

Schawlow makes the point that each person involved in history sees events differently and that there will be inevitable differences of opinion about what to emphasize and even about facts. Nevertheless he finds the book a "sound outline of the way things developed." All of us who have tried to fill in parts of this complex history will agree.

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## Some Other Books of Interest

**Extinctions.** MATTHEW H. NITECKI, Ed. University of Chicago Press, Chicago, 1984. x, 354 pp., illus. \$30; paper, \$16. From a symposium, Chicago, May 1983.

The contributions to this volume are based on papers presented at the Sixth Annual Spring Systematics Symposium held at the Field Museum. (For accounts of the symposium see J. Diamond, *Nature* **304**, 396 [1983] and R. Lewin, *Science* **220**, 1140 [1983] and **223**, 383 [1984]). The papers included are: "Death of species" by D. M. Raup; "Patterns of extinction in the fossil record of vascular plants" by A. H. Knoll; "Marine mass extinctions: a dominant role for temperatures" by S. M. Stanley; "Extinction in hominid evolution" by A. Walker; "Catastrophic extinctions and late Pleistocene Blitzkrieg: two radiocarbon tests" by Paul S. Martin; "'Normal' extinctions of isolated populations" by J. M. Diamond; "Mammalian extinction and biogeography in the southern Rocky Mountains" by B. D. Patterson; and "Ecosystem decay of Amazon forest remnants" by T. E. Lovejoy *et al.* (A paper by Walter Alvarez presented at the symposium is not represented here.) Abstracts of the eight papers are gathered in an appendix, and author and subject indexes have been provided.—K.L.

**Orders and Families of Recent Mammals of the World.** SYDNEY ANDERSON and J. KNOX JONES, JR., Eds. Wiley-Interscience, New York, 1984. xiv, 686 pp., illus. \$54.95.

This volume is a successor to *Recent Mammals of the World: A Synopsis of Families*, also edited by Anderson and Jones (Ronald, 1967; reviewed in *Science* **157**, 1420 [1967]). The new work, sponsored like its predecessor by the American Society of Mammalogists, is about 40 percent longer and has 13 new

contributors. A general introduction by the editors is followed by an order-by-order discussion of the fossil histories of Recent mammals by M. R. Dawson and L. Krishtalka. The remainder of the chapters are devoted to the various orders. Monotremes and marsupials are dealt with by L. G. Marshall, insectivores, elephant shrews, tree shrews, and dermopterans by T. L. Yates, bats by K. F. Koopman, primates by R. W. Thorington, Jr., and S. Anderson, xenarthrans and pholidotes by J. C. Barlow, and lagomorphs by V. E. Diersing. The treatment of rodents comprises an introduction by M. D. Carleton and accounts of the various suborders by C. A. McLaughlin, Carleton and G. G. Musser, D. Klingener, and C. A. Woods. Cetaceans are dealt with by D. W. Rice, carnivores by H. J. Stains, tubulidentates, proboscideans, and hyracoideans by C. Jones, sirenians by G. B. Rathbun, perissodactyls by D. C. Carter, and artiodactyls by C. D. Simpson. For each family within an order information is given on diagnosis, general characters, habits, habitat, Recent distribution (including maps), Recent genera, geologic range, and major fossil groups. A 69-page section of references and an index of scientific (to the level of genus) and vernacular names are included.—K.L.

## Books Received

**Airlines of Latin America since 1919.** R. E. G. Davies. Smithsonian Institution Press, Washington, D.C., 1984. xiv, 698 pp., illus. \$47.50.

**Amphibian Morphogenesis.** Harold Fox. Humana, Clifton, N.J., 1984. xvi, 301 pp., illus. \$59.50. Bio-science.

**Animal Mechanics.** R. McNeill Alexander. 2nd ed. Blackwell Scientific, Palo Alto, Calif., 1983. x, 301 pp., illus. \$30. A Packard Publishing Limited Book.

**Annual Review of Earth and Planetary Sciences.** Vol. 12. George W. Wetherill, Arden L. Albee, and Francis G. Stehli, Eds. Annual Reviews, Palo Alto, Calif., 1984. x, 533 pp., illus. \$44.

**Annual Review of Public Health.** Vol. 5. Lester Breslow, Jonathan E. Fielding, and Lester B. Lave, Eds. Annual Reviews, Palo Alto, Calif., 1984. viii, 473 pp. \$27.

**Antibodies: Their Structure and Function.** M. W. Steward. Chapman and Hall, London, 1984 (U.S. distributor, Methuen, New York). 96 pp., illus. Paper, \$6.95. Outline Studies in Biology.

**Antimalarial Drugs II.** Current Antimalarials and New Drug Developments. W. Peters and W. H. G. Richards, Eds. Springer-Verlag, New York, 1984. xviii, 520 pp., illus. \$147. Handbook of Experimental Pharmacology, vol. 68/II.

**Antiviral Chemotherapy, Interferons and Vaccines.** David O. White. Karger, Basel, 1984. viii, 112 pp., illus. \$46.25. Monographs in Virology, vol. 16.

**Brücken: Ästhetik und Gestaltung.** Bridges: Aesthetics and Design. Fritz Leonhardt. MIT Press, Cambridge, Mass., 1984. 308 pp., illus. \$50. MIT Press Series in Structural Mechanics.

**Butterflies East of the Great Plains.** An Illustrated Natural History. Paul A. Opler and George O. Krizek. Johns Hopkins University Press, Baltimore, 1984. xviii, 294 pp., illus., + plates. \$49.50.

**Cancer Rehabilitation.** Albert E. Gunn, Ed. Raven, New York, 1984. xiv, 223 pp., illus. \$38.

**Carbon-Functional Organosilicon Compounds.** Václav Chvalovsky and Jon M. Bellama, Eds. Plenum, New York, 1984. xiv, 303 pp., illus. \$45. Modern Inorganic Chemistry.

**Carbonate Chemistry of Aquatic Systems.** Vol. 2,

High Salinity Waters. R. E. Loewenthal and G. v. R. Marais. Butterworths, Boston, 1984. Various pages, illus. \$39.95. An Ann Arbor Science Book.

**Cardiology Update.** Reviews for Physicians. 1984 Edition. Elliot Rapaport, Ed. Elsevier, New York, 1984. xvi, 245 pp., illus. \$39.95.

**Careers in Science.** Thomas A. Easton. Dow Jones-Irwin, Homewood, Ill., 1984. x, 127 pp. Paper, \$9.95.

**Catalytic Conversions of Synthesis Gas and Alcohols to Chemicals.** Richard G. Herman, Ed. Plenum, New York, 1984. xii, 475 pp., illus. \$69.50.

**Cellular and Molecular Biology of Neuronal Development.** Ira B. Black, Ed. Plenum, New York, 1984. xxvi, 363 pp., illus. \$49.50. From a symposium, St. Thomas, U.S. Virgin Islands, March 1983.

**Discourse Development.** Progress in Cognitive Development Research. Stan A. Kuczaj, II, Ed. Springer-Verlag, New York, 1984. xvi, 203 pp., illus. \$25.90. Springer Series in Cognitive Development.

**Distributed Computer Control Systems 1983.** M. G. Rodd, Ed. Published for the International Federation of Automatic Control by Pergamon, New York, 1984. x, 185 pp., illus. \$56. IFAC Proceedings Series. From a workshop, Sabi-Sabi, Transvaal, South Africa, May 1983.

**Drained Field Agriculture in Central and South America.** J. P. Darch, Ed. B.A.R., Oxford, England, 1983. xiv, 263 pp., illus. Paper, £16. BAR International Series 189. From a congress, Manchester, 1982.

**Drugs and the Lung.** Gordon Cumming and Giovanni Bonsignore, Eds. Plenum, New York, 1984. viii, 285 pp., illus. \$49.50. Ettore Majorana International Science Series, Life Sciences, vol. 14. From a school, June 1982.

**Dynamic Semiconductor RAM Structures.** A. Cardon and L. J. L. Fransen. Pergamon, New York, 1984. xxiv, 469 pp., illus. \$95. EPO Applied Technology Series, vol. 1.

**The Dynamics of Nuclear Proliferation.** Stephen M. Meyer. University of Chicago Press, Chicago, 1984. xvi, 229 pp. \$20.

**Earthquake Engineering.** Damage Assessment and Structural Design. S. F. Borg. Wiley Heyden, New York, 1984. xiv, 110 pp., illus. \$21.95. Wiley Series in Methods and Applications in Civil Engineering.

**Ecogenetics.** Genetic Variation in Susceptibility to Environmental Agents. Edward J. Calabrese. Wiley-Interscience, New York, 1984. xvi, 341 pp., illus. \$65. Environmental Science and Technology.

**Forest Policy.** A Contribution to Resource Development. F. C. Hummel, Ed. Nijhoff/Junk, The Hague, 1984 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xx, 310 pp., illus. \$60. Forestry Sciences.

**Foundations of Laser Spectroscopy.** Stig Stenholm. Wiley-Interscience, New York, 1984. xiv, 268 pp., illus. \$36.95.

**Fuel Economy in Aviation.** Jeffrey L. Ethell. National Aeronautics and Space Administration, Washington, D.C., 1983 (available from the Superintendent of Documents, Washington, D.C.). x, 111 pp., illus. \$15. NASA SP-462.

**Fuller's Earth.** A Day with Bucky and the Kids. Richard J. Brennenman. St. Martin, New York, 1984. x, 180 pp., illus. \$13.95.

**Fundamentals of Meteorology.** Louis J. Battan. 2nd ed. Prentice-Hall, Englewood Cliffs, N.J., 1984. xiv, 304 pp., illus. \$26.95.

**Galactic and Extragalactic Infrared Spectroscopy.** M. F. Kessler and J. P. Phillips, Eds. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xii, 472 pp., illus. \$58. Astrophysics and Space Science Library, vol. 108. From a symposium, Toledo, Spain, Dec. 1982.

**Gas Transfer at Water Surfaces.** Wilfried Brutsaert and Gerhard H. Jirka, Eds. Reidel, Boston, 1984 (distributor, Kluwer Boston, Hingham, Mass.). x, 641 pp., illus. \$78. Water Science and Technology Library. From a symposium, Ithaca, N.Y., June 1983.

**Gaseous Air Pollutants and Plant Metabolism.** M. J. Koziol and F. R. Whatley, Eds. Butterworths, Boston, 1984. xiv, 466 pp., illus. \$99.95. From a symposium, Oxford, England, Aug. 1982.

**The Hidden Sun.** Solar Eclipses and Astrophotography. James Lowenthal. Avon, New York, 1984. 108 pp., illus., + plates. Paper, \$5.95.

**Hospital with a Heart.** Women Doctors and the Paradox of Separatism at the New England Hospital, 1862-1969. Virginia G. Drachman. Cornell University Press, Ithaca, N.Y., 1984. 259 pp., illus. \$19.95.

**How You Can Explore Higher Dimensions of Space and Time.** T. B. Pawlicki. Prentice-Hall, Englewood Cliffs, N.J., 1984. xiv, 188 pp., illus. \$16.95; paper, \$6.95.

**Human Anatomy.** Kent M. Van De Graaff. Brown, Dubuque, Iowa, 1984. xviii, 677 pp., illus., + appendices. \$38.95.

(Continued on page 959)

## BOOKS RECEIVED

(Continued from page 920)

