

ambitious. But perhaps that criticism is unavoidable when one deals with such a diverse family of complex phenomena. Finally, the book could have been improved if introductory and summary papers had covered the topics treated in the book more extensively than the ideas of the editor. Even though his ideas are interesting, they seem to be rather unrelated to the main body of the book. Perhaps it is unfair to expect an editor to remain a neutral collector of papers when, clearly, he has many unconventional ideas on the subject himself.

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## Ecological Effects of Fire

**Fire Ecology.** United States and Southern Canada. HENRY A. WRIGHT and ARTHUR W. BAILEY. Wiley-Interscience, New York, 1982. xxiv, 502 pp., illus. \$44.95.

The first plant ecology textbook to recognize fire as an ecological factor was published in 1947. Over the next quarter century a revolution in attitudes toward fire took place, and research on fire history and fire effects on plant communities has increased exponentially. The first book devoted solely to fire ecology was published in 1974 (*Fire and Ecosystems*, T. T. Kozlowski and C. E. Ahlgren, Eds., Academic Press), and now a second one is available. The authors of the present book fairly claim that it is a "progress report" in a rapidly developing field.

The book begins with chapters on temperature and heat effects, soil and water, and wildlife. Eleven chapters are devoted to particular types of plant communities, such as grasslands, chaparral and oakbrush, ponderosa pine, spruce-fir, and coast redwood and giant sequoia. These chapters discuss fire history, distribution, climate, soils, vegetation, fire effects, and management implications. A detailed chapter on prescribed burning techniques concludes the book.

Both authors are range specialists, and it is thus no surprise that chapters on grasslands and shrublands are excellent. Fire effects are related to various prescriptions for igniting controlled fires, and the effects of varying frequencies and intensities of fire are clearly presented. Each of the grass-shrub chapters exhibits considerable breadth, only occasionally at the expense of a thorough treatment of the plant community. The

chapter on chaparral covers a much wider array of communities than was covered in *Fire and Ecosystems*. However, the treatment of California chaparral is far too brief in comparison to that in the earlier book and is marred by numerous misspellings (at least 10) of scientific names (including the most common species, *Adenostoma fasciculatum*).

Though there appears to be a slight overlap between some chapters (for example, those on seral ponderosa pine forests and the drier Douglas fir forests), the wide variety of forest types have generally been organized into sensible groupings. One surprise is the chapter on coast redwood and giant sequoia, related taxonomically but not ecologically; the discussion of fire effects in this chapter is largely species-specific and is less ecosystem-oriented than the discussions in other chapters. In most of the forest chapters, stand development as related to fire is covered, although only marginally, for the study of the subject has just emerged as a discrete subdiscipline. That it is covered at all is one of the reasons the authors consider their book to be an up-to-date treatise.

Some introductory treatment of plant adaptations to fire and fire history methodology would have been desirable. Both subjects are briefly discussed in the middle of the book in the chapter on Douglas fir, but a treatment of both subjects that was applicable to all the chapters on plants would have been useful. In particular, point, cluster, and area fire frequencies are seldom adequately compared in the open literature, and the proper interpretation of them would have been a strong addition.

The major strength of the book is a management-oriented approach, perhaps best exemplified by the long chapter on prescribed burning technique. The authors wisely avoid trying to present a complete fire behavior manual and suggest that proper training coupled with increasing levels of experience is the key to successful burning. A discussion of firing techniques, with emphasis on planned ignitions, makes up the bulk of the chapter.

Photographs in the text show many before-and-after scenes, and the maps of types of vegetation provide good orientation for the reader. In my copy, an occasional map did not print well (white pine, p. 330) and one map (Douglas fir and associates, p. 239) seems to have the same pattern designating two forest types.

The book is clearly the best work on the ecological effects of fire in the United States and southern Canada. It is an

exceptionally balanced treatment of a tremendous variety of vegetation types and will be considered the definitive treatment of the subject to date.

JAMES K. AGEE

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## Books Received

**Annual Review of Medicine.** Selected Topics in the Clinical Sciences. Vol. 33. William P. Creger, C. H. Coggins, and E. W. Hancock, Eds. Annual Reviews, Palo Alto, Calif., 1982. xii, 596 pp., illus. \$22.

**Antacids in the Eighties.** Papers from a symposium, Hamburg, June 1980. F. Halter, Ed. Urban and Schwarzenberg, Baltimore, 1982. x, 154 pp., illus. \$22.

**Archaeology.** Myth and Reality. Readings from *Scientific American*. Introduction by Jeremy A. Sabloff. Freeman, San Francisco, 1982. x, 102 pp., illus. Paper, \$8.95.

**Arithmetic for the Practical Worker.** J. E. Thompson. Van Nostrand Reinhold, New York, ed. 4, 1982. xiv, 266 pp., illus. Paper, \$6.95. Mathematics Library for Practical Workers.

**Astronomy.** The Evolving Universe. Michael Zeilik. Harper and Row, New York, ed. 3, 1982. xvi, 624 pp., illus., + plates. \$26.95.

**Astrophysical Parameters for Globular Clusters.** Papers from a colloquium, Schenectady, N.Y., Oct. 1981. A. G. Davis Philip and D. S. Hayes, Eds. L. Davis Press, Schenectady, N.Y., 1981. xvi, 614 pp., illus. Paper, \$25. International Astronomical Union Colloquium No. 68. Dudley Observatory Report No. 15.

**Atlas of Radiologic Anatomy.** Lothar Wicke with the assistance of Wilhelm Firbas and Roland Schmiedl. Translated from the German edition (Munich, 1980). Urban & Schwarzenberg, Baltimore, 1982. viii, 240 pp., illus. \$19.50.

**The Atom Besieged.** Antinuclear Movements in France and Germany. Dorothy Nelkin and Michael Pollak. MIT Press, Cambridge, Mass., 1982. xvi, 236 pp., illus. Paper, \$7.95. Reprint of the 1981 edition.

**B Lymphocytes in the Immune Response.** Functional, Developmental, and Interactive Properties. Proceedings of a conference, Scottsdale, Ariz., Oct. 1980. Norman Klinman, Donald E. Mosier, Irwin Scher, and Ellen S. Vitetta Eds. Elsevier/North-Holland, New York, 1981. xviii, 540 pp., illus. \$70. Developments in Immunology, vol. 15.

**B Stars with and without Emission Lines.** Anne Underhill and Vera Doazen, Eds. Centre National de la Recherche Scientifique, Paris, and National Aeronautics and Space Administration, Washington, D.C., 1982 (available from the National Technical Information Service, Springfield, Va.). lviii, 488 pp., illus. Paper, \$36.50. Monograph Series on Non-thermal Phenomena in Stellar Atmospheres. NASA SP-456.

**Basic Geological Mapping.** John W. Barnes. Open University Press, Milton Keynes, England, and Halsted (Wiley), New York, 1982. 112 pp., illus. Paper, \$12.95. Geological Society of London Handbook.

**Basic Physical Geology.** Edwin Simons Robinson. Wiley, New York, 1982. x, 666 pp., illus. \$25.95.

**Biochemistry of Parasitic Helminths.** John Barrett. University Park Press, Baltimore, 1982. x, 308 pp., illus. Paper, \$19.95.

**Biogeography.** A Study of Plants in the Ecosphere. Joy Tivy. Longman, New York, ed. 2, 1982. xviii, 460 pp., illus. Paper, \$13.95.

**Biogeography and Ecology of New Guinea.** J. L. Gressitt, Ed. Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). Two volumes. xiv, 984 pp., illus. \$195. Monographiae Biologicae, vol. 42.

**Biology.** The Essential Principles. Tom M. Graham. Saunders, Philadelphia, 1982. xii, 736 pp., illus., + plates. \$24.95.

**The Biology of the Coccidia.** Peter L. Long, Ed. University Park Press, Baltimore, 1982. x, 502 pp., illus. \$69.95.

**Bits 'n Bytes about Computing.** A Computer Literacy Primer. Rachele S. Heller and C. Dianne Martin. Computer Science Press, Rockville, Md., 1982. x, 174 pp., illus. \$17.95.

**Les Cancers de l'Appareil Digestif.** P. Zeitoun, Ed. Doin, Paris, 1981. 210 pp., illus. Paper, 135 F. Progrès en Cancérologie, 1.

(Continued on page 1280)

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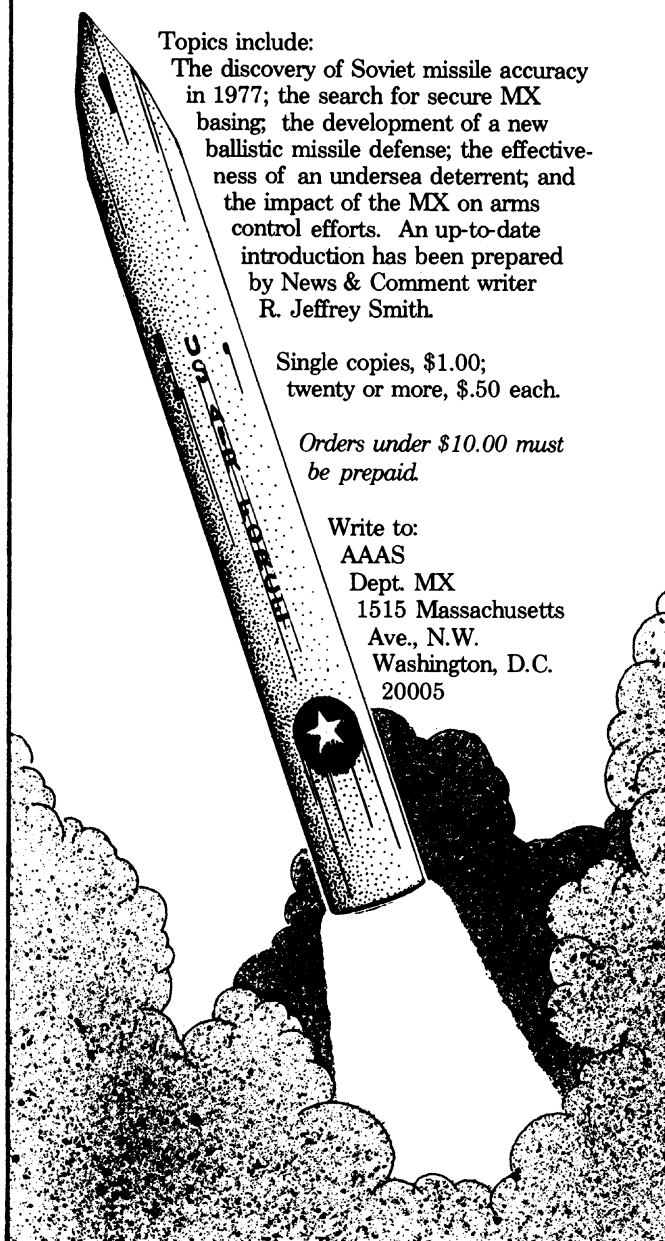
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## BOOKS RECEIVED

(Continued from page 1244)

**Cape Peninsula Ferns.** J. P. Roux. National Botanic Gardens of South Africa, Kirstenbosch, 1979 (U.S. distributor, ISBS, Beaverton, Ore.). viii, 66 pp., illus. Paper, \$10.

**Catálogo de la Fauna Venezolana.** Vol. 2, Sacrocina, 1—Rhizopoda, b—Foraminifera. Jaime Tello. Published by the author, 605 Oaks Drive, Pompano Beach, Fla., 1981. xx, 464 pp., \$100.

**Cell Biology of Extracellular Matrix.** Elizabeth D. Hay, Ed. Plenum, New York, 1981. xviii, 418 pp., illus. \$39.50.

**CERN. 25 Years of Physics.** M. Jacob, Ed. North-Holland, Amsterdam, 1981 (U.S. distributor, Elsevier North-Holland, New York). viii, 560 pp., illus. \$63.75. Physics Reports Reprint Book Series, vol. 4.

**The Changing Climate.** Responses of the Natural Fauna and Flora. Michael J. Ford, Allen and Unwin, Boston, 1982. 190 pp., illus. \$27.50.

**Changing Perspectives on Menopause.** Ann M. Voda, Myra Dinnerstein, and Sheryl R. O'Donnell, Eds. University of Texas Press, Austin, 1981. xx, 404 pp., illus. \$45.

**The Channels of Mars.** Victor R. Baker. University of Texas Press, Austin, 1982. xiv, 198 pp., illus. \$39.95.

**Chemistry and Biology of Heparin.** Proceedings of a conference, Chapel Hill, N.C., Mar. 1980. Roger L. Lundblad, W. Virgil Brown, Kenneth G. Mann, and Harold R. Roberts, Eds. Elsevier/North-Holland, New York, 1981. xviii, 666 pp., illus. \$80. Developments in Biochemistry, vol. 12.

