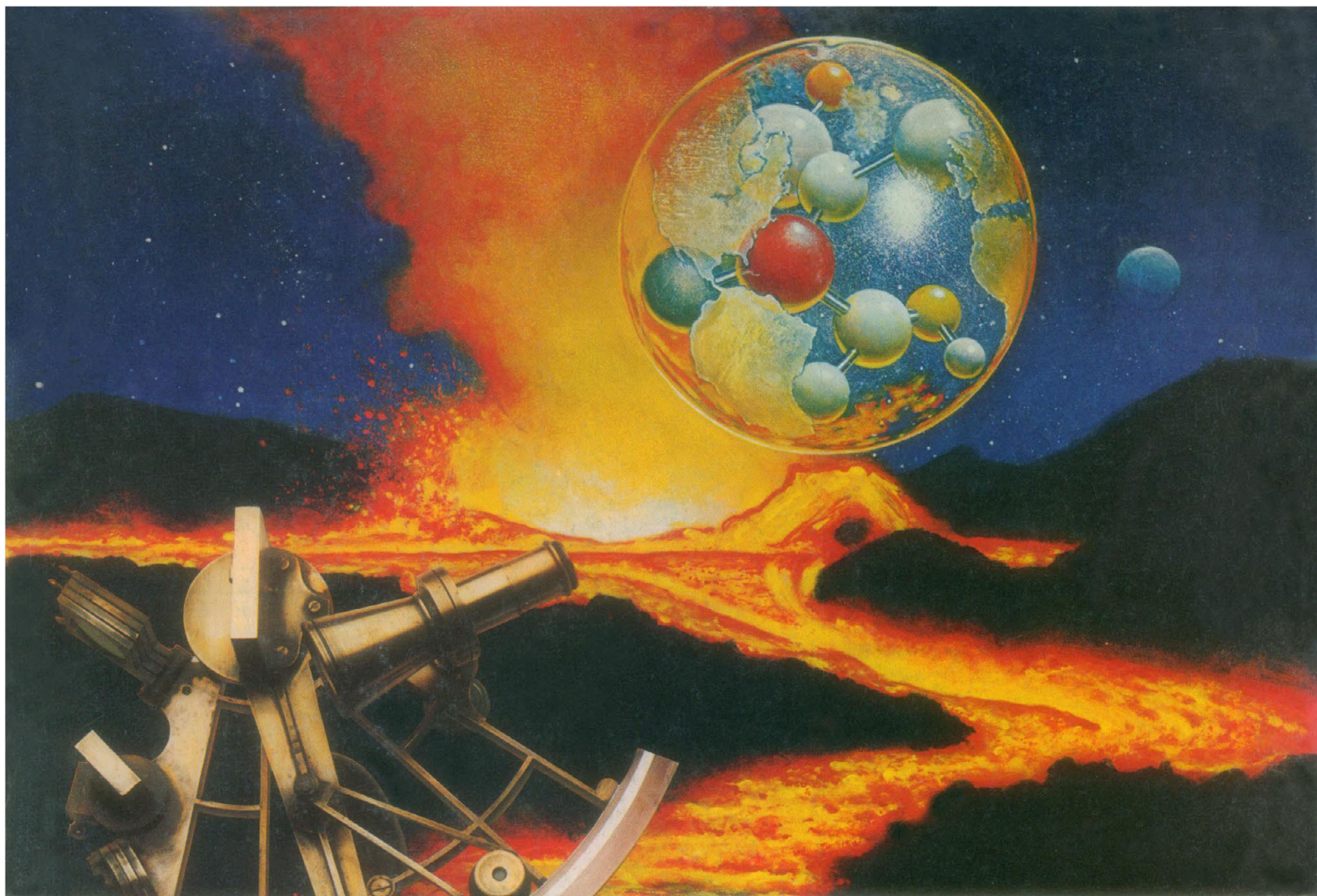
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\* Waveforms courtesy of Bob Peet and Jack Schwarz of Sandia National Laboratories and the R & D Laboratory of the ARCO Oil and Gas Company.

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