

quences are the subjects for the final interesting chapters. Evidence is also reviewed that competition among gametophytes, embryos, and immature fruits (termed "soft selection sieves") might permit plants gracefully to dispose of many of their mistakes at minimal cost (but biasing our estimates of load).

The book judiciously reviews a wide and modern literature with over 700 references and many figures reproduced from original publications (not always well). Though such scope is impressive, it makes the book read at times like a succession of review articles. Specialists will probably be unsatisfied with the treatment of particular areas. This reviewer felt that too much detail was presented for certain topics (as in the case of the elementary mathematical models, one of which contains errors), whereas other relevant topics (like the potential for meiotic drive under gametophytic selection) remained unexplored. Nevertheless, the book as a whole achieves a noteworthy synthesis by posing the right questions and exposing the need for further experimental and theoretical work. It should fuel interest in somatic plant mutations and their phenotypic and genetic consequences, as well as contribute to the genetic literacy of botanists and the botanical literacy of geneticists.

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The Geology of Fluid Flow

Fluid Flow in Sedimentary Basins and Aquifers. J. C. GOFF and B. P. J. WILLIAMS, Eds. Published for the Geological Society by Blackwell Scientific, Palo Alto, CA, 1987. x, 230 pp., illus. \$72. Geological Society Special Publication no. 34. From a meeting, London, U.K., June 1985.

The study of sedimentary basins is a venerable area of research in the earth sciences. Basins are large sediment-filled depressions in the shallow continental and oceanic crust, and as such they play an important role in preserving earth history as a stratigraphic record. Basins also contain nearly all of the oil and gas fields distributed in the earth's crust and host some of the largest metallic and nonmetallic ore deposits. Geologists have long been interested in the nature of fluid circulation within sedimentary basins because of the economic importance of groundwater flow systems, petroleum migration, geothermal reservoirs, and ore-forming hydrothermal fluids. It is clear also that groundwater-sediment interactions have a profound influence on the chemical transport of toxic wastes in the subsurface,

on the alteration of sedimentary and crystalline rocks, on the geomorphic evolution of landforms, and on the mechanics of crust deformation.

In this publication Goff and Williams have put together a collection of 13 papers from a symposium the theme of which was the principles and geological controls of groundwater flow at scales from regional systems down to individual aquifers.

The book is conveniently divided into four sections. The first section contains two papers that describe large-scale geologic controls on fluid migration in compacting sedimentary basins. The material here is somewhat dated, drawing heavily on the authors' published books on petroleum geology. Both papers are too short to provide significant background on the mechanics of flows in compacting basins, nor do they take into account the recent literature on compaction-driven flow in intracratonic basins, passive margins, or accretionary wedges.

The second section contains four papers on the analysis of present-day and ancient groundwater flow in the Western Canada sedimentary basin. The most notable here is the paper by Tóth and Corbet, who document the effects of erosional unloading on the hydrologic history of groundwater systems in southern Alberta. The authors argue that transient adjustment of the flow patterns over the last 20 million years has had a profound influence on the accumulation of petroleum. A second novel paper in this section is presented by Bradbury and Woodwell. They utilize stable isotope data for rock oxygen and carbon to theorize on the hydrology of mountain-building thrust sheets. Two field data sets are discussed briefly, one from the front range of the Canadian Rockies and one from the southern Pyrenees. Bradbury and Woodwell interpret two scenarios of fluid migration in thrust belts based on their geochemical data. Groundwater flow in the Rockies was restricted to a basal aquifer, where flow was most active during thrusting. Basement shear zones in the Pyrenees channelized flow up into the cover sediments, where flow was pervasive. These geochemical models for fluid migration are intriguing but have yet to be verified with hydrodynamic theory.

Section 3 of the book contains four papers describing aquifers in the United Kingdom. The paper by Michael Price on the Chalk Aquifer should be of great interest to groundwater geologists. Price summarizes the hydraulic properties and demonstrates the close association between fracture permeability and dissolution near groundwater discharge zones. Readers needing a more quantitative treatment of dual-porosity flow in the Chalk ought to refer to R. Bibby's

1981 benchmark paper in *Water Resources Research*.

The last section of the volume contains three papers on fluid migration in low-permeability rock. J. H. Black's paper on the hydrogeology of crystalline rock summarizes useful permeability data from laboratory and borehole packer tests on some of the European and Canadian sites being explored as repositories for high-level nuclear wastes.

On the whole, this volume will be of most use to practicing geologists and hydrologists who have limited access to major journals and want an overview of basin hydrology in the United Kingdom and Alberta. Several of the papers in the book have since been published as full-fledged journal articles. For conveying the general principles of groundwater flow and oil migration in sedimentary basins, a more valuable work would be *Groundwater* by R. A. Freeze and J. A. Cherry.

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Books Received

Benzodiazepine, Receptor Ligands, Memory and Information Processing. Psychometric, Psychopharmacological and Clinical Issues. I. Hindmarch and H. Ott, Eds. Springer-Verlag, New York, 1988. x, 317 pp., illus. \$78.70. Psychopharmacology Series, vol. 6. From a workshop, Puerto Rico, Dec. 1986.

The Big Bang. Joseph Silk. 2nd ed. Freeman, New York, 1988. xvi, 485 pp., illus., + plates. Paper, \$14.95.

Bioanalysis of Drugs and Metabolites, Especially Anti-Inflammatory and Cardiovascular. Eric Reid, J. D. Robinson, and Ian D. Wilson, Eds. Plenum, New York, 1988. xiv, 415 pp., illus. \$89.50. Methodological Surveys in Biochemistry and Analysis, vol. 18A. From a symposium, Guildford, U.K., Sept. 1987.

Chemistry of Nucleosides and Nucleotides. Vol. 1. Leroy B. Townsend, Ed. Plenum, New York, 1988. xii, 394 pp., illus. \$69.50.

Chemistry of Oxide Superconductors. C. N. R. Rao, Ed. Blackwell Scientific, Palo Alto, CA, 1988. viii, 199 pp., illus. \$23.

Childhood Obesity. A Biobehavioral Perspective. Norman A. Krasnegor, Gilman D. Grave, and Norman Kretschmer, Eds. Telford, Caldwell, NJ, 1988. xiv, 218 pp., illus. \$45; paper, \$27.50.

Chinese Students in America. Policies, Issues, and Numbers. Leo A. Orleans. National Academy Press, Washington, DC, 1988. viii, 144 pp., illus. Paper, \$10.

Chromatographic Enantioseparation. Methods and Applications. Stig. G. Allenmark. Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1988. 224 pp., illus. \$64.95. Ellis Horwood Series in Analytical Chemistry.

Eukaryote Cell Recognition. Concepts and Model Systems. G. P. Chapman, C. C. Ainsworth, and C. J. Chatham, Eds. Cambridge University Press, New York, 1988. xiv, 315 pp., illus. \$65.50. From a symposium, London, U.K.

The Evolution and Classification of Flowering Plants. Arthur Cronquist. 2nd ed. New York Botanical Garden, Bronx, NY, 1988. x, 555 pp., illus. \$45.35.

Evolution in Language. Bernard H. Bichakjian. Karoma, Ann Arbor, MI, 1988. xii, 178 pp., illus. \$24.95.

Extreme Value Theory in Engineering. Enrique Castillo. Academic Press, San Diego, CA, 1988. xiv, 389 pp., illus. \$59.95. Statistical Modeling and Decision Science.

The Facts on File Dictionary of Archaeology. Ruth D. Whitehouse. 2nd ed. Facts on File, New York, 1988. x, 597 pp. Paper, \$16.95.