**The Chemistry and Biology of Mineralized Connective Tissues.** Proceedings of a conference, Chicago, May 1981. Arthur Veis, Ed. Elsevier/North-Holland, New York, 1981. xxiv, 680 pp., illus. \$95. Developments in Biochemistry, vol. 22.

**Classical Mechanics.** Edward A. Desloge. Wiley-Interscience, New York, 1982. Two volumes. Vol. 1. xx + pp. 1-508, illus., + index. \$40. Vol. 2. xx + pp. 509-992, illus., + index. \$49.50.

**Clinical Pharmacology in Psychiatry.** Earl Usdin

and five others, Eds. Elsevier, New York, 1981. xvi, 352 pp., illus. \$59.

**The Concept of Development.** Proceedings of a symposium, Minneapolis, Nov. 1980. W. Andrew Collins, Ed. Erlbaum, Hillsdale, N.J., 1982. xii, 180 pp., illus. \$19.95. The Minnesota Symposia on Child Psychology, vol. 15.

**Ecology of the Chihuahuan Desert.** Organization of Some Vertebrate Communities. Robert Barbault and Gonzalo Halffter, Eds. Instituto de Ecología, Mexico City, 1981. 170 pp., illus. \$26.

**Empty Breadbasket?** The Coming Challenge to America's Food Supply and What We Can Do About It. Cornucopia Project (Rodale Press), Emmaus, Pa., 1981. vi, 170 pp., illus. Paper, \$4.95.

**Energy Coupling in Photosynthesis.** Proceedings of a symposium, Madison, Wis., July 1981. Bruce R. Selman and Susanne Selman-Reimer, Eds. Elsevier/North-Holland, New York, 1981. xviii, 374 pp., illus. \$60. Developments in Biochemistry, vol. 20.

**Environmental Carcinogens.** Selected Methods of Analysis. Vol. 4, Some Aromatic Amines and Azo Dyes in the General and Industrial Environment. H. Egan and five others, Eds. International Agency for Research on Cancer, Lyon, 1981 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). xiv, 350 pp., illus. \$30. IARC Publications No. 40.

**Environmental Physiology.** Aging, Heat and Altitude. Proceedings of a conference, Las Vegas, May 1979. Steven M. Horvath and Mohamed K. Yousef, Eds. Elsevier/North-Holland, New York, 1981. xx, 468 pp., illus. \$70.

**Exploration of the Universe.** George O. Abell. Saunders, Philadelphia, ed. 4, 1982. viii, 722 pp., illus., + plates. \$28.95.

**Expression of Differentiated Functions in Cancer Cells.** Proceedings of a workshop, Venice, Apr. 1981. Roberto P. Revoltella and five others, Eds. Raven, New York, 1982. xxii, 520 pp., illus. \$57.50.

**Family Formation Patterns and Health.** Further Studies. An International Collaborative Study in Colombia, Egypt, Pakistan, and the Syrian Arab Republic. A. R. Omran and C. C. Standley, Eds. World Health Organization, Geneva, 1981 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 464 pp., illus. Paper, \$22.

**The Fate of the Earth.** Jonathan Schell. Knopf, New York, 1982. x, 246 pp. \$11.95.

**Faunal Affinities, Systematics, and Bionomics of the Orthoptera of the California Channel Islands.** D. C. F. Rentz and David B. Weissman. University of California Press, Berkeley, 1982. xiv, 240 pp., illus. Paper, \$22.

**Festschrift for F. C. Courtice.** D. Garlick, Ed. University of New South Wales School of Physiology and Pharmacology, Kensington, N.S.W., Australia, 1981. vi, 252 pp., illus. Paper, \$23.

**Fish Gene Pools.** Preservation of Genetic Resources in Relation to Wild Fish Stocks. Proceedings of a symposium, Stockholm, Jan. 1980. N. Ryman, Ed. Swedish Council for Planning and Coordination of Research (FRN), Stockholm, 1981. 112 pp., illus. Paper, \$16. Ecological Bulletins No. 34.

**The Fisher.** Life History, Ecology, and Behavior. Roger A. Powell. University of Minnesota Press, Minneapolis, 1982. xvi, 220 pp., illus. \$19.50.

**Les Forêts du Parc National Forillon, Gaspésie, Québec.** Etude Phytosociologique. Zoran Majcen. Laboratoire d'Ecologie Forestière, Université Laval, Québec, 1981. x, 158 pp. + maps + tables. Paper, \$7. Etudes Ecologiques, 4.

**Les Forêts du Témiscamingue, Québec.** Ecologie et Photo Interprétation. Jean-Louis Brown. Laboratoire d'Ecologie Forestière, Université Laval, Québec, 1981. xxx, 448 pp., illus. Paper, \$12. Etudes Ecologiques, 5.

**The Fossil Record and Evolution.** Readings from *Scientific American*. Introductions by Léo F. Laporte. Freeman, San Francisco, 1982. x, 226 pp., illus. Paper, \$11.95.

**The Freshwater Molluscs of Canada.** Arthur H. Clarke. National Museum of Natural Sciences, Ottawa, Canada, 1981. 446 pp., illus. \$39.95.

**The Friendly Stars.** Martha Evans Martin. Revised by Don Rice and Craig Foltz. Van Nostrand Reinhold, New York, ed. 2, 1982. iv, 140 pp., illus. Paper, \$7.95.

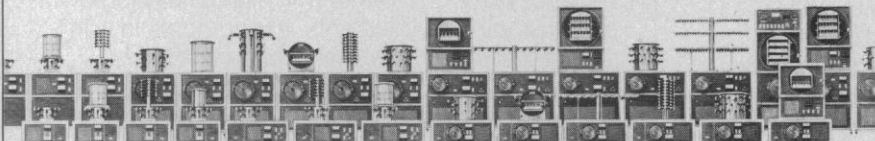
**Frontiers in Immunogenetics.** Proceedings of a symposium, Pasadena, Calif., June 1980. William H. Hildemann, Ed. Elsevier/North-Holland, New York, 1981. xvi, 268 pp., illus. \$45.

**Functional Correlates of Hormone Receptors in Reproduction.** Proceedings of a conference, Augusta, Ga., Oct. 1980. Virendra B. Mahesh, Thomas G. Muldoon, Brij B. Saxena, and William A. Sadler, Eds. Elsevier/North-Holland, New York, 1981. xii, 594 pp., illus. \$90. Developments in Endocrinology, vol. 12.

**Han Civilization.** Wang Zhongshu. Translated from the Chinese by K. C. Chang and collaborators. Yale University Press, New Haven, Conn., 1982. xxii, 262 pp., illus. \$35.

**The Handbook of Environmental Chemistry.** Vol.

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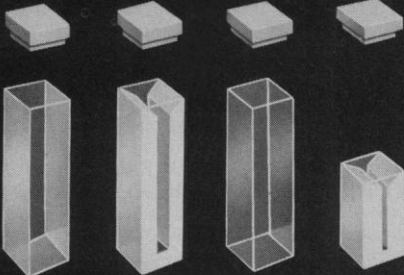
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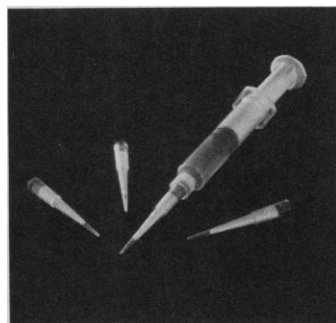
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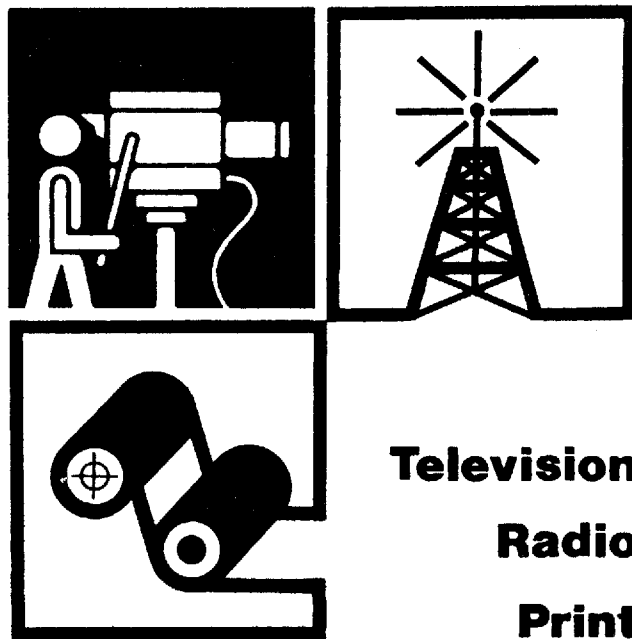
### **SMALL COMPUTERS IN BIOMEDICAL RESEARCH** - December 12 - 17, 1982

Larry Palmer of the University of Pennsylvania is Instructor in Chief of this course offered for the fourth time. He will be assisted principally by Lee D. Peachey and Judson Jones, also of the University of Pennsylvania; attendance is limited to 16. The course emphasizes "hands-on" exercises using several fully equipped microprocessor systems; concentration is on basic machine operation and assembly language. Other topics to be covered are: number systems, machine logic and architecture, operating systems, software development, input/output, flow charting and interrupts, and the principles and uses of higher level language.

**ADDITIONAL INFORMATION** on course content and application materials may be obtained from the Admissions Office, Marine Biological Laboratory, Woods Hole, MA 02543; telephone (617) 548-3705. MBL is an Equal Opportunity Institution.



# 1982 AAAS Westinghouse Science Journalism Awards



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## Rules

The aim of this competition is to encourage and recognize outstanding reporting on the sciences and their engineering and technological applications in newspapers, general circulation magazines, radio, and television. The following categories are not eligible: items on the field of medicine, items published originally in AAAS publications or produced by AAAS; reports by employees of the AAAS or Westinghouse Electric Corporation.

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- An entry for a newspaper competition may be any of the following: a single story; a series of articles; or a group of three unrelated stories, articles, editorials, or columns published during the contest year. A magazine entry may be a single story or series published during the contest year.

- A completed entry blank must be submitted together with seven copies of each entry in the form of tear sheets, clippings, reprints, or syndicate copy (not over 8½" x 11"), showing name and date of the publication. **ENTRIES MUST NOT BE ELABORATE!**

### Broadcast

- An entry for the radio or television competition may be an individual news story, feature, or a series, regardless of length, broadcast during the contest year on either public or commercial stations. Entries must be comprised of scripted material. Interviews are not eligible.

- A completed entry blank must be submitted together with a cassette in the case of radio and copy of the script or a ¾" video-cassette in the case of television and copy of the script.

- Each entrant may submit three entries for any one category.

- Each entry must have been published or produced and broadcast within the United States during the contest year—1 October 1981 through 31 December 1982. (In case of a series, more than half of the items comprising it must have been published or broadcast during the contest year.) The date on the issue in which an article appears will be considered as the date of publication. All entries must be postmarked on or before midnight, 15 January 1983.

- Persons other than the author may submit entries in accordance with these rules. Entries will not be returned.

- Winner of the 1981 awards are not eligible for the 1982 awards. Persons winning three times are no longer eligible.

- The Judging Committee, whose decisions are final, will choose the winners. There are five awards of \$1,000: for the winning entry in the over 100,000 daily circulation newspapers competition; for the winning entry in the under 100,000 circulation newspapers competition; for the winning entry in the general circulation magazine competition; for the winning entry in the radio competition; and for the winning entry in the television competition. For award purposes, newspaper circulation will be sworn ABC daily circulation as of 30 September 1982. The Judging Committee may cite other entries for honorable mention.

- The awards will be presented at the dinner meeting of the National Association of Science Writers during the Annual Meeting of the American Association for the Advancement of Science in May 1983. Travel and hotel expenses of the award winners will be paid. **Entrants agree that, if they win, they will be present to receive their awards, unless prevented by circumstances beyond their control.**

Grayce A. Finger

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3, Part B, Anthropogenic Compounds. O. Hutzinger, Ed. Springer-Verlag, New York, 1982. xviii, 210 pp., illus. \$54.

**Helping Children Cope with Death.** Guidelines and Resources. Hannelore Wass and Charles A. Corr, Eds. Hemisphere, Washington, D.C., 1982. xii, 194 pp. \$24.95. Series in Death Education, Aging, and Health Care.

**Human Communication.** Language and Its Psychobiological Bases. Readings from *Scientific American*. With introductions by William S.-Y. Wang. Freeman, San Francisco, 1982. vi, 186 pp., illus. Paper, \$9.95.

**Inland and Maritime Waterways and Ports.** Design—Construction—Operation. Papers from a congress, Edinburgh, May 1981. Published for the Permanent International Association of Navigation Congresses by Pergamon, New York, 1981. Section I, Inland Waterways and Ports. Five volumes. I, 806 pp., illus. \$190. Section II, Maritime Ports and Seaways. Five volumes. ix, 970 pp., illus. \$190.