- Human and Machine Vision.** Jacob Beck, Barbara Hope, and Azriel Rosenfeld, Eds. Academic Press, Orlando, Fla., 1983. xii, 567 pp., illus. \$42. Notes and Reports in Computer Science and Applied Mathematics, 8. From a conference, Denver, Aug. 1981.
- Human Development.** An Interactional Perspective. David Magnusson and Vernon L. Allen, Eds. Academic Press, Orlando, Fla., 1983. xviii, 395 pp., illus. \$39. Developmental Psychology Series. From a conference, Stockholm, June 1982.
- Human Laterality.** Michael C. Corballis. Academic Press, Orlando, Fla., 1983. xii, 255 pp., illus. \$29.50. Perspectives in Neurolinguistics, Neuropsychology, and Psycholinguistics.
- Human Nature and Biocultural Evolution.** Joseph Lopreato. Allen and Unwin, Boston, 1984. xiv, 400 pp. \$24.95.
- The Hypothalamus of the Guinea Pig.** A Cytoarchitectonic Atlas. Ruth Bleier. Photomicrographs and plates prepared by Inge Sigelkow. University of Wisconsin Press, Madison, 1984. xiv, 134 pp. \$50.
- IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans.** International Agency for Research on Cancer, Lyon, 1983. Vol. 31. Some Food Additives, Feed Additives and Naturally Occurring Substances. 316 pp. Paper, \$30. Vol. 32. Polynuclear Aromatic Compounds, Part 1. 482 pp., illus. Paper, \$40.
- Individuality and Determinism.** Chemical and Biological Bases. Sidney W. Fox, Ed. Plenum, New York, 1984. x, 225 pp., illus. \$35. From a conference, Key Biscayne, Fla., May 1982.
- Industrial Robots.** P. Lammineur and O. Cornillie. Pergamon, New York, 1984. viii, 154 pp., illus. \$50. EPO Applied Technology Series, vol. 2.
- The Injury Fact Book.** Susan P. Baker, Brian O'Neill, and Ronald S. Karpf. Lexington (Heath), Lexington, Mass., 1984. xxxiv, 317 pp., illus. \$25. An Insurance Institute for Highway Safety Book.
- Inorganic Fibres and Composite Materials.** A Survey of Recent Developments. P. Bracke, H. Schurmans, and J. Verhoest. Pergamon, New York, 1984. xii, 178 pp., illus. \$50. EPO Applied Technology Series, vol. 3.
- Integration of Science and the Systems Approach.** Arkadiy Dmitriyevich Ursul, Zdeněk Javůrek, and Jiří Zeman, Eds. Elsevier, New York, 1984. 257 pp. \$55.75.
- Interpretation of Bladder Biopsies.** Peter N. Brawn. Raven, New York, 1984. xii, 210 pp., illus. \$39.50. Biopsy Interpretation Series.
- Intraocular Tumors.** P. K. Lommatzsch and F. C. Blodi, Eds. Springer-Verlag, New York, 1983. 628 pp., illus. \$84. From a symposium, Schwerin, East Germany, May 1981.
- Introduction to Biology.** A Human Perspective. Donald J. Farish. Willard Grant, Boston, 1984. xiv, 574 pp., illus. \$21.
- An Introduction to the Biology of Marine Life.** James L. Sumich. 3rd ed. Brown, Dubuque, Iowa, 1984. xiv, 386 pp., illus., + plates. Paper, \$24.95.
- Introduction to Dislocations.** D. Hull and D. J. Bacon. 3rd ed. Pergamon, New York, 1984. xiv, 257 pp., illus. Paper, \$13.50. International Series on Materials Science and Technology, vol. 37.
- Introduction to Safety Engineering.** David S. Gloss and Miriam Gayle Wardle. Wiley-Interscience, New York, 1984. xviii, 612 pp. \$50.
- Introduction to Supersymmetry in Particle and Nuclear Physics.** O. Castaños, A. Frank, and L. Urrutia, Eds. Plenum, New York, 1984. viii, 187 pp., illus. \$29.50. From a school, Mexico City, Dec. 1981.
- Introduction to Wastewater Treatment Processes.** R. S. Ramalho. 2nd ed. Academic Press, Orlando, Fla., 1983. x, 580 pp., illus. \$57.
- Life Change Events Research 1966-1978.** An Annotated Bibliography of the Periodical Literature. Thomas H. Holmes and Ella M. David, Eds. Praeger, New York, 1984. xviii, 332 pp. \$32.50.
- Life in Inland Waters.** W. D. Williams. Blackwell Scientific, Palo Alto, Calif., 1983. x, 252 pp., illus. Paper, \$20.
- Life Science and Religions.** Kieran Burns. Philosophical Library, New York, 1984. xiv, 209 pp., illus. \$25.
- Lindenmeier, 1934-1974.** Concluding Report on Investigations. Edwin N. Wilmsen and Frank H. H. Roberts, Jr. Smithsonian Institution Press, Washington, D.C., 1984. xvi, 187 pp., illus., + plates. Paper, \$27.50. Smithsonian Contributions to Anthropology, No. 24. Reprint, 1978 edition.
- Linear Algebra.** V. V. Voevodin. Mir, Moscow, 1984 (U.S. distributor, Imported Publications, Chicago). 392 pp., illus. \$10.95. Translated from the Russian edition (Moscow, 1980) by Vladimir Shokurov.
- Lipases.** Bengt Borgström and Howard L. Brockman, Eds. Elsevier, New York, 1984. xiv, 527 pp., illus. \$123.
- Macrophage Activation.** Dolph O. Adams and Michael G. Hanna, Jr., Eds. Plenum, New York, 1984. xviii, 262 pp., illus. \$39.50. Contemporary Topics in Immunobiology, vol. 13.
- Magnetohydrodynamic Equilibrium and Stability of Stellarators.** Frances Bauer, Octavio Betancourt, and Paul Garabedian. Springer-Verlag, New York, 1984. x, 196 pp., illus. \$36.
- Major Issues in Critical Care Medicine.** Joseph E. Parrillo and Stephen M. Ayres, Eds. Williams and Wilkins, Baltimore, 1984. xx, 297 pp., illus. \$38. From a conference, Bethesda, Md., March 1983.
- Malformations of Development.** Biological and Psychological Sources and Consequences. Eugene S. Gollin, Ed. Academic Press, Orlando, Fla., 1984. xiv, 385 pp., illus. \$45. Developmental Psychology Series.
- Manual Specialization and the Developing Brain.** Gerald Young *et al.*, Eds. Academic Press, Orlando, Fla., 1983. xviii, 414 pp. \$48. Perspectives in Neurolinguistics, Neuropsychology, and Psycholinguistics.
- The New Science of Strong Materials.** Or Why You Don't Fall Through the Floor. J. E. Gordon. 2nd ed. Princeton University Press, Princeton, N.J., 1984. 288 pp., illus., + plates. Paper, \$9.95. Reprint, 1976 edition.
- Newton at the Bat.** The Science in Sports. Eric W. Schrier and William F. Allman, Eds. Scribner, New York, 1984. xiv, 178 pp., illus. \$14.95. Reprinted from *Science* 80-84.
- Nitrogen as an Ecological Factor.** J. A. Lee, S. McNeill, and I. H. Rorison, Eds. Blackwell Scientific, Palo Alto, Calif., 1983. x, 470 pp., illus. \$67. From a symposium, Oxford, England, March 1981.
- Nonconventional Energy.** G. Furlan, N. A. Mancini, and A. A. M. Sayigh, Eds. Plenum, New York, 1984. x, 796 pp., illus. \$75. From a symposium, Trieste, Italy, July 1981.
- Nonparametric Functional Estimation.** B. L. S. Prakasa Rao. Academic Press, Orlando, Fla., 1983. xiv, 524 pp. \$70. Probability and Mathematical Statistics.
- Not in Our Genes.** Biology, Ideology, and Human Nature. R. C. Lewontin, Steven Rose, and Leon J. Kamin. Pantheon, New York, 1984. xii, 322 pp. \$21.95.
- Nourishing Your Child.** A Bioecologic Approach. Ray C. Wunderlich, Jr., and Dwight K. Kalita. Keats, New Canaan, Conn., 1984. xviii, 185 pp., illus. \$18.95.
- Nuclear Data for Science and Technology.** K. H. Böckhoff, Ed. Reidel, Boston, 1983 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 1054 pp., illus. \$120. From a conference, Antwerp, Sept. 1982.
- Nuclear Power.** Assessing and Managing Hazardous Technology. Martin J. Pasqualetti and K. David Pijawka, Eds. Westview, Boulder, Colo., 1984. xviii, 423 pp., illus. Paper, \$28.50. A Westview Replica Edition.
- The Nuclear Power Debate.** A Guide to the Literature. Jerry W. Mansfield. Garland, New York, 1984. viii, 93 pp. \$18.
- Number Theory in Science and Communication.** With Applications in Cryptography, Physics, Biology, Digital Information, and Computing. M. R. Schroeder. Springer-Verlag, New York, 1984. xvi, 324 pp., illus. \$24.50. Springer Series in Information Sciences, vol. 7.
- Nutrition and Behavior.** Janina R. Galler, Ed. Plenum, New York, 1984. xviii, 514 pp., illus. \$49.50. Human Nutrition, vol. 5.
- Operator Communication Relations.** Palle E. T. Jørgensen and Robert T. Moore. Reidel, Boston, 1984 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 493 pp. \$69. Mathematics and Its Applications.
- Organic Reactions.** Vol. 31. William G. Dauben *et al.*, Eds. Wiley, New York, 1984. viii, 376 pp., illus. \$44.50.
- Otological Significance of the Round Window.** Yasuya Nomura. Karger, Basel, 1984. x, 162 pp., illus. \$69. Advances in Oto-Rhino-Laryngology, vol. 33.
- Our Money and Our Misery.** A Diagnosis and Prescription. Ardron B. Lewis. Exposition, Smithtown, N.Y., 1983. xxviii, 147 pp., illus. \$11.
- Pigs for the Ancestors.** Ritual in the Ecology of New Guinea People. Roy A. Rappaport. 2nd ed. Yale University Press, New Haven, Conn., 1984. xviii, 501 pp., + plates. \$30; paper, \$9.95.
- Plain Bearing Design Handbook.** R. J. Welsh. Butterworths, Boston, 1983. x, 162 pp., illus. \$39.95.
- Proceedings of the European Dialysis and Transplant Nurses Association.** Vol. 12. (London, 1983.) Mary Selsby and Elizabeth Stevens, Eds. Pitman, London, 1983 (U.S. distributor, Urban & Schwarzenberg, Baltimore). x, 266 pp., illus. \$24.50.
- Process Energy Conservation Manual.** F. William Payne, Ed. Fairmont, Atlanta, Ga., 1984. vi, 158 pp., illus. \$30.
- Quantum Mechanics.** P. C. W. Davies. Routledge and Kegan Paul, Boston, 1984. x, 139 pp., illus. Paper, \$9.95. Student Physics Series.
- Residual Deposits.** Surface Related Weathering Processes and Materials. R. C. L. Wilson, Ed. Published for the Geological Society of London by Blackwell Scientific, Palo Alto, Calif., 1983. vi, 258 pp., illus. \$50. From a meeting, London, March 1981.
- The Retinoids.** Michael B. Sporn, Anita B. Roberts, and Dewitt S. Goodman, Eds. Academic Press, New York, 1984. Two volumes. Vol. 1. xiv, 424 pp., illus. \$46. Vol. 2. xiv, 446 pp., illus. \$48.
- Reverse Osmosis.** P. Hoornaert. Pergamon, New York, 1984. xiv, 212 pp. \$55. EPO Applied Technology Series, vol. 4.
- Risk Analysis and Decision Processes.** The Siting of Liquefied Energy Gas Facilities in Four Countries. Howard C. Kunreuther *et al.* Springer-Verlag, New York, 1983. xvi, 290 pp., illus. \$19.
- Ritual Human Sacrifice in Mesoamerica.** Elizabeth H. Boone, Ed. Dumbarton Oaks Research Library and Collection, Washington, D.C., 1984. viii, 247 pp., illus. \$18.50. From a conference, Washington, D.C., Oct. 1979.
- Rivers of the World.** Eberhard Czaya. Van Nostrand Reinhold, New York, 1984. 246 pp., illus. \$15.50. Translated from the German edition.
- Rutherford.** Simple Genius. David Wilson. MIT Press, Cambridge, Mass., 1984. 639 pp., + plates. \$25.
- Salinity in Watercourses and Reservoirs.** Richard H. French, Ed. Butterworths, Boston, 1984. xviii, 622 pp., illus. \$39.95. From a symposium, Salt Lake City, July 1983.
- The Satellite Experimenter's Handbook.** Martin R. Davidoff. American Radio Relay League, Newington, Conn., 1984. Various pages, illus. Paper, \$10.
- Science as Cognitive Process.** Toward an Empirical Philosophy of Science. Robert A. Rubinstein, Charles D. Laughlin, Jr., and John McManus. University of Pennsylvania Press, Philadelphia, 1984. xxvi, 186 pp. \$19.95.
- Science and Gender.** A Critique of Biology and Its Theories on Women. Ruth Bleier. Pergamon, New York, 1984. xii, 220 pp. \$25; paper, \$12.50. The Athene Series.
- The Science and Technology of Coal and Coal Utilization.** Bernard R. Cooper and William A. Ellingson, Eds. Plenum, New York, 1984. xvi, 666 pp., illus. \$85.
- Scleroderma Canker of Conifers.** Paul D. Manion, Ed. Nijhoff/Junk, The Hague, 1984 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 273 pp., illus. \$43. Forestry Sciences. From a symposium, Syracuse, N.Y., June 1983.
- Searching for a Cure.** National Health Policy Considered. Jonas Morris. Pica Press, New York, 1984 (distributor, Universe, New York). 273 pp. \$25.
- Self-Regulation of the Brain and Behavior.** Th. Elbert *et al.*, Eds. Springer-Verlag, New York, 1984. xiv, 360 pp., illus. \$38. From a symposium, Tübingen, Germany, May 1983.
- The Sense of Injustice.** Social Psychological Perspectives. Robert Folger, Ed. Plenum, New York, 1984. xiv, 280 pp. \$29.50. Critical Issues in Social Justice.
- Shorelines and Isostasy.** D. E. Smith and A. G. Dawson, Eds. Academic Press, New York, 1983. x, 387 pp., illus. \$55. Institute of British Geographers Special Publication, No. 16.
- The Time Projection Chamber.** J. A. Macdonald, Ed. American Institute of Physics, New York, 1984. x, 269 pp., illus. \$39. AIP Conference Proceedings, No. 108. From a workshop, Vancouver, June 1983.
- Time Travel and Papa Joe's Pipe.** Alan P. Lightman. Illustrations by Laszlo Kubinyi. Scribner, New York, 1984. viii, 168 pp. \$12.95.
- Tracers in Metabolic Research.** Radioisotope and Stable Isotope/Mass Spectrometry Methods. Robert R. Wolfe. Liss, New York, 1984. xii, 287 pp., illus. \$56. Laboratory and Research Methods in Biology and Medicine, vol. 9.
- Treatment of Hyperlipoproteinemia.** Lars A. Carlson and Anders G. Olsson, Eds. Raven, New York, 1984. xx, 284 pp., illus. \$48. From a meeting.
- The Umbral Calculus.** Steven Roman. Academic Press, Orlando, Fla., 1984. x, 195 pp. \$35. Pure and Applied Mathematics, 111.
- Unified Integration.** E. J. McShane. Academic Press, Orlando, Fla., 1983. xiv, 609 pp. \$55. Pure and Applied Mathematics, 107.
- Unkonventionelle physikalische Theorien.** Wolfgang Ehrenberg. Selbstverlag der Psychophysikalischen Ges., Munich, 1984. 96 pp. Paper, DM 15.
- Women and Health in America.** Historical Readings. Judith Walzer Leavitt, Ed. University of Wisconsin Press, Madison, 1984. x, 527 pp., \$32.50; paper, \$14.95.
- Writings of Charles S. Peirce.** A Chronological Edition. Vol. 2, 1867-1871. Edward C. Moore *et al.*, Eds. Indiana University Press, Bloomington, 1984. 1, 649 pp. \$35.

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**Microbiologist, Ph.D.** spring 1985. Molecular biology experience. Desires postdoctoral training in virus gene expression and function using recombinant DNA technology. Interested in use of recombinant DNA technology for expression of viral genes encoding proteins using eukaryotic and prokaryotic expression vectors. Box 204, SCIENCE. X

## POSITIONS WANTED

**Scientist/Program Director, Ph.D.**, 20 years of experience, research director, administrator; government and industry relations, national/international. Research and management in environment, energy, reclamation, chemistry, soils, microbiology, microclimatology, field and laboratory; 120 publications. Seeking management/administrative position; industry, academia, government. Prefers West, Southwest, Midwest, Southeast. 8280 Janes Avenue, Suite 2A-1700, Woodridge, Illinois 60517. X

**Technology Scout-Licensing Consultant University-Industry:** Strong technical international chemical business experience; patent law, pharmaceuticals, biochemistry, microbiology, fermentation, textiles, plastics, urethane vinyl foams, coated fabrics, soaps, cosmetics, detergents. Broad experience licensing product development of industrial and consumer products. An asset for new products search. Box 197, SCIENCE. X

**Veterinarian/Associate Veterinarian/Research Associate/Biologist**—Foreign graduate, 1975; M.S. in toxicology (degree to be conferred); B.V.Sc. and A.H. Experiences include care and management of dairy stock; care, management, and breeding of poultry and laboratory animals. Also trained in diagnostic pathologic and toxicologic procedures. Seeks position in academia/biomedical/research/industry. Contact: Dr. M. Deoras, 1921 Cornelia Road, Galesburg, Illinois 61401. Telephone: 309-342-6845 or 205-727-3992. X

**Veterinary Pathologist/Toxicologist, D.V.M., Ph.D.**, Diplomate: ACVP, 9 years of experience in government and pharmaceutical/chemical preclinical safety evaluations, and with regulatory agencies. Seeks position with managerial and scientific responsibility. Box 198, SCIENCE. 8/31; 9/7

**Virologist/Microbiologist, Ph.D.** 1971. Three postdoctoral positions. Virology and cell culture research experience including vaccine strain development, virus isolation, identification, purification, structural protein characterization and adaptation of cells for large-scale cultivation. Seeking industrial/research position. Box 192, SCIENCE. 8/31; 9/7

## POSITIONS OPEN

A 3-year term appointment as **ASSISTANT PROFESSOR** is available in the Department of Biochemistry, College of Medicine, University of Saskatchewan. Applicant must have a Ph.D. and/or M.D. degree. Duties will include research and teaching of biochemistry to undergraduate and graduate students. Effective date of appointment is 1 July 1985. Salary will be commensurate with experience and training. *In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.* Please send curriculum vitae and names of three referees to: **Dr. J. D. Wood, Head, Department of Biochemistry, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0. Reference Position Number: 85L 11-3-IX.**

The Department of Biochemistry at Eastern Virginia Medical School has an opening beginning October 1984 for an **ASSISTANT** or an **ASSOCIATE PROFESSOR**. The applicant should be actively carrying out research in hybridoma technology, preferably with experience in molecular biology and membrane biochemistry. He or she will also participate in teaching of medical and graduate students. Send curriculum vitae and three letters of recommendation to:

**Karl A. Schellenberg, M.D., Ph.D.**  
**Department of Biochemistry**  
**Eastern Virginia Medical School**  
**P.O. Box 1980**  
**Norfolk, Virginia 23501**

*An Affirmative Action/Equal Opportunity Employer*

### ASSISTANT PROFESSOR OF BIOCHEMISTRY

A tenure-track position will be available in the Department of Biochemistry at Kansas State University in fall 1985. The successful applicant will have at least 2 years of postdoctoral experience. He or she will be expected to establish an independent research program and to participate in graduate and undergraduate teaching. Send résumé, a description of research plans, and the names of three referees to: **David J. Cox, Head, Department of Biochemistry, Kansas State University, Manhattan, Kans. 66506.** Application deadline: 1 November 1984. *Kansas State University is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**ASSISTANT, ASSOCIATE, OR FULL PROFESSOR—GENERAL BACTERIOLOGIST.** The Department of Bacteriology seeks candidates who have developed a research program in the area of general bacteriology. Excellent bacteriological, molecular biological, and biochemical facilities are available. Teaching would involve the responsibility for an undergraduate course in bacterial diversity, plus other teaching in bacteriology, including the development of a graduate level course in an area of general bacteriology. Send curriculum vitae, including a brief description of research experience, samples of refereed publications, a brief statement of proposed research, and names of three references to: **Chairman, Search Committee, Department of Bacteriology, University of California, Davis, California 95616.** Materials must be received by 30 September 1984. *The University of California is an Affirmative Action/Equal Opportunity Employer.*