- The Facts on File Dictionary of Physics.** John Daintith, Ed. 2nd ed. Facts on File, New York, 1988. iv, 235 pp., illus. \$19.95.
- Farming for Fuel.** The Political Economy of Energy Sources in the United States. Folke Döving. Praeger (Greenwood), Westport, CT, 1988. xii, 152 pp. \$37.95.
- In Search of Safety.** Chemicals and Cancer Risk. John D. Graham, Laura C. Green, and Marc J. Roberts. Harvard University Press, Cambridge, MA, 1988. xviii, 260 pp. \$35.
- In the Age of Mankind.** Roger Lewin. Smithsonian Institution, Washington, DC, 1988. 255 pp., illus. \$37.50.
- Information-Based Complexity.** J. F. Traub, G. W. Wasilkowski, and H. Woźniakowski. Academic Press, San Diego, CA, 1988. xiv, 523 pp. \$64.50. Computer Science and Scientific Computing.
- Insanity on Trial.** Norman J. Finkel. Plenum, New York, 1988. xxiv, 374 pp. \$42.50. Perspectives in Law and Psychology, vol. 8.
- Instabilities and Chaos in Quantum Optics II.** N. B. Abraham, F. T. Arecchi, and L. A. Lugiato, Eds. Plenum, New York, 1988. viii, 395 pp., illus. \$85. NATO Advanced Science Institutes Series B, vol. 177. From an institute, Il Ciocco, Italy, June-July 1987.
- Inventing Canada.** Early Victorian Science and the Idea of a Transcontinental Nation. Suzanne Zeller. University of Toronto Press, Toronto, 1987. viii, 356 pp. + plates. \$35; paper, \$15.95.
- Inventing Reality.** Physics as Language. Bruce Gregory. Wiley, New York, 1988. x, 230 pp. \$18.95. Wiley Science Editions.
- Invertebrate Historecognition.** Richard K. Grosberg, Dennis Hedgecock, and Keith Nelson, Eds. Plenum, New York, 1988. viii, 192 pp., illus. \$55. Bodega Marine Laboratory Marine Science Series. From a workshop, Bodega Bay, CA, Sept. 1987.
- Kew Index for 1987.** Names of Seed-Bearing Plants, Ferns, and Fern Allies at the Rank of Family and Below Published During 1987, with Some Omissions from Earlier Years. R. A. Davies and K. M. Lloyd, Compilers. Clarendon (Oxford University Press), New York, 1988. viii, 168 pp. Paper, \$39.95.
- The Lennox-Gastaut Syndrome.** Ernst Niedermeyer and Rolf Degen, Eds. Liss, New York, 1988. xvi, 484 pp., illus. \$88. Neurology and Neurobiology, vol. 45. From a symposium, Bad Kreuznach, F.R.G., Sept. 1987.
- Lost in Space.** The Domestic Politics of the Strategic Defense Initiative. Gerald M. Steinberg, Ed. Lexington (Heath), Lexington, MA, and University of California Institute on Global Conflict and Cooperation, 1988. x, 170 pp. \$29.
- Mathematics from Manuscript to Print, 1300-1600.** Cynthia Hay, Ed. Clarendon (Oxford University Press), New York, 1988. x, 273 pp., illus. \$67. From a conference, Oxford, U.K., Sept. 1984.
- Mechanisms of Epileptogenesis.** The Transition to Seizure. Marc A. Dichter, Ed. Plenum, New York, 1988. x, 287 pp., illus. \$62.50. From a symposium, Philadelphia, PA, Sept. 1986.
- Mind Children.** The Future of Robot and Human Intelligence. Hans Moravec. Harvard University Press, Cambridge, MA, 1988. vi, 214 pp., illus. \$18.95.
- The Molecular Control of Blood Cells.** Donald Metcalf. Harvard University Press, Cambridge, MA, 1988. x, 165 pp., illus. \$30. Based on a lecture series, Boston, MA, 1987.
- Money, Power, and Health Care.** Evan M. Melhado, Walter Feinberg, and Harold M. Swartz, Eds. Health Administration Press, Ann Arbor, MI, 1988. x, 324 pp., illus. \$32.
- Nature of Australia.** A Portrait of the Island Continent. John Vandenbeld. Facts on File, New York, 1988. xii, 292 pp., illus. \$29.95.
- Net-Energy Analysis and the Energy Requirements of Energy Systems.** Daniel T. Spreng. Praeger (Greenwood), Westport, CT, 1988. xiv, 289 pp., illus. \$47.95.
- Neurobiology of Invertebrates.** Transmitters, Modulators and Receptors. J. Salánki and Katalin S.-Rózsa, Eds. Akadémiai Kiadó, Budapest, 1988. xvi, 769 pp., illus. \$69. Symposia Biologica Hungarica, vol. 36. From a symposium, Tihany, Hungary, Aug. 1987.
- Neurodegenerative Disorders.** The Role Played by Endotoxins and Xenobiotics. Giuseppe Nappi *et al.*, Eds. Raven, New York, 1988. xviii, 326 pp. \$69. From a symposium, Turin, Italy, May 1987.
- Nonhuman Primate Studies on Diabetes, Carbohydrate Intolerance, and Obesity.** Charles F. Howard, Ed. Liss, New York, 1988. x, 152 pp., illus. \$39.50. Monographs in Primatology, vol. 12. From a symposium, Austin, TX, June 1986.
- Nonlinear Problems in Abstract Cones.** Dajun Guo and V. Lakshmikantham. Academic Press, San Diego, CA, 1988. viii, 275 pp. \$34.95. Notes and Reports in Mathematics in Science and Engineering, vol. 5.
- Nucleon Momentum and Density Distributions in Nuclei.** A. N. Antonov, P. E. Hodgson, and I. Zh. Petkov. Clarendon (Oxford University Press), New York, 1988. x, 165 pp., illus. \$64. Oxford Studies in Nuclear Physics.
- Numerical Geology.** A Source Guide, Glossary and Selective Bibliography to Geological Uses of Computers and Statistics. N. M. S. Rock. Springer-Verlag, New York, 1988. xii, 427 pp., illus. \$39.50. Lecture Notes in Earth Sciences, vol. 18.
- Numerical Methods for Initial Value Problems in Ordinary Differential Equations.** Simeon Ola Fatunla. Academic Press, San Diego, CA, 1988. xii, 295 pp., illus. \$44.50. Computer Science and Scientific Computing.
- Physiology of Elasmobranch Fishes.** Trevor J. Shuttleworth, Ed. Springer-Verlag, New York, 1988. xii, 324 pp., illus. \$130.
- Plant Transposable Elements.** Oliver Nelson, Ed. Plenum, New York, 1988. xii, 404 pp., illus. \$79.50. Basic Life Sciences, vol. 47. From a symposium, Madison, WI, Aug. 1987.
- The Positive Muon as a Probe in Free Radical Chemistry.** Potential and Limitations of the μ SR Techniques. E. Roduner. Springer-Verlag, New York, 1988. viii, 104 pp., illus. Paper, \$19.40. Lecture Notes in Chemistry, vol. 49.
- Practical Isozyme Genetics.** N. Pasteur *et al.* Horwood, Chichester, U.K., and Halsted (Wiley), New York, 1988. 215 pp., illus. \$49.95. Ellis Horwood Books in the Biological Sciences. Translated from the French edition (Paris, 1987) by Matthew Cobb.
- Primate Adaptation and Evolution.** John G. Fleagle. Academic Press, San Diego, CA, 1988. xx, 486 pp., illus. \$39.95.
- Primitive Mental States and the Rorschach.** Howard D. Lerner and Paul M. Lerner, Eds. International Universities Press, Madison, CT, 1988. xxvi, 704 pp. \$65.
- Principles of Engineering Geology.** Robert B. Johnson and Jerome V. DeGraff. Wiley, New York, 1988. xiv, 497 pp., illus. \$48.10.
- Principles of Statistical Radiophysics.** Vol. 2, Correlation Theory of Random Processes. S. M. Rytov, Yu. A. Kravtsov, and V. I. Tatarskii. Springer-Verlag, New York, 1988. x, 234 pp., illus. \$79. Translated from the Russian edition (Moscow, 1976).
- Prospects of Heart Surgery.** Psychological Adjustment to Coronary Bypass Grafting. Alan Radley. Springer-Verlag, New York, 1988. xii, 246 pp. \$59. Contributions to Psychology and Medicine.
- Psychology and Historical Interpretation.** William McKinley Runyan, Ed. Oxford University Press, New York, 1988. xvi, 306 pp. \$27.95; paper, \$13.95.
- The Psychology of Perspective and Renaissance Art.** Michael Kubovy. Cambridge University Press, New York, 1988. xvi, 192 pp., illus. Paper, \$16.95. Reprint, 1986 ed.
- The Puzzling Adventures of Dr. Ecco.** Dennis Shasha. Freeman, New York, 1988. xvi, 183 pp., illus. Paper, \$9.95.
- The Quails, Partridges, and Francolins of the World.** Paul A. Johnsgard. Oxford University Press, New York, 1988. xx, 264 pp., illus., + plates. \$89.
- Quantization, Gravitation and Group Methods in Physics.** A. A. Komar, Ed. Nova Science, Commack, NY, 1988. viii, 327 pp. \$98. Proceedings of the Lebedev Physics Institute of the Academy of Sciences of the USSR, vol. 176. Translated from the Russian edition (Moscow, 1983) by Kevin S. Hendzel.
- Radiolabeled Monoclonal Antibodies for Imaging and Therapy.** Suresh C. Srivastava, Ed. Plenum, New York, 1988. xiv, 876 pp., illus. \$129.50. NATO Advanced Science Institutes Series A, vol. 152. From an institute, Castelvecchio Pascoli, Italy, July-Aug. 1986.
- Recent Advances in Nervous System Toxicology.** Corrado L. Galli, Luigi Manzo, and Peter S. Spencer, Eds. Plenum, New York, 1988. viii, 391 pp., illus. \$79.50. NATO Advanced Science Institutes Series A, vol. 100. From an institute, Belgrade, Italy, Sept. 1984.
- Recent Climatic Change.** A Regional Approach. S. Gregory, Ed. Bellhaven (Printer), London, 1988 (U.S. distributor, Columbia University Press, New York). xvi, 326 pp., illus. \$49.
- Records in Stone.** Papers in Memory of Alexander Thom. C. L. N. Ruggles, Ed. Cambridge University Press, New York, 1988. xviii, 519 pp., illus. \$100.
- The Research and Academic Users' Guide to the IBM Personal Computer.** Vol. 2. Paul Barnettson, Ed. Oxford University Press, New York, 1988. xii, 164 pp., illus. Paper, \$10.95.
- The Respiratory Burst and Its Physiological Significance.** Anthony J. Sbarra and Robert R. Strauss, Eds. Plenum, New York, 1988. xxiv, 476 pp., illus. \$85.
- A Revision of the Genus *Lespedeza* Section *Macrolespedeza* (Leguminosae).** Shinobu Akiyama. University of Tokyo Press, Tokyo, 1988 (U.S. distributor, Columbia University Press, New York). viii, 170 pp., illus., + plates. \$79.50.
- A Revision of the Tribe Antirrhineae.** David A. Sutton. British Museum (Natural History), London, and Oxford University Press, New York, 1988. viii, 575 pp., illus. + bibliography and indexes on microfiches in pocket. \$135.
- Right Hemisphere Contributions to Lexical Semantics.** Christine Chiarello, Ed. Springer-Verlag, New York, 1988. x, 100 pp., illus. \$47.50.
- Senescence and Aging in Plants.** L. D. Noodén and A. C. Leopold, Eds. Academic Press, San Diego, CA, 1988. xxviii, 526 pp., illus. \$85. American Society of Plant Physiologists Monograph Series.
- Signal Transduction in Cytoplasmic Organization and Cell Motility.** Peter Satir, John S. Condeelis, and Elias Lazarides, Eds. Liss, New York, 1988. xviii, 386 pp., illus. \$156. UCLA Symposia on Molecular and Cellular Biology, vol. 77. From a symposium, Lake Tahoe, CA, Feb. 1987.
- The Southern Central Andes.** Contributions to Structure and Evolution of an Active Continental Margin. H. Bahlburg, Ch. Breitkreuz, and P. Giese, Eds. Springer-Verlag, New York, 1988. viii, 261 pp., illus. \$32.50. Lecture Notes in Earth Sciences, vol. 17. Based on a conference, Berlin, F.R.G., Feb. 1986.
- Spectroscopy of Surfaces.** R. J. H. Clark and R. E. Hester, Eds. Wiley, New York, 1988. xxii, 488 pp., illus. \$203. Advances in Spectroscopy, vol. 16.
- State Formation and Political Legitimacy.** Ronald Cohen and Judith D. Toland, Eds. Transaction, New Brunswick, NJ, 1988. viii, 204 pp. \$24.95. Political Anthropology, vol. 6.
- Statistical Mechanics of Magnetically Ordered Systems.** Yu. A. Izumov and Yu. N. Skryabin. Consultants Bureau (Plenum), New York, 1988. xii, 295 pp., illus. \$85. Translated from the Russian edition by Roger Cooke.
- Statistics for the Life Sciences.** Myra L. Samuels. Dellen (Macmillan), San Francisco, CA, 1989. xiv, 597 pp., illus. \$31.
- Stereoselectivity of Pesticides.** Biological and Chemical Problems. E. J. Ariens, J. J. S. van Rensen, and W. Welling, Eds. Elsevier, New York, 1988. x, 544 pp., illus. \$171. Chemicals in Agriculture, vol. 1.
- Steroid Receptors and Disease.** Cancer, Autoimmune, Bone, and Circulatory Disorders. Peter J. Sheridan, Kenneth Blum, and Michael J. Trachtenberg, Eds. Dekker, New York, 1988. xvi, 580 pp., illus. \$125.
- Strategic and Tactical Decisions.** K. J. Radford. 2nd ed. University Press of Canada, North York, ON, and Springer-Verlag, New York, 1988. xii, 178 pp. Paper, \$42.
- Thermodynamic Properties of Gases.** S. L. Rivkin. 4th ed. Hemisphere, New York, 1988. x, 295 pp. \$77.50. Translated from the Russian edition (Moscow, 1987).
- Thinking AIDS.** Mary Catherine Bateson and Richard Goldsby. Addison-Wesley, Reading, MA, 1988. xviii, 153 pp. \$12.95.
- Topobiology.** An Introduction to Molecular Embryology. Gerald M. Edelman. Basic Books, New York, 1988. xvi, 240 pp., illus. \$21.95.
- Transcendence of Loss over the Life Span.** Patricia Weenolsen. Hemisphere, New York, 1988. xx, 559 pp. \$70. Series in Death Education, Aging, and Health Care.
- Tropical Ecology.** D. E. Pomeroy and M. W. Service. Longman Scientific, Harlow, U.K., 1988 (U.S. distributor, Wiley, New York). vi, 233 pp., illus. Paper, \$27.95. Reprint, 1986 ed.
- Tumor Necrosis Factor/Cachectin and Related Cytokines.** Benjamin Bonavida *et al.*, Eds. Karger, Basel, 1988. viii, 276 pp., illus. \$132. From a conference, Heidelberg, F.R.G., Sept. 1987.
- Understanding Agriculture.** New Directions for Education. National Research Council. National Academy Press, Washington, DC, 1988. xii, 68 pp., illus. Paper, \$8.95.
- Use of Laboratory Animals in Biomedical and Behavioral Research.** National Research Council. National Academy Press, Washington, DC, 1988. x, 102 pp. \$11.95.
- The Zero Option.** INF, West Germany, and Arms Control. Thomas Risse-Kappen. Westview, Boulder, CO, 1988. x, 202 pp. Paper, \$24.95. Publications of the Peace Research Institute. Translated from the German by Lesley Booth.

Products & Materials

Cryogenic Inventory Software

Cryobase is a menu-driven software package for managing cryogenic cell banks. An identification code of as many as 40 characters may be entered for each sample in liquid nitrogen freezers. The display may be configured for any shape of storage tray as large as a 10 × 10 matrix. Each sample within the cell bank may be quickly located, and empty spaces may be monitored as samples are removed or added. Cymbus Bioscience (United Kingdom). Circle 479.