**Integrable Systems.** Selected Papers. S. P. Novikov and nine others. Translated from the Russian. Cambridge University Press, New York, 1981. vi, 266 pp. Paper, \$27.50. London Mathematical Society Lecture Note Series, 60.

**International Review of Experimental Pathology.** Vol. 23. G. W. Richter and M. A. Epstein, Eds. Academic Press, New York, 1982. viii, 274 pp., illus. \$34.50.

**Introduction to Chemical Principles.** Edward I. Peters. Saunders, Philadelphia, ed. 3, 1982. viii, 654 pp., illus. \$24.95. Saunders Golden Sunburst Series.

**Introduction to Medical Psychology.** James C. Norton. Free Press (Macmillan), New York, and Collier Macmillan, London, 1982. xiv, 314 pp., illus. \$22.95.

**Introduction to Physical Chemistry.** Arthur M. Lesk. Prentice-Hall, Englewood Cliffs, N.J., 1982. xviii, 746 pp., illus. \$28.95.

**An Introduction to Solar Energy for Scientists and Engineers.** Sol Wieder. Wiley, New York, 1982. xiv, 302 pp., illus. \$24.95.

**ISI Atlas of Science.** Biochemistry and Molecular Biology 1978/80. Institute for Scientific Information, Philadelphia, 1981. xvi, 540 pp., illus. \$45; to institutions, \$90.

**Joint ESACT-IABS Meeting on the Use of Heteroploid and Other Cell Substrates for the Production of Biologicals.** Heidelberg, May 1981. Karger, Basel, 1982. x, 402 pp., illus. Paper, \$51. Developments in Biological Standardization, vol. 50.

**Lakes and Water Management.** Proceedings of a symposium, Helsinki, Sept. 1980. V. Ilmavirta, R. I. Jones, and P.-E. Persson, Eds. Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). x, 222 pp., illus. \$54.50. Developments in Hydrobiology 7. Reprinted from *Hydrobiologia*, vol. 86, No. 1/2.

**Mathematical Preparation for General Chemistry.** William L. Masterton and Emil J. Slowinski. Saunders, Philadelphia, ed. 2, 1982. viii, 200 pp. Paper, \$12.95.

**Metal Ions in Genetic Information Transfer.** Gunther L. Eichhorn and Luigi G. Marzilli, Eds. Elsevier/North-Holland, New York, 1981. xx, 340 pp., illus. \$47.95. Advances in Inorganic Biochemistry, vol. 3.

**Microbial Ecology.** Fundamentals and Applications. Ronald M. Atlas and Richard Bartha. Addison-Wesley, Reading, Mass., 1981. xiv, 560 pp., illus. \$27.95.

**The Microbial Perspective.** Eugene W. Nester, Nancy N. Pearsall, Jean B. Roberts, and C. Evans Roberts. Saunders, Philadelphia, 1982. vi, 730 pp., illus. \$28.95.

**The Modern Theory of Capillarity.** To the Centennial of Gibbs' Theory of Capillarity. F. C. Goodrich and A. I. Rusanov, Eds. Akademie-Verlag, Berlin, 1981. x, 232 pp., illus. 45 M.

**The Molecular Basis of Mutant Hemoglobin Dysfunction.** Proceedings of a symposium, Chicago, Oct. 1979. Paul B. Sigler, Ed. Elsevier/North-Holland, New York, 1981. xiv, 338 pp., illus. \$60.

**National Defense.** James Fallows. Vintage (Random House), New York, 1982. xviii, 206 pp. Paper, \$4.95. Reprint of the 1981 edition.

**Neural Aging and Its Implications in Human Neurological Pathology.** Papers from a meeting, Geneva, Dec. 1980. R. D. Terry, C. L. Bolis, and G. Toffano, Eds. Raven, New York, 1982. xii, 258 pp., illus. \$28. Aging, vol. 18.

**Neurohypophyseal Peptide Hormones and Other Biologically Active Peptides.** Proceedings of a symposium, Chicago, Sept. 1980. David H. Schlesinger, Ed. Elsevier/North-Holland, New York, 1981. xvi, 294 pp., illus. \$55. Developments in Endocrinology, vol. 13.

**Neurotransmission, Neurotransmitters, and Neuromodulators.** Papers from a meeting, Woods Hole, Mass., Apr. 1980. E. A. Kravitz and J. E. Treherne, Eds. Cambridge University Press, New York, 1982. vi, 290 pp., illus. \$41.50.

**New Concepts and Practices in Activated Sludge Process Control.** Robert M. Arthur. Ann Arbor Sci-

ence, (Butterworth), Ann Arbor, Mich., 1982. xiv, 126 pp., illus. \$29.95. Activated Sludge Process Control Series.

**A New View of Current Acid-Base Theories.** Harmon L. Finston and Allen C. Rychman. Wiley-Interscience, New York, 1982. viii, 216 pp. \$45.

**1980 Seminar on Harmonic Analysis.** Montreal, Aug. 1980. Published for the Canadian Mathematical Society by the American Mathematical Society, Providence, R.I., 1982. vi, 314 pp. Paper, \$15.20. Canadian Mathematical Society Conference Proceedings, vol. 1.

**Oceanography.** A View of the Earth. M. Grant Gross. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1982. xii, 498 pp., illus. \$23.95.

**On the Origins of Chloroplasts.** Proceedings of a conference, Bethesda, Md., Oct. 1979. Jerome A. Schiff and Harvard Lyman, Eds. Elsevier/North-Holland, New York, 1981. xxviii, 336 pp., illus. \$80.

**Ontology of Humor.** Bob W. Parrott. Philosophical Library, New York, 1982. xvi, 78 pp. \$10.95.

**Organic Compounds in Soils.** Sorption, Degradation and Persistence. L. G. Morrill, B. C. Mahilum, and S. H. Mohiuddin. Ann Arbor Science (Butterworth), Ann Arbor, Mich., 1982. xvi, 326 pp. \$22.50.

**Otto Selz.** His Contribution to Psychology. Nico H. Frijda and Adraan D. de Groot, Eds. Mouton, The Hague, 1981 (U.S. distributor, de Gruyter, New York). xii, 306 pp., illus. \$37.50.

**Physics for Science and Engineering.** Part 1. Jerry B. Marion and William F. Hornyak. Saunders, Philadelphia, 1982. xii, 744 pp., illus., + appendix. \$27.95. Saunders Golden Sunburst Series.

**Physiological Bases of Phytoplankton Ecology.** Papers from a NATO Advanced Study Institute, Lipari, Sicily, Oct. 1980. Trevor Platt, Ed. Department of Fisheries and Oceans, Ottawa, 1981 (available from Canadian Government Publishing Centre, Hull, Quebec). x, 346 pp., illus. Paper, C\$21.95. Canadian Bulletin of Fisheries and Aquatic Sciences 210.

**The Planet Jupiter.** The Observer's Handbook. Bertrand M. Peek. Faber and Faber, Boston, ed. 2, 1982. 240 pp., illus., + plates. \$25.95.

**Plants and the Daylight Spectrum.** Proceedings of a symposium, Leicester, England, Jan. 1981. H. Smith, Ed. Academic Press, New York, 1981. xx, 508 pp., illus. \$45.50.

**Plasmapheresis in Immunology and Oncology.** Papers from a symposium, Göttingen, Germany, Dec. 1980. J.-H. Beyer, H. Borberg, Ch. Fuchs, and G. A. Nagel, Eds. Karger, Basel, 1982. viii, 266 pp., illus. Paper, \$42. Beiträge zur Onkologie/Contributions to Oncology, 10.

**Polyatomic Molecules.** Results of *ab Initio* Calculations. Robert S. Mulliken and Walter C. Ermler. Academic Press, New York, 1981. xvi, 432 pp., illus. \$49.

**Prep Chem.** John Strohl. Harper and Row, New York, 1982. xx, 536 pp., illus. Paper, \$18.95.

**Preparation and Characterization of Materials.** Papers from a workshop, Bangalore, India, Feb. 1981. J. M. Honig and C. N. R. Rao, Eds. Academic Press, New York, 1981. xii, 610 pp., illus. \$42.50.

**Preserving the Environment.** New Strategies for Behavior Change. E. Scott Geller, Richard A. Winkler, and Peter B. Everett, with a chapter by Robin C. Winkler. Pergamon, New York, 1982. xviii, 338 pp., illus. Cloth, \$35; paper, \$12.95. Pergamon General Psychology Series.

**Principles of Dynamic Programming.** Part 2, Advanced Theory and Applications. Robert E. Larson and John L. Casti. Dekker, New York, 1982. xii, 498 pp., illus. \$39.75. Control and Systems Theory, vol. 7.

**Signatures Spectrales d'Objets en Télédétection.** Spectral Signatures of Objects in Remote Sensing. Papers from a colloquium, Avignon, France, Sept. 1981. Institut National de la Recherche Agronomique, Versailles, 1982. 674 pp., illus. Paper, \$36.

**Social Interchange in Infancy.** Affect, Cognition, and Communication. Edward Z. Tronick, Ed. University Park Press, Baltimore, 1982. xii, 224 pp., illus. \$29.95.

**Sociobiology and Behavior.** David P. Barash. Elsevier, New York, ed. 2, 1982. xvi, 426 pp., illus. Cloth, \$35; paper, \$14.95.

**Socioécologie.** L'Animal Social et Son Univers. Jean-Yves Gautier. Privat, Toulouse, France, 1982. 268 pp., illus. Paper, 79.70 F. Bios.

**Special Topics in Endocrinology and Metabolism.** Vol. 3. Margo P. Cohen and Piero P. Foà, Eds. Liss, New York, 1982. xiv, 142 pp. \$28.

**A Study of the Cat.** With Reference to Human Beings. Warren F. Walker. Saunders, Philadelphia, ed. 4, 1982. xii, 244 pp., illus. Paper, \$14.95.

**Synthetic Differential Geometry.** Anders Kock. Cambridge University Press, New York, 1981. x, 312 pp., illus. Paper, \$27.50. London Mathematical Society Lecture Note Series, 51.

**Theoretical and Applied Mechanics.** Vol. 30. Proceedings of a congress, Tokyo, Nov. 1980. University of Tokyo Press, Tokyo, 1982 (U.S. distributor, Columbia University Press, New York). x, 528 pp., illus. \$89.50.

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**Biochemist/Molecular Endocrinologist:** Ph.D. 1977. Experienced in protein purification and characterization; nucleic acid biochemistry and recombinant DNA techniques. Seeks position in industry or research institution. Box 256, SCIENCE. X

**Biostatistician, M.A.,** knowledge of computer programming and research technique. Desires position in research/analysis. S. Friesen, 308 Boulder, Lawrence, Kansas 66044. 9/24; 10/1

**Clinical Chemist/Biologist, B.S.** Two years of experience in plant biology, 8 years of experience in cardiovascular physiology, pharmacology. Some small-animal surgery, chronic and acute. Electrophoresis and RIA. Publications. Some computer experience. Seeking laboratory assistant/technician position in pharmaceutical company/university/hospital. Excellent references. Will relocate. Box 262, SCIENCE. X

**Editing:** Prompt help with style, organization, and substance. Experienced with proposals, reports, books; nonnative speakers of English; all technical fields (former journal editor; teacher of scientific writing at major universities and in private industry). S. H. Schwartz, 1236 Oxford Street, Berkeley, Calif. 94709; telephone: 415-848-9358. 9/24; 10/1

## POSITIONS WANTED

**Environmental Scientist**, M.S. limnology, original research with stream/reservoir ecosystems. Seeking position in water/air quality research, control, or management. Experience in limnological and ground water studies, ambient air and source emissions testing, and hazardous-waste testing. Box 259, SCIENCE. X

**Environmental Scientist/Geochemist**, Ph.D. Broad research experience in geochemical processes controlling behavior, transport, and fate of trace elements, nutrients, radionuclides and chemical pollutants in the marine, atmospheric, and terrestrial environments. Field experience. Publications. Computer literate. Wide interests. Seeks position allowing innovative application of know-how. Box 261, SCIENCE. X

**Immunologist**, Ph.D. Multidisciplinary background covering wide range of cellular immunology, viral immunology, tumor immunology, and immunoregulation by lymphokines. Strong experience in immunopathology, inflammation research, macrophage biology, and cell receptor research. Experience in flow cytometry, immunopharmacology, hybridomas, immunochemistry, and development of immunoassays. Supervisory experience and publications. Desires challenging, responsible, growth-oriented position in academia, research, or pharmaceutical firm. Box 260, SCIENCE. 9/24; 10/1

**M.D., ABFP**, 12 years with FDA, 5 years as division director, 8 years of clinical geriatrics in teaching psychiatric hospitals; 20 plus publications; extensive experience in medical audits and quality assurance, program microcomputers in BASIC and PASCAL. Seeks consultations on IND, NDA, medicolegal problems; also interested in teaching and/or research position. Box 263, SCIENCE. X