**ASSISTANT/ASSOCIATE PROFESSOR, ANIMAL GROWTH BIOLOGY, DEPARTMENT OF ANIMAL SCIENCE, UNIVERSITY OF MINNESOTA.** This is a tenure-track position (65 percent research and 35 percent teaching) and may be granted with tenure at the associate professor level dependent upon qualifications. The successful applicant will be responsible for developing an independent research program in animal growth physiology and for initiating and teaching an undergraduate course in animal growth. Appointment at assistant or associate level requires the following: Ph.D. in animal science or the biological sciences with extensive training in biochemistry, physiology, or endocrinology; research experience in animal growth or a related area. For appointment with tenure at the associate level, current rank of tenured associate professor is required and the individual must have published quality research work in the area of animal growth or a closely related field. By 31 October, send résumé, transcripts, and a brief description of research goals, and have three letters of reference sent to: **Dr. William R. Dayton, Department of Animal Science, 136 Andrew Boss Laboratory, 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.*

**ASSISTANT PROFESSOR** of Chemistry. The Chemistry Department at Amherst College is seeking a Ph.D. chemist with a strong background and interest in organic chemistry for a regular tenure-track faculty position. Postdoctoral experience is desirable. The appointment will take effect on 1 July 1985 and represents an excellent opportunity for a person committed to both research and teaching at an institution dedicated to the education of undergraduates. Teaching responsibilities customarily involve instruction in departmental courses at the elementary and advanced levels. Participation in interdisciplinary extradepartmental courses is also encouraged. The successful candidate will be expected to develop a research program attracting the interest of chemistry majors. Please send a résumé, the names of three references, and a brief description of your teaching and research ideas to: **Search Committee, Department of Chemistry, Amherst College, Amherst, Massachusetts 01002,** by 1 November 1984. *Amherst College is an Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSOR OF ENTOMOLOGY.** Applications are invited for a tenure-track, 12-month appointment. This is a 60 percent extension and 40 percent research assignment in mosquito biology and control. Basic qualifications: Ph.D. and postdoctoral experience. Position open to 1 October 1984. Please send curriculum vitae and three letters of recommendation to: **W. L. Bidlingmayer, Search Committee Chairman, Florida Medical Entomology Laboratory, University of Florida, 200 9th Street SE, Vero Beach, Fla. 32962.**

**ASSISTANT PROFESSOR—IMMUNOLOGIST.** Tenure-track position, research and teaching, available 1 January 1985. Applicant must have Ph.D. and at least 1 year of postdoctoral experience in molecular immunology, immunovirology, or immunogenetics. The successful candidate will be expected to establish an active research program and to participate in teaching immunology and a course in the area of specialization to undergraduate and graduate students. Send curriculum vitae, recent reprints, and the names of three referees to: **Professor Jean M. Schmidt, Department of Botany and Microbiology, Arizona State University, Tempe, Ariz. 85287.** Application evaluations begin on 1 October. *Arizona State University is an Equal Opportunity/Affirmative Action Employer.*

Physicians are needed to evaluate proposals for clinical testing of new drugs and to participate in benefit/risk decisions regarding marketing of new drugs. We are seeking physicians specializing in: Infectious Disease, Psychiatry, Oncology, Immunology, Rheumatology, Internal Medicine (Tropical), Cardiology, Nephrology, Clinical Pharmacology, Pulmonary Medicine, and Obstetrics-Gynecology. Physicians are also needed to evaluate the conduct of clinical drug studies through on-site audits of research data. Both applications involve full-time, civil service positions at the headquarters of the Food and Drug Administration (an Equal Opportunity Employer), located in Rockville, Maryland a suburb of Washington, D.C.

These positions have no patient-care duties. Required are medical judgments, effective writing and speaking, and the ability to organize work to meet deadlines. The salary and grade ranges are from \$49,533 to \$66,400 per year (GS-14-GS-15) plus a bonus of \$3,000 to \$10,000 per year (depending upon experience and qualifications). Fringe benefits are considerable. Incumbents are encouraged to further their training and to pursue outside professional activities.

**Minimum requirements:** Medical degree (Doctor of Medicine or Doctor of Osteopathy), plus board eligibility or equivalent experience in clinical pharmacology or drug research in a specialty indicated above. U.S. Office of Personnel Management regulations govern acceptability of degree source.

Full details are available upon request. Send resume or curriculum vitae to:

**Food and Drug Administration  
Division of Personnel Management  
5600 Fishers Lane, Room 4B-26  
Rockville, MD 20857  
Attention: Mr. Jack Underdonk**

# Vice President Preclinical Research

The Sandoz Research Institute of Sandoz, Inc., a leading pharmaceutical company with a worldwide reputation for notable research, is seeking a Vice President of Preclinical Research.

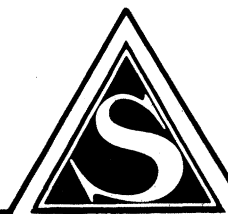
This challenging and professionally rewarding opportunity requires an individual possessing an M.D. or Ph.D. coupled with the necessary training, experience, and leadership capabilities to direct a preclinical research program focusing on atherosclerosis, diabetes, platelets and monoclonal antibodies. Responsibilities include the management of biology and chemistry departments involved in the design and discovery of new therapeutic agents as well as the direction of physical chemistry and chemical development activities. The ideal candidate should have expertise in directing research in an academic or industrial setting.

The Research Institute encourages a dynamic and innovative scientific environment. Located on campus-like facilities in northern New Jersey, Sandoz, Inc. offers an excellent compensation and benefits package.

Please forward your resume and salary requirements in confidence to:

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Personnel Manager  
Sandoz Research Institute  
**SANDOZ, INC.**  
Route 10 (403-1)  
East Hanover, New Jersey 07936

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## CENTER FOR ADVANCED RESEARCH IN BIOTECHNOLOGY DIRECTOR

The University of Maryland and the National Bureau of Standards (NBS) have jointly established the Center for Advanced Research in Biotechnology (CARB) to be located near Washington, D.C., in Montgomery County, Maryland. The Center will conduct forefront research in biotechnology with a special focus on molecular biology, structure-function relationships, protein/biomolecule analysis, and modeling of biomolecular systems. CARB represents an exciting venture combining the resources and perspectives of a major university, federal and county governments, and industry.

The director of CARB will be responsible for the implementation of the center concept and for the day-to-day operations. The director will develop plans and identify staff to conduct active research projects in biotechnology. Visiting members will be appointed from industry and universities to complement the efforts of University of Maryland faculty and NBS scientists who will be assigned to CARB.

The director must be a well-established scientist with demonstrated abilities to initiate research and establish an environment for creative activities that respond to the needs of academic government, and commercial organizations. He/she will be expected to qualify for a tenured professorship in an appropriate department at the University of Maryland. The director will combine strong scientific credentials and an entrepreneurial spirit necessary to bring CARB into a national leadership position in biotechnology. He/she must display skills appropriate to develop harmonious working relationships between universities, federal agencies, county and state governments, and private industry.

For additional information or to submit an application before 1 October, contact: Bernard V. Khoury, Associate Vice President for Academic Affairs, University of Maryland, Adelphi, Maryland 20783.

*The University of Maryland and the National Bureau of Standards are Equal Opportunity/Affirmative Action Employers and actively solicit the names of appropriate women and minority candidates.*

## Post Doctoral Scientist Pharmacology

Smith Kline & French Laboratories, a leader in pharmaceutical research, is seeking a Post Doctoral Scientist to work with Dr. Martin A. Wasserman in an environment designed to foster creative, innovative research and to promote personal and professional growth.

We consider post doctoral studies of major importance in an individual's career and encourage publication of findings in leading journals and a full interaction with the scientific community.

Our post doctoral appointments are of 1 year duration and with mutual agreement, renewable for a 2nd year. The successful candidate will:

- participate in drug discovery effort investigating the role of  $\alpha$ -adrenergic agonists and antagonists on air way smooth muscle.
- develop or assimilate *in vitro* and *in vivo* models which characterize pharmacologically and biochemically the effects of  $\alpha$ -adrenergic stimulation and antagonism in the respiratory system.
- collaborate as necessary with colleagues in the Department of Pharmacology to correlate the physiological and biochemical consequences of  $\alpha$ -adrenergic modulation in airway tissues.
- publish work in scientific literature and attend pertinent scientific meetings.

Candidates are required to have:

- a Ph.D. in Pharmacology, Physiology or Biochemistry with 0 to 2 years post doctoral experience.
- experience in respiratory or cardiovascular techniques, e.g. *in vivo* recordings and *in vitro* tissue assays.
- experience with smooth muscle tissue binding assays for receptor detection.
- excellent oral and written communication skills.

We offer excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your CV and names of three references to: Mr. Walter B. Flagg, Senior Employment Consultant, SmithKline Beckman Corporation, 1566 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

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## POSITIONS OPEN

**ASSISTANT IN NEUROSCIENCE.** Develop and maintain hardware and software for auditory and somatosensory laboratories. Both laboratories configured around PDP-11 and Apple computers. Master's or equivalent with experience in assembly language programming and microprocessor development essential. Salary: \$10,000 to \$16,000 annually. Anticipated starting date is 26 November 1984. Send complete résumé to: **Dr. Charles J. Vierck, Jr., Department of Neuroscience, Box J-244 JHMC, University of Florida, Gainesville, Florida 32610**, by 25 September 1984. *An Equal Opportunity/Affirmative Action Employer.*

### ASSISTANT PROFESSOR

**Director, Lipoprotein Laboratory**—available immediately. Candidate should have recognized achievements in the plasma lipoprotein field and be able to set up a laboratory for the isolation and analysis of plasma lipo- and apolipoproteins. Requirements include a Ph.D. degree or the equivalent in biochemistry or biophysics and at least 2 years of postdoctoral experience. Starting salary will be competitive and commensurate with experience. The successful candidate will be expected to obtain 50 percent of his or her research support within 2 years. Send curriculum vitae and two references to: **Jere P. Segrest, M.D., Ph.D., Director, Atherosclerosis Research Unit, Department of Pathology, University of Alabama, Birmingham Medical Center, Birmingham, Alabama 35294**. *An Equal Opportunity/Affirmative Action Employer.*

The Department of Plant Pathology, University of Wisconsin, Madison, seeks applicants for a full-time tenure-track **ASSISTANT PROFESSOR** position, available 1 November 1984. Applicants should hold a Ph.D. degree in an appropriate field. Strong preference will be given to applicants with postdoctoral experience. The successful applicant will be expected to develop an innovative research program (80 percent) on the interaction between phytopathogenic bacteria and plants. Emphasis might be in taxonomy, etiology, epidemiology, ecology, genetics, or molecular mechanisms of interactions. The successful applicant will also be expected to teach (20 percent) in a graduate course in phyto bacteriology and in another related area. Duties will also include service to the department and the university. Applicants should submit curriculum vitae, transcripts, a description of future research interests, and three letters of recommendation by 15 October 1984 to: **Dr. Douglas P. Maxwell, Department of Plant Pathology, 1630 Linden Drive, University of Wisconsin, Madison, Wis. 53706**. *The University of Wisconsin is an Equal Opportunity Employer.*

### ASSOCIATE CLINICAL DIRECTOR Ph.D. in Pharmacology or Biochemistry

Clinical scientist for consumer product testing facility in Canada. Industry experience preferred but not necessary. Strong communication skills, both oral and written, are a prerequisite.

You will be responsible for managing studies and developing protocols, and will be afforded direct client contact. Position also allows you opportunity to "share in profits."

To apply send your résumé or curriculum vitae with salary history to: **Box 200, SCIENCE.**

**BIOLOGY.** Tenure-track instructor or assistant professor position beginning January 1985. Instruct undergraduate courses with particular emphasis on microbiology-virology and ecology. Coordinate a multisection course for nonscience majors. Desired qualifications include the Ph.D. or A.B.D. in biology with a concentration in medical microbiology. The college stresses effective teaching. The normal course load is 9 semester hours (15 contact hours) per semester. Responsibilities also include student advising, professional development, and governance. Starting range: \$16,000 to \$20,000. Send application to: **Assistant Dean of Arts and Sciences, Western New England College, 1215 Wilbraham Road, Springfield, Mass. 01119**. Closing date 1 October 1984. *An Equal Opportunity Employer.*

### OHIO

**BIostatistician-RESEARCH SCIENTIST**, Wright State University School of Medicine. Analyze multivariate serial data for body composition, risk factors, and growth. Ph.D. biostatistics/epidemiology with knowledge of SAS and microcomputers. Salary \$24,000 to \$32,000. Closing date: 4 September. Curriculum vitae to: **Alex Roche, Fels Research Institute, Yellow Springs, Ohio 45387**. *An Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### ASSISTANT PROVOST FOR ACADEMIC AFFAIRS

This senior staff position within the provost office will have responsibility primarily in the sciences. Evaluates and develops academic programs, conducts long-range planning, and develops appropriate academic policies and procedures. Reviews new academic programs and grant proposals, and coordinates the various procedures for the funding and acquisition of research equipment and facilities. Exercises responsibility in the area of university-industry interaction relative to the establishment and administration of research centers. Requires a Ph.D. degree in the sciences, plus senior level faculty and/or research experience. Administrative experience is desirable. Salary: Negotiable. Submit résumé indicating reference number 203 to: **RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY, Division of Personnel Services, New Brunswick, N.J. 08903**. *An Affirmative Action/Equal Opportunity Employer.*

### CARDIOVASCULAR PHYSIOLOGIST

The Physiology Department at the Armed Forces Radiobiology Research Institute (AFRRI) is currently seeking candidates for a position in cardiovascular physiology to conduct animal research on the mechanism of cardiovascular shock induced by ionizing radiation. The AFRRI is the principal radiobiology research laboratory for the Department of Defense. The physiology department is responsible for research on the effects of ionizing radiation on the physiological and biophysical mechanisms of radiation insult to cellular, organ, and whole animal systems. The physiology department is also interested in the interaction between chemical or pharmacological factors and the physiological response to radiation. The successful applicant will be responsible for developing a research program utilizing experimental animal models to investigate the mechanism underlying radiation induced cardiovascular shock. Qualifications include a Ph.D. in physiology or a closely related biological science and research experience in cardiovascular physiology. The candidate should have a strong publication record as well as independent research experience beyond the doctoral level. This position is available immediately and has a salary range from \$30,000 to \$40,000. To apply for this permanent civil service position, send application including SF-171, curriculum vitae, and reprints of representative published research to: **The Armed Forces Radiobiology Research Institute, Civilian Personnel Office, Bethesda, Maryland 20814**, by 1 October 1984. Reference Announcement 64/84A. Direct inquiries to: **David R. Livengood, Department Chairman, or Vince Ackermann, Personnel Specialist; telephone: 202-295-1426**. *The AFRRI is an Equal Opportunity Employer.*

### CELL/MOLECULAR BIOLOGIST Department of Radiology Division of Radiobiology The College of Medicine The Ohio State University

Applications are being accepted for a position at the level of assistant or associate professor. Candidates should have a Ph.D. and/or M.D. in a medical or biological science. Postdoctoral experience in radiation biology and/or mechanisms of carcinogenesis desirable. Scholarly interest and demonstrated expertise in research aspects of cellular/molecular biology; mammalian cells in vivo and in vitro; tumor imaging; and/or DNA damage and repair preferred. The successful candidate will support the research and teaching programs in radiation biology, and work together with the clinical and research faculty in radiation biology, radiation oncology, nuclear medicine, and diagnostic radiology. Salary negotiable. Send curriculum vitae, description of research interests, and names of three references to: **Steven M. D'Ambrosio, Ph.D., Department of Radiology, Division of Radiobiology, 103 Wiseman Hall, 400 West 12th Avenue, Columbus, Ohio 43210**. *The Ohio State University is an Equal Opportunity/Affirmative Action Employer.*

**CELLULAR IMMUNOLOGIST**—Postdoctoral fellow or research associate wanted to study cytolytic and suppressor T cells in human melanoma, and assist in a related program on the effects of new biomodulators on human cell-mediated immunity. Strong background in either animal or human cellular immunology desirable. Send curriculum vitae and names of three references to: **Dr. Malcolm S. Mitchell, Departments of Medicine and Microbiology, University of Southern California Cancer Center, Los Angeles, California 90033**.