Software for Technical Graphics

PV-WAVE is a software program for visualizing, analyzing, and presenting technical data. Its purpose is to allow scientists to analyze and understand large multidimensional data sets quickly. Thus, within a single environment, the program allows the user to reduce and filter data into manageable subsets, distinguish and analyze key features and trends, and translate results into publication-quality charts, graphs, contour maps, surface plots, and images. Commands may be entered directly at the keyboard or grouped into procedure files; other programs may be called directly from PV-WAVE. Currently, PV-WAVE operates on Digital VAX computers operating under VMS; versions for Sun workstations are expected in early 1989. From \$3500. Precision Visuals. Circle 472.

Thermal Stage for Petri Dishes

The TS-4SPD is a thermal microscope stage that maintains the temperature of a petri dish and the specimen it contains between -20° and +100°C ± 0.1°C. The stage's collar holds most standard 35-mm petri dishes; with the collar removed, the stage can also hold slides. The TS-4SPD fits

most upright and inverted microscopes. A hole in the stage permits illumination by transmitted light. Controls on the front panel adjust the stage's temperature, which is continually displayed digitally. To operate, the TS-4SPD requires a 110- or 230-V ac current and a trickle of running water. \$2900. Sortek. Circle 476.

Ductless Fume Hood

The Germfree ductless fume hood has a six-stage filtration system. The first filter removes large particulates. The second filter, a high-efficiency particulate air filter, removes all particulate solids and liquids. The third filter, an activated charcoal filter, removes gases with large molecular weights. The fourth, fifth, and sixth filters are specifically treated, activated charcoal filters that remove sulfur dioxide, acid gases, halogens, aldehydes, ammonia, amines, and other bases. The stainless steel Germfree hood has a face velocity greater than 30 m/min provided by a 0.5-hp motor. A spill-guard edge protects the filters. Hotpack. Circle 478.

High Molecular Weight Marker

The Lambda Ladder is a marker for DNA size calibration that is composed of a series of multimers of lambda phage DNA joined at the sticky ends. Each rung of the Lambda Ladder is 48,502 base pairs longer than the preceding rung. Double-stranded DNA between 50 and 1000 kilobases long can be sized. Lambda Ladder is prepared in a 1% agarose block approximately 10 by 5 by 1.5 mm with 0.25 mg of DNA per milliliter. Thin slices can be cut from the block with a razor blade; samples should be refrigerated and can be saved for months. DNASTAR. Circle 470.

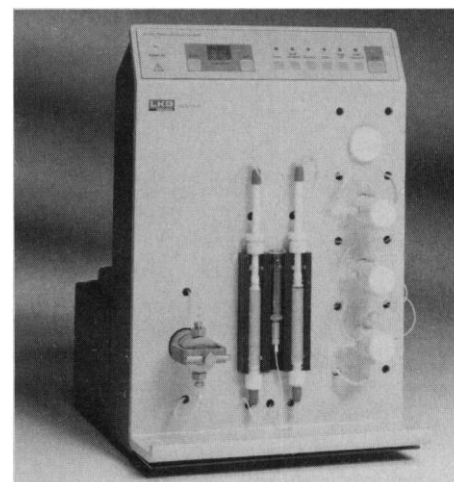
DNA Sequence Analysis Software

Pustell Software is a DNA sequence analysis program. The program can understand sequences in all major sequence formats, including GenBank, Bionet, Staden, Line, and UWGCG. Databases can be searched by author's name, keywords, organism, journal, superfamily, or E.C. number. A wild-card feature allows researchers to access data even if their references are incomplete. Sequence data may be entered directly by a gel reader. The program provides a features table that lists important regions in the sequence, such as coding regions in a DNA sequence or

possible conflicts in sequencing data. Pustell Software operates on Macintosh computers and compatible printers. International Biotechnologies. Circle 477.

Manual Peptide Synthesizer

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ylmethoxycarbonyl polyamide active ester chemistry. Continuous flow synthesis produces peptides more quickly and with less reagent than synthesis by batch process; also, continuous flow synthesis allows on-line monitoring, if desired. Synthesis takes five steps, and washing, acylation, and deprotection steps are controlled from a keyboard. Pharmacia LKB Biotechnology (Sweden). Circle 467.

Literature

Amino Acid Analysis by HPLC is an application bulletin that tells how to derivatize primary amino acids with *o*-phthalaldehyde, separate them by high-performance liquid chromatography (HPLC), and detect them by ultraviolet or fluorescence. Rainin Instrument. Circle 481.

Information Management in the Laboratory is a 12-page booklet about laboratory database management systems. Laboratory Micro-Systems. Circle 482.

Purification of DNA from Multiple Samples in CsCl Using the Type 50.4 Ti Rotor is a data sheet about a technique to isolate 50 to 150 µg of DNA in 24 hours. Beckman Instruments, Spinco Division. Circle 485.

Multichannel Pipettes is a data sheet about 8- and 12-channel pipettes that accommodate both left- and right-handers. Brinkmann Instruments. Circle 486.

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

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POSITIONS WANTED

Biochemist/Analytical Chemist, Ph.D., seeks industrial position in Los Angeles area. Excellent references. Have in possession a patentable highly promising atypical antipsychotic drug. Box 3, **SCIENCE**.

Clinical Biochemist-Toxicologist, Ph.D., Biochemist, 1974. Wants position as laboratory director or equivalent. Qualified by CAP, CLIA, Medicare, NIDA as director. Will act as consultant to companies needing drug testing. Please send inquiries to Box 9, **SCIENCE**.

Neuroscientist, Ph.D. Five years of postdoctoral research experience in neuropharmacology, neurodegenerative disease, neuroanatomy. Immunocytochemistry, computerized image analysis, morphological and analytical histochemistry. Desires research position. Willing to relocate. Available in March, 1989. Box 17, **SCIENCE**.

POSITIONS WANTED

Environmental Science, Ph.D. (1985). 5 years of experience in design and implementation of environmental projects for analysis of contaminants in air, water, soil, sediment and plants from polar and temperate regions. Experienced with sample preparation and analysis by GC, GC/MS, AA, XRF and alpha spectrometry. Publications. Desire a challenging position in academic, government or consulting research. Willing to relocate in east or midwest. Box 18, **SCIENCE**.

POSITIONS OPEN

ANATOMIST—The Department of Biological Sciences, University of Alaska Anchorage (UAA), invites applications for an anticipated position at the level of assistant/associate professor, tenure-track, beginning August, 1989. Salary commensurate with experience and salary scale in effect at time of appointment. Appointment has responsibilities to the WAMI Program (Washington, Alaska, Montana, Idaho Regionalized Medical Education, offered in association with the University of Washington School of Medicine) with a workload of 40% teaching, 40% research, and 20% service. Annual teaching responsibilities include gross anatomy/embryology course for first-year medical students and appropriate undergraduate or graduate courses within a broad-based Biology Department. Applicant expected to develop a strong research program based on extramural funding, complementary to graduate program. Completed Ph.D. and prior experience in teaching gross anatomy/embryology and research required. Send curriculum vitae and list of three references by 28 February 1989 to: **Personnel Services, University of Alaska Anchorage, 3890 University Lake Drive, Anchorage, AK 99508.**

Must be eligible for employment under the Immigration Reform and Control Act of 1986. UAA is an educational/Equal Opportunity Employer.

ASSISTANT PROFESSOR EPIDEMIOLOGY

The Department of Clinical Epidemiology and Preventive Medicine, University of Pittsburgh is seeking a candidate for this tenure-track position to conduct research on the epidemiology of childhood cancers. Candidates should have extensive experience and documented research productivity in studies of childhood and other cancers. Please send curriculum vitae, a summary of current research and future research plans, and names of three references to: **Seymour Grufferman, Chairman, Department of Clinical Epidemiology and Preventive Medicine, c/o Janet Vail, Administrator, University of Pittsburgh School of Medicine, M-200 Scaife Hall, Pittsburgh, PA 15261.** Deadline for receipt of applications is 3 March 1989. *An Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR IN FOODS

The Foods and Nutrition Division seeks applicants for a 9-month tenure-track position starting 21 August 1989. Responsibilities include developing independent research program in an area of foods research, teaching and advising undergraduate and graduate students; some responsibilities for extension education. Ph.D. in foods, food science, or closely related field required; teaching experience preferred; demonstrated research ability. Send letter of application, curriculum vitae, research interest statement, transcripts, and three letters of reference by 31 March 1989 to: **Dr. Sharon Nickols, Director, School of Human Resources and Family Studies, University of Illinois, 905 South Goodwin Avenue, Urbana, IL 61801.** *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

ASSISTANT PROFESSOR OF BIOLOGY. Two-year, non-tenure-track appointment beginning August, 1989, to participate in team-taught introductory biology and cell biology courses with laboratories and to teach semester courses in animal physiology (fall 1989) and advanced cell biology (spring 1991). Some opportunity for research available. The search will remain open until the position is filled; to be assured of consideration, submit all application materials by 1 March 1989. Send curriculum vitae, copies of transcripts, and three letters of recommendation to: **Dr. Bruce Voyles, Chair, Department of Biology, SCI, Grinnell College, P.O. Box 805, Grinnell, IA 50112-0806.** *Grinnell College is an Affirmative Action/Equal Opportunity Employer and especially seeks women and minority candidates.*

POSITIONS OPEN

ASSISTANT PROFESSOR: Applications are invited for a tenure-track position in biology. Responsibilities will include teaching introductory level lecture and laboratory courses, as well as upper-level courses in areas of preparation and experience. A Ph.D. is required. Background in cell biology or physiology is preferred. Submit application with résumé and three letters of reference to: **Dr. Thomas O. Flickema, Vice President for Academic Affairs, Northern State College, Aberdeen, SD 57401.** Consideration of application will begin 22 February 1989. *NSC is an Equal Opportunity/Affirmative Action Employer.*

UNIVERSITY OF TORONTO, BOTANY

The Department of Botany, University of Toronto (Scarborough Campus) invites applications for a tenure-track position (**ASSISTANT PROFESSOR** level) in cell biology or molecular genetics. Preference will be given to individuals familiar with recombinant DNA technology. The successful candidate will be expected to participate in undergraduate and graduate teaching and to develop a strong research program. Applicants should, by 31 March 1989, submit curriculum vitae, including a statement of research interests, and have at least three letters of reference sent to: **J. C. Ritchie, Acting Chair, Life Sciences Division, Scarborough Campus, University of Toronto, 1265 Military Trail, Scarborough, Ontario, Canada, M1C 1A4.** *The University encourages both men and women to apply. In accordance with Canadian Immigration requirements priority will be given to Canadian citizens and permanent residents (landed immigrants) of Canada.*

BROWN UNIVERSITY ASSISTANT PROFESSOR OF MEDICAL SCIENCE (ARTIFICIAL ORGANS AND BIOMATERIALS)

For a tenure-track position we are seeking a broadly trained chemical engineer/polymer scientist whose research interests are in the area of biomaterials. A Ph.D. or equivalent degree is required. Postdoctoral research experience is preferred. The position is linked to the Artificial Organ/Biomaterials Program, a multidisciplinary group of faculty and graduate students, with interest in tissue-material interactions, bioresorbable polymers, polymeric drug release systems and the development of membrane-protected tissue transplants. The successful candidate should demonstrate outstanding potential to develop an independent externally funded research program. The position requires teaching survey courses in the field of polymer science and biomaterials and guidance of Ph.D. and M.D.-Ph.D. students. The appointment can begin between 1 July 1989 and 30 June 1990.