**African Obstetrician—Gynecologist/Scientist**, M.D., C.M., Ph.D. (McGill), with publications, Flex and U.S. license. Residency completed June 1982. Active candidate for American and Canadian Boards. Seeks teaching, clinical and/or research position in general obstetrics—gynecology, reproductive endocrinology and/or perinatology in United States. Box 245, SCIENCE. 9/24; 10/1

## POSITIONS WANTED

**Teaching Position in Anatomy**, M.D., M.S., Ph.D. 1961 (Wisconsin-Madison); 35 years of teaching/research experience, including 20 years as professor in India. Extensive experience in histological, histochemical research methods; some electron microscopy; special interest in human fetal membranes. Many publications and presentations at national/international levels. Executive and editorial positions in several research societies. More than 8 years of experience in top level administration of large institutions. Sigma Xi, New York Academy of Sciences. Seeking teaching/research position. Curriculum vitae upon request. Box 264, SCIENCE. X

## POSITIONS OPEN

### ASSISTANT PROFESSOR MOLECULAR GENETICS

Candidates sought to conduct independent research in the field of molecular genetics, preferably with an interest in eukaryotic cells or their viruses. Tenure-track position with light teaching load, excellent lab facilities, and strong research environment. Applicants are invited to submit a curriculum vitae, representative publications, and three letters of recommendation by 1 November 1982 to: **Chairman of the Search Committee, Department of Human Genetics, Yale University, School of Medicine, 333 Cedar Street, New Haven, Conn. 06510.** *Yale is an Equal Opportunity/Affirmative Action Employer.*

**ASSOCIATE IN PHARMACOLOGY**. Research associate for NIH-supported work on the physiology and chemistry of carbonic anhydrase dependent systems in the reproductive tract and in muscle, and inner ear. Ph.D. and experience in CO<sub>2</sub> chemistry, ion transport, and metabolism. Salary: \$15,000 minimum; maximum negotiable. Position available 1 November 1982. Send applications by 20 October 1982 to: **Dr. T. H. Maren, Department of Pharmacology, Box J-267, JHMH, University of Florida College of Medicine, Gainesville, Fla. 32610.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### ANATOMIST; NEUROBIOLOGIST

Two positions are available at the assistant professor level in the Department of Anatomy, University of Virginia. For the first position, teaching responsibilities include gross anatomy for medical students, and candidates should have training in this activity. The area of research is open; opportunities are available for interaction with colleagues in reproductive, cellular, and developmental biology, as well as neuroanatomy. The second position is for an individual with research interests in neurobiology, such as neuroanatomy, neural development, or neurocellular biology. Primary teaching responsibilities are in medical gross anatomy and/or neuroanatomy. The department stresses research, and candidates for both positions are expected to maintain an independent program of investigation. Candidates should have postdoctoral experience. Interested persons should send their curriculum vitae and the names of three references to: **Dr. C. J. Flickinger, Chairman, Department of Anatomy, Box 439, University of Virginia Medical Center, Charlottesville, Virginia 22908.** *An Equal Opportunity/Affirmative Action Employer*

**ASSISTANT OR ASSOCIATE PROFESSOR OF PHARMACOLOGY**. Texas A & M University College of Medicine, Department of Medical Pharmacology and Toxicology, invites applicants for tenure-track appointment at the assistant or associate professor level. Applicants must have Ph.D. and/or M.D. degree with a record of productivity in research, preferably in the areas of neuropharmacology, cardiovascular pharmacology, or toxicology. Candidates should be well grounded in medical pharmacology and capable of teaching pharmacology to medical students. Applicants should submit curriculum vitae, bibliography, statement of teaching and research goals, research funds, and three letters of recommendation to: **Dr. George Chiou, Professor and Head, Department of Medical Pharmacology, Texas A & M University, College of Medicine, College Station, Texas 77843.** Applications should be submitted no later than 1 December 1982. *Texas A & M is an Equal Opportunity/Affirmative Action Employer.*

### Nominations are invited for the 1983 ROSENSTIEL AWARD IN OCEANOGRAPHIC SCIENCE.

This award, which is administered on behalf of the Rosenstiel School of Marine and Atmospheric Science (RSMAS), University of Miami, recognizes outstanding contributions to marine science, including oceanographically relevant aspects of atmospheric science, and fundamental developments in ocean engineering. The award consists of a cash prize, currently \$5000, and a medal. The recipient of the award will be invited to spend a week at RSMAS for discussions with faculty and students. The award will be presented at a banquet at that time.

To accommodate the multiplicity of disciplines on which oceanographic science is based, the award recognizes, on a rotating basis, achievements in four broad disciplinary areas. In 1983 the emphasized discipline will be marine and atmospheric chemistry. The achievements recognized may consist of contributions towards the development of ocean science in general, or of more focussed individual research or recognized impact on our understanding of the marine environment.

Nominations for the 1983 award for outstanding achievement in marine and atmospheric chemistry should be directed to: **Dean Alan Berman, Rosenstiel School of Marine and Atmospheric Science, University of Miami, 4600 Rickenbacker Causeway, Miami, Florida 33149,** before 1 March 1983. Nominations should include a brief justification together with relevant references, and curriculum vitae if possible. The selection panel would especially welcome nominations of outstanding younger scientists whose early contributions suggest a continued role of leadership in the field.

Previous recipients of the award have included Edward Ringwood, Norman B. Marshall, Henry Stommel, Klaus Wyrtki, John Slater, David Cushing, and Anthony Watts.

## POST-DOCTORAL POSITION

available September, 1982, to study synthesis of stress proteins in mammalian cells. To apply, please send letter describing research interests, curriculum vitae and names of three references to: **DR. FREDERIC P. WRITE, Faculty of Medicine Memorial University of Newfoundland, St. John's, Newfoundland, Canada, A1B 3V6.**

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada.

New England Biolabs, Inc. will be expanding its staff during 1982–1983 with positions available at the following levels:

### POSTDOCTORAL POSITIONS

Available in October, 1982 to individuals experienced in cloning either eukaryotic or prokaryotic genes.

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Positions are immediately available to individuals with several years experience in various areas of molecular biology such as protein purification, viral DNA isolation, DNA sequencing, enzymology and microbiology.

Applicant should send curriculum vitae to: Personnel Director, New England Biolabs, Inc., 32 Tozer Road, Beverly, MA. 01915, USA.



## POSITIONS OPEN

### ASSISTANT PROFESSOR OF BIOCHEMISTRY

Two new tenure-track positions will become available in September 1983. Preference will be given to candidates with two or more years of postdoctoral experience, an established record of productivity, funded or pending research grant, and teaching experience. Candidates conducting research in any area are encouraged to apply. Duties will involve teaching graduate and/or introductory level biochemistry and molecular biology courses. The appointment is 9 nine months at a salary commensurate with experience. Please submit curriculum vitae, research synopsis (two to three pages), and letters of recommendation from three references as soon as possible. Send material to: **Dr. Wesley Wicks, Department of Biochemistry, University of Tennessee, Knoxville, Tennessee 37996-0840.**

### ASSISTANT PROFESSOR OF BIOLOGY

The Department of Biology of Texas A & M University invites applicants for a tenure-track position at the assistant professor level starting fall 1983 for a **physiological ecologist** with primary interest in marine animals. The successful candidate will be expected to develop a vigorous and competitive graduate and research program. Applicants must be capable of teaching an introductory course in vertebrate zoology and a graduate course in an appropriate area. A Ph.D. is required and postdoctoral experience is preferred.

Qualified applicants should send curriculum vitae, statement of research interests, relevant reprints, and names of four references by 15 November 1982 to: **Dr. H. W. Sauer, Head, Department of Biology, Texas A & M University, College Station, Texas 77843.** *Texas A & M University is an Affirmative Action/Equal Opportunity Employer.*

### ASTRONOMY

Pending final budgetary approval, the Department of Astronomy of the University of California at Berkeley expects to make one tenure-track appointment in astronomy/astrophysics at the assistant professor level, effective 1 July 1983. Applicants should send, as soon as possible, curriculum vitae, bibliography and a brief statement of research interests, and names of at least three references to: **Chairman Hyron Spinrad, Department of Astronomy, University of California, Berkeley, California 94720.** All materials should be received by 1 December 1982.

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

**BIOCHEMIST/CELL BIOLOGIST.** Tenure-track position beginning January 1983; Ph.D. required. Send curriculum vitae, course listings, and names of three references by 31 October 1982 to: **Dr. George M. Labanick, University of South Carolina at Spartanburg, Spartanburg, S.C. 29303.** *Affirmative Action/Equal Opportunity Employer.*

### THE UNIVERSITY OF CHICAGO DIVISION OF THE BIOLOGICAL SCIENCES

The Department of Pharmacological and Physiological Sciences is considering faculty appointments from qualified candidates with research interests in the area of **neurobiology**. *From the time of its original charter, the principle of the University of Chicago has been to appoint scholars without regard to race, color, religion, sex, or national origin.* Please have three professional persons write us concerning you and send your résumé together with your most significant publications to:

**Alfred Heller, Professor and Chairman  
Department of Pharmacological and  
Physiological Sciences  
The University of Chicago  
947 East 58 Street  
Chicago, Illinois 60637**

**CHAIRPERSON, DEPARTMENT OF CELL BIOLOGY**—Nominations and applications are invited for the chairperson of the Department of Cell Biology. To head this department, we seek a distinguished scientist-scholar with a commitment to basic medical research and medical and graduate education. Department has a strong tradition of research in cell culture, somatic cell genetics, and gene expression in animal cells. We are looking for candidates with significant leadership ability who will develop an original program and who will interact with faculty in these and related areas. Inquiries and nominations should be sent to: **Dr. Peter Satir, Department of Anatomy, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, N.Y. 10461.** *An Equal Opportunity Employer.*



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## RESEARCH FELLOWSHIPS CANADA 1983

The Natural Sciences and Engineering Council (NSERC) announces a program of research fellowships to expand career opportunities for a select number of very promising researchers in the natural sciences and engineering. These awards are tenable in universities and industries in Canada for 1983-84. Interested individuals must be nominated by a university or industrial firm in Canada; applications submitted directly to NSERC by candidates cannot be accepted.

**Eligibility:** Canadian citizens or permanent residents of Canada holding a doctorate in science or engineering, preferably with postdoctoral research experience of 5 years or less.

**Nature of Appointment:** Fellows will be employees of the university or industrial firm for the duration of the award and will be engaged in research, development or innovation activities.

**Duration of Appointment:** a) University Research Fellowships: Up to five years based on satisfactory performance. b) Industrial Research Fellowships: Up to three years based on satisfactory performance.

**Remuneration:** a) University Research Fellowships: NSERC will contribute up to \$29,000 per annum towards the cost of each fellow's salary and fringe benefits; fellows will also receive a three-year research grant. b) Industrial Research Fellowships: NSERC will contribute up to \$24,700 per annum towards the fellow's salary and fringe benefits.

**Portability:** Provided all parties concerned are in agreement, research fellowships are portable from the university sector to the industrial sector and vice-versa.

**Application Procedures:** Contact the Canadian university or industrial firm of your choice to carry out the appropriate negotiations concerning research plans, terms of appointment, salary, etc. Nominations are submitted to NSERC by universities or industrial firms, as the case may be. Applications submitted directly to NSERC by candidates cannot be accepted.

**Deadlines:** a) 1 November 1982 for University Research Fellowships. b) no deadline for Industrial Research Fellowships

**For more information contact:**

The Programs Branch  
Natural Sciences and Engineering Research Council  
Ottawa, CANADA  
K1A 0R6  
Telephone: (613) 993-2454

## POSITIONS OPEN

**CARDIOVASCULAR PHYSIOLOGIST.** A position is available at the Bowman Gray School of Medicine for a scientist with a Ph.D. in physiology. The individual will be expected to direct research activities in our Cardiovascular Surgical Research Laboratory. An interest in myocardial preservation and cardiac mechanics, as well as knowledge of cardiovascular instrumentation is necessary. Animal facilities, including nonhuman primate, are excellent. The laboratory has modern, well-equipped animal surgery facilities as well as superb technical support. Appointment to be in Physiology at assistant or associate professor level. Salary is very competitive and commensurate with experience and training. Please send curriculum vitae, description, and names of three professional references to: **Dr. A. Robert Cordell, Professor and Chairman, Section on Cardiothoracic Surgery, Bowman Gray School of Medicine, 300 South Hawthorne Road, Winston-Salem, N.C. 27103. An Equal Opportunity/Affirmative Action Employer.**

## CELL BIOLOGIST, MEMBRANE BIOCHEMIST, MOLECULAR BIOLOGIST

The Basic Immunology Division of the National Jewish Hospital and Research Center and University of Colorado Medical School has an opening at the assistant or associate professor level in one of the above disciplines. Candidates for this position should have a background and continued interest in the cells and basic mechanisms of immunity. Candidates are expected to develop an independent research program relevant to a Division of Immunology.