## POSITIONS OPEN

### CHAIRMAN, DEPARTMENT OF PATHOLOGY

Board-certified pathologist to reorganize department in offshore medical school. Attractive salary and fringes. Position available now. Please send curriculum vitae and references to: **Executive Dean, Ross University, 12th Floor, 460 West 34th Street, New York, N.Y. 10001; telephone: 212-279-5500**.

### COMPUTATIONAL CHEMIST Postdoctoral Position

Perform molecular modeling on acetylcholine receptor agonists and antagonists and do receptor mapping utilizing computer graphics techniques. Background in structural and computational chemistry, biochemistry, and computer programming desired. Position available immediately. Send résumé and three letters of recommendation to: **Box CC,**

### NEW JERSEY INSTITUTE OF TECHNOLOGY Newark, New Jersey 07102

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**CURATOR OF BIRDS**, at major zoological park. Duties include managing and giving direction to the collection, long-range capital and programmatic planning, supervising staff, and conducting research. The collection is large and diverse with 21 orders, 137 species, and 680 specimens. Advanced degree, managerial, supervisory, and captive management experience desirable. Excellent salary and benefits. Send curriculum vitae to: **Sanford Friedman, Curator of Mammals, Chicago Zoological Park, Brookfield, Ill. 60513** before 15 October.

### CYTOGENETICISTS AND EMBRYOLOGISTS

New laboratory in Indiana has positions open for cytogeneticists, embryologists, and technicians in mammalian embryology and cytogenetics programs. The laboratory is affiliated with an innovative genetic engineering and reproductive science company. Send résumé to: **Dr. J. D. Fabricant, Biosyne Corporation, 2210 Maroneal, Suite 302, Houston, Texas 77030**.

### UNITED STATES ENVIRONMENTAL PROTECTION AGENCY DEPUTY DIRECTOR FOR RESEARCH

Applicants are invited to apply for deputy director for research at the Environmental Research Laboratory, Narragansett, Rhode Island. The deputy director has the responsibility for developing, planning, reviewing, evaluating, and coordinating national research programs to evaluate the occurrence, distribution, and environmental impact of pollution on marine environments which will provide the technical basis for regulating single chemicals and complex mixtures in ocean discharges, ocean dumping, and estuaries in general. Applicants must be U.S. citizens, possess a Ph.D. or equivalent in the physical or environmental sciences or related areas, have experience in managing state-of-the-art research programs, and have postdoctoral experience in laboratory research and field investigations, experience in the field of water pollution research, and a reputation as a recognized authority in his/her area of research specialization as evidenced by publications/presentations. Salary range is \$50,495 to \$65,642. Applications (SF-171, "Personal Qualifications Statement," available at most federal agencies) should be sent to: **Sheron Johnson, EPA Personnel Office, P.O. Box 18417, Las Vegas, Nev. 89114**, no later than 14 September 1984. *The United States Environmental Protection Agency is an Equal Employment Opportunity Employer.*

### DIRECTOR, KEARNEY AGRICULTURAL CENTER AND ASSISTANT DIRECTOR, CALIFORNIA EXPERIMENT STATION

Career position for top administrator. Location: San Joaquin Valley, center of California agriculture. Work closely with University of California agricultural educators, United States Department of Agriculture officials, leaders of agricultural commodity groups. Develop expansion plans, identify research needs, coordinate/carry out programs. Provide overall supervision; budgetary planning; public relations for center. Assure Affirmative Action goals. Ph.D. desired from agricultural campus; administrative experience. Demonstrated desire to promote agricultural research and extension programs. Contact: **Agricultural and Natural Resources Personnel, University of California, Berkeley, Calif. 94720**. Reference number A-84-174. Closes: 21 September 1984.

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A Ph.D. plus a minimum of five years of experience in Biochemical Pharmacology is required.

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This unit of Bristol-Myers is located at Mead Johnson in Evansville, Indiana, a community of beautiful residential areas, outstanding recreational opportunities, exceptional education and cultural facilities, and more. Cardiovascular Research will move to Wallingford, CT, a delightful community between Hartford and New Haven, in two to four years.

To investigate these reasons for joining Bristol-Myers Research is to discover a wealth of others: Excellent salaries, Superb benefits, including paid relocation, and real growth, both personal and professional. Discover us! When it comes to your career, no one can offer more!

Send resume in confidence to: Employment Dept. 6L-17, Bristol-Myers Research Recruitment, Mead Johnson & Company, Evansville, IN 47721.



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## RepliGen

### BIOTECHNOLOGY

Repligen Corporation, a rapidly growing biotechnology company involved in the development of a variety of innovative peptide and protein products by both recombinant DNA and conventional biological techniques, seeks qualified candidates at the BS/MS level with at least 2 years' laboratory experience in the following areas:

**Cell Biology:** Experience in membrane receptors and protein-cell interactions is essential.

**Protein/Enzyme Biochemistry:** Working experience needed with enzyme purification and characterization.

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**Successful candidates will be highly motivated individuals who can take advantage of the outstanding growth opportunities at Repligen. Repligen offers a competitive salary, excellent benefits, and equity participation. Submit resume and references to:**

**Director of Personnel,  
Repligen Corporation,  
101 Binney St.,  
Cambridge, MA 02142.**

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### Bioorganic Chemist

Our Diagnostic and Bioresearch Systems Organization is seeking an individual to conduct research projects related to the design and synthesis of immunosupports and novel antibody conjugates. The ideal candidate will have a Ph.D. in Organic Chemistry, a background in Biochemistry and/or Immunochemistry, and 0-2 years of relevant experience.

### Immunochemist

Our Diagnostic and Bioresearch Systems Organization is seeking an individual to direct research projects in the area of non-isotopic immunoassays. The ideal candidate will have a Ph.D. in Biochemistry or Immunochemistry, a background in Bioorganic Chemistry, and 2-3 years of relevant experience.

### Pharmacologist

The ideal candidate for this R&D position will have a Ph.D. in a biological science with a specialty in Physiology or Pharmacology and knowledge of neurophysiology, neuropharmacology or mechanisms of membrane transport. The primary duties will be to design, implement and interpret pharmacological models for the evaluation of potential new organ-specific radiopharmaceuticals through experimentation, literature, or outside sources.

Please send resume and salary information to Ms. Erin Moore, Du Pont-NEN Products, 549 Albany Street, Boston, MA 02118. An equal opportunity employer.

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## POSITIONS OPEN

### DIRECTOR, MEDICAL SERVICES AMERICAN RED CROSS (ARC)

ARC is now taking applications for an experienced medical investigator to direct research, product, and service development programs at the headquarters laboratories in Bethesda, Maryland. Will also coordinate programs among its regional blood services units. Program areas include blood services, and organ and tissue services. Expertise, and 15 years of relevant experience in hematology, laboratory medicine, or related biomedical science are required, as are managerial skills and abilities. Please send résumé and salary history to: **American Red Cross, Office of Personnel, Position: Director, Medical Services, 17th and D Streets, NW, Washington, D.C. 20006.** An Equal Opportunity Employer, M/F.

**DIRECTOR OF RESEARCH LABORATORY.** Ph.D. biologist or biochemist wanted to direct the research laboratory of the Department of Obstetrics and Gynecology at the Albert Einstein Medical Center, Northern Division, Philadelphia, Pennsylvania. Academic appointment at major university medical school. Opportunity to continue personal research interests, direct laboratory aspects of in vitro fertilization program, and teach resident physicians and medical students. Knowledge of radioimmunoassay, chromatography, and tissue culture techniques required. Send curriculum vitae to: **Martin Farber, M.D., Chairman, Department of Obstetrics and Gynecology, ALBERT EINSTEIN MEDICAL CENTER, NORTHERN DIVISION, York and Tabor Roads, Philadelphia, Pa. 19141.** An Equal Opportunity Employer.

**ECOLOGICAL STUDIES PROGRAM MANAGER.** San Francisco Bay area-based, prestigious research funder seeks Ph.D. to manage five project managers and \$5 million to \$10 million annually in contract research and development emphasizing acidic depositions, toxic substances, and aquatic and terrestrial resources. This high visibility position with major impact on society merits attention of senior Ph.D. with program management and research skills. Telephone: 415-854-9090, or send curriculum vitae to: **Boyd Associates, 3000 Sand Hill Road, Building 2-Suite 280, Menlo Park, Calif. 94025.**

**ENDOCRINOLOGY, DIVISION DIRECTOR.** Applications are invited for the position of Director, Division of Endocrinology in the Department of Internal Medicine, The University of Iowa. The director is also responsible for leadership of the NIH-funded Diabetes-Endocrinology Research Center. The division, which currently numbers nine full-time faculty and three fellows, has had a long history of excellence in teaching, patient care, and research, and a number of members are nationally and internationally recognized leaders in their field. Candidates should have an outstanding record in academic endocrinology and be dedicated to providing leadership in teaching, specialized patient care, and research. Particular interest will be given to candidates with interest and expertise in diabetes mellitus and related areas. Applications will be received until the position is filled and should be sent to: **Allyn Mark, M.D., Chair, Search Committee, Department of Internal Medicine, The University of Iowa College of Medicine, Room E315-B General Hospital, Iowa City, Iowa 52242.** The University of Iowa is an Equal Opportunity/Affirmative Action Employer.

### FACULTY POSITION—ASSISTANT PROFESSOR

The Department of Biological Sciences and the WAMI regional medical program, University of Idaho, have a tenure-track joint position for an assistant professor of zoology with specialization in organ system physiology. Candidates must have postdoctoral experience, must have a strong record of research productivity, and will be expected to establish an externally funded research program in some area of organ system physiology. Teaching responsibilities include an undergraduate course in comparative vertebrate physiology and a portion of a one-semester physiology course for first-year medical students. Closing date: 30 October 1984.

Send curriculum vitae, official transcripts, a one-page statement of research and teaching interests, and names of three referees to:

**Physiology Search Committee  
Life Sciences 115  
University of Idaho  
Moscow, Idaho 83843**

The University of Idaho is an Equal Opportunity Employer and Educator and specifically invites and encourages women and minorities to apply.

## POSITIONS OPEN

**FACULTY POSITION IN MICROBIOLOGY.** The Department of Cell and Molecular Biology invites applicants for a tenure-track position at the senior faculty level. Salary is on a 12-month basis; it is competitive and commensurate with experience. Applicants must have a strong interest in graduate education and have demonstrated research ability through publications and current grant support. The appointee will be expected to contribute to advanced graduate teaching and instruction for medical students. The department comprises 32 faculty members and offers Ph.D. degrees in biochemistry and microbiology. The department is housed in modern spacious facilities and is well-equipped. Interested applicants should send curriculum vitae, including representative reprints, a brief statement of anticipated research, and names and addresses of three references to: **Dr. George H. Brownell, Chairman, Faculty Search Committee, Department of Cell and Molecular Biology, Medical College of Georgia, Augusta, Ga. 30912.** An Equal Opportunity/Affirmative Action Employer.

**FACULTY POSITIONS, MOLECULAR BIOLOGISTS, PRINCETON UNIVERSITY.** The Department of Molecular Biology invites applications for junior and senior faculty positions. Interest in molecular approaches dealing with the genetics of mammalian development or immunology. Submit a brief description of proposed research program, curriculum vitae, and list of references to: **Dr. T. Shenk, care of L. Cole, Department of Molecular Biology, Princeton University, Princeton, N.J. 08544.**

Princeton University is an Equal Opportunity/Affirmative Action Employer, M/F.

**FACULTY POSITIONS, MOLECULAR BIOLOGISTS, PRINCETON UNIVERSITY.** The Department of Molecular Biology is seeking to fill junior and senior faculty positions. Research interest in molecular approaches involving microbial systems, including yeast and bacteria. Submit a brief description of proposed research program, curriculum vitae, and list of references to: **Dr. T. Silhavy, care of L. Cole, Department of Molecular Biology, Princeton University, Princeton, N.J. 08544.**

Princeton University is an Equal Opportunity/Affirmative Action Employer, M/F.

A tenure-track **FACULTY POSITION** is available for individuals with research interests devoted to molecular explanations of membrane associated phenomena. Send curriculum vitae and names of several references by 31 October 1984 to: **Dr. T. C. Vanaman, Department of Biochemistry, University of Kentucky College of Medicine, Lexington, Ky. 40536-0084.** An Equal Opportunity Employer.

### FACULTY POSITIONS

The Department of Biochemistry and Molecular Biology at the University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, invites applications for tenure-track positions at the assistant, associate, and full professor levels. Applicants should have a Ph.D. or M.D. and a proven record of accomplishments as a postdoctoral student or faculty member. Strong preference will be given to molecular biologists with interests in regulation of gene expression in a developmental system. Applicants should send a letter outlining their research interests, their résumé and three letters of reference from individuals familiar with their work to: **Dr. William J. Lennarz, Department of Biochemistry and Molecular Biology (Box 117), The University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, 6723 Bertner Avenue, Houston, Tex. 77030.** Deadline for all application materials is 15 October 1984.

An Affirmative Action/Equal Opportunity Employer

### THE UNIVERSITY OF TEXAS AT DALLAS HEARING SCIENTIST

**POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE** position available immediately for a hearing scientist to work with a group interested in the effects of noise on hearing. Knowledge of single unit recording, computer programming, computers, and signal processing desirable, although others with experience in animal psychophysics and anatomy will be considered. Excellent laboratory and computer facilities. Send curriculum vitae and three letters of recommendation (indication of sex and ethnicity for Affirmative Action statistical purposes is requested but not required) to: **University of Texas at Dallas, Callier Center for Communication Disorders, 1966 Inwood, Dallas, Texas 75235.**

The University of Texas at Dallas is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### GEOGRAPHIC MEDICINE POSITION

Applications are being accepted for a research position in geographic medicine on the full-time faculty at the University of Virginia School of Medicine in Charlottesville. Candidates must have independent laboratory capability in molecular biology or membrane biochemistry related to enteric infections and/or parasitology. Interested candidates should send their curriculum vitae and bibliography to: **Dr. Richard L. Guerrant, Head, Division of Geographic Medicine, University of Virginia Medical Center, Charlottesville, Va. 22908.** The University of Virginia is an Equal Opportunity through Affirmative Action Employer.

### DEPARTMENT HEAD

#### MOLECULAR AND CELLULAR BIOLOGY

The University of Arizona invites nominations and applications for the position of department head of a new and growing Department of Molecular and Cellular Biology. A scientist of prominence is sought to lead in the development of molecular, cellular, and developmental biology at Arizona. A number of tenure-track positions will be available to this department over the next few years and additional space is being planned to support this development.

The University of Arizona is currently engaged in strengthening a number of units as part of a biological sciences reorganization. Significant opportunities will exist to participate in this process which aims for excellence in the undergraduate and graduate programs.