Applicants should submit curriculum vitae and a concise description of research interests and goals by 31 March 1989, and should arrange for three letters of reference to be sent to: **Professor E. H. Leduc, Division of Biology and Medicine, Box G, Brown University, Providence, RI 02912.** *We encourage applications from women and minority candidates. Brown University is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSORS CELL PHYSIOLOGY AND EVOLUTIONARY BIOLOGY

The Department of Zoology, University of Tennessee, Knoxville, invites applications for tenure-track positions at the assistant professor level. We are seeking a cell physiologist with preference given to candidates with expertise in membrane or sensory physiology, or signal transduction, and a vertebrate evolutionary biologist demonstrating a strong research emphasis on morphology, ecology, or ethology. Ph.D. or equivalent and postdoctoral experience required. The successful applicants will be expected to maintain active and funded research programs, teach at undergraduate and graduate levels, and direct undergraduate and graduate research. A course in comparative vertebrate biology will be taught by the vertebrate evolutionary biologist. Send curriculum vitae, brief statements of research interests and teaching experience, reprints of recent publications, and three letters of recommendation to: **Physiology or Evolution Search Committee, Department of Zoology, University of Tennessee, Knoxville, TN 37766-0810.** Review of applications will begin 20 February 1989. *UTK is an Equal Employment Opportunity/Affirmative Action/Title IX, Section 504 Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR. Tenure-track position starting fall 1989. The Zoology Department wants to strengthen its research program and is seeking an innovative Ph.D. with a research record in fish biology emphasizing biology, genetics, or physiology. New faculty are assigned one course/semester during their first year and three courses or seminars during subsequent years. Specific teaching assignments are flexible. *OSU is an Equal Opportunity/Affirmative Action Employer.* Send statements of teaching and research interests, résumé and transcripts and request three individuals familiar with your work to send letters of reference directly to: **Search Committee, Department of Zoology Oklahoma State University, Stillwater, OK 74078** before 1 March 1989.

ASSISTANT PROFESSOR OF BIOCHEMISTRY (tenure-track). Candidates should have a Ph.D. and postdoctoral research experience in molecular biology or biochemistry, and will be expected to establish a vigorous independent research program and participate in teaching at the graduate and upper undergraduate level. The Department is seeking the best available candidate, but has a special interest in the areas of eukaryotic gene expression/regulation, development/differentiation, molecular virology, and enzymology. Send curriculum vitae, description of current and proposed research programs, and three reference letters to: **Search Committee Chairman, Department of Biochemistry, Louisiana, State University, Baton Rouge, LA 70803.** Application deadline is 15 March 1989 or until a suitable candidate is identified. *An Affirmative Action/Equal Opportunity Employer.*

ASSISTANT OR ASSOCIATE PROFESSOR LABORATORY FOR NITROGEN FIXATION RESEARCH OREGON STATE UNIVERSITY

A 12-month tenure-track position is available at the rank of assistant or associate professor with responsibility to lead a vigorous research program on the molecular biology and physiology of symbiotic nitrogen fixation and to teach a graduate course in the area of expertise. Requirements include a Ph.D. degree, postdoctoral experience, a strong background in biochemistry or plant physiology and in molecular biology, and an established record of research productivity. Applicants should submit curriculum vitae, statement of research and teaching interests, list and samples of publications, and names of four references to: **Search Committee for Nitrogen Fixation Position, Department of Botany and Plant Pathology, Oregon State University, Cordley Hall 2082, Corvallis, OR 97331-2902.** Closing date: 31 March 1989. Position available: 1 September 1989. *OSU is an Affirmative Action/Equal Opportunity Employer and complies with Section 504 of the Rehabilitation Act of 1973. OSU has a policy of being responsive to the needs of dual-career couples.*

ASSISTANT OR ASSOCIATE PROFESSORS CELL BIOLOGY/ BIOCHEMISTRY/BIOPHYSICS

We are continuing a search to fill two tenure-track faculty positions. Applications are invited from cell and molecular biologists, biochemists and biophysicists with research interests in molecular recognition and molecular aspects of microbiology or immunology. Preference will be given to candidates with at least 2 years of postdoctoral experience. Appointees will be expected to maintain a vigorous, independent research program through extramural funding that complements and extends existing projects in biomolecular structure/spectroscopy, protein-nucleic acid recognition and processing, mutagenesis, chromatin structure, prokaryotic membrane structure and biogenesis, and virus assembly. Faculty will also participate in training of Ph.D. and health science students. Please submit curriculum vitae and a statement of research goals, and arrange to have three letters of recommendation sent to:

Dr. George J. Thomas, Jr., Head
Division of Cell Biology and Biophysics
School of Basic Life Sciences
University of Missouri-Kansas City
Kansas City, MO 64110.

Screening of new applicants will begin 1 March 1989 and continue until positions are filled.

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

Glaxo's Growth Is Your Opportunity

Glaxo Inc. is not only one of the Top 5 ethical pharmaceutical firms in America, we're also the fastest growing research-oriented company in the country. As part of our continuing growth, Glaxo is expanding its research facilities in Research Triangle Park, North Carolina to one million square feet, under the direction of Dr. Pedro Cuatrecasas. This has created opportunities for

POSTDOCTORAL FELLOWSHIPS

These positions, for a period of one to three years, will be available for highly qualified individuals with enthusiasm for discovery through basic research in the biological sciences. Publication of basic research findings is encouraged, as is participation in scientific meetings. Opportunities are available in the following areas:

- modulation of ion channels using patch clamp technology
- regulation of fatty acid metabolism in inflammation
- role of free radicals in disease
- modulation of cell — cell interactions
- endothelial cell biology
- tumor progression and metastasis
- regulation of metabolism in diabetes and obesity
- in vivo cardiovascular pharmacology

At Glaxo Inc. growth opportunities and state-of-the-art facilities are complemented by a location (Raleigh-Durham-Chapel Hill) that has excellent universities in close proximity. Further, we reward talent and creativity with an excellent salary and benefits package. Candidates interested in these positions, please send curriculum vitae, along with the names of three references, to:

**Human Resources Dept.
Job #PF-S**

Glaxo Inc.

**PO Box 13398
Research Triangle Park, N.C. 27709**

(No Phone Calls, Please)

No Private Agency Referrals, Please

An Equal Opportunity Employer M/F/H/V

Paving the way to a healthier world.



POSITIONS OPEN

ASSISTANT PROFESSOR PHYCOLOGIST. A tenure-track position is available as a joint appointment in the Department of Biological Sciences and the Drinking Water Research Center at Florida International University, The State University of Florida at Miami. The successful candidate will conduct a vigorous research program and teach in advanced undergraduate and graduate courses in area of specialization. Postdoctoral training is expected. Individuals broadly trained in taxonomy as well as in community dynamics and productivity are desired. Applicants with an interest in Everglades, estuarine and marine habitats are especially encouraged to apply. Position will be available for June or September 1989. Applicants should send curriculum vitae, a brief statement of research plans, names of three references, and recent publications postmarked on or before 16 March 1989 to: **Chair, Phycologist Search and Screen Committee, Department of Biological Sciences, Florida International University, University Park, Miami, FL 33199.** The State University System of Florida is an Affirmative Action/Equal Opportunity Employer.

Harvard Medical School and Children's Hospital, Boston, Massachusetts—**ASSISTANT OR ASSOCIATE PROFESSOR.** Major emphasis is on cell and molecular biology of connective and skeletal tissue, cells and noncollagenous proteins. Candidate should be experienced in isolation and characterization of proteins and genes.

Write or send résumé to:

Dr. Melvin J. Glimcher, M.D.
Children's Hospital
Enders Building 11th Floor
320 Longwood Avenue
Boston, MA 02115

ATMOSPHERIC DYNAMICIST UNIVERSITY OF CALIFORNIA DAVIS

The Department of Land, Air and Water Resources seeks applicants for an 11-month tenured or tenure-track teaching and research position in atmospheric dynamics at the assistant or associate professor level. The appointee will develop an active research program in large-scale, climate or mesoscale dynamics. The appointee will teach undergraduate and graduate courses in dynamic meteorology, geophysical fluid dynamics and an area of expertise and advise students. A Ph.D. in atmospheric science or a closely related discipline, with a specialization in atmospheric dynamics or geophysical fluid dynamics is required. Applicants must have a strong background in theoretical and computational dynamics. The position commences 1 July 1989. Applicants should submit a résumé, transcripts, research and teaching statements with background in each, copies of publications and manuscripts, and the names and addresses of at least three references to: **Professor R. Grotjahn, Atmospheric Dynamicist Search Committee Chairman, Department of Land, Air and Water Resources, University of California, Davis, CA 95616.** To insure consideration applications should be received by 15 March 1989.

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

ATMOSPHERIC MODELER/University of South Carolina. The University of South Carolina invites applications for a tenure-track position in the Marine Science Program and Department of Geological Sciences. The position, which is partially funded by the United States Geological Survey, will involve climate modeling on the regional scale, coupled atmosphere/ocean modeling, and coupled atmosphere/hydrologic modeling. Preference will be given to applicants with a strong background in modeling fluid mechanics and thermal processes. Experience with climate models such as the NCAR Community Climate Model and the GFDL ocean model and with parallel processing computers will be useful. A Ph.D. is required at the time of employment. Rank and salary will be commensurate with experience. The applicant should send a résumé, a cover letter stating research and teaching interests, reprints of representative papers, and three letters of recommendation to: **Dr. James C. Evans, Department of Geological Sciences, the University of South Carolina, Columbia, SC 29208.** Foreign nationals should indicate current U.S. immigration status. The deadline for receipt of application materials is 15 March 1989. The University of South Carolina is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR PHARMACOLOGY

The Department of Biopharmaceutical Sciences at the University of Arkansas for Medical Sciences College of Pharmacy invites applications for a 12-month, tenure-track appointment at the assistant professor level with emphasis in the area of pharmacology.

Qualifications for this position include a Ph.D. degree in pharmacology and preference will be given to those applicants having a degree in pharmacy with postdoctoral experience. All areas of research will be considered. Salary is competitive and commensurate with experience.

The successful applicant is expected to develop an active independent research program supported by extramural funding. Teaching responsibilities will include undergraduate and graduate pharmacology/toxicology.

The Department of Biopharmaceutical Sciences is composed presently of four faculty members each in pharmacology and medicinal chemistry.

Applicants should send curriculum vitae, one-page summary of research interests, and the names and addresses of three references by 1 April 1989 to:

Dr. Allen Bradley, Chairman
Department of Biopharmaceutical Sciences
College of Pharmacy—Slot 522
University of Arkansas for Medical Sciences
4301 West Markham Street
Little Rock, AR 72205

The University of Arkansas for Medical Sciences is an Equal Opportunity/Affirmative Action Employer.

BIOLOGY FACULTY POSITION: Penn State Erie, The Behrend College. Applications are invited for a 1-year faculty position to teach baccalaureate level biology courses starting fall 1989. Ph.D. degree in biology or completion of course work for the Ph.D. required. Individual will teach first course of a two-course introductory sequence (topics include primarily cell biology and animal biology) and several junior/senior level courses (cell biology, cell biology laboratory) and a course dependent upon individual's expertise. Applicants should have a strong interest in undergraduate teaching. Penn State—Behrend is a 4-year, primarily undergraduate institution within the 22-campus Penn State system. Application deadline is 10 March 1989, or until position is filled. Send complete résumé, official transcripts, and the names of three references to: **Dr. A. H. Pulsifer, Head, Division of Science, Engineering and Technology, Department of S-2, The Pennsylvania State University, Station Road, Erie, PA 16563-0203.**

An Equal Opportunity/Affirmative Action Employer.

Women and minorities encouraged to apply.