Send curriculum vitae, three letters of reference, and a statement of interests to:

**Dr. Howard M. Grey**  
National Jewish Hospital and Research Center  
3800 East Colfax Avenue  
Denver, Colo. 80206

## CHAIRMAN Department of Biochemistry The University of Western Ontario

The Faculty of Medicine of The University of Western Ontario invites applications and nominations for the chairmanship of its department of biochemistry, a strong research department.

Candidates should have excellent leadership capabilities and a distinguished record in biomedical research. Abilities in the areas of administration, planning, and medical education are also essential.

Closing date: 31 December 1982. Interested individuals should submit a letter of application, curriculum vitae, and at least three letters of recommendation to:

**Dr. M. J. Hollenberg**  
Dean of Medicine  
Health Sciences Centre  
The University of Western Ontario  
London, Ontario, Canada N6A 5C1

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## DEAN, SCHOOL OF ENGINEERING DUKE UNIVERSITY

Duke University is a private, coeducational institution composed of three undergraduate schools and six graduate and professional schools. The School of Engineering has 850 undergraduate and 125 graduate students. Baccalaureate degree programs in biomedical, civil and environmental, electrical, and mechanical engineering and materials science are fully accredited. Graduate degrees through the doctorate are offered in each department through the Graduate School.

Nominations and applications from qualified persons for the position of dean of the School of Engineering are invited. Applicants must have an earned doctorate in engineering and a distinguished record of scholarly accomplishment. Demonstrated ability to raise funds for institutional and research activities, leadership skills, and administrative experience are necessary.

Application materials, including a letter of application, curriculum vitae, and names, addresses, and telephone numbers of five references should be sent to: **Dr. Crauford D. Goodwin, Vice Provost and Dean of the Graduate School, 127 Allen Building, Duke University, Durham, N.C. 27706.**

Deadline for receipt of application is 1 November 1982. *Duke University is an Affirmative Action/Equal Opportunity Employer.*



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## VISITING FELLOWSHIPS in CANADIAN GOVERNMENT LABORATORIES

The Government of Canada offers Fellowships for 1983-84 on behalf of the following Canadian Government Departments and Agencies: Agriculture Canada; Department of Communications—Communications Research Centre; Department of National Defence; Energy, Mines and Resources Canada; Environment Canada—Atmospheric Environment Service; Canadian Forestry Service; Environmental Conservation Service—Inland Waters Directorate, Lands Directorate; Fisheries and Oceans Canada—Atlantic Fisheries, Pacific and Freshwater Fisheries, Ocean Science and Surveys; Health and Welfare Canada—Health Protection Branch; National Museums of Canada—Museum of Natural Sciences; National Research Council Canada; Atomic Energy of Canada Limited.

Fellowships have an annual value of \$22,068 and are subject to Canadian income tax. Please note that the travel allowance is also considered a taxable benefit. Appointments are made for one year; renewals for a second year are possible in some departments/agencies.

Candidates normally should have a doctorate degree or equivalent experience within the last five years. Equivalent experience is considered to be a master's degree plus at least two years of experience beyond this degree together with a demonstrated capability for conducting successful independent research. There are no restrictions limiting the nationality of applicants, however, successful candidates who are not Canadian citizens or permanent residents residing in Canada must satisfy all of the Canadian immigration requirements before commencing tenure of the fellowship. Please note that the six laboratories of the Department of National Defence can only consider applications from Canadian citizens. However, the three Military Colleges are prepared to consider applications without restriction to nationality.

For further information, please write to the Scholarships Officer, Natural Sciences and Engineering Research Council Canada, Montreal Road, Ottawa (Ontario), Canada K1A 0R6.

Applications must be received in Ottawa, by **January 15, 1983** to be considered in the 1983-84 competition.

Canada

## MEDICAL TECHNOLOGIST/ MICROBIOLOGIST

The Upjohn Company's Pharmaceutical Research Headquarters in Kalamazoo, Michigan has an immediate opening in its Clinical Research Laboratories for a BS/MS Microbiologist/Medical Technologist to conduct antibiotic quantitation studies by microbioassay and to perform other clinical laboratory functions.

Applicants must possess an MS degree with a concentration in the above areas or a BS degree plus at least 3 years of relevant experience in microbiology/microbioassay. Experience in instrumental bioanalytical techniques, immunological and radiochemical methods is highly desirable.

Kalamazoo is a mid-sized Southwestern Michigan community offering an excellent mix of cultural/recreational opportunities including lakes, nearby colleges, and a four-season climate. The Upjohn Company offers an excellent salary, benefits, and relocation plan.

For confidential consideration, please send your resume to:

Lance D. Williams-14426  
5044-41-1

**Upjohn**

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

*An Equal Employment Opportunity Employer M/F*

## RESEARCH OPPORTUNITY

### IMMUNOCHEMISTRY OF COMPLEMENT PROTEINS

Abbott Laboratories is a growing \$2.6 billion international leader in the health care field with a strong commitment to research and development. We currently have an excellent opportunity for an experienced scientist to join our investigative team in the area of diagnostic research.

Qualified applicants will have a Ph.D. and preferably 2-3 years of postdoctoral work. Experience in protein chemistry and enzymology of plasma proteins and enzymes is required. A background in immunochemistry of complement proteins is highly desired.

Abbott is headquartered in an attractive suburban area on the Lake Michigan shoreline, 30 miles north of Chicago. We provide an outstanding salary and benefits package that includes profit sharing and relocation assistance. For consideration, send your resume with salary history and requirements to:  
**Chris Gude/Corporate Placement.**

**ABBOTT**  
ABBOTT PARK ILL. 60064  
"HEALTH CARE WORLDWIDE"

*Abbott is an Affirmative Action Employer*

## NATIONAL HEART, LUNG, AND BLOOD INSTITUTE NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

### HEALTH SCIENTIST ADMINISTRATOR (BIOLOGICAL SCIENCES)

The National Heart, Lung, and Blood Institute, Division of Lung Diseases, Interstitial Lung Diseases Branch, is seeking qualified applicants for a permanent appointment as Health Scientist Administrator (Biological Sciences). This position is in the Civil Service at the GS-13 or GS-14 level with a salary range of \$33,586 to \$50,112 per annum. The incumbent serves as a professional assistant to the Branch Chief with primary responsibilities for scientific review, evaluation, and administration of research grants and contracts; applies technical knowledge of the general field of pulmonary physiology, immunology, biochemistry or pharmacology; acts as a co-participant with the Branch Chief in the planning and direction of the Branch programs related to acute respiratory failure; and assists in project site visits and serves as a representative of the NHLBI.

Further information about the position and qualification requirements may be obtained by contacting Ms. Kathryn Osbourn at (301) 496-6477. Applications (Personal Qualifications Statements, SF-171) accompanied by a current curriculum vitae and bibliography should be submitted to Ms. Osbourn at: NHLBI Personnel, Building 31, Room 5A32, National Institutes of Health, 9000 Rockville Pike, Bethesda, Maryland 20205.

Applications must be postmarked no later than October 9, 1982. (The SF-171 form is available at all Federal Personnel Offices and Job Information Centers.).

*NATIONAL INSTITUTES OF HEALTH  
IS AN EQUAL OPPORTUNITY EMPLOYER.*

# DEPUTY PROGRAM LEADER

The Energy Efficient Building Program of Lawrence Berkeley Laboratory conducts basic and applied research in building energy sciences, with a staff of approximately 80 scientists, engineers, and support personnel. The program includes groups that study ventilation and indoor air quality, windows and lighting systems, thermal performance, and building energy simulations by computer. The Deputy Program Leader acts in place of the Program Leader when appropriate; provides coordination among the research groups, and with other groups within and outside the Laboratory; serves as the main administrative contact with funding agencies; carries out long-range planning activities, reviews and presents them to Laboratory management; and seeks funds for new research efforts. Depending on background and capability, opportunities may also be available for independent research. The Deputy has substantial day-to-day leadership and administrative responsibilities, including monitoring projects for compliance with technical objectives, budgetary requirements, contractual obligations to funding agencies; and coordinates personnel and resource allocation matters. Requirements are an advanced degree or equivalent experience in engineering or science, and a record of significant management and technical accomplishments. Experience in the buildings sciences or related areas preferred. Send 2 copies of resume to: **Ronald Lowder, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, CA 94702. PLEASE REFER TO JOB #A0536.** An Equal Opportunity Employer m/f/h.



**LAWRENCE  
BERKELEY  
LABORATORY**

## ASSOCIATE DIRECTOR Office of Scientific Affairs

The Research & Development Division of G.D. Searle & Co. currently has an expansionary position open for a Biomedical/ Legal Scientific Consultant. This position involves in-house counseling to our Marketing, Medical, Regulatory Affairs, and Legal departments on bio-medical issues and on labeling warnings, as they relate to products liability.

Responsibilities include in-depth periodical research and statistical analysis of world literature on intrauterine devices, education of lawyers and physicians, and includes attendance and testimony at trials.

Qualified candidates will possess a minimum of a Ph.D. and 10 to 15 years experience preferably in the pharmaceutical industry, with some portion in laboratory research and with additional interface with Regulatory Affairs. Familiarity with animal toxicology, clinical research, and statistics would be expected. A reading comprehension of German and French would be helpful. The position involves travel, primarily domestic.

We offer a competitive salary and benefits program consistent with your experience and qualifications. Applicants should send curriculum vitae, bibliography with three reprints, and references to:

**Barbara Gardner  
#82132-0812**

*Research & Development Division*

**G.D. Searle & Co.**  
4901 Searle Parkway  
Skokie, IL 60077

*Equal Opportunity Employer M/F/H... A Practice, Not Just A Policy*



## POSITIONS OPEN

### CONSULTANT PLANT CELL AND MOLECULAR BIOLOGY

Unique career opportunity for individual with post-doctoral experience, to join leading international seed and plant science consulting organization. Candidate should have broad familiarity with the technologies, public and private sector activities, and key individuals working in the field. Commercial company experience preferred, but not mandatory. Responsibilities include field interviewing, synthesizing information, translating technical information into clearly written form understandable to the non-specialist. Substantial client contact.

For a highly motivated, qualified man or woman, this assignment offers personal growth, generous remuneration, and association with a highly respected organization. Send curriculum vitae and letter with specific qualifications to: **L. William Teweles & Co., 777 East Wisconsin Avenue, Milwaukee, Wis. 53202.**

### ST. JOSEPH'S HOSPITAL UNIVERSITY OF WESTERN ONTARIO MEDICAL RESEARCH INSTITUTE DIRECTOR

St. Joseph's Hospital, London, Ontario, an affiliated hospital of the University of Western Ontario, wishes to appoint a full-time director of its new Research Institute. This facility is committed to the support of medical research programmes in the fields of endocrinology, metabolism, nutrition, neuroendocrinology, perinatology, noninvasive cardiology and peripheral vascular disease, rehabilitative neurology, bone metabolism, orthopedics, and clinical immunology. The applicant should already have a strong background in medical research as a principal investigator and will have made significant contributions in medical research. The responsibilities of the director will include a major commitment to a research programme that will provide a model for young investigators and the general administrative direction of the Institute, including the chairmanship of the Management Committee of the Institute. The director will receive an academic appointment in the Faculty of Medicine, University of Western Ontario, and will be responsible for administrative decisions to the executive director of the Hospital. The salary and fringe benefits will be commensurate with the position and are negotiable. Applicants should reply in full confidence by 1 December 1982 to: **The Executive Director, St. Joseph's Hospital, London, Ontario, Canada N6A 4V2.**

### ELECTRON MICROSCOPIST THE UNIVERSITY OF NOTRE DAME

Assistant professor (tenure-track) to conduct active research in which electron microscopy plays an essential role. The successful candidate also will serve as director of the department's Electron Microscope Laboratory which has a full-time EM technician. Teaching (one course per semester) includes electron microscopy (graduate) and developmental biology (undergraduate). Equipment includes a Hitachi H-600 TEM and a Cambridge Stereoscan 600. The department includes 21 faculty and has strengths in parasitology, vector biology of diseases, aquatic biology, and biocomputing. Modern building.

Submit curriculum vitae, undergraduate and graduate transcripts, list of publications, names of three referees, and statement of research and teaching interests to: **Dr. Theodore J. Crovello, Chairman, Department of Biology, University of Notre Dame, Notre Dame, Indiana 46556.** *Notre Dame is an Affirmative Action Employer. Qualified women and minority group candidates are urged to apply.*

### MOLECULAR BIOLOGIST THE UNIVERSITY OF NOTRE DAME

Assistant professor (tenure-track) to conduct active research on the molecular biology of eukaryotes. Teaching (one course per semester) includes undergraduate and specialty courses. Appointment begins fall semester 1983. The Biology Department includes 21 faculty and has strengths in parasitology, vector biology of diseases, aquatic biology, and biocomputing. Modern building.