Applications and correspondence should be addressed to: **Dr. John H. Law, Chairman, Department Head Search Committee, Department of Biochemistry, University of Arizona, Tucson, Ariz. 85721.** Closing date for applications is 31 October 1984.

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

**HEMATOLOGY—ONCOLOGY, DIVISION DIRECTOR.** Applications are invited for the position of director, Division of Hematology-Oncology in the Department of Internal Medicine, The University of Iowa. The division, which currently numbers 14 full-time faculty and 9 fellows, has had a long history of excellence in teaching, patient care, and research, and a number of members are nationally and internationally recognized leaders in their field. Candidates should have an outstanding record in academic hematology-oncology medicine and be dedicated to providing leadership in teaching, specialized patient care, and research. Applications will be received until the position is filled and should be sent to: **F. M. Abboud, M.D., Head, Department of Internal Medicine, The University of Iowa College of Medicine, Room SE308-A General Hospital, Iowa City, Iowa 52242.** The University of Iowa is an Equal Opportunity/Affirmative Action Employer.

### IMMUNOLOGY POSTDOCTORAL (RESEARCH ASSOCIATE) POSITION

Available immediately to study involvement and characterization of Ia molecules in genetically controlled murine immune responses against synthetic polymers of amino acids. Studies will include use of cell culture and immunochemical techniques for isolating T cell receptors, preparation of monoclonal T cells and appropriate T cell and B cell hybridomas, anti-idiotypic sera. Good background in biochemistry desirable. Salary commensurate with experience. Send curriculum vitae, summary of research experience, and names of references to: **Dr. Paul H. Maurer, Professor and Chairman, Department of Biochemistry, THOMAS JEFFERSON UNIVERSITY, 1020 Locust Street, Philadelphia, Pa. 19107.** An Affirmative Action/Equal Opportunity Employer.

**MARINE CHEMIST.**—The Chemistry Department of the Woods Hole Oceanographic Institution plans to make a tenure-track appointment as assistant scientist and invites applications from researchers with interest in the field of marine chemistry. Applicants should have a Ph.D., and, preferably, postdoctoral experience with a demonstrated interest in natural systems and strong basic physical, organic, or analytical chemistry background to study chemical processes in marine systems. Experience with techniques in reaction kinetics and mass spectrometry would be particularly valuable. Interested candidates should send résumé, transcript, reprints, and names of potential referees to: **Personnel Manager, Box 54P, Woods Hole Oceanographic Institution, Woods Hole, Mass. 02543.** An Equal Opportunity Employer.

## POSITIONS OPEN

**INVERTEBRATE ZOOLOGIST**—The Royal Ontario Museum invites applications for the position of assistant curator in the Department of Invertebrate Zoology, effective 1 March 1985. Candidates must have (i) a Ph.D.; (ii) a broad, general knowledge of invertebrates; (iii) a strong research interest in invertebrate systematics, preferably in the Mollusca or Crustacea; and (iv) a commitment to gallery development. *In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada.* Send curriculum vitae and the names of three references by 1 December 1984 to: **Dr. Dale R. Calder, Department of Invertebrate Zoology, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario, Canada, M5S 2C6.**

**LECTURER (RADIOPHARMACY)**. The University of Southern California (USC) School of Pharmacy has an opening for the 1984-1985 school year for teaching selected lectures and conducting and supervising students in the M.S. in radiopharmacy and in related programs. M.D. or Ph.D. with knowledge and training in radiopharmacy or radiopharmacokinetics, plus demonstrated research ability required. Salary: \$18,000 per school year. Send résumé to: **Walter Wolf, Ph.D., Professor and Director, USC Radiopharmacy Program, 1985 Zonal Avenue, Los Angeles, Calif. 90033.**

**MEDICAL RESEARCH ASSOCIATE**, to be involved in a research program concerning the molecular and functional characterization of smallpox/orthopoxvirus-related virus genomes. Ph.D. in microbiology and strong background in virology and biochemistry, with expertise in tissue culture, as well as knowledge of immunology and some exposure to hybridoma and gene cloning techniques. Salary: \$16,000 per year. Contact: **The Employment Security Commission, 516 North Mangum Street, Durham, North Carolina, or the Job Service Office nearest you. Reference: Job Order Number 4106819.**

### MOLECULAR CONTROL OF CELL PROLIFERATION

Postdoctoral research position(s) available immediately to study the regulation of gene expression during mitogenic activation of animal cells. Genes currently under study include those for ornithine decarboxylase, *c-myc*, S-adenosylmethionine decarboxylase, and cytoskeletal proteins. Background in molecular biology, especially in research with RNA, would be desirable. Send curriculum vitae and names of three references to: **Dr. David R. Morris, Department of Biochemistry, SJ-70, University of Washington, Seattle, Wash. 98195. An Equal Opportunity/Affirmative Action Employer.**

### NEUROBIOLOGIST

The Biology Department of the Johns Hopkins University invites applicants for a senior faculty position in the area of neurobiology. We are seeking a person with a background in molecular and cell biology who would welcome the opportunity to interact with colleagues representing a wide range of interests in this area. The neurobiology program of Hopkins includes research in neurochemistry, neurophysiology, membrane biochemistry, and neuropharmacology.

Send curriculum vitae and names of five references by 14 September 1984 to:

**Chairman, Neurobiology Search Committee  
Department of Biology  
Johns Hopkins University  
Baltimore, Md. 21218**

### THE MOUNT SINAI SCHOOL OF MEDICINE

**POSTDOCTORAL FELLOWS.** Two positions available immediately to participate in a multidisciplinary research project examining hepatic ethanol metabolism. One position concerns mechanistic and immunological studies of cytochrome P-450-catalyzed ethanol oxidation. Prior experience in protein purification and characterization as well as in immunological methodology is highly desirable. The other position involves investigating the respective roles of the various enzymatic pathways in total ethanol metabolism by the liver. Background should include familiarity with radioisotopes and hepatic intermediary metabolism. Salary is commensurate with experience, minimum of \$16,000 per year, renewable. Telephone inquiries to: **Drs. Jerome M. Lasker or Jeffrey A. Alderman, telephone: 212-584-9000, extension 1149 or 2064.** Send curriculum vitae and the names of at least two references to: **Dr. Charles S. Lieber, Director, Alcohol Research and Treatment Center, Bronx Veterans Administration Medical Center, 130 West Kingsbridge Road, Bronx, N.Y. 10468. An Equal Opportunity Employer.**

## POSITIONS OPEN

**LIPID BIOCHEMIST.** Research position for Ph.D. with experience in lipid biochemistry for studies of the regulation of lipases/phospholipases. Postdoctoral experience desirable. Must be United States citizen. Salary commensurate with GS 11/12 level, \$25,489 to \$30,549. Send curriculum vitae and three letters of recommendation to: **Dr. Karl Y. Hostetler, Department of Medicine (V111G), VA Medical Center, 3350 La Jolla Village Drive, La Jolla, Calif. 92161. An Equal Opportunity Employer.**

### POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE

Position immediately available in a group working on isolation and identification of the gene responsible for Duchenne muscular dystrophy (see *Science*, 29 June 1984). Prior experience in molecular biology/biochemistry essential. Reply to: **Dr. R. Worton, Department of Genetics, Hospital for Sick Children, 555 University Avenue, Toronto, Ontario, Canada M5G 1X8.**

## POSITIONS OPEN

**POSTDOCTORAL—NITROGEN FIXATION** to study the physiology and biochemistry of hemoglobins in the nodules of actinorhizal plants. Send résumé, transcripts (photocopies), and references (telephone numbers) to: **J. D. Tjepkema, Department of Botany and Plant Pathology, University of Maine, Orono, Maine 04469. Telephone: 207-581-2993.** Deadline: 21 September 1984 or until filled. *The University of Maine is an Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL/RESEARCH ASSOCIATES

Two positions available immediately for a doctorate experienced in molecular and cellular immunology. Projects concern immunologic aspects of collagen induced autoimmunity. Please send résumé and names of three references to: **Dr. T. J. Yoo, Allergy/Immunology Division, Department of Medicine, University of Tennessee Center for Health Sciences, 956 Court Avenue, Memphis, Tennessee 38163; telephone: 901-528-6663.**

# BIOCHEMIST MOLECULAR GENETICIST PROTEIN BIOCHEMIST

**Molecular Diagnostics, Inc.**, organized in 1981, is a biotechnology research group affiliated with Bayer AG of West Germany and its subsidiary, Miles Laboratories, Inc.. The company functions independently as a basic research facility guided by an internationally recognized Scientific Board. Areas of research include molecular and cellular genetics, nucleic acid chemistry, immunochemistry, and protein chemistry. We, together with an affiliate, are currently seeking to expand our scientific Staff, and offer outstanding opportunities for PhD's with appropriate qualifications.

**BIOCHEMIST.** Should have demonstrated ability and interest in developing systems for non-radioactive/immunoassay and detection of DNA hybridization reactions. Candidates should have some combination of expertise in nucleic acid and protein chemistry, DNA hybridization technique, enzymology, immunofluorescence, and other spectroscopic methods.

**MOLECULAR GENETICIST.** Should have a strong foundation in recombinant DNA research, with emphasis on bacterial and eukaryotic gene expression systems. Familiarity with processes entailed in Mammalian cell transformation would also be relevant.


**PROTEIN BIOCHEMIST.** Should have experience with a wide variety of protein and immunochemical procedures including purification, characterization and derivatization of proteins and their interactions with receptors and ligands. Experience in peptide mapping and sequencing would also be desirable.

Applicants for each position must have at least 2-3 years postdoctoral experience and must demonstrate capabilities for carrying primary research program responsibilities and for directing scientific personnel. Individuals should be able to function effectively in an informal but challenging research environment which includes academic ties. These positions offer attractive compensation, generous benefits, and an excellent opportunity for personal & professional growth.

**Molecular Diagnostics** is located in a sizable, attractive, and well-equipped facility, 10 minutes from New Haven and 90 minutes from New York City.

**Please send a curriculum vitae along with a statement of research interest and capabilities in confidence to: Research Director, Molecular Diagnostics, Inc., 400 Morgan Lane, West Haven, CT 06516.**

*An Equal Opportunity Employer M/F*

*molecular  
diagnostics, inc.* 



## POSITIONS OPEN

### PHARMACOLOGIST

A tenure-track position is available after 1 September. Candidates should have demonstrated promise in operating in an academic location (research and teaching) during their professional experience. Faculty level is negotiable. Quality of performance and future potential will be emphasized. Independent research will be expected with teaching of graduate, medical, and nursing students as part of assignment. Applicants should submit a curriculum vitae, statement of professional goals and the names of three references to: **Dr. E. A. Daigneault, Chairman, Department of Pharmacology, Quillen-Dishner College of Medicine, East Tennessee State University, Johnson City, Tenn. 37614. East Tennessee State University is an Equal Opportunity/Affirmative Action Employer.**

### PHYSICS ASSISTANT

Immediate placement available to the qualified candidate in Regional Radiation Therapy Center. Position responsibilities include: developing department policy/procedure, staff education, calibrating equipment, planning patient treatment.

Minimum placement requirements: B.S. in physics, preferably with 2 years of experience in medical application or degree in a related science. For further information, please contact: **Sandy Mahon, Employment Manager, Washoe Medical Center, 77 Pringle Way, Reno, Nevada 89520. An Equal Opportunity Employer.**

### DEPARTMENT OF BIOLOGY CASE WESTERN RESERVE UNIVERSITY

A faculty position at the junior or senior level is available in the area of

#### PLANT CELL MOLECULAR BIOLOGY

Applicants should have a strong commitment to research and undergraduate and graduate education. Interested persons should submit curriculum vitae plus a statement of current research interests, and have three letters of recommendation sent to: **Dr. Norman B. Rushforth, Chairman, Department of Biology, Case Western Reserve University, Cleveland, Ohio 44106. Case Western Reserve University is an Equal Opportunity Employer.**

### IOWA

**POSTDOCTORAL ASSOCIATE** available immediately; screening begins immediately. Position is funded by NIDR/NIH grant investigating the mechanisms of action of fluoride in the prevention of dental caries and the kinetics of de- and remineralization as well as hard tissue histology. Requires Ph.D. Salary will be consistent with NIH postdoctoral salary scale. Send curriculum vitae to: **Dr. James S. Wefel, Dows Institute for Dental Research, The University of Iowa, College of Dentistry, Iowa City, Iowa 52242. The University of Iowa is an Affirmative Action/Equal Opportunity Employer.**

### POSTDOCTORAL FELLOW

An opening has just become available for a postdoctoral research fellow on the effects of leukotrienes and thromboxanes and the coronary circulation. Work will be conducted at the Ischemia-Shock Research Center in the Department of Physiology on basic and clinical aspects of the role of thromboxanes and leukotrienes in coronary disease states. The appointee will work on new biochemical, physiological, and pharmacological aspects of this NIH-funded project.

Applicants should send recent curriculum vitae, including a statement of research interests and experience, and arrange to have three letters of recommendation sent to: **Dr. Allan M. Lefer, Director, Ischemia-Shock Research Center, Jefferson Medical College, Thomas Jefferson University, 1020 Locust Street, Philadelphia, Pa. 19107. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION** available in the Research Division of the Lovelace Medical Foundation, Albuquerque, New Mexico, in the area of photodermatology of mammalian (marsupial) skin. Studies to be carried out at the molecular, cellular, and whole-animal level over a 2-year period. Send curriculum vitae to:

**Dr. Ronald Ley, Research Division  
Lovelace Medical Center  
Human Resources Department  
5400 Gibson, SE  
Albuquerque, New Mexico 87108  
An Equal Opportunity/Affirmative Action  
Employer, M/F/H/V**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** in the Boston area, available 15 September 1984. Laboratory research interests are in the area of estrogen regulation of gene expression and cell proliferation. Applicants with expertise in nucleic acid biochemistry, recombinant DNA technology, cell culture, and the microinjection of somatic cells will be considered. Send curriculum vitae and the names of references to: **Dr. Lawrence J. Wangh, Department of Biology, Brandeis University, 415 South Street, Waltham, Mass. 02254.**

**POSTDOCTORAL POSITION** in gene expression of glutathione S-transferases available 1 November 1984 for individual with background in molecular cloning and/or DNA enzymology. Salary negotiable. Send curriculum vitae and two letters of recommendation by 1 October 1984 to: **Dr. C.-P. David Tu, Biochemistry Program, The Pennsylvania State University, Althouse Laboratory, University Park, Pa. 16802.**

*An Equal Opportunity/Affirmative Action Employer*

**POSTDOCTORAL POSITION** available immediately to study various structure-function relationships in blood coagulation proteins. Candidates with a Ph.D. in biochemistry and a strong background in enzymology and/or protein chemistry are preferred. Competitive salary. Send curriculum vitae and arrange to have three letters of recommendation sent to: **Dr. Walter Kiesel, Department of Pathology, University of New Mexico School of Medicine, Albuquerque, N.M. 87131. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITIONS** available in molecular genetics. Projects involve studies on the mechanism of genetic regulation of the human thymidine kinase gene during the cell cycle and in terminal differentiation, studies of the structure, function, and evolution of human repetitive DNA sequences and studies of regulation of expression of genes specific for development of myelinating cells in the brain stem. Individuals with nucleic acids experience are preferred. Please send a curriculum vitae, including names and addresses of individuals who may be contacted for recommendations, to: **Dr. Prescott Deininger, Department of Biochemistry, Louisiana State University Medical Center (LSUMC), 1901 Perido Street, New Orleans, La. 70112. LSUMC is an Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL POSITION** in membrane structure. Expertise in the application of wide angle x-ray, lipid peroxidation essential. *Canadian immigration regulations apply.* Send curriculum vitae and names of three referees to: **Dr. M. A. Moscarello, Research Institute, The Hospital for Sick Children, Toronto, Ontario, Canada M5G 1X8.**