CELLULAR AND MOLECULAR PHYSIOLOGY THE UNIVERSITY OF IOWA COLLEGE OF MEDICINE

Applications are invited to fill several positions this year at the **ASSISTANT, ASSOCIATE, OR FULL PROFESSOR** levels. We seek individuals with a strong record of research accomplishment using molecular biology, cell biology, protein chemistry or electrophysiology approaches to study mechanisms of intracellular and intercellular signalling, regulation of eukaryotic gene expression or structure and function of membrane proteins. Modern laboratory space and substantial start-up funds are available. Excellent opportunities exist for participation in established interdisciplinary programs, including Cancer, Cardiovascular, Diabetes and Endocrinology Centers. Rank and salary will be based on academic and research record. Minimum requirements include Ph.D. or M.D. degree, and 2 years of relevant postdoctoral training. Candidates should send curriculum vitae, description of research activities, representative reprints, and request three letters of recommendation to be sent, preferably by 15 March 1989, to:

Dr. Richard Maurer
Chairman, Cell and Molecular Physiology
Search Committee
Department of Physiology and Biophysics
The University of Iowa College of Medicine
Iowa City, IA 52242

The University of Iowa is an Equal Opportunity and Affirmative Action Employer.

Women and minorities are encouraged to apply.

POSITIONS OPEN

BIOLOGY BALL STATE UNIVERSITY MUNCIE, INDIANA

TENURE-TRACK POSITION in the Department of Biology, available fall 1989 for an individual with a primary interest in general studies biology. Candidates will be expected to employ innovative teaching methods in demonstrating the interrelatedness of biology to other sciences and to global concerns. An ability to use instructional tools such as interactive television or computers is desired. Responsibilities: To teach, coordinate, and develop the multisectioned general studies biology course for nonmajors; to conduct research in a specialty area and promote student research; and to be an active member of the academic community. Minimum qualification: Earned doctorate in biological sciences or science education. Preferred qualifications: Experience in teaching and coordinating nonmajors biology courses; research in specialty area; demonstrated ability to teach, conduct research or other creative activities, and publish. Submit résumé; documentation of scholarly activity (e.g., reprints of publications or creative activities); a list of three referees; and transcripts to: **Dr. Carl Warnes, Chairperson, Department of Biology, Ball State University, Muncie, IN 47306. Telephone: 317-285-8820.** Applicants will be evaluated commencing 17 February 1989, and will continue until the position is filled.

Ball State University Practices Equal Opportunity in Education and Employment.

BIOMEDICAL SCIENCES

A tenure-accruing **FACULTY POSITION** is available in the Department of Biomedical Sciences, University of South Alabama for individuals with cross-disciplinary training in: (i) Physiology-biochemistry or (ii) Physiology-pharmacology with strong biochemistry background. Qualifications include Ph.D., postdoctoral experience and evidence of productivity in research. Duties will include teaching in a cross-disciplinary undergraduate program in biomedical sciences and development/continuance of an active extramurally funded research program. Persons with a background in either physiology or pharmacology, with a strong orientation in biochemistry, are urged to apply. Deadline for receipt of application is 1 March 1989 or until filled. Please submit curriculum vitae, outline of research plans, and the names and addresses of three references to: **Dr. Gesina Longenecker, Chair, Department of Biomedical Sciences, 494 CC/CB, University of South Alabama, Mobile, AL 36688.** Equal Employment Opportunity/Affirmative Action Employer.

CELLULAR/MOLECULAR NEUROSCIENTIST

A faculty position is available in the Department of Neuroscience at the University of Virginia. This will be the first of several appointments to be made over a 5-year period to staff this new basic science department in the University of Virginia Health Sciences Center. We are especially interested in individuals addressing questions of neuronal development or plasticity using techniques at the interface between cell biology and molecular biology. The appointment can be made at the assistant, associate, or full professor level. Contact:

Oswald Steward, Ph.D.
Professor and Chairman
Department of Neuroscience, Box 230
University of Virginia Health Sciences Center
Charlottesville, VA 22908

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

CHAIR— MICROBIOLOGY AND IMMUNOLOGY

The Oregon Health Sciences University School of Medicine is seeking applicants for the position of Chair of the Department of Microbiology and Immunology. The faculty of this university-based department are engaged in research and in the instruction of medical students, graduate students and fellows. The position requires strong scientific, organizational and administrative skills. Submit curriculum vitae and references to: **Bruce Magun, Ph.D., Chairman, Microbiology Search Committee, L 215, Oregon Health Sciences University, Portland, OR 97201.** An Affirmative Action/Equal Opportunity Employer.

SUMMER 1989 TEN ENVIRONMENTAL SCIENCE AND ENGINEERING FELLOWSHIPS

Applications Invited

The American Association for the Advancement of Science (AAAS) invites applications for ten Environmental Science and Engineering Fellowships available for summer 1989. The Fellows will work closely with the Environmental Protection Agency (EPA), Office of Research and Development, and other program offices, in Washington, DC, and assist in identifying and assessing the significance of long-range environmental problems and opportunities. The ten-week appointments are scheduled for 5 June through 11 August 1989. The awards will be announced prior to the end of April 1989.

Postdoctoral to mid-career scientists, engineers, and other appropriate professionals are encouraged to apply. Candidates may be from the physical, biological, or behavioral sciences, or any field of engineering or other relevant professional fields. They are expected to be critical thinkers, articulate, adaptable, and able to work with a variety of people from different professional backgrounds.

The 1989 Environmental Fellows will receive a taxable stipend of \$750 per week and a nominal additional amount for temporary relocation expenses and travel in connection with the fellowships.

A detailed, future-oriented research project will be conducted by each Fellow, which is of mutual interest to him or herself and the EPA. A project report will be submitted at the completion of the summer's work. Typical areas of research interest within EPA include: environmental risk assessment; biological pesticides; acid deposition; mobile source air pollution; oxidants, gases and particles; municipal waste water and spills; drinking water; hazardous waste; chemical testing and assessment; pesticides; radiation; and energy.

For further information and specific application requirements contact:

Environmental Science and Engineering Fellows Program
American Association for the Advancement of Science
1333 H Street, NW, Washington, DC 20005
Telephone: 202-326-6600

Deadline for applications is 1 March 1989

QUALITY ASSURANCE/ TOXICOLOGIST

The Division of Toxicology Research and Testing (DTRT) of the National Institute of Environmental Health Sciences, National Toxicology Program, Research Triangle Park, North Carolina is seeking applicants for the position of Quality Assurance/Toxicologist. The position has a salary of \$28,852 to \$53,460. Primary duties involve developing and managing QA activities related to nonclinical toxicology studies conducted at contract laboratories. Knowledge of QA principles, procedures, and good laboratory practice regulations, as well as project-management skill are required qualifications. Experience in the use of computers to track project status and evaluate findings is desirable. A doctoral degree, or a bachelor's degree plus equivalent experience (including research), is required. If interested, submit a curriculum vitae and the names of three references to:

Mr. Johnny L. McLean
Personnel Office
NIH/NIEHS
P.O. Box 12233
Research Triangle Park, NC 27709
(919) 541-7513



NIH IS AN EQUAL OPPORTUNITY EMPLOYER

SCIENCE COORDINATOR

This faculty position, Science Coordinator of the Environmental and Occupational Health Sciences Institute (EOHSI), requires someone with a doctoral degree in a related science. The Science Coordinator will develop an overall strategy to guide implementation of the Institute's mission, which is to foster interdisciplinary research, education, and health in Environmental Science, and develop measures that will allow progress to be monitored. The candidate will work with all EOHSI divisions to integrate existing program components, facilitate teaching and research efforts, and make specific recommendations concerning the use of results, including communication with decision makers.

The Science Coordinator will also organize and implement conferences, lecture programs, colloquia and seminars that will build EOHSI, garner outside support for its mission, and contribute to its implementation. The candidate must be able to conceive strategies, manage complex interfaces, and develop the synergisms as well as interactions that this assignment demands. Excellent writing skills are required to reinforce the communication process, both internal and external. Salary commensurate with experience. Send curriculum vitae and three letters of recommendation by *February 28, 1989* to: **Dr. Bernard Goldstein, Director, University of Medicine and Dentistry of New Jersey, Environmental and Occupational Health Sciences Institute, (S), 675 Hoes Lane, Piscataway, NJ 08854-5635.** The UMDNJ is an Affirmative Action/Equal Employment Opportunity Employer M/F/H/V. EOHSI is jointly sponsored by the University of Medicine and Dentistry of New Jersey-Robert Wood Johnson Medical School and Rutgers, The State University of New Jersey.



RESEARCH CHEMIST NATURAL PRODUCTS

The Squibb Institute for Medical Research is recognized internationally as a leader in the research and development of novel pharmaceuticals. We currently have an exceptional opportunity available for an experienced Chemist to join our Department of Chemistry/Infectious and Metabolic Diseases.

You will be responsible for the isolation, structure determination and synthesis of natural products expressing biological activity in a variety of chemotherapeutic areas. The use of a broad array of chromatographic techniques (TLC, ion exchange, HPLC, counter current chromatography, etc.) is required. The position also requires competence in the use of biological and radiochemical assay methods and facility in the use and interpretation of NMR, MS and other spectroscopic methods. Skills in synthetic organic chemistry are required for chemical modification, degradation, synthesis and preparation of analogs of interesting natural products.

Qualified candidates should have an MS degree in Organic Chemistry and a minimum of 2 years related research experience.

In addition to an excellent salary and comprehensive benefits package, we offer the opportunity to pursue a rewarding and stimulating career. For consideration, please submit your resume to: **The Squibb Institute for Medical Research, Human Resources Department 77, PO Box 4000, Princeton, NJ 08543.** An equal opportunity employer.



SQUIBB

POSITIONS OPEN

CHAIR BIOLOGICAL SCIENCES

The Wichita State University is seeking a chairperson for the Department of Biological Sciences. In addition to academic credentials warranting appointment at the full professor level, successful administrative experience or documented potential is required. The ideal candidate will have research and teaching interests in some aspect of cellular/molecular biology, while maintaining an understanding and appreciation of the breadth of biology. The department presently consists of 11 faculty and 5 staff, and offers B.A., B.S., and M.S. degrees. The University is situated in the largest city in the state, and enrolls more than 17,000 students. The department is entering a growth phase coupled with expanding community involvement and support in biomedical research. The new chair will have a strong influence on the magnitude and direction of departmental growth, including the immediate filling of three faculty vacancies and possibility of additional positions. Address inquiries, nominations, and applications (letter of interest, curriculum vitae, names, and telephone numbers of at least three references) to:

Dr. R. I. Peters
Department of Biological Sciences
The Wichita State University
Wichita, KS 67208

Deadline for receipt of application is 24 February 1989.

An Equal Opportunity/Affirmative Action Employer.

CHAIRPERSON DEPARTMENT OF STOMATOLOGY UNIVERSITY OF CALIFORNIA, SAN FRANCISCO SCHOOL OF DENTISTRY

Full-time position as Chairperson of the Department of Stomatology which includes programs in oral biology, oral medicine, oral pathology, periodontology, and oral radiology. Responsibilities include providing academic and administrative leadership in research, teaching, patient care and community and university service for undergraduates, predoctoral and postdoctoral students, and faculty. Demonstrated administrative experience and academic qualifications (D.D.S., M.D., Ph.D. or equivalent degree) for a senior professional rank are required. Salary commensurate with qualifications and experience. *Applications from women and minorities are encouraged. The University of California, San Francisco is an Equal Opportunity/Affirmative Action Employer.*

Please send curriculum vitae and the names of three individuals familiar with your work to: **Dr. Leonard B. Kaban, Chair, Search Committee, in care of: Office of the Dean, School of Dentistry, Box 0430, UCSF, San Francisco, CA 94143.** Applications should be submitted by 28 February 1989.