Submit curriculum vitae, undergraduate and graduate transcripts, list of publications, names of three referees, and statement of research and teaching interests to: **Dr. Theodore J. Crovello, Chairman, Department of Biology, University of Notre Dame, Notre Dame, Indiana 46556.** *Notre Dame is an Affirmative Action Employer. Qualified women and minority group candidates are urged to apply.*

## Immunologists

American Cyanamid's Medical Research Division located at Lederle Laboratories is expanding research in its Inflammation & Immunology Research Department. The newly organized Cellular Immunity Group has two immediate openings for individuals possessing a Ph.D. degree, with postdoctoral experience preferred, but not required. Qualified candidates should have the following expertise:

### Cellular Immunologist

Experience and productive research in the area of T Cell Immunity (T Cell Hybridomas, Long-term T Cell Lines, T Cell Subsets, T Cell regulation, Lymphokines and/or T Cell Activation).

### Cellular Immunologist/Biochemist

Experience should include research in the biochemistry of cellular activation. Immunological background, orientation or interest is desired.

American Cyanamid offers a competitive salary and benefits package including salary history to: John M. Fidler, Ph.D., Group Leader in Cellular Immunity, c/o Ms. K. McDevitt, Professional Employment Coordinator



### American Cyanamid Company

Medical Research Division  
Lederle Laboratories  
Pearl River, N.Y. 10965

An Equal Opportunity Employer m/f

## RESEARCH PHYSIOLOGIST/ PHARMACOLOGIST

The Upjohn Company, a leading pharmaceutical company dedicated to the development of new therapeutic agents through basic research, is seeking a Ph.D. scientist to develop an independent research program (employing relevant *in vitro* and *in vivo* models) to study acute and chronic respiratory diseases and to discover and develop novel drugs useful in the treatment of respiratory diseases. The Scientist will be encouraged to conduct original research and to publish the results of those studies. This independent research program will be integrated with established programs of a multidisciplinary team concerned with the development of therapeutic agents for the treatment of these diseases.

Candidates should have a Ph.D. in pharmacology or physiology. Relevant experience in conducting research with *in vitro* and *in vivo* animal models of pulmonary disease and an understanding of immunoinflammatory processes and their relationships to respiratory diseases is highly desirable.

The Upjohn Company offers excellent salary, benefits, and work atmosphere in a city which provides an outstanding cultural, educational, and recreational environment. Please send your curriculum vitae and resume in confidence to: **Gerald L. Potratz, Department 13558, THE UPJOHN COMPANY, 7000 Portage Road, Kalamazoo, Michigan 49001.**

An Equal Opportunity Employer M/F

**Upjohn**

## LEADER, MICROBIOLOGY GROUP

The Office of Naval Research is seeking a highly qualified individual to serve as Group Leader for Microbiology/Molecular Biology. This is a Civil Service position at the GM-14 (\$39,689—\$51,596) or GM-15 (\$46,685—\$57,500) level, depending on qualifications.

This position is interdisciplinary and will be filled as a Microbiologist, Molecular Biologist, Geneticist or Biochemist. The Group Leader is responsible to provide technical leadership to the Scientific Officers who formulate, administer and maintain broad programs in biochemical genetics; microbial phenomena incident to food preservation and storage, prevention of microbial deterioration; control of parasitic diseases; and biotechnology.

Candidates must have a Ph.D. degree or equivalent in microbiology, molecular biology, biochemistry or another pertinent discipline and a minimum of three years of progressively responsible professional experience in these fields. In addition, all applicants must have at least one year of experience comparable in difficulty and responsibility to the next lower level in the Federal Service. Equivalent combinations of professional experience and graduate education are acceptable.

Interested persons should submit a resume or Standard Form 171, Personal Qualifications Statement (available at Federal Job Information Centers or from the address below) to:

**OFFICE OF NAVAL RESEARCH  
Code 791SC, Room 823  
800 North Quincy Street  
Arlington, VA 22217  
Announcement #82-53 (S)**

Applications will be accepted through 15 November 1982 and must be postmarked by that date.

U.S. CITIZENSHIP REQUIRED

AN EQUAL OPPORTUNITY EMPLOYER

## POSITIONS OPEN

### CURATOR/INSECT SYSTEMATIST

Assistant professor—tenure-track position. Duties include research on systematics of a major arthropod taxon, management and improvement of a large entomological collection, and teaching of introductory insect biology. Qualifications include a Ph.D. in systematic entomology. Send curriculum vitae, post-secondary transcripts, and names of three or four referees to: **M. J. Tauber, Chairman, Department of Entomology, Cornell University, Ithaca, N.Y. 14853.** Application deadline: 1 December 1982. *Cornell University is an Equal Opportunity/Affirmative Action Employer.*

**DIRECTOR** of new environmental studies degree program with rigorous tracks in biology, chemistry, management, and physics; opportunity for contacts with Regional Research Laboratory of U.S. Forest Service on campus. Assistant/associate level. Position open August 1983. Send résumé to: **Professor Lloyd Remington, Chemistry Department, University of North Carolina at Asheville, Asheville, N.C. 28814.** Deadline: 1 November 1982. *An Equal Opportunity/Affirmative Action Employer.*

**ELECTRON MICROSCOPY TECHNICIAN.** Position open immediately for an EM technician at Lamar University in Beaumont, Texas. Duties include standard laboratory methods related to research using the TEM. Applicant should have either 2 years of experience in TEM techniques or a M.S. with an EM-related thesis. Postdoctoral candidates would be accepted. Curriculum vitae and portfolio of work should be sent to: **Dr. Leon McGraw, Jr., P.O. Box 10037, Lamar University, Beaumont, Texas 77710.** Salary: \$14,000 to \$16,300 plus benefits. *An Equal Opportunity/Affirmative Action Employer.*

### ENTOMOLOGY/IPM POSITIONS

Two entomology/IPM positions, tenure-track: (i) **Assistant professor** (60 percent research, 40 percent extension) to formulate and implement pest management systems for vegetable and forage crops. Background in systems modeling theory and experience in application of computer-based crop/pest models desired. (ii) **Assistant or associate professor** (40 percent research, 60 percent extension) to coordinate multidisciplinary extension IPM program and direct applied research and education programs for field crops. Both positions require entomology Ph.D. Send résumé, transcripts (if degree obtained in last 5 years), and three letters of reference to: **Dr. Richard S. Jones, Department of Entomology, Fisheries and Wildlife, 1980 Folwell Avenue, St. Paul, Minn. 55108,** by 13 December 1982. Positions available 15 March 1983.

*The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

**MEMBRANE BIOCHEMIST**—Ph.D. in biochemistry, cell biology, or physiology required to study the reconstitution of renal transport systems into liposomes. Send curriculum vitae and names of three references to: **Dr. Robert G. Faust, Department of Physiology 206H, University of North Carolina School of Medicine, Chapel Hill, N.C. 27514.** *Affirmative Action/Equal Opportunity Employer.*

### MICROBIAL PHYSIOLOGY/BIOCHEMISTRY ASSISTANT PROFESSOR OF PLANT PATHOLOGY

The Department of Plant Pathology, University of California, Berkeley, announces a faculty position for a scientist with training and research experience in physiology, biochemistry, or molecular biology of prokaryotes. A Ph.D. is required and course work or experience in plant pathology is desirable. The appointee will be expected to develop a research program basic to the field of plant pathology. Research areas could include biochemistry and molecular biology of host/pathogen recognition phenomena, physiology of fastidious prokaryotes (spiroplasma), physiology-biochemistry of virulence, microbial interactions in relation to biological control. Teaching responsibility will be an undergraduate course on microbiology of natural resources and participation in the graduate program. Applicants should send curriculum vitae, transcripts, publications, a brief description of research goals, and arrange for three letters of reference to be sent to: **Dr. A. R. Weinhold, Department of Plant Pathology, University of California, Berkeley, Calif. 94720,** by 30 October 1982.

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

## POSITIONS OPEN

### FACULTY POSITION IN PHYSIOLOGY

**DR. WILLIAM M. SCHOLL  
COLLEGE OF  
PODIATRIC MEDICINE  
1001 North Dearborn Street  
Chicago, Illinois 60610**

Applications are invited for a faculty position in the Department of Physiological Sciences. Requirements include a Ph.D. and a firm commitment to teaching. We offer faculty rank and salary commensurate with professional achievement. Position available immediately.

Duties include the design and teaching of a comprehensive course in medical physiology, including laboratory, to first year medical students. Limited funding is available to assist in personal research interests.

Please submit a letter of application, curriculum vitae, and supporting material, including the names of three references, to: **WALTER RUEK, Ph.D., ASSOCIATE DEAN.**

*Equal Opportunity Employer*

### FACULTY POSITION IN BIOCHEMISTRY

The Department of Biochemistry and Biophysics at Texas A & M University invites applications for a 12-month, tenure-track position. Academic rank and salary will be commensurate with experience. Applicants should have a terminal doctorate, postdoctoral experience and the demonstrated ability to either continue or establish an independent research program in collaboration with biochemists and molecular biologists who have similar interests. Particular interest is expressed in biochemists with experience in the molecular biology of plant systems; however, exceptionally qualified individuals with interests in other areas of biochemistry will be considered. Responsibilities will include research, teaching at the graduate level in the area of expertise, and participation in the undergraduate teaching program.

Applicants should send complete curriculum vitae, a list of publications, a summary of future research plans, and the names of three references to: **Dr. E. G. Sander, Head, Department of Biochemistry and Biophysics, Texas A & M University, College Station, Texas 77843.** Telephone: 713-845-5032. Closing date for receipt of applications is 1 November 1982 or until a suitable applicant is found. *Texas A & M University is an Equal Opportunity/Affirmative Action Employer.*

### FACULTY POSITION OPEN

Associate/assistant professor of surgery, Trauma Service, Division of General Surgery, available in The University of Texas Medical School at Houston. A full-time, tenure-track faculty position is open on this very active service for an individual with training and demonstrated excellence in trauma surgery and in clinical and/or laboratory research. This individual will also serve as surgical coordinator of the Surgical Intensive Care Unit.

- 1) Board Certification or
- 2) Board eligibility required.

Applications accompanied by curriculum vitae and full list of publications should be addressed to: **Frank G. Moody, M.D., Professor and Chairman, Department of Surgery, The University of Texas Medical School at Houston, 6431 Fannin—Room 4020, Houston, Texas 77030.** *An Equal Opportunity/Affirmative Action Employer.*

**HEALTH POLICY ANALYSIS.** The Duke University Center for Health Policy Research and Education seeks candidates for faculty positions in health policy. Rank depends upon qualifications. Candidates should have advanced training in some discipline relating to the analysis of health policies, for example, statistics, epidemiology, economics, management science, political science, law, or any of the medical specialties. Candidates without advanced degrees should have substantial experience in analyzing health policy problems. The Center has a special interest in analyzing medical policies that have a direct effect on the prevention, diagnosis, or management of specific diseases. *Duke University is an Equal Opportunity/Affirmative Action Employer.* Contact: **David M. Eddy, M.D., Ph.D., Director, Center for Health Policy Research and Education, Box GM, Duke Station, Duke University, Durham, North Carolina 27706.**

## POSITIONS OPEN

**CYTOGENETICIST,** Ph.D. with expertise in clinical cytogenetics, certified or eligible for certification by NCA. Individual will supervise four technicians and perform various cytogenetics procedures. Research experience, training, and capabilities highly desirable. Send curriculum vitae to: **Dr. R. L. Teplitz, Chairman, Cytogenetics/Cytology, City of Hope Medical Center, 1500 East Duarte Road, Duarte, Calif. 91010.**

### FACULTY POSITION—ASSISTANT PROFESSOR

Research and teaching aspects of differentiation of the human testicular teratocarcinoma system. Duties include teaching courses at the postgraduate level and developing methods for in vitro assay of differentiation and oncogene developmental factors with potential clinical applications. Requirements: M.D. or equivalent, minimum of 1 year experience in clinical oncology, knowledge of embryology and urology, teaching experience. Send résumé and three references to: **Search Committee, Department of Urologic Surgery, Box 394 Mayo, 420 Delaware Street, SE, Minneapolis, Minn. 55455.** *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

### MOLECULAR BIOLOGIST

The Bioproducts Laboratory of The Dow Chemical Company has immediate openings for individuals with two or more years of postdoctoral experience in recombinant DNA research. **Applicants must have expertise in one or more of the following:** lambda genetics; construction of gene banks; radioimmunoassay techniques; the secretion of proteins in either Gram-negative or Gram-positive microorganisms; and the cloning of eukaryotic genes.