**POSTDOCTORAL POSITION** available 1 October 1984 for individual interested in development of computerized decision support systems for natural resources management. Training/experience in use of mainframe computer systems, TSO, FORTRAN 77 is highly desirable. Preference given to applicants with background in ecology or range science. Ph.D. should be completed prior to employment. Appointment for 1 year with possibility of extension. Salary: \$20,000 per year. Send curriculum vitae and three letters of reference to: **Dr. E. J. Rykiel, Range Science Department, Texas A&M University, College Station, Texas 77843-2126.**

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

**POSTDOCTORAL POSITION** available immediately to study secretion of hypothalamic peptides and catecholamines into hypophyseal portal blood. Supported by NIH training grant for 1 year with possible extension. Experience with microsurgery, RIA, and HPLC preferred. Submit curriculum vitae and names of three references to: **Dr. D. M. Gibbs, Department of Reproductive Medicine (M-025), University of California, San Diego, School of Medicine, La Jolla, Calif. 92093.**

**POSTDOCTORAL POSITION** available immediately. NIH-sponsored research project on the cloning and regulation of *Drosophila hydei* tyrosine aminotransferase. An integrated approach employing the techniques of recombinant DNA technology, genetics, and indirect immunofluorescence will be utilized. Applicants should have some experience in complementary DNA and genomic cloning. Ph.D. required. Send curriculum vitae and three letters of reference to: **Dr. Tom Brady, Chairman, Biology Department, Hamilton College, Clinton, N.Y. 13323. Equal Opportunity Employer.**

## POSITIONS OPEN

### POSTDOCTORAL POSITION

The Chesapeake Biological Laboratory has an immediate opening for a postdoctoral chemist/toxicologist for 1 to 3 years to study the bioaccumulation of toxic organic compounds in estuarine benthic organisms. The successful candidate will have a Ph.D. in chemistry or toxicology with experience in analysis of trace organic contaminants in biological tissues. Experience with GC/MS desirable. Please send curriculum vitae and three letters of reference before 21 September to:

**Dr. Jay C. Means  
Chesapeake Biological Laboratory  
Box 38  
Solomons, Md. 20688-0038**

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

**POSTDOCTORAL POSITION** to investigate the mechanism by which epidermal growth factor regulates cell growth and differentiation. Emphasis is on the biochemistry and molecular biology of the receptor. Available immediately. Send résumé and names of three references to: **Graham Carpenter, Department of Biochemistry, Vanderbilt University School of Medicine, Nashville, Tenn. 37232.**

**POSTDOCTORAL POSITIONS** available immediately in the areas of environmental or agricultural microbiology. Research deals with the molecular biology of the nitrogen fixing *Rhizobium*-soybean symbiosis or plasmid transfer, expression, and population dynamics in ground water bacteria. Experience in genetics, molecular biology, recombinant DNA, or nucleic acid biochemistry is desirable. Salary: \$16,000 per annum. Submit letter of interest, curriculum vitae, and at least three letters of reference to: **Dr. Gary Stacey or Dr. Gary Saylor, Department of Microbiology, University of Tennessee, Knoxville, Tenn. 37996-0845. An Affirmative Action/Equal Opportunity Employer.**

**POSTDOCTORAL POSITION—GLYCOLIPIDS**—Position available 1 September 1984 for research on the involvement of glycolipids in viral infection, membrane fusion, and the autoimmune response. Applicants should have a strong background in biochemistry and experience in extracting and analyzing glycolipids, particularly gangliosides. Salary will be commensurate with experience. Send curriculum vitae and three letters of reference to: **Dr. Mary Ann K. Markwell, Department of Microbiology, Molecular Biologist Institute, University of California at Los Angeles, Los Angeles, Calif. 90024.**

**POSTDOCTORAL/RESEARCH ASSOCIATE** Combined Los Alamos—University of New Mexico research position. Investigation of the maturation sequence of mouse and human monomyelocytic cell lineage cells. Work involves cell culture, monoclonal antibody production, flow cytometry and cell sorting, cellular immunology, and possibly involvement in molecular biology (oncogene expression) on normal and tumor cells. Contact: **T. B. Tomasi, M.D., Ph.D., University of New Mexico Cancer Center, Albuquerque, N.M. 87131, or Carleton Stewart, Ph.D., Group LS-4, MS M888, Los Alamos National Laboratory, Los Alamos, N.M. 87545.**

### POSTDOCTORAL RESEARCH POSITION

Recent graduate from a recognized North American university in biological sciences related to biochemistry or immunology to study immune responses in animal to nonbiological synthetic polymers used in surgical implants and as vehicles in controlled drug releasing devices. Stipends at Medical Research Council rate, and the starting date should be before 1 January 1985. Write: **Dr. Paul Y. Wang, Laboratory of Chemical Biology, Institute of Biomedical Engineering, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada M5S 1A8.**

**POSTDOCTORAL RESEARCH POSITION** available to study dynamic aspect of actin-containing structures. The approach involves incorporating fluorescently labeled components into living cells and studying the images with laser photobleaching and digital image analysis. Candidates should have a strong background in protein chemistry, cell culture, and computer programming. Send curriculum vitae and three letters of reference to: **Dr. Yu-li Wang, Department of Molecular and Cellular Biology, National Jewish Hospital and Research Center, 3800 East Colfax Avenue, Denver, Colo. 80206-1997.**

## BIOTECHNOLOGY — SCIENTISTS

As of April 1st, 1984, or later, the Research & Development Section of NORDISK GENTOFTE, Copenhagen, has vacancies for scientists trained in recombinant DNA techniques.

The successful applicants should have practical experience in at least one of the following areas:

- DNA technology
- Cloning of genes
- Expression of cloned genes in prokaryotic or yeast cells.

Ability and willingness to participate in a broad intergroup co-operation are essential for these posts, as the work will be carried out in close collaboration with scientists in associated groups.

NORDISK GENTOFTE (manufacturing, marketing and development) makes up the independent foundation of NORDISK INSULINLABORATORIUM together with HAGEDORN RESEARCH LABORATORY (basic research into diabetes) and STENO MEMORIAL HOSPITAL (research and treatment of diabetes).

At present, the major products manufactured by NORDISK GENTOFTE are insulins, human growth hormone, and plasma proteins.

Salary will be fixed in accordance with applicant's qualifications and the salary level of a corresponding position at NORDISK GENTOFTE.

NORDISK GENTOFTE is conveniently situated near public means of communication.

Further information about the vacancies may be obtained from Dr. Nanni Din (telephone: 01-680168, ext. 464).

Applications with curriculum vitae should be sent to:

**N** Nordisk Gentofte  
Niels Steensensvej 1  
2820 Gentofte  
Denmark

NORDISK GENTOFTE is manufacturing and marketing insulin, blood fractionation products, human growth hormone, etc., and together with HAGEDORN RESEARCH LABORATORY and STENO MEMORIAL HOSPITAL it makes up the independent foundation NORDISK INSULINLABORATORIUM, which has approximately 800 employees.



## BOTANY SENIOR LECTURER

Applications are invited from suitably qualified persons, regardless of sex, race, colour or national origin for appointment to the post of **Senior Lecturer in the Department of Botany**.

Preference will be given to an applicant with a good general background in plant

science. There is opportunity for research in the fields of anatomy, systematics, physiology, ecology, and mycology. There is a wide variety of research problems and areas of natural vegetation in which to work. The successful applicant will be expected to participate in undergraduate teaching, in the teaching of a specialist Honours programme and to supervise postgraduate students.

The total emolument attached to this post will be within the range R18 546 - R26 931 per annum. The initial salary notch will be determined according to qualifications and experience. Benefits include: annual bonus • generous leave • pension • medical aid • remission of fees for dependants attending the University • housing subsidy (if eligible) • removal, travel and settling-in allowances may be payable.

Applications should be lodged by **21 September 1984**.

For detailed information contact the Deputy Registrar, (Academic Staffing),

**UNIVERSITY OF THE WITWATERSRAND**  
1 Jan Smuts Avenue, Johannesburg 2001,  
South Africa.



## SENIOR RESEARCH CHEMISTS

The Campbell Institute for Research and Technology, is currently seeking 2 Senior Research Chemists to conduct basic research programs in our vegetable biochemistry group.

One position will be concerned with conducting fundamental research on the factors associated with the textural properties of fruits and vegetables and the effect of heat, freezing, and fenescence enzymes on the biochemistry and cell structure of fruits and vegetables.

The other position will have responsibility for conducting research on the role of pectin in the functional properties of tomato paste and basic research on the post-harvest physiology of mushrooms.

Qualified applicant should have a Ph.D. in Plant Biochemistry, Plant Physiology, Food Chemistry or related field and a strong background in chemistry and biochemistry. Post doctoral experience in Vegetable Biochemistry, Rheology, and / or Enzymology are desirable. The individual should be highly motivated and have the ability to carry out a research program with minimal supervision. Candidate must be able to communicate ideas as well as write reports clearly and concisely.

Interested candidates should send a detailed curriculum vitae, academic transcripts and three references to:

Dr. Joseph Jen  
Manager of Vegetable Biochemistry  
Campbell Institute for Research and Technology

*Campbell Soup Company*

Campbell Place, Camden, N.J. 08101

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## POSITIONS OPEN

**POSTDOCTORAL RESEARCH ASSOCIATE**—Position available immediately for Ph.D. in biochemistry or life science to study polyamine regulation of differentiation and gene expression in the early embryonic development of insects using molecular biological and recombinant DNA approaches. Salary: \$20,500 per 12 months. Funded for 24 months. Send curriculum vitae and three letters of reference by 15 September 1984 to: **Dr. A. E. Oleson, Department of Biochemistry, North Dakota State University, Fargo, N.D. 58105.** An Equal Opportunity Employer.

### POSTDOCTORAL RESEARCH ASSOCIATE

Position for an experimental physical chemist with a strong background in statistical-mechanics and thermodynamics and their applications in the study of nonelectrolytics and their mixtures. A thorough knowledge and experience with GLC, HPLC, UV-VIS, surface and interfacial tension methodologies are essential. Salary: \$16,000 to \$17,000 per year, depending on experience. Complete curriculum vitae, copies of publications, and three letters of recommendation are required with application to be submitted by 24 September 1984 to:

**Dr. Charles H. Lochmüller**  
Department of Chemistry  
Duke University  
Durham, N.C. 27706

*Affirmative Action/Equal Opportunity Employer*

### DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY UNIVERSITY OF NORTH CAROLINA (UNC) AT CHAPEL HILL

#### POSTDOCTORAL TRAINING IN IMMUNOBIOLOGY

Applications for postdoctoral research training are invited by the Immunology Group at the University of North Carolina at Chapel Hill. Research training is available in immunogenetics (J. Frelinger, G. Haughton); mechanisms of autoimmunity and arthritis (P. Cohen, R. Eisenberg, J. Schwab); structure of allergens (D. Klapper) and tumor biology (S. Haskill). Positions are for 1 year, renewable, and are supported by an NIAID training grant.

For more information, contact:

**Dr. J. A. Frelinger**  
Department of Microbiology and Immunology  
University of North Carolina at Chapel Hill  
804 FLOB 231H  
Chapel Hill, N.C. 27514

*UNC is an Equal Opportunity/Affirmative Action Employer. Applications from women and minorities are encouraged.*

### PROFESSOR AND CHAIRMAN DEPARTMENT OF IMMUNOLOGY AND MEDICAL MICROBIOLOGY COLLEGE OF MEDICINE UNIVERSITY OF FLORIDA

The department is seeking applicants having an M.D. or Ph.D. degree, and a distinguished record of creative research. Candidates should have a commitment to excellence in teaching medical, dental, and veterinary medical students as well as to graduate education and research. The department has an internationally recognized research program and maintains a dynamic graduate training program with a major focus in molecular biology. The College strongly encourages interaction between the department and other Basic Science and Clinical Units in the Health Center. Salary negotiable. Anticipated starting date: on or before 1 July 1985. Interested individuals should send curriculum vitae and the names of three references by 1 November 1984 to:

**Dr. Allen H. Neims**  
Chairman, Immunology and  
Medical Microbiology Search Committee  
Box J-267-J. Hillis Miller Health Center  
University of Florida College of Medicine  
Gainesville, Florida 32610

*An Affirmative Action/Equal Opportunity Employer*

**RESEARCH ASSOCIATE:** Postdoctoral position for 2 years to evaluate spatial variations in stream chemistry and biology. Strong background in aquatic invertebrates, decomposition, nutrient cycling, chemistry, statistics, and demonstrated ability to conduct independent research required. Submit curriculum vitae and three letters of reference by 14 September 1984 to: **Dr. Charles T. Driscoll, Department of Civil Engineering, 150 Hinds Hall, Syracuse University, Syracuse, N.Y. 13210.** Syracuse University is an Equal Opportunity/Affirmative Action Employer.

## POSITIONS OPEN

### UNIVERSITY OF CALIFORNIA, IRVINE POSTDOCTORAL RESEARCH IN PSYCHOBIOLOGY

The Department of Psychobiology, University of California, Irvine (UCI), anticipates filling several postdoctoral research positions in the laboratories of the faculty with starting dates between 1 August 1984 and 31 July 1985. The current faculty and their research interests are: D. Aswad (neurochemistry); M. Baudry (cell biology and neurochemistry); C. Cotman (synaptic growth and plasticity); R. Josephson (comparative physiology of muscles); M. L. Kean (linguistics and neural mechanisms of language processing); H. Killackey (developmental neuroanatomy); M. Leon (developmental psychobiology); G. Lynch (physiology, neurochemistry); J. Marshall (neural plasticity of catecholamines); J. McGaugh (memory storage processes); R. Miledi (synaptic physiology); D. Perkel (theoretical neurobiology); A. Starr (cognition, sensation and evoked potentials); N. Weinberger (neural mechanisms of learning); and P. Yahr (neuroendocrinology and behavior).

Candidates should address inquiries to: **Postdoctoral Research Advisor, Department of Psychobiology, University of California, Irvine, Calif. 92717.**

UCI

*An Equal Opportunity/Affirmative Action Employer*

### PROTEIN CHEMIST

Applications are invited for a protein chemist to join a research group specializing in the areas of hemostasis and inflammation. Position available is for an assistant member (assistant professor) at the Oklahoma Medical Research Foundation. Applicants should have at least 3 years of postdoctoral training and hold the Ph.D. or M.D. degree(s). They should exhibit demonstrated ability in establishing a strong, independent research program in the area of hemostasis or inflammation/plasma protein chemistry. Institutional funds are available to supplement grant and contract support. Send curriculum vitae (including bibliography) together with names of three references to: **Dr. Fletcher B. Taylor, Jr., Head, Thrombosis/Hematology Research Program, Oklahoma Medical Research Foundation, 825 Northwest Thirtieth Street, Oklahoma City, Okla. 73104.** Telephone: 405-271-2400.

### APPOINTMENT IN RESEARCH ON CLIMATOLOGY AND AIR-SEA INTERACTIONS

A joint appointment is available at the Jet Propulsion Laboratory (JPL) and Scripps Institution of Oceanography (SIO) for research on climatology and air-sea interactions. At SIO the appointment will be as adjunct professor, the level depending upon qualifications and experience. At JPL, the appointment will be to the research staff with comparable rank. The appointee will have responsibilities at both institutions, including teaching and supervising graduate students at SIO. Applicants should have a strong background at the Ph.D. level in a relevant field, such as applied mathematics, physics, chemistry, meteorology, or physical oceanography. The successful applicant will have excellent research potential, the ability to interact effectively with JPL and SIO scientists, and the ability to advise JPL and NASA management on programs in this area. Compensation is negotiable. Inquiries may be made of either of the following: **Dr. M. T. Chahine, Jet Propulsion Laboratory, 183-335, 4800 Oak Grove Drive, Pasadena, Calif. 91109 (telephone: 818-354-2433);** or **Professor R. C. J. Somerville, Scripps Institution of Oceanography, A-024, University of California, San Diego, La Jolla, Calif. 92093.** Equal Opportunity/Affirmative Action Employers.