CHIEF, DIVISION OF ONCOLOGY/HEMATOLOGY—Full-time academic appointment available at Southern Illinois University School of Medicine. Associate Professor or Professor of Medicine, depending on experience. Internal Medicine and Oncology/Hematology certification or equivalency is required. Teaching and patient care responsibilities with a strong interest in clinical research. Send résumés to: **Oliver E. Owen, M.D., Professor and Chairman, Department of Internal Medicine, SIU School of Medicine, P.O. Box 19230, Springfield, IL 62794-9230.** *SIU School of Medicine is an Equal Opportunity/Affirmative Action Employer.* This position will be open until April 1989 or until filled.

CONSULTING

Scientific consulting firm offering assistance in analysis of data and communication of findings in written reports and public presentations to a variety of forums seeks Ph.D.'s in biological and biochemical sciences and M.D.'s interested in consulting opportunities. Disciplines of interest include epidemiology, biostatistics, toxicology/pharmacology, cancer research, pathology, immunology, allergy, etc., and any of the medical specialties. Applicants will provide assistance on various projects. The position is intended for those people looking to supplement ongoing activities. Travel can be minimized. Retired individuals are welcome as are all academic professionals. Please reply with résumé and rate structure to: **Vice President, Suite 206, 3421 M Street, NW, Washington, DC 20007.**

POSITIONS OPEN

THE UNIVERSITY OF VERMONT DEAN COLLEGE OF ARTS AND SCIENCES

The University of Vermont invites applications and nominations for Dean of the College of Arts and Sciences. The College has 21 departments representing the arts, humanities, and social and natural sciences; 300 faculty; 3350 undergraduates and 280 graduate students.

We seek candidates whose personal and professional qualities and experience assure superior leadership in teaching, scholarship and research, service, and faculty development. Candidates must demonstrate administrative experience; communication skills; and commitment to affirmative action, cultural diversity, and academic excellence. The Dean's teaching and scholarly record must be sufficient for a tenured professorship in the College. *The University especially welcomes as candidates people of color, women, and people with disabilities.*

The position opens September 1989; starting date is negotiable. Applications submitted by 1 March 1989 will receive priority; applications will be accepted until the position is filled. Send nominations or a letter of application and curriculum vitae to:

Dean Lawrence K. Forcier
CAS Dean Search Committee Chair
George D. Aiken Center for Natural Resources
University of Vermont
Burlington, VT 05405-0088

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

DIRECTOR, GENETIC DIAGNOSTIC LABORATORY: A position available immediately for a Ph.D. with experience in molecular biology/biochemical genetics to direct a genetic diagnostic laboratory. There is ample opportunity for independent research and faculty appointment at Duke University Medical Center (rank dependent on experience). The candidate will join an established and growing, comprehensive academic genetic and metabolic program with expertise in clinical genetics, molecular and biochemical genetics associated with a major mass spectrometry facility. *Duke University is an Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae and three references to:

Y. T. Chen, M.D., Ph.D.
Associate Professor of Pediatrics
Division of Genetics and Metabolism
Department of Pediatrics
P.O. Box 3028
Duke University Medical Center
Durham, NC 27710

DIRECTOR OF THE KELLOGG BIOLOGICAL STATION MICHIGAN STATE UNIVERSITY

Michigan State University seeks a resident director of its Kellogg Biological Station. The responsibility of the director is to provide creative leadership and to guide future development of KBS programs in ecology, natural resources, and agriculture. The University is committed to build at the Station a program of excellence in research, education and extension directed toward the comprehensive understanding of the interdependence of natural and managed terrestrial and aquatic systems and the conservation of natural resources.

The Station programs and operations are supported by a \$4-million annual budget. New research and teaching facilities and a 2300-acre landbase provide an excellent environment for resident and campus-based programs.

Candidates should have an established record of scholarly activity, including current research experience, demonstrated leadership ability and a strong interest in interdisciplinary research, teaching, and extension activities.

Send letter of application and curriculum vitae to:

Dr. Michael J. Klug
Kellogg Biological Station
3700 East Gull Lake Drive
Hickory Corners, MI 49060
Telephone: 616-671-2341

Closing date for applications is 1 March 1989, or until a suitable candidate is identified.

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

POSITIONS OPEN

THE UNIVERSITY OF ARIZONA DIRECTOR OF CANCER PREVENTION AND CONTROL SECTION OF HEMATOLOGY AND ONCOLOGY DEPARTMENT OF INTERNAL MEDICINE AND THE ARIZONA CANCER CENTER

Applications are invited for a tenure-track faculty position in the Section of Hematology and Oncology, Department of Internal Medicine and the Arizona Cancer Center. Research in the nationally recognized program of Cancer Prevention and Control is of primary interest.

Candidates for this position should have a strong background with pertinent experience in Cancer Prevention or Control. The successful candidate will be expected to develop a nationally recognized independent research program. A wide variety of interactions with faculty members is possible in areas of epidemiology, intervention trials, biostatistics, clinical pharmacology, and molecular and cellular biology. We provide excellent physical facilities including a suite of cancer prevention/control offices and laboratory space in the Arizona Cancer Center. We have both state and federal support for cancer prevention/control projects, as well as a competitive salary and benefits. The successful applicant will be a faculty member in the Section of Hematology and Oncology. Faculty rank will be dependent on experience and accomplishments. Applicants should provide curriculum vitae, two copies of recent representative publications, and a detailed description of research experience and goals. The applicant should also arrange for at least three letters of recommendation to be sent directly. The search committee will begin reviewing applications on 20 February 1989. The deadline for application submission is 31 March 1989, or until the position is filled.

The University of Arizona is an Equal Opportunity/Affirmative Action Employer. Applications from female and minority group members are strongly encouraged.

Submit applications to:

David S. Alberts, M.D.
Professor of Internal Medicine/
Cancer Center Search Committee
Arizona Cancer Center
Room 3945
The University of Arizona College of Medicine
Tucson, AZ 85724



Graduate Health System

DIRECTOR OF RESEARCH AND SCIENTIFIC DEVELOPMENT

Graduate Health System, Inc., a progressive health care organization, affiliated with the University of Pennsylvania, is actively seeking an individual to assume the position of Director of Research and Scientific Development.

Major responsibilities include supervision and coordination of all research activities, identifying new research opportunities and funding sources, and coordinating recruitment of new research scientists.

Candidate must possess an M.D. or Ph.D. degree, preferably in the basic sciences. Qualifications should include demonstrated experience in research administration and the ability to relate to the community of scientists to be served.

Résumés should be submitted to: **Paul Nemir, Jr., M.D., Chairman of the Search Committee, The Graduate Hospital, One Graduate Plaza, Philadelphia, PA 19146.** *Equal Opportunity Employer/M/F/H.*

ENDOCRINOLOGIST—Diabetologist/Nutritionist Board-certified physician needed for a full-time academic appointment with Southern Illinois University School of Medicine. This position is needed to expand the current metabolic, endocrine, nutritional and diabetes center. Rank and salary to be negotiated. Research and service activities are integrated with an innovative teaching program. Send résumés to: **Oliver E. Owen, M.D., Professor and Chairman, Department of Internal Medicine, Southern Illinois University School of Medicine, P.O. Box 19230, Springfield, IL 62794-9230.** This position will be open until April 1989 or until filled. *SIU is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ENDOWED PROFESSORSHIP AT OREGON STATE UNIVERSITY VALLEY CHAIR IN MARINE BIOLOGY

The Department of Zoology at Oregon State University invites applications and nominations for the Wayne and Gladys Valley Professorship in Marine Biology. We expect the successful candidate to contribute substantially to research and graduate training in some aspect of marine biology. Applicants should have an established international reputation in marine biology, including a strong research program with evidence of continued growth and development. Teaching opportunities may include a graduate course in the candidate's specialty and participation in a marine biology course, team-taught each spring at the Hatfield Marine Science Center (HMSC) in Newport, Oregon. Research space and facilities are located on the main campus in the Department of Zoology, but we encourage research activity at the HMSC, where additional research facilities and resources are available.

Oregon State University has considerable strength in the marine sciences, including scientists in the Colleges of Science (Zoology, Botany and Plant Pathology, Biochemistry/Biophysics, Microbiology, General Science), Agriculture (Fisheries and Wildlife), and Oceanography. The Department of Zoology includes an active group of marine biologists with expertise in behavioral, population and community ecology, paleobiology, invertebrate zoology, ichthyology, evolutionary biology, and physiology.

Review of applications will begin 1 February 1989. Deadline for application material is 15 September 1989. Nominations should address the relevant qualities of the nominee. Applications should include curriculum vitae, copies of representative publications, a statement of research goals, and the names of four references sent to: **Dr. Bruce Menge, Chair, Marine Biology Search Committee, Department of Zoology, Oregon State University, Corvallis, OR 97731-2914.** *Oregon State University is an Equal Opportunity/Affirmative Action Employer and complies with section 504 of the Rehabilitation Act of 1973. OSU has a policy of being responsive to the needs of dual career couples.*

EVOLUTIONARY MORPHOLOGIST. The Department of Anatomical Sciences, State University of New York (SUNY) at Stony Brook, seeks to fill a faculty position with teaching responsibility in the area of health sciences gross anatomy beginning 1 September 1989. Research experience in the areas of functional or quantitative morphology and/or evolutionary biology. Requirements include a Ph.D., and experience in the field of human gross anatomy. Send curriculum vitae, statement of teaching and research interests, and list of three references by 17 February 1989 to: **Dr. Jack T. Stern, Department of Anatomical Sciences, Health Sciences Center, SUNY Stony Brook, Stony Brook, NY 11794-8081.** *SUNY Stony Brook is an Affirmative Action/Equal Opportunity Educator and Employer. AK# 365.*

Emory University, Department of Radiology, seeks a Ph.D. or M.D. with either NMR spectroscopy or imaging experience for a full-time **FACULTY POSITION**. The candidate must be able to originate fundable research projects using NMR and collaborate with other faculty members (in or out of radiology) on NMR research. Knowledge of spin behavior is essential, and medicine, biology, or biochemistry, analog electronics, and computer science are useful skills.

Two 1-meter clinical imagers operating at 0.5 and 1.5 T and a 30-cm 200-MHz instrument, all fully programmable, will be available. The department is part of an 800-bed tertiary care complex giving ample opportunity for collaborations requiring clinical material. Seven Ph.D. scientists in the radiology department are currently involved full-time in NMR. Qualified candidates please contact:

**Dr. Thomas Dixon, Director
Frits Philips Magnetic Resonance
Research Center
419 Woodruff Memorial Building
Emory University
Atlanta, GA 30322**

Emory University is an Equal Opportunity/Affirmative Action Employer.

PUBLIC HEALTH SERVICE

ALCOHOL, DRUG ABUSE AND MENTAL HEALTH ADMINISTRATION NATIONAL INSTITUTE OF MENTAL HEALTH

FELLOWSHIPS IN BASIC AND CLINICAL NEUROSCIENCE

An extensive basic science and clinical research component of the NIMH Intramural Research Programs is located at the NIMH NEUROSCIENCES CENTER AT SAINT ELIZABETH'S in Washington, D.C. under the leadership of Drs. Rex Cowdry, Carl Merrill, Daniel Weinberger, and Richard Wyatt. This program conducts a broad range of neuroscientific investigations, including studies in: molecular neurobiology; neurochemistry of amines; peptides and receptors; CNS mitochondrial studies; identification of disease-specific proteins; neuropathology; neuropsychopharmacology; CNS tissue transplantation; neurovirology-immunology (e.g., studies of neurotropic viruses including variants of HIV); brain imaging (e.g., CT, MRI and SPECT); electrophysiology (e.g., computerized EEG analysis); development of new diagnostic methods; neuropsychological evaluation of psychosis and dementia; and drug trials in schizophrenia and other neuropsychiatric disorders.