Applicants please write or call: **Dr. Ron Wilson, Bioproducts Laboratory, 1701 Building, The Dow Chemical Company, Midland, Michigan 48640** (telephone: 517-636-2529). *Equal Opportunity/Affirmative Action Employer.*

### MOLECULAR BIOLOGIST

To conduct studies on the virus induced transformation and control of expression of specific genes at the molecular level. Expertise is required in the area of molecular biology to include such skills as the preparation of transcriptionally active human cell extracts; the construction of recombinant DNA templates by genetic engineering techniques and; the biochemical fractionation and extermination of functional components of the transcriptional machinery. Ph.D. or equivalent is required along with 5 years of relevant experience. Salary range: \$17,000 to \$20,000. Please forward curriculum vitae to:

**Susan Sezechowicz  
The Wistar Institute  
36th and Spruce Street  
Philadelphia, Pa. 19104**

The University of Michigan Medical School, Department of Radiology, has two openings for **M.D., INSTRUCTOR THRU PROFESSOR LEVEL.** These individuals should be eligible or Board-certified radiologists, with previous training or work experience in an academic institution and demonstrated research skills; entering level will be commensurate with qualifications and experience. These physicians will take part in the programs of patient care, teaching, and research. Will supervise the activities of the house staff and aid in the teaching of house officers and medical students. Direct inquiries to: **William Martel, M.D., Professor and Chairman, Department of Radiology, University of Michigan, Radiology Department, E-4145 Hospital, Box 13, 1405 East Ann, Ann Arbor, Michigan 48109.** *A nondiscriminatory, Affirmative Action Employer. Code 102 and 103.*

**ORGANIC CHEMISTRY.** A tenure-track position is available for September 1983. This appointment is expected to be made at the assistant professor level, but exceptional candidates at other levels will be considered. Preference will be given to candidates in the field of organometallic chemistry. Strong interests and potential of excellence in both teaching and research are expected. Applications will be accepted up to 15 November 1982. Send résumé, three letters of recommendation, and summary of research plans to: **Dr. T. P. Fehlner, Department of Chemistry, University of Notre Dame, Notre Dame, Ind. 46556.** *The University of Notre Dame is an Equal Opportunity/Affirmative Action Employer.*



## INTERNATIONAL DRUG DEVELOPMENT

The Upjohn Company, a worldwide researcher, manufacturer and marketer of pharmaceuticals, is seeking an individual to assist in the planning, implementation and evaluation of the international phase of its pharmaceutical drug development programs.

The position requires an M.D. or Ph.D. in the biomedical sciences with at least seven years' post-doctoral experience in pharmaceutical research and development. The successful candidate will have demonstrated experience in planning and implementing international clinical trials to support drug development programs and demonstrated ability to work with multi-disciplinary research teams. A knowledge of international health systems, current data management techniques, and advanced program planning is required.

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

Gerald L. Potratz  
Department 14378

### THE UPJOHN COMPANY

7000 Portage Road • Kalamazoo, MI 49001

An Equal Opportunity Employer M/F

**Upjohn**

## BIOCHEMIST

The continued growth and expansion of Marion Laboratories, Inc., has created an opening in our Biological Affairs Department for an experienced biochemist.

The Biological Affairs Department is responsible for all aspects of animal metabolism, including bioavailability, absorption, metabolic distribution and excretion of drugs.

Primary responsibilities of this position will be to develop and conduct drug assays in food and biological systems.

We require a PhD in biochemistry or analytical toxicology with at least 3 years of experience. Some background in pharmacology and pharmacokinetics is desirable. This individual must possess superior oral and written communication skills to effectively interface with all levels of management.

We offer an excellent total compensation and benefit package including stock options, profit sharing, comprehensive group health, dental and life insurance benefits. Please send a detailed resume including salary history, in confidence, to:

Recruiting & Placement  
Dept. RKB



MARION LABORATORIES, INC.

10236 Bunker Ridge Road  
Kansas City, Missouri 64137

An Equal Opportunity Employer M/F

## DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

Opening Date: October 1, 1982 Closing Date: November 12, 1982

(All applications must be post-marked by the closing date.)

### DIRECTOR...DIVISION OF LUNG DISEASES

The National Heart, Lung, and Blood Institute is recruiting a Director for its Division of Lung Diseases. The Director will coordinate the planning, management, and evaluation of a major program of basic and targeted research, cooperative clinical trials, education and demonstration projects, and national lung centers. The Division itself is divided into six major programs, with a staff of approximately 30 employees and a current annual budget in excess of \$80 million.

This is a Civil Service position in the Senior Executive Service (SES), with base salary from \$54,755 to \$61,300 per year depending on qualification. Currently, the payable salary is limited to \$58,500. Physicians may be eligible for a comparability allowance up to \$10,000 per year. (Alternatively, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service). The SES individual selected, if not presently in the Senior Executive Service, must serve a one year probationary period. Mandatory professional/technical qualifications are a medical degree, or education in biomedical science and research and/or clinical experience in the field of lung diseases. Further information on these qualifications available by contacting Kathryn Osbourn, Personnel Management Specialist, National Institutes of Health, National Heart, Lung, and Blood Institute, Building 31, Room 5A-32, Bethesda, MD 20205, (301) 496-6477.

Mandatory managerial/executive qualifications include evidence of management of a basic or clinical research program, demonstrating ability to assume leadership responsibilities in developing program goals; representing the program to outside groups; directing program planning, execution, and evaluation; and conducting a fair and equitable employment program, including the attainment of EEO objectives.

Candidates who meet the mandatory qualifications will be further evaluated by the Search Committee on the degree to which they exceed the mandatory managerial/executive qualifications, and on the following desirable qualifications: scientific reputation/peer recognition; training and education in lung diseases; leadership of a basic or clinical research, or research administration program, and honors and awards indicative of outstanding contributions to the field of lung diseases.

**Applications (Personnel Statement of Qualification—SF-171) should be sent to Dr. Jay Moskowitz, Chairman, DLD Director Search Committee, Building 31, Room 5A03, National Institutes of Health, Bethesda, MD 20205, telephone (301) 496-6331.**

A current curriculum vitae and bibliography must accompany all applications. Applications of women and/or minority group members are especially solicited.

THE NATIONAL INSTITUTES OF HEALTH IS AN  
EQUAL OPPORTUNITY EMPLOYER.

## POSITIONS OPEN

### MOLECULAR BIOLOGIST/DEVELOPMENTAL GENETICIST

The Department of Biology of the University of Rochester invites applications for a tenure-track position at the level of assistant or associate professor. Appointment to begin on or about September 1983. Candidates should have shown excellence in research in areas of developmental and/or eukaryotic molecular biology. Applicants should send curriculum vitae, a statement of research interests, and have three letters of recommendation sent to:

**Dr. Abraham Worcel**  
Chairman, Search Committee  
Department of Biology  
University of Rochester  
Rochester, N.Y. 14627

*University of Rochester is an Affirmative Action/Equal Opportunity Educational Institution, M/F.*

**POLYMER THEORIST**—The University of Massachusetts at Amherst desires to appoint a tenure-track faculty member in polymer theory starting in February or September 1983. The appointment could be in the Departments of Polymer Science and Engineering, Chemistry, Physics, or Chemical Engineering, depending upon the appropriateness to the candidate. Send résumé and names of suggested references by 1 November 1982, to: **R. S. Stein, Polymer Research Institute, University of Massachusetts, Amherst, Massachusetts 01003.** *The University of Massachusetts is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL BIOPHYSICIST.** Two positions available. Spectroscopic studies (saturation transfer EPR, fluorescence, phosphorescence) on the molecular dynamics of: (i) contractile proteins or (ii) sarcoplasmic reticulum membranes. Experience required in either the spectroscopic techniques or the biological system. Starting date any time after 1 January 1983. Send curriculum vitae to: **David D. Thomas, Department of Biochemistry, University of Minnesota, 4-225 Millard Hall, Minneapolis, Minn. 55455.** *Equal Opportunity Employer.*

**POSTDOCTORAL FELLOW**—Postdoctoral position in Clinical Research Section of Division of Emergency Medicine at major East Coast medical center. Recent Ph.D. in physiology or pharmacology required with good knowledge of biostatistical procedures. Send curriculum vitae with references to: **Box 257, SCIENCE.** *Equal Opportunity Employer, M/F.*

Massachusetts Institute of Technology (MIT)—**POSTDOCTORAL POSITION** to study permeability characteristics of a unique class of microcapsules. The project will also involve studying the controlled release characteristics of these capsules for use in improved methods of immunization. M.D. or Ph.D. in chemical engineering, biomedical engineering, chemistry, biological sciences, or immunology desired.

Write to: **Professor Robert Langer, Whitaker College of Health Sciences, Technology and Management, MIT, E25-342, 77 Massachusetts Avenue, Cambridge, Mass. 02139.** *MIT is an Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL POSITION IN VIROLOGY.** Position available for recent Ph.D. in biochemistry or molecular biology. This position will involve research on the genetics of insect pathogenic viruses and the molecular interactions which occur between a virus and its host. Previous experience in tissue culture methods and molecular biology techniques is highly desirable. Send curriculum vitae, a description of research interests, and names and addresses of three references to: **Dr. Robert R. Granados, Boyce Thompson Institute, Cornell University, Ithaca, New York 14853.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** available in the Department of Biochemistry at the Louisiana State University (LSU) Medical Center. The research project involves a study of tyrosine-specific kinases and protein phosphorylation in cell growth control. Salary: \$14,000 to \$16,000 per year, depending upon experience. Send résumé and names of three references to:

**Dr. Gail M. Clinton**  
Department of Biochemistry  
LSU Medical Center  
New Orleans, La. 70112

*The LSU Medical Center is an Affirmative Action/Equal Opportunity Employer.*

## POSITIONS OPEN

### POSTDOCTORAL ASSOCIATES

1) **Neurophysiologist** experienced in single-unit recording, to collaborate on studies of the accessory optic system and optokinetic eye movements of birds. In this system, there is evidence of a transformation of visual motion information into a vestibular frame of reference, and of a developmental reorganization early in postnatal life, probably as a result of early visual experience.

2) **Developmental Biology or Physiological Optics**—Postdoctorate to study the developmental mechanisms regulating the size and shape of the chick eye. In this experimental system, rapid and substantial changes in ocular growth patterns can be produced by modest changes in visual experience, giving this work relevance to the etiology of myopia. Contact: **Josh Wallman, City College of City University of New York, Convent Avenue and 138th Street, New York, N.Y. 10031.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** on NIH training grant for psychoendocrinologist, stress physiologist, or chronobiologist. Send curriculum vitae and two letters of recommendation to: **Dr. B. Natelson, Department of Neurosciences, UMD-NJ Medical School, 88 Ross Street, East Orange, N.J. 07018.** *An Equal Opportunity Employer.*

**POSTDOCTORAL POSITION** available October 1982. Research involves investigation of the biochemistry and ultrastructure of blood cell cytoskeletons, particularly those of erythrocytes. Candidates should have some experience working with cell membranes and membrane proteins. Preference will be given to applicants with experience in electron microscopic techniques such as shadowing or freeze fracture. Interested applicants should send curriculum vitae and the names of three references to: **Dr. Carl M. Cohen, Department of Research, Division of Hematology/Oncology, St. Elizabeth's Hospital, 736 Cambridge Street, Boston, Mass. 02135.** *An Equal Opportunity/Affirmative Action Employer.*

### POSTDOCTORAL POSITION IN CELL BIOLOGY

Postdoctoral position available. Research interest: control of tissue cell movement with emphasis on a possible role of centrioles. Salary: \$14,000 to \$18,000 plus 16.1 percent fringe benefits. Interested candidates please contact: **G. Albrecht-Buehler, Associate Professor, Department of Cell Biology and Anatomy, Ward 11-201, Northwestern University, Medical and Dental Schools, 303 East Chicago Avenue, Chicago, Illinois 60611.** *Northwestern University is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

**POSTDOCTORAL POSITION** is available in an NIH-funded interdisciplinary program on the regulation of lipoprotein/apoprotein metabolism in animal models in vivo and in vitro. In addition to routine biochemical/physiological methods, immunochemistry, monoclonal antibodies, and HPLC are utilized. No particular expertise in these areas is required; however, background in biochemistry, chemistry, or biology is preferred. Send curriculum vitae and three references to: **Dr. Paul S. Roheim, Professor, Department of Physiology, Louisiana State University Medical Center, 1542 Tulane Avenue, New Orleans, La. 70112.**

### POSTDOCTORAL/RESEARCH ASSOCIATE

Position available immediately for a Ph.D. or M.D. to help organize a laboratory to study blood pressure control. Must be highly motivated, creative, and independent. Opportunities exist for independent research program development. Teaching at the graduate and undergraduate will be encouraged. A belief in and support of the school's spiritual, physical, and professional philosophy is essential. Send curriculum vitae and three references to: **Robert F. Bond, Ph.D., Professor and Chairman, Department of Physiology, School of Medicine, Oral Roberts University, 7777 South Lewis, Tulsa, Okla. 74171.** *Oral Roberts University is an Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL RESEARCHER.** Ph.D. in analytical chemistry, biochemistry, or related area; analytical chemical studies with lipophilic proteins; appropriate experience with HPLC, gel chromatography, and electrophoresis required. Fellowship support of \$15,000 per annum. Available immediately. Send résumé and names of three references to: **Dr. R. V. Smith, Drug Dynamics Institute, University of Texas, Austin, Texas 78712-1074.**

## POSITIONS OPEN

**POSTDOCTORAL POSITION** available immediately for research on population renewal and phenotypic diversity of mononuclear phagocytes. Emphasis is placed on immunologically related activities and resistance to infection. Salary: \$16,000 plus fringes. Send résumé and names of three references to: **Dr. Alvin Volkman, Department of Pathology and Laboratory Medicine, School of Medicine, East Carolina University, Greenville, N.C. 27834.** *An Affirmative Action/Equal Opportunity Employer.*

### POSTDOCTORAL POSITION

The Joint Institute for the Study of the Atmosphere and Ocean (JISAO)  
University of Washington

**VISITING SCIENTIST** with interests in dynamical aspects of climate variability. Term of appointment: one year with the option to renew for a second year. Starting date will be in early to mid 1983. Send curriculum vitae and list of three references to: **J. M. Wallace, Director, JISAO, AK-40, Seattle, Washington 98195.** Closing date: 15 November 1982.