**SOIL SCIENTIST (computer specialist)** for laboratory and field investigation in obtaining new soil physical data. Will involve data processing, statistical analysis, computer model simulation and data set management of soil characteristics, including soil physical, chemical, and microbiological parameters and crop growth responses; analyzing data and develop mathematical relationships between measured and simulated soil plant responses. B.S. in soil science plus 2 years of related experience or M.S. in soil science. Course work in soil microbiology, statistical analysis (linear and multiple regression) and substantial course work in computer science. Also some experience in soil physical research, \$14,870 per year. Send résumés to: **Robert Powell, Nebraska Department of Labor, P.O. Box 94600, State House Station, Lincoln, Nebraska 68509.**

*An Affirmative Action/Equal Opportunity Employer*

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available to examine the regulation of the induction of cytochrome P-450 in primary monolayer cultures of adult rat hepatocytes. Background in cell biology and the regulation of protein turnover desirable. Send résumé and names and addresses of three references to: **Dr. Philip S. Guzelian, Division of Clinical Toxicology and Environmental Medicine, Box 267, Medical College of Virginia, Richmond, Virginia 23298-0001.**

**POSTDOCTORAL POSITION** available immediately to study the effect of hydrophobic molecules on heme proteins. Experience with EPR, NMR, and visible spectroscopy preferred. Salary: \$18,000. Send curriculum vitae and names of three references to: **Dr. H. James Harmon, Zoology Department, 430 LSW, Oklahoma State University, Stillwater, Okla. 74078.**

**POSTDOCTORAL POSITION** available immediately to study mechanism of action and resistance to anticancer agents with focus on drugs that alter DNA. Major areas of investigation are interaction of drugs with DNA topoisomerase and molecular mechanisms of drug resistance in human tumor cell lines. Candidates with experience in molecular biology, DNA repair, or chromosomal aberrations are especially encouraged to apply. Send curriculum vitae and names of three references to: **Dr. Warren Ross, Box J-267, J. Hillis Miller Health Center, University of Florida, Gainesville, Fla. 32610.**

### RESEARCH SCIENTIST: FORMULATION

**AMGEN**, an innovative leader in biotechnology, has an opening for an individual with experience in preformulation/formulation methodologies. Responsible for optimization of product stability and characterization of delivery systems. Qualified applicant will have Ph.D. in biochemistry/pharmacology and at least 2 years of related experience. Experience in developing scale-up processes for protein purification and familiarity with FDA standards are assets. Send résumés to: **Recruitment (BK), AMGEN, 1900 Oak Terrace Lane, Thousand Oaks, California 91320.**

**STAFF ANATOMIST/RESEARCH ASSOCIATE**, University of California, Riverside/University of California, Los Angeles, Division of Biomedical Sciences. Primary responsibility is laboratory teaching of gross anatomy/histology to first-year medical students; serve as a resource in light and electron microscopy and participate in the research programs of various faculty members. Experienced in procurement and demonstration of human anatomy and proficiency in light and EM techniques; \$19,440 to \$32,184 per year, commensurate with experience. Excellent benefits. Apply to: **Personnel Office, University of California, Riverside, Calif. 92521.** The University of California is an Equal Opportunity/Affirmative Action Employer. Position open until filled.

## Technical Supervisor

To assist in training, operation and maintenance of the Microscopy Facility at MIT's Whitaker College of Health Sciences, Technology and Management. Instruct users; coordinate modifications and routine service with vendor; prepare billings; and maintain current manuals and library references on technologies of microscopy.

Requires Bachelor's degree in life sciences, Master's degree preferred. At least 3 years' experience and familiarity with Phillips, ISI and Zeiss equipment.

Send two copies of resume to  
**Ms. L. M. Bichette, MIT Personnel Office,  
E19-239, 77 Massachusetts Ave.,  
Cambridge, MA 02139 Job No. R84-468.**

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**SYNTRO IS CONCERNED WITH THE CHALLENGE OF TODAY'S AGRICULTURAL PROBLEMS AND IS PREPARED TO MEET THAT CHALLENGE WITH A COMMITMENT TO EXCELLENCE IN SCIENTIFIC RESEARCH.** We have developed an outstanding research facility, designed and equipped under the direction of Syntro's laboratory personnel. Located in the heart of Southern California's scientific community, Syntro offers a unique opportunity for professional growth.

Syntro has an immediate opening at the scientist level for a **PROTEIN CHEMIST** with demonstrated expertise in protein purification and characterization. Microsequencing experience or a knowledge of peptide synthesis are desirable. The successful candidate will assume a major role in developing protein studies as a part of Syntro's analytical services division.

Additional openings exist in the analytical services division at the Research Associate (BSc/MSc) level. We seek individuals with experience in protein sequencing, peptide synthesis or enzymology.

Syntro offers a competitive compensation package in an outstanding research environment. If you would like to join in our growth and development as a successful biotechnology company please send a resume with a list of references to:

Personnel Director  
**SYNTRO CORPORATION**  
10655 Sorrento Valley Road  
San Diego, CA 92121

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## Postdoctoral Scientist GI Pharmacology

Smith Kline & French Laboratories, a leader in pharmaceutical research is seeking a Postdoctoral Scientist to work with Dr. Herbert S. Ormsbee, III in an environment designed to foster creative innovative research and to promote personal and professional growth.

We consider postdoctoral studies to be of major importance in an individual's career and encourage publication of findings in leading journals and a full interaction with the scientific community.

Our postdoctoral appointments are of 1 year duration and with mutual agreement, renewable for a 2nd year. The successful candidate will:

- participate in a research program in the pharmacology of GI smooth muscle.
- develop and create methods for defining the neural control and smooth muscle physiology of the GI tract.
- assist in the development of new animal models and of new drug therapies for GI disorders.
- publish work in scientific literature; present scientific findings at local and national meetings.

Candidates are required to have:

- a Ph.D. in Pharmacology, Physiology or Neuroscience with 0 to 3 years postdoctoral experience.
- familiarity with *in vivo* and *in vitro* myoelectric and mechanical activity of GI smooth muscle.
- publications in major scientific journals.

Preference will be given to those who have had experience in smooth muscle physiology or neurophysiology.

We offer excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your CV and names of three references to Mr. Walter B. Flagg, SmithKline Beckman Corporation, 1568 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

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## POSITIONS OPEN

**RESEARCH AFFILIATE POSITIONS** available immediately for electrophysiological investigations of neurotransmitter receptor desensitization studied in isolated invertebrate neurons and mammalian brain slices. Ph.D. in neurobiology required. Salary: \$17,913 to \$24,883. Send curriculum vitae and names of references to: **Dr. David Carpenter, Center for Laboratories and Research, New York State Department of Health, Albany, New York 12201.**

**RESEARCH ASSISTANT, HARVARD MEDICAL SCHOOL.** Work on mechanisms of sensory transmission in the mammalian spinal cord. Applicants should be experienced in running a tissue culture facility and in culture of mammalian neurons. Biochemical and immunological techniques for analysis of neuronal peptides and glycoconjugates and training in fluorescence activated cell sorting are also required. Applicants should have a B.S. degree and several years of practical experience. Send résumé and letters of application and reference to: **Alison Gillies, Personnel Office, 164 Longwood Avenue, Boston, Mass. 02115.** Refer to requisition 55001M. An Affirmative Action/Equal Opportunity Employer.

### RESEARCH ASSOCIATE BIOMOLECULAR SURFACE SCIENCE

The University of New Mexico (UNM) and Sandia National Laboratories have established a cooperative program designed to investigate the adsorption of DNA and proteins onto material surfaces. Studies will involve electron microscopy, immunological methods, and a variety of physical techniques. One-year research associate position (renewable for additional year) is available through Department of Cell Biology, UNM School of Medicine, and will involve research time at both UNM and Surface Science Division of Sandia Labs. Applicants should have Ph.D. degree in biological or physical sciences with experience in electron microscopy or physical measurements. U.S. citizenship is mandatory, and participation in the program is contingent on obtaining a DOE security clearance. Salary of \$18,000 to \$23,000 (plus travel allowance) is dependent on experience and qualifications. Résumés should be sent (before 15 September 1984) to: **Chairman, Department of Cell Biology, University of New Mexico School of Medicine, Albuquerque, N.M. 87131.**

**RESEARCH ASSOCIATE**, to take part in research program involving synthesis and study of new cyclic organophosphorus compounds, includes some supervising responsibilities. Applicant must have Ph.D. in organic chemistry with 1 year of postdoctoral experience concerned with cyclic carbon-phosphorus compounds, including use of P-31 and C-13 NMR spectrometers. Salary: \$16,000 per year. Contact: **The Employment Security Commission, 516 North Mangum Street, Durham, North Carolina 27701.** Refer to: **Job Order Number 4106818.**

**TWO RESEARCH ASSOCIATE POSITIONS** are available 1 September 1984 to participate in a program of research aimed at the development and use of methods for the chronic implantation of multiple microelectrodes for study of the activity of many neurons in the cerebral cortices of waking, behaving monkeys. The programs of research include studies of the frontal, motor, and parietal cortical areas in motor control (Dr. A. P. Georgopoulos), and of the role of somatic sensory, posterior parietal and prefrontal cortical areas in sensation, perception, and certain higher functions of the brain (Dr. V. B. Mountcastle). Candidates should have an M.D. or Ph.D. degree and postdoctoral experience in neurophysiology. Applicants should send curriculum vitae and the names and addresses of three references to: **V. B. Mountcastle, Director, The Philip Bard Laboratories of Neurophysiology, Department of Neuroscience, The Johns Hopkins University School of Medicine, 725 North Wolfe Street, Baltimore, Maryland 21205.**

**SENIOR SCIENTIST POSITION** is available with a fast-growing plant biotechnology company. A strong background in molecular biology is required with a Ph.D. in genetics, biochemistry, or microbiology. Postdoctoral experience in recombinant DNA technology is essential. Research will be directed toward the elucidation of novel genetic sequences involved in plant-microbe interactions. Interested individuals should send curriculum vitae and names, addresses, and telephone numbers of three references to:

**NPI  
Molecular Biologist Position  
Microbiology Division  
417 Wakara Way  
Salt Lake City, Utah 84108**

## POSITIONS OPEN

### RESEARCH ASSOCIATE

Permanent position, at university hospital. Immunologist with biochemical background or immunochemist. Doctorate required. Work on immunological aspects of human cancer. Experience in antigen and antibody fractionation, labeling, and immunoassays necessary. Excellent salary and benefits. Send curriculum vitae and bibliography to: **Dr. G. F. Springer, Director, Immunochemistry Research, Evanston Hospital, 2650 Ridge Avenue, Evanston, Illinois 60201.**

*Equal Opportunity Employer, M/F*

### RESEARCH SCIENTIST

The VA Medical Center in Buffalo, New York, seeks an individual interested in the study of the evaluation and modulation of host defenses in experimental meningitis. Experience in laboratory developing monoclonal antibodies and a postgraduate level educational background in microbiology, biochemistry, or immunology desired. Salary negotiable. Liberal fringe benefits. Send curriculum vitae to: **Thomas R. Beam, Jr., M.D., Medical Research Service, VA Medical Center, 3495 Bailey Avenue, Buffalo, New York 14215.** The federal government is an Equal Opportunity Employer.

The University of Michigan, Section of Urology, is seeking a **BOARD-CERTIFIED or ELIGIBLE UROLOGIST** who is completing or has completed his/her residency within the past several years, has acquired experience as an investigator, is a competent clinician and surgeon, and is interested in an academic career. Salary and rank are negotiable. Send all inquiries to: **Edward McGuire, M.D., Section of Urology, University Hospitals, 1405 East Ann Street, Ann Arbor, Mich. 48109.** The University of Michigan is a nondiscriminatory, Affirmative Action Employer. PCN 117.

### VASCULAR PLANT PHYSIOLOGIST SEARCH CONTINUES

Montana State University (MSU) seeks a physiologist relating molecular processes to whole plant performance. Half-time is allowed for development of a strong research program. Teaching responsibilities include an annual introductory plant physiology course and an alternate-year, three-quarter graduate survey of plant biochemistry, control mechanisms, transport, and nutrition. The beginning date is negotiable for this tenure-track, 10-month, assistant professor position. It requires a Ph.D., teaching potential, and demonstrated research capability. Applications will be accepted until 20 September or until a suitable applicant is found. Please submit a statement of research interest, a résumé, transcripts, and three letters of recommendation to: **The Plant Physiology Search Committee, Biology Department, Montana State University, Bozeman, Montana 59717.** MSU is an Equal Opportunity/Affirmative Action Employer.

## FELLOWSHIPS

**CEREBRAL METABOLISM POSTDOCTORAL FELLOWSHIP** available immediately for the study of brain energy metabolism and its disruption in liver disease and stroke. The successful candidate should have some experience in the neurosciences and in biochemistry. For further information write to: **Dr. Arthur J. L. Cooper, Department of Neurology, Cornell University Medical College, 1300 York Avenue, New York, New York 10021.**

**POSTDOCTORAL FELLOWSHIPS IN NON-IONIZING RADIATION EFFECTS ON CELL BIOLOGY** are available beginning 1 October 1984, through the Departments of Microbiology and Pharmacology for interdisciplinary research in collaboration with the School of Aerospace Medicine, Brooks AFB, Texas. Topics include bioeffects of exposure to non-thermal non-ionizing radio frequency radiation (RFR) and electromagnetic (EM) fields on cellular functions, receptors, transport, metabolism, molecular synthesis, and growth. Send curriculum vitae, research experience and interest summary, and names of three references to: **Wendell D. Winters, Ph.D., Head, Electromagnetics Biostudies Program, Department of Microbiology, The University of Texas Health Science Center (UTHSC), 7703 Floyd Curl Drive, San Antonio, Texas 78284.** UTHSC is an Equal Opportunity/Affirmative Action Employer.

## FELLOWSHIPS

**POSTDOCTORAL FELLOWSHIP AVAILABLE IN SAN FRANCISCO BAY AREA.** Cloning, expression, and site-specific mutagenesis of pancreatic and tissue phospholipase A<sub>2</sub>. Position is in a dynamic, multidisciplinary laboratory at the Martinez VA Medical Center, a University of California-Davis teaching hospital located approximately 30 miles from San Francisco. Cloning and/or tissue culture experience preferred. Salary range: \$17,000 to \$20,000, per experience. Starting date: 1 September 1984. Submit résumé and three letters to: **Dr. Corey Largman, Biochemistry Research, Martinez VA Medical Center, 150 Muir Road, Martinez, Calif. 94553.**

**POSTDOCTORAL FELLOWSHIP** available immediately to study mechanisms of DNA damage and resulting mutagenesis. Studies involve DNA sequencing, directed mutagenesis, in vitro DNA replication, HPLC and "Southern" hybridization. [See: *Nature* 298, 863 (1982) and 308, 201 (1984); *Biochemistry* 23, 2367 (1984)].