The program invites applications from physicians and scientists for Medical Staff Fellow (\$32,000), Research Staff Fellows (\$20,000-\$38,000), or Visiting Fellow (\$20,000-\$23,000) positions. Staff Fellows must be U.S. citizens with a doctoral degree. Initial appointments are for two years with further renewals possible. Visiting Fellows may be resident or non-resident aliens with a doctoral degree and no more than three years of relevant post-graduate experience. Visiting Fellows are appointed for one year with possible renewals for two additional years.

Interested candidates should send a curriculum vitae, a brief statement regarding experience and research interests, and the names of three references to:

**Rex Cowdry, M.D.
Deputy Director for Research
NIMH Neurosciences Center at Saint Elizabeth's
2700 Martin Luther King, Jr. Avenue, SE
Washington, D.C. 20032
(202) 373-6200**



Plant Molecular Biology at Monsanto

The Plant Molecular Biology Group at Monsanto, located in suburban St. Louis, is committed to high quality basic and applied research in plant genetic engineering. We have openings in the following areas of plant genetic engineering research for highly motivated and creative research scientists.

Fungal Disease Resistance

This position involves the discovery and development of novel strategies for engineering resistance to pathogenic fungi in crop species. The qualified candidates will have a Ph.D. in plant pathology, biochemistry or molecular biology and postdoctoral experience in the biochemical or molecular biological aspects of plant-pathogen interactions. The potential candidates will be involved in basic and applied research leading to the identification and expression of genes conferring fungal resistance in crop species.

Plant Gene Expression

The qualified candidates will have experience in molecular genetics of eucaryotes. Experience in higher plant systems is desirable but not essential. The candidates will have postdoctoral experience in eucaryotic gene expression and will be a major contributor to determining the organization and direction of an expanding team working on genetic engineering of monocot crops. Responsibilities include investigation of gene regulation in higher plants, plant gene isolation and development of gene expression assay systems and supervising a research associate performing these duties.

The candidates for both positions will have an established publication record, good communication and supervisory skills as well as strong ability to interact effectively with a team of scientists working on plant diseases and crop transformation.

Please send curriculum vitae and names of three references to: **MONSANTO COMPANY, 700 Chesterfield Village Parkway, Department BB5B-AMO, St. Louis, MO 63198.** Equal Opportunity Employer M/F/H/V.

POSITIONS OPEN

The University of Iowa Department of Chemistry has a **FACULTY POSITION** available with area of specialization open. In filling this position the University and Department seek to increase faculty diversity with respect to gender and underrepresented minorities. While senior appointment at the associate professor or professor rank is preferred, beginning level appointment will be considered for exceptionally qualified junior applicants. Candidates should send curriculum vitae and list of three or more references to: **The Search Committee Chair Professor Leo Davis, Department of Chemistry, The University of Iowa, Iowa City, IA 52242.** The University of Iowa is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION IN PHYSIOLOGY. The Department of Physiology at the University of Massachusetts Medical School has an opening for an entry level assistant professor. We seek applicants with a background and research interests which emphasize the cellular and molecular basis of physiology. Successful applicants will be expected to conduct an active independent research program and participate in teaching medical and graduate students. Candidates should submit by 1 March 1989, curriculum vitae, a complete list of publications, a brief statement summarizing present and future research interests and objectives, and have three letters of reference sent to: **H. Maurice Goodman, Ph.D., Professor and Chairman, Department of Physiology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, MA 01655.** Applications from women, minorities, and handicapped persons are especially encouraged. The University of Massachusetts Medical School is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS MOLECULAR CELL OR DEVELOPMENTAL BIOLOGY

Three tenure-track faculty positions in molecular cell/developmental biology in a vigorous, expanding department at a major university in suburban New York City. Rank and salary open; postdoctoral experience and evidence of research productivity are required. Teaching of both undergraduates and graduate students is expected, but the successful candidate will have a primary responsibility to train Ph.D. students in a competitive, externally-funded research program. Substantial start-up funds and newly-renovated laboratory space are available. Candidates should submit curriculum vitae with list of publications, a brief statement of research interests, and the names of at least three references by 23 March 1989 to: **Dr. Richard A. Lockshin, Chair, Department of Biological Sciences, St. John's University, Jamaica, NY 11439.**

GRIFFITH UNIVERSITY DIVISION OF SCIENCE AND TECHNOLOGY LECTURER PHARMACOLOGY/PHYSIOLOGY (Continuing Appointment) Ref. No. F14-88

Applications are invited for a lectureship in the areas of Pharmacology/Physiology in the Division of Science and Technology. The successful applicant will be expected to teach pharmacology at the undergraduate and postgraduate levels and to contribute to physiology teaching at undergraduate levels.

Applicants should possess a suitable higher degree and a record of research in an appropriate area. Some teaching experience would be an advantage.

The appointee will be expected to commence duties from 1 November 1989. It is anticipated that the appointment will be made in the lower half of the lecturer's salary range, i.e. A\$30,737 to A\$34,750.

Applications from women and men are encouraged. Employment benefits include parental leave and the possibility of access to full-time child care and after-school care.

Further details may be obtained from the Divisional Administrator, Division of Science and Technology, to whom applications (including curriculum vitae and names and addresses of two referees) should be sent by 31 March 1989.

Griffith University
Nathan Qld 4111
AUSTRALIA
An Equal Opportunity Employer

POSITIONS OPEN

FACULTY POSITIONS THE UNIVERSITY OF CHICAGO MOLECULAR VIROLOGISTS

The Department of Molecular Genetics and Cell Biology invites applications for two tenure-track positions in the area of molecular biology of DNA viruses. Candidates should have sufficient research experience to demonstrate both significant accomplishment and outstanding promise. The selected candidates will be offered generous space in a modern facility and substantial equipment and start-up funding. They are expected to contribute to the teaching of virology to graduate and undergraduate students. The Department and University offer opportunities for productive interactions with cell biologists and other virologists including members of the Interdepartmental Committee on Virology, an academic unit with its own graduate program. The deadline for receipt of applications is 15 May 1989. Applicants should send their curriculum vitae, an outline of their research interests and goals, and the names and addresses of three referees to: **Virology Search Committee, Division of Biological Sciences, The University of Chicago, 910 East 58th Street, Chicago, IL 60637.** The University of Chicago is an Affirmative Action/Equal Opportunity Employer.

MATERIALS SCIENCE FACULTY THE UNIVERSITY OF TEXAS AT EL PASO

The University of Texas at El Paso invites applications for tenure-track faculty positions at any professorial level to be held in the Department of Chemistry (Science) or the Department of Metallurgical Engineering (Engineering). The University holds an NSF 5-year Minority Research Center of Excellence grant, and plans to establish an interdepartmental doctoral-level program in materials science. The successful candidates must demonstrate the potential to maintain competitive research programs in materials science (e.g. ceramics, powder metallurgy and corrosion, high-temperature materials, high-performance polymers, organic/organometallic electrical and electro-optical materials). Applications will be accepted until 1 May 1989. The University offers a competitive salary and benefit package. Applications should consist of a complete résumé, a description of research projects, names of at least three current references, and start-up requirements. Applications should be sent to either: **Dr. Rey Elizondo, Dean, College of Science, The University of Texas at El Paso, El Paso, TX 79968-0509** or **Dr. Robert Grieves, Dean, College of Engineering, The University of Texas at El Paso, El Paso, TX 79968-0517.** Minorities and women are encouraged to apply. The University is an Equal Employment Opportunity/Affirmative Action Employer.

METEOROLOGIST, GS-1340-13. Salary: \$41,121. Department of Commerce, Air Resources Laboratory, Meteorology Division, Research Triangle Park, North Carolina. Selective Factor: Measurement of UV radiation reaching the earth's surface. Primary objective will be the conduct of research in the measurement of UV radiation at the earth's surface, including instrument development, network design and implementation, and data analysis. A college degree in meteorology is required, plus 3 years of professional experience of which 1 year is equivalent to the GS-12 level of work in the Federal Service. Graduate work may be substituted for experience. For information on applying, call: **Patricia Parrott at 804-441-6880.** An Equal Employment Opportunity Employer. U.S. citizenship required.

NEUROBIOLOGIST

The Department of Biological Sciences at Idaho State University anticipates a new tenure-track position in neurobiology at the assistant professor level to begin August 1989. Teaching responsibilities include gross human anatomy and neuroanatomy. The opportunity exists to develop a course in the candidate's area of expertise. Preference will be given to candidates who have postdoctoral experience and potential to develop a strong research program in neurobiology or developmental neurobiology. Send curriculum vitae, statements of teaching and research interests, and three letters of recommendation by 1 March 1989 to: **Neurobiology Search Committee, Department of Biological Sciences, Idaho State University, Pocatello, ID 83209.** Idaho State University is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

MOLECULAR NEUROBIOLOGY THE UNIVERSITY OF IOWA COLLEGE OF MEDICINE

Applications are requested from individuals with active research programs using approaches of molecular biology or membrane biophysics to address problems broadly related to mechanisms of signal transduction and synaptic communication for faculty positions at the **ASSISTANT, ASSOCIATE, OR FULL PROFESSOR** levels. Modern laboratory space and substantial start-up funds are available. Excellent opportunities exist for interaction with faculty associated with formal neuroscience and molecular biology Ph.D. programs. Rank and salary will be based on academic and research record. Minimum requirements include the Ph.D. or M.D. degree and 2 years of relevant postdoctoral training. Candidates should send curriculum vitae, description of research activities, representative reprints, and request three letters of recommendation to be sent, preferably by 15 March 1989, to:

Mary Boyle, Ph.D.
Molecular Neurobiology Search Committee
Department of Physiology and Biophysics
The University of Iowa College of Medicine
Iowa City, IA 52242

The University of Iowa is an Equal Opportunity and Affirmative Action Employer. Women and minorities are encouraged to apply.

PEDIATRIC NEPHROLOGIST

Position available immediately for board-eligible physician for the section of nephrology at assistant professor level. Requires demonstrated competence in teaching, patient care and research in this area and Fellowship in Pediatric Nephrology. Annual salary of \$45,000. Send curriculum vitae and three letters of recommendation by 3 March 1989 to: **Keith Myers, P.O. Box 94600, Job Order Number 512610, Lincoln, NE 68509.**

PHARMACOKINETICIST/STATISTICIAN

Harris Laboratories has a challenging position available for a pharmacokineticist/statistician in our Regulatory Affairs Division. Individual will be responsible for organizing and coordinating project assignments, data interpretation, and report writing. Requires a Pharm.D. degree and/or minimum of 3 years of related work experience. Good organizational and communication skills a must. Comprehensive company benefits. Send résumé and salary history to: **Harris Laboratories, Inc., P.O. Box 80837, Lincoln, NE 68501.** Affirmative Action/Equal Opportunity Employer.

Garrett Herbarium at the Utah Museum of Natural History seeks a recent **Ph.D. IN PLANT SYSTEMATIC BIOLOGY** to curate a collection of 100,000+ specimens. Will be expected to maintain an independent research program. Possibilities for collaboration with the Department of Biology in terms of research and teaching. Send curriculum vitae, three supporting letters and statement of research interests to: **Director of Utah Museum of Natural History, c/o Personnel Services, University of Utah, 101 Annex Building, SC-5544, Salt Lake City, UT 84112.** Closing date for candidates is 1 April 1989 or until successful applicant is found. Equal Opportunity Employer.

PLANT CYTOGENETICS

Clemson University seeks an outstanding **PLANT SCIENTIST** to develop a contemporary program that interfaces between molecular-genetics and classical breeding approaches for crop plants. This position, which is a tenure-track, 12-month appointment, is a component of the University's commitment to biotechnology/germplasm enhancement and carries equal responsibilities for research and graduate education within the Department of Agronomy and Soils and Biological Sciences. The appointment will be made at the rank of assistant or associate professor and is available July, 1989. Applicants should send curriculum vitae, a description of research interests, selected publications, and have three letters of recommendation sent by 15 March 1989 to: **Dr. Albert Abbott, Department of Agronomy and Soils, 275 Poole Agricultural Center, Clemson University, Clemson, SC 29634-0359.** Clemson University is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.