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### PROFESSOR/PROGRAM DIRECTOR ENVIRONMENTAL/OCCUPATIONAL HEALTH

Faculty position in Division of the School of Public Health which now includes Environmental Health, Occupational Health, and Environmental Sciences and Engineering. Tenure-ladder appointment at associate professor level or above commensurate with training and experience. Doctoral degree in a relevant science or M.D. with advanced related training required. Incumbent will have leadership responsibilities in developing the research and teaching programs of the division. Criteria will include evidence of previous accomplishments in developing research and teaching activities. *The University of California is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minority groups.* Interested applicants should submit curriculum vitae and three references to:

**Gary H. Spivey, M.D., M.P.H.**  
Chairman, Search Committee  
School of Public Health  
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### RESEARCH ASSOCIATE

Applications are invited for the position of **CELL BIOLOGIST/BIOCHEMIST** to work on endocytosis and exocytosis in thyroid cells in culture. Candidates should have 3 to 4 years of postdoctoral experience in thyroid research, cell culture and/or postsynthetic processing of polypeptides. Position available immediately for 3 years on MRC funds with part-time technical assistance. Salary: \$20,000 plus, depending on experience. Applications with the names of three references should be sent to: **Dr. G. N. Burrow, C. H. Best Institute, 112 College Street, University of Toronto, Toronto, Ontario Canada, M5G 1L6.** Telephone: 416-978-2602.

### RESEARCH ASSOCIATE DEPARTMENT OF CHEMISTRY

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Ph.D. in synthetic chemistry, a minimum of 2 years of postdoctoral experience, and demonstrated ability to do independent exploratory research is essential. Salary: \$15,500 per year. Interested applicants should send their résumés to: **W. Healey, Boston Placement Office, Hurley Building, Boston, Mass. 02114,** and refer to job reference number 2578.

**RESEARCH ASSOCIATE.** Available immediately for studies on genetic regulation of  $\beta$ -galactosidase in yeast, including mutant isolation and characterization, gene cloning, DNA sequencing, and in vitro transcription. Experience in genetics or biochemistry essential. Faculty position possible. Salary: \$14,000 to \$20,000 depending upon experience. Please send résumé and three letters of reference to: **Dr. Robert Dickson, Department of Biochemistry, University of Kentucky College of Medicine, Lexington, Ky. 40536-0084.** *An Equal Opportunity/Affirmative Action Employer.*

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**RESEARCH ASSOCIATE—POSTDOCTORAL POSITIONS** available immediately for the study of DNA damage and repair. Multifaceted approaches employing immunochemistry, enzymology, and recombinant DNA technology are used in both pro and eukaryotic systems. Submit curriculum vitae to: **Dr. Susan Wallace, Department of Microbiology, New York Medical College, Valhalla, N.Y. 10595.**

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Teaching and research tenure-track position with rank and salary commensurate with experience. A qualified virologist familiar with current research techniques and proven leadership qualities is sought. The teaching assignment will include courses in biology, emphasizing microbiology and virology, with some responsibilities in general biology. Continued development of strong virology program is required. Modern, well equipped biology laboratories are present within the department with several studies in progress. The person selected will have responsibility for graduate student direction. Closing date: 1 December 1982. Logan, Utah, is located in a mountain valley with abundant outdoor recreational facilities and sports opportunities. Applicant should send curriculum vitae, statement of research interests, and three letters of recommendation to: **Dr. Legrande C. Ellis, Search Committee Chairman, Department of Biology, UMC-53, Logan, Utah 84322.** *An Affirmative Action/Equal Opportunity Employer.*

## TRAINEESHIPS

### VIROLOGY

**POSTDOCTORAL TRAINEESHIPS** in biochemical genetics of mammalian tumor viruses and bacterial phage at The University of Michigan Medical School are now available through an NIH-funded interdisciplinary program. Research areas include animal cell transformation, tumor virus and phage DNA replication and recombination, regulation of gene expression, and virus-cell interactions. Applicants need not have previous research experience in virology, but must be U.S. citizens or permanent residents. Submit curriculum vitae and a list of three references to: **Virology Postdoctoral Training Program (Department of Biological Chemistry),** or to one of the following faculty: **Dr. W. R. Folk, Dr. G. R. Greenberg, Dr. L. Lutter, (Department of Biological Chemistry); Dr. W. Brockman, Dr. D. I. Friedman, (Microbiology); Dr. M. Levine (Human Genetics), The University of Michigan Medical School, Ann Arbor, Mich. 48109.**

## FELLOWSHIPS

**FELLOWSHIP OPPORTUNITY** in Positron Emission Tomography (PET). The Department of Neurology, Memorial Sloan-Kettering Cancer Center, will offer a 2-year fellowship in position emission tomography beginning in July 1983. Excellent opportunity for basic-science and clinical investigation. Applicant must be eligible for a New York State medical license and for Board-certification in neurology. Physics, mathematics and/or computer science background helpful but not essential. Write: **D. A. Rottenberg, M.D., 1275 York Avenue, New York, N.Y. 10021.** Include curriculum vitae and bibliography.

**POSTDOCTORAL FELLOWSHIP IN NEURAL CONTROL OF THE CARDIOVASCULAR SYSTEM.** A limited number of fellowship positions are available funded by an NIH training grant. Clinical and basic scientists participate in the program with major emphasis on neural pathways, hypertension, cardiovascular pharmacology, exercise, alcoholic heart muscle disease and exercise, electrophysiology, cardiac biochemistry, and biofeedback. The positions are open to U.S. citizens and permanent residents who have Ph.D., M.D., or equivalent degrees in a basic biomedical discipline.

Applicants should send curriculum vitae with three references and specific area of interest to: **Dr. H. Lowell Stone, Department of Physiology and Biophysics, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190.**

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**POSTDOCTORAL RESEARCH FELLOWSHIP** in human behavioral pharmacology, Johns Hopkins Medical School. Available immediately. Research involves investigating the clinical pharmacology and basic biological/behavioral mechanisms of action of benzodiazepine drugs in laboratory and in clinic. Send letter of interest, curriculum vitae, and names, addresses, and telephone numbers of references to: **Roland R. Griffiths, Ph.D., D-5-West, Psychiatry, Baltimore City Hospitals, Baltimore, Md. 21224.**

### POSTDOCTORAL RESEARCH FELLOWSHIP

A research fellowship in cardiovascular physiology is available in the Department of Physiology at the University of Nebraska College of Medicine. Areas of interest are reflex control of the circulation in both chronic instrumented and acute animal preparations. Candidates should hold a Ph.D. or an M.D. degree and should send a résumé with the names and addresses of references to: **Irving H. Zucker, Ph.D., Department of Physiology and Biophysics, University of Nebraska College of Medicine, 42nd and Dewey, Omaha, Nebraska 68105; telephone: 402-559-7468.** *The University of Nebraska is an Affirmative Action/Equal Opportunity Employer.*

### M. C. CHANG POSTDOCTORAL FELLOWSHIPS MOLECULAR ENDOCRINOLOGY

The Worcester Foundation for Experimental Biology announces the availability of M. C. Chang Postdoctoral Fellowships in Molecular Biology and Biophysics of Endocrine/Reproductive Biology. The fellowships are for 2 years with possible renewal. Applicants should send their curriculum vitae, a brief summary of research interests, a synopsis of their Ph.D. thesis research, and three letters of reference to:

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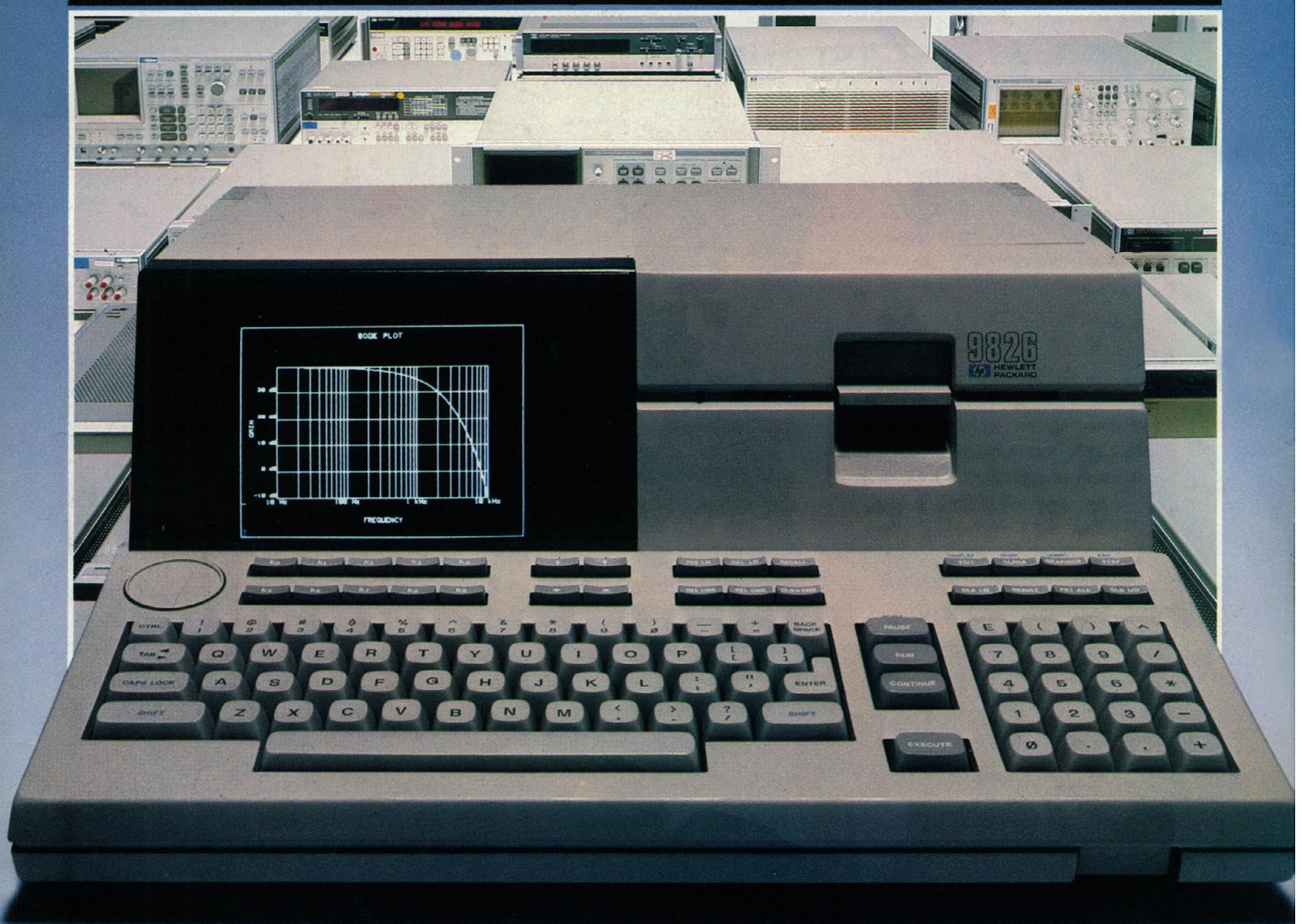
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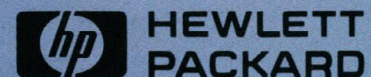
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