Candidates must be U.S. citizens or permanent residents. Send curriculum vitae, three letters of recommendation, and graduate school records to: **Dr. Michael D. Topal, Chemical Carcinogenesis Program, Lineberger Cancer Research Center 237H, Chapel Hill, North Carolina 27514.**

### POSTDOCTORAL FELLOWSHIPS DIVISION OF BIOCHEMICAL AND CLINICAL PHARMACOLOGY ST. JUDE CHILDREN'S RESEARCH HOSPITAL

Fellowship positions are available in research projects dealing with anticancer drugs. Individual projects involve organic synthesis, enzymology, physical biochemistry, cell biology, or molecular biology or combinations of these and deal with the uptake, mode of action, and metabolism of anticancer drugs. Applicants should have graduate research experience in one or more of the above areas. Appointments are renewable for up to 3 years and are made at an initial salary (for first-year postdoctoral applicants) of \$14,800, with annual increments. Applicants should forward their curriculum vitae to:

**Dr. Raymond L. Blakley  
Division of Biochemical and Clinical Pharmacology  
St. Jude Children's Research Hospital  
332 North Lauderdale  
Memphis, Tennessee 38101**

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**LA TROBE UNIVERSITY, MELBOURNE, AUSTRALIA. LA TROBE RESEARCH FELLOWSHIPS 1985.** Applications for research fellowships are invited from persons who have gained doctoral or equivalent qualifications within the last 5 years or so, or who anticipate gaining such qualifications by 30 June 1985. Applicants must propose a research project which may be in collaboration with La Trobe University research workers or teams. Two fellowships are available for offer in 1985. Each fellowship will be awarded for an initial period of 12 months with the possibility of renewal for a further maximum period of 12 months. Salary offered is A\$21,411 to A\$24,840. Enquiries should briefly indicate the research discipline of interest to them. Applications must be made on the University forms available from the Staff Officer and completed forms marked 'Confidential' and addressed to: **The Staff Officer, La Trobe University, Bundoora, Victoria, Australia,** and must reach the University no later than 30 September 1984.

## TRAINEESHIPS

### TRAINEESHIPS

**POSTDOCTORAL FELLOWSHIPS IN MOLECULAR ASPECTS OF GENETICS AND DISEASE.** Positions available at Roswell Park Memorial Institute, a comprehensive cancer research institute and hospital, in the following laboratories: V. Chapman (X-chromosome inactivation); R. Elliott (analysis of DNA polymorphisms); K. Gross (control of gene expression); W. Held (genetic and hormonal control of gene expression); C. Helmstetter (DNA replication); A. Kinniburgh (molecular analysis of hereditary disease); L. Maquat (gene regulation and hereditary disease); T. Shows (human genetics and molecular disease); and R. Swank (inherited disorders of lysosome biogenesis). These investigators represent four research departments: Cell and Tumor Biology, Experimental Biology, Molecular Biology, and Human Genetics. Stipends follow NIH guidelines. Please send résumé and names of three references to: **Dr. T. Shows, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, N.Y. 14263.**





## National Meeting on Biomass R&D for Energy Applications

1 - 3 October 1984  
Stouffer's Concourse Hotel  
Arlington, Virginia

The meeting will provide attendees with a comprehensive perspective of biomass energy research and will establish a basis for improved communication and cooperative technology development. Each day of the three-day meeting will focus on biomass energy from a distinct perspective. The first day will be devoted to discussions of global issues important to the biomass energy research community. On the second day, the principal sponsors of biomass energy research will describe, in detail, their research interests and programs. Day three will be devoted to technical presentations that highlight a number of significant research efforts important to the National Biomass Energy Technology objectives.

Poster displays will be exhibited throughout the three-day Conference. Participants are encouraged to view these displays during coffee breaks, luncheons, and social functions.

For further information contact: SERI Conference Coordination Section, 1617 Cole Boulevard, Golden, Colorado, 80401, (303) 231-7644.

## Associate Senior Investigator Investigative Toxicology

Smith Kline & French Laboratories, a leader in pharmaceutical research, is seeking an excellent scientist to design and conduct general toxicology studies in its Investigative Toxicology Department located in suburban Philadelphia, Pa.

### The successful candidate will also:

- evaluate toxicologic data for inclusion in project reports.
- serve as study director/project representative on development project teams.
- provide scientific leadership and toxicological expertise to the Pathology/Toxicology area in general.
- be encouraged to maintain an active research program in Pathology/Toxicology.

### Candidates are required to have:

- a Ph.D. in Toxicology, Pharmacology or related discipline.
- one to three years experience conducting *in vivo* toxicology studies (acute, subacute and chronic).
- excellent oral and written communication skills.
- supervisory experience.

We offer excellent compensation and benefits and an attractive relocation policy. For confidential consideration, send your CV and names of three references to: Mr. Walter B. Flagg, Senior Employment Consultant, SmithKline Beckman Corporation, 1564 Spring Garden Street, Philadelphia, PA 19101. We are an equal opportunity employer, M/F/H/V.

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## Universiteit van Amsterdam

The University of Amsterdam seeks for the Laboratory of Environmental and Toxicological Chemistry applicants for the position of

## professor of environmental chemistry (m/f)

Vacancy number S. 8099.

*This position requires the candidate to:*

- teach courses at both BSc and MSc level and present seminars in Environmental Chemistry
- conduct, stimulate and co-ordinate research in Environmental Chemistry; present research topics of the department include the behaviour of chlorinated aromatic compounds in the environment
- participate in the administration and organisation at departmental and faculty level
- acquire grants and research contracts.

*The candidate is expected to have:*

- a strong teaching record
- a distinguished research background proven by a PhD thesis and various publications in specialist journals
- organizing qualities.

The candidate is expected to have a good command of the Dutch language within two years of the appointment.

Gross salary depends on age and experience and ranges from Dfl. 6,364.- to Dfl. 9,005.- per month (Dutch Civil Servants Code).

Applicants should send their curriculum vitae, including a list of publications and the names of at least two references to the "Voorzitter van de Benoemingscommissie", Prof. Dr. H. Cerfontain, Laboratory for Organic Chemistry, University of Amsterdam, Nieuwe Achtergracht 129, 1018 WS Amsterdam, The Netherlands before October 1st 1984, quoting number 8099.

*In view of equal rights the University of Amsterdam invites also women to apply.*

# **AAAS Report IX**

## **Research and Development**

### **FY 1985**

#### **Intersociety Working Group**

This timely document analyzes major budget and policy issues relating to R&D in the FY 1985 budget, presents data on federal agency and industry support for R&D, and discusses trends in R&D funding in light of current policy issues. The report looks in detail at the R&D programs of major federal agencies and provides cross-cutting analyses of the budget by several scientific and engineering disciplines.

284 pp.

Paperback \$10.00

#### *Also Available:*

**R&D in FY 1985: Budgets, Policies, Outlooks. Proceedings of the 1984 AAAS Colloquium on R&D Policy.**

Approx. 175 pp.      Paperback \$7.00

**Congressional Action on R&D in the FY 1985 Budget.** Willis H. Shapley, Albert H. Teich, and Jill H. Pace. Fall 1984

Approx. 50 pp.      Paperback \$3.00

Books may be purchased by writing to the **AAAS Sales Department, 1515 Massachusetts Avenue, NW, Washington, DC 20005**. Please allow 6-8 weeks for delivery. All orders under \$10 must be prepaid. Visa and MasterCard customers include account number, expiration date, and signature. Past reports in the series are available; contact the Sales Department for more information.

# Information for Contributors

The Editors of *Science*

Papers in *Science* often receive far more attention than those in specialty journals. Hence the rate of submission is high, about 5000 papers each year, and the rate of rejection is high, about 80 percent. Since most of the papers submitted are of publishable quality, the editors use several criteria, in addition to the recommendations of referees, in selecting papers for publication. Preference is given to papers of general significance that are well written, well organized, and intelligible to scientists in different disciplines. An attempt is made to balance the subject matter in all sections of *Science*. Membership in AAAS is not a factor in selection.

Most papers are evaluated by two or more outside referees. Some papers may be returned to the authors without external review if they exceed the length limits or if they are judged unlikely to be chosen for publication. Referees are selected from *Science* files as well as from lists provided by authors. Papers that depend on statistical inference for their conclusions may also be sent to statisticians.

Papers accepted for publication are edited to improve the accuracy and effectiveness of communication and to bring them within the specified length limits. When the author's meaning is not clear, the editor may consult the author by telephone; when editing is extensive, the manuscript may be returned to the author for approval or further adjustment before the type is set.

Six types of signed papers are published: General Articles, Research Articles, Reports, Letters, Technical Comments, and Book Reviews.

## General Articles

About half the General Articles published in *Science* are solicited. Both solicited and unsolicited articles undergo review. General Articles are expected to (i) provide a review of new developments in one field that will be of interest to readers in other fields, (ii) describe a current research problem or a technique of interdisciplinary significance, or (iii) present a study of some aspect of the

history, logic, philosophy, or administration of science or a discussion of science and public affairs. Readers should be able to learn from a General Article what has been firmly established and what are significant unresolved questions; speculation should be kept to a minimum.

General Articles should include an author note giving names, addresses, and positions of the authors; a summary (50 to 100 words); and brief subheadings to indicate the main ideas. The reference list should not be exhaustive; a maximum of 40 references is suggested.

**Length limit.** Up to 5000 words (approximately five printed pages), including references and notes and figure and table legends. Figures and tables together should occupy no more than one printed page.

## Research Articles

Research Articles are expected to contain new data and to represent substantial contributions in their fields. They should include an author note giving names, addresses, and positions of the authors; an abstract (50 to 100 words); and brief subheadings to delineate the main sections of the text. The text should include a short introductory section outlining the main point of the paper, a description of the experiments and the results, and then a discussion or conclusion. A maximum of 30 references is suggested.

**Length limit.** From 2000 to 4000 words (3 to 3½ printed pages) including references and notes and figure and table legends. Figures and tables together may occupy up to one printed page.

## Reports

Reports are expected to contain solid research results or reliable theoretical calculations. Preference is given to reports that describe discoveries that will be of broad interdisciplinary interest or of unusual interest to the specialist. They should include an abstract (50 to 100 words) and a reference list; complete documentation need not be presented

but should be available in cited references. A maximum of 20 references is suggested.

**Length limit.** Up to 2000 words (approximately 1 to 1½ printed pages), including references and notes and figure and table legends. Figures and tables should together occupy no more than half a printed page.

## Letters

Letters are selected for their pertinence to material published in *Science* or because they discuss significant problems of interest to scientists in general. Letters pertaining to material published in *Science* may correct errors, provide support or agreement, offer different points of view, clarify, or add information. Personal remarks about another author are inappropriate. Outside reviewers may be consulted. The selection of letters is intended to reflect the range of opinions received.

When a letter refers to an Article or Report published in *Science*, the original author is usually given an opportunity to reply. Letters are acknowledged by postcard. Authors whose letters are accepted are so notified. Letters must be typed with double-spacing; they are frequently shortened.

**Length limit.** Preference is given to letters that do not exceed 250 words.

## Technical Comments

Technical Comments may criticize Articles or Reports published in *Science* or offer useful additional information. Discussions of minor issues or priority claims are not appropriate, nor are questions that can be resolved by private correspondence. The authors of the original paper are usually asked for an opinion of the Comments and are given an opportunity to reply in the same issue if the Comments are accepted. The Comments, and sometimes the reply, are subjected to the usual review procedures. Technical Comments are published at the end of the Reports section.

**Length limit.** Up to 500 words, including references and notes.

## Book Reviews

The selection of books to be reviewed and of reviewers is made by the editors. Instructions and length specifications accompany the books when they are sent to reviewers.

## Submission of Manuscripts

Submit an original and two duplicates of each manuscript, together with a letter of transmittal giving

- 1) the names and telephone numbers of the authors;
- 2) the title of the paper and a statement of its main point;
- 3) three to eight keywords to be used for indexing;
- 4) the names, addresses, telephone numbers, and fields of interest of four to six persons in North America but outside your institution who are qualified to referee your paper;
- 5) the names of colleagues who have reviewed your paper;
- 6) the total number of words (including text, references, and figure and table legends) in your manuscript; and
- 7) a statement that the material has not been published and is not under consideration for publication elsewhere.

Address the manuscript to the Editor, *Science*, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005.

Authors will usually be notified of acceptance, rejection, or need for revision in 6 to 8 weeks (Research Articles and Reports) or 8 to 10 weeks (General Articles).

When a paper is accepted for publication in *Science* it is understood by the editors that any new cell line, virus strain, molecular clone, or monoclonal antibody described or used as a reagent in the experiments reported, or any sample on which the conclusions depend, will be made available to other bona fide scientists for further experimentation.

It is also understood that a paper accepted by *Science* will not be released to the press or the public prior to its publication. Any exceptions to this embargo should be discussed with the editors in advance.

## Manuscript Preparation

**Typing.** Use double-spacing throughout the text, tables, figure legends, and references and notes. Put your names on each page and number the pages, starting with the title page.

**Titles.** Titles should be short. For General Articles the maximum length is 52 characters including spaces; for Re-

search Articles and Reports the maximum is 108 characters.

**Summary or abstract.** These should convey to the general reader the main point of the paper and outline the results or conclusions.

**Text.** A brief introduction should portray the broad significance of the paper. The whole text should be intelligible to readers in more than one discipline. Technical terms should be defined.

**Units of measure.** Use metric units. If measurements were made in English units, give metric equivalents.

**Symbols and abbreviations.** Define all symbols, abbreviations, and acronyms.

**References and notes.** Number references and notes in the order in which they are cited in the text. Place references cited only in tables or figure legends after the text references. For abbreviations of journal titles see: (i) *Serial Sources for the BIOSIS Database* (BioSciences Information Service, Philadelphia; published annually each January); (ii) *Chemical Abstracts Service Source Index (CASSI)*, 1907–1974 cumulative and its 1975–1979 quarterly supplements (Chemical Abstracts Service, Columbus, Ohio, 1975–1979 and supplements); or (iii) *Publications Indexed for Engineering (PIE)* (Engineering Index, Inc., New York; published annually). For journals not listed in these sources provide full titles. For references with up to five authors provide all the names; for more than five, provide the name of the first author only. Use the following forms:

For journal papers: H. J. Neville and S. Foote, *Neurosci. Res. Bull.* **20**, 242 (1981); J. W. Lewis *et al.*, *Peptides* **4**, 635 (1983).

For a book: G. N. Baturin, *Phosphorites on the Sea Floor* (Elsevier, Amsterdam, 1982), pp. 83–87.

For a paper in a compilation: J. W. Fitzgerald and D. W. Johnson, in *Sulphur 82*, A. I. More, Ed. (British Sulphur Corporation, London, 1982), vol. 1, pp. 411–426.

For unpublished material: A. Giraud, paper presented at the American Nuclear Society Conference, Washington, D.C., November 1976.

**Acknowledgments.** Gather all acknowledgments into a brief statement at the end of the references and notes.

**Figures.** For each figure submit three glossy prints of sufficient size to permit

relabeling, if necessary, but not larger than 216 by 279 millimeters (8½ by 11 inches). Label each on the back with the name of the author and the figure number and indicate the correct orientation. Authors requesting the use of color are usually asked to pay \$600 for the first figure and \$300 for each additional figure. These charges are applied to cover the cost of reprints. Cite all figures in the text and provide a brief legend for each on a separate sheet.

**Tables.** Type each table, with its legend, on a separate sheet. Give each table a number and cite it in the text. Give each column a heading with units of measure indicated in parentheses. Do not change the unit of measure within a column.

**Equations and formulas.** Use quadruple-spacing around equations and formulas that are to be set off from the text. Define all symbols.

## Printing and Publication

**Proofs.** One set of galley proofs is provided for each paper. Alterations should be kept to a minimum. Extensive alterations may delay publication.

**Scheduling.** Papers are scheduled for publication after *Science* has received corrected galley proofs from the authors. The time between acceptance of papers and mailing of galley proofs to authors may be 4 to 8 weeks (allowing for editing and typesetting); the time between receipt of authors' galley proofs by *Science* and publication may be 4 to 6 weeks (allowing for proofreading, layout, and paging). There may be delays for papers with tables or figures that present problems in layout, for papers accompanied by cover pictures, and for papers that exceed the length limits.

**Reprints.** An order blank for reprints accompanies proofs.

## Cover Photographs

Particularly good photographs that pertain to a paper being submitted will be considered for use on the cover. Submit prints (not slides, negatives, or transparencies) with the manuscript and indicate in the letter of transmittal that a possible cover picture is enclosed.