POSITIONS OPEN

PHYSIOLOGIST

The Department of Biological Sciences at Idaho State University anticipates a tenure-track position in physiology at the assistant professor level to begin August 1989. Teaching responsibilities may include vertebrate physiology and human anatomy and physiology. Preference will be given to candidates who have postdoctoral experience and potential to develop a strong research program utilizing molecular approaches in the study of muscle, exercise, or neurophysiology. Send curriculum vitae, statements of teaching and research interests, and three letters of recommendation by 1 March 1989 to: **Physiology Search Committee, Department of Biological Sciences, Idaho State University, Pocatello, ID 83209.** *Idaho State University is an Equal Opportunity/Affirmative Action Employer.*

PHYTOPLANKTON ECOLOGY SHANNON POINT MARINE CENTER

In support of its new M.S. graduate option in Marine and Estuarine Science, Western Washington University is seeking to fill a temporary non-tenure track faculty position (Research Associate/Lecturer) at the Shannon Point Marine Center (SPMC) by September 1989. A doctoral degree is required. Research interests should include primary productivity and nutrient cycling in coastal marine systems. An active research program and teaching a graduate course in biological oceanography are required. A 2-year academic term (9 months) appointment is anticipated; summer salary funds also may be available. SPMC also invites applications from senior faculty seeking sabbatical leave support and willing to teach the required courses. Applicants should submit a statement of research interests, a résumé, and the names of three referees by 28 February 1989 to: **Dr. Stephen D. Sulkin, Director, Shannon Point Marine Center, 1900 Shannon Point Road, Anacortes, WA 98221.** *Women and members of minority groups are encouraged to apply.*

POSTDOCTORAL available to do research on the effects of aluminum on gene expression and chromatin conformation. Must have some experience in molecular techniques. Salary is \$29,690 plus full benefits. Attention: **Reference # 566.** Send résumé to: **Personnel, New York State Institute for Basic Research in Developmental Disabilities, 1050 Forest Hill Road, Staten Island, NY 10314.**

POSTDOCTORAL FELLOW: HHMI-SAN FRANCISCO-UCSF Immunology-Molecular Neurobiology. A position is available beginning summer 1989 in a laboratory studying neuropeptide receptor function, gene structure and regulation. Applicants should have an M.D./Ph.D. or Ph.D. Experience with recombinant DNA techniques is essential. Send curriculum vitae, statement of interests and three letters of reference to: **Dr. Donald G. Payan, U-426, University of California San Francisco, 3rd and Parnassus, San Francisco, CA 94143.**

POSTDOCTORAL FELLOW to conduct research in the area of fundamental investigations into the biooxidation of arylalkyl hydrocarbon derivatives using standard spectroscopic techniques, GC, HPLC, electrochemistry and analysis of oxidation products of enzymatic and biomimetic oxidations. To carryout isolation and purification of enzymes. Examine the role of stereoelectronic effects and the polarity and basicity of the medium in the oxidation of arylalkyl hydrocarbon derivatives. Develop mechanistic hypotheses design and synthesize novel arylalkyl derivatives and their metabolites to prove those hypotheses. Require Ph.D. in chemistry. Demonstrated ability to perform stated research by way of publication. Salary: \$19,000 per year. Apply with résumé to: **Georgia Department of Labor, 2811 Lakewood Avenue, S.W., Atlanta, GA 30315,** or to the nearest Georgia Job Service Center. (Control #GA 5332994).

POSTDOCTORAL FELLOWSHIP is available for an appropriate individual to join ongoing research on the cloning, gene sequencing, expression and regulation of connective tissue lysyl oxidase. Experience in molecular biology is required, familiarity with protein chemistry helpful. Forward curriculum vitae and the names of three references to: **Herbert M. Kagan, Ph.D., Department of Biochemistry, Boston University School of Medicine, Boston, MA 02118.**

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP available immediately for research on the role of lymphokines and macrophage activation in the immune response and control of cancer.

Background in either biochemistry/immunology/microbiology/molecular biology desirable, but not essential. Send curriculum vitae and the names of the three references to: **Dr. Lawrence B. Lachman, Department of Cell Biology-173, M. D. Anderson Cancer Center, 1515 Holcombe Boulevard, Houston, TX 77030.** *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately for up to 3 years to study biochemical mechanisms of hemostasis. Specific projects include investigation of vascular cell regulation of hemostasis and identification of cellular binding sites for coagulation proteins. The candidate should have experience in biochemistry and/or protein chemistry. NIH-funded salary is dependent upon level of training. *Citizenship or non-citizen national of the U.S. required.* Send curriculum vitae and a list of three references to: **Dr. George M. Rodgers, Division of Hematology-Oncology, 50 North Medical Drive, University of Utah, Salt Lake City, UT 84132.** *The University of Utah is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL FELLOWSHIP OR JUNIOR FACULTY POSITION in molecular genetics of defects of apolipoproteins. M.D. and/or Ph.D. with skills in molecular genetics is required. Salary competitive, based on experience and expertise. Start date as early as 1 April 1989. Send curriculum vitae/outline of research interests to: **Dr. Gustav Schonfeld, Washington University School of Medicine, Division of Lipid Research, 4566 Scott Avenue, Box 8046, St. Louis, MO 63110.** *Equal Employment Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available to study genetic defects resulting in enzyme deficiencies in UMP synthase and possible immune system defects associated with hereditary orotic aciduria. Other research involves analysis of the bifunctional domain structure of UMP synthase using site-directed mutagenesis and vector expression in bacterial and cell culture systems. Applicants with a strong background in molecular biology and/or protein biochemistry are preferred. Two to 3 years of funding is available starting at \$22,000. Send curriculum vitae and names of three references to: **Dr. D. Parker Suttle, Department of Pharmacology, St. Jude Children's Research Hospital, 322 North Lauderdale, Memphis, TN 38101-0318.** *An Equal Opportunity/Affirmative Action Employer.*

Advanced Drug Delivery Research

Head of Molecular Cell Biology

Horsham, West Sussex, U.K.

The Advanced Drug Delivery Research Unit of Ciba-Geigy Pharmaceuticals is working at the forefront in the design of methods for achieving the site-specific delivery of conventional and genetically defined drugs. A senior position has become available within the Unit for an experienced Cell Biologist. This person will act as the scientific leader of a multi-disciplinary project team comprised of up to 20 staff working on achieving the epithelial and endothelial transport of macromolecules.

This is an exciting career opportunity for a creative and effective senior scientist with a renowned track record in cell and molecular biology and possessing proven team leadership skills. The successful applicant will preferably have had at least 10 years' post-doctoral experience as well as industrial and international experience.

The remuneration package offered reflects the seniority of this position, and includes comprehensive relocation assistance where appropriate.

Candidates wishing to discuss this position in confidence may contact Professor Eric Tomlinson, Head of the Advanced Drug Delivery Research Unit at Horsham (ext. 3638).

Applicants should send a full CV quoting ref: V40 to the Personnel Department, Ciba-Geigy Pharmaceuticals, Wimbleshurst Road, Horsham, West Sussex RH12 4AB. Telephone: (0403) 50101.

CIBA-GEIGY

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We are seeking a PhD with 3-5 years post-doctoral experience in microbial genetics or biochemistry to join a strain development program. Industrial experience with antibiotic-producing microorganisms is preferred. The selected candidate will have strong interpersonal and written communication skills.

Abbott Laboratories is headquartered in an attractive suburban area north of Chicago. We provide an excellent salary and benefits program featuring profit sharing and employee stock retirement plans. For more information, send a resume in confidence to: **Charles Murphy, Corporate Placement, Abbott Laboratories, Dept. SCI/2/3, Abbott Park, IL 60064.** Abbott is An Affirmative Action Employer.

ABBOTT LABORATORIES



RESEARCH ASSOCIATE ANALYTICAL CHEMISTRY

Amgen is a dynamic and growing organization producing products for a variety of applications, including human health care, through applied biotechnology. Our leadership in the development of Erythropoietin has placed us among the industry frontrunners. As a result of our continued growth, we have an immediate need for a Research Associate in our Analytical Chemistry group to assist in the development and implementation of new analytical methods for in-process materials.

Qualified candidates must have a BS or MS degree in Chemistry, or a related discipline, and experience in isolation and derivatization techniques as well as familiarity with HPLC, GC, GC-MS and quantitative methodology.

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H

offmann-La Roche Inc. and Cetus Corporation are undertaking a joint effort to develop and commercialize in vitro human diagnostic products and services, based on an exciting technology called GeneAmp Polymerase Chain Reaction (PCR). As the most important new technology in the field of diagnostics, PCR will facilitate rapid, sensitive and highly accurate diagnosis of such conditions as infectious diseases, cancer and genetic disorders.

DEVELOPMENT-Northern New Jersey DIRECTOR AND 20-25 SCIENTISTS

Roche Diagnostic Systems will establish a development group in Northern New Jersey; we are searching for an individual to head the group, and for a minimum of 20-25 Scientists at the BS, MS, PhD and Group Leader levels to staff this group.

The **Director of the development group** should have a PhD and extensive experience in DNA Probe Research and Development; the proven ability to supervise/motivate people and manage projects is essential.

RESEARCH-Northern California DIRECTOR AND 20 SCIENTISTS

The Hoffmann-La Roche Research Division will establish a research group in Northern California. We are searching for an individual to manage a group of about 50 Scientists. Opportunities exist in this research group for an additional 20 professionals at the BS, MS, and PhD levels, including a Group Leader.

The **Director of the research group** should have a PhD or MD and a strong background in Molecular Genetics. Particular emphasis on Nucleic Acid research would be beneficial. The proven ability to supervise/motivate people and manage projects is essential. The capability to direct the successful transfer of pioneering research into products is paramount.

If you feel that you would like to play a role in the research and development of applications for this exciting new technology, we would welcome your inquiry about these new positions. In return for your professional contributions, we offer competitive salaries commensurate with your experience and education, an outstanding benefits package and significant opportunities to have impact in an important venture. For consideration, please send your resume, indicating salary history and requirements, to: Eleanor M. Malone, Department MU (for New Jersey positions) or Department PG (for California positions), Hoffmann-La Roche Inc., Nutley, New Jersey 07110. We are an equal opportunity employer.



Hoffmann-La Roche

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POSITIONS OPEN

POSTDOCTORAL. Individual with recent Ph.D. in cell biology or allied field to participate in project investigating the effects of trace metals on an in vitro model of the blood-brain barrier. Experience in tissue culture and electron microscopy essential. Starting salary: \$24,000 to \$30,000 plus fringe benefits depending on level of experience. Position available immediately. Attention: **Reference # 567.** Send résumé to: **Personnel, New York State Institute for Basic Research in Developmental Disabilities, 1050 Forest Hill Road, Staten Island, NY 10314.**

POSTDOCTORAL NEUROBIOLOGIST to join NIH-funded investigation into the function, distribution and regulation of ion channels in vertebrate neuronal and cardiac cells using patch clamp techniques. The laboratory is located in Newport, on the central Oregon coast. Send curriculum vitae, names of three references and a description of experience and career goals by 28 February 1989 to: **Dr. Donald T. Campbell, Hatfield Marine Science Center, Oregon State University, Newport, OR 97365. Telephone: 503-867-3011. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available in a large multi-disciplinary group studying the control of respiration. Because of the diverse nature of our program, the individual will be introduced to a variety of state-of-the-art techniques and protocols. A competitive stipend is available for at least 3 years. Applicants should send a résumé and names of three potential references by 1 April 1989 to: **Dr. D. T. Frazier, Chairman, Department of Physiology and Biophysics, College of Medicine, University of Kentucky, Lexington, KY 40536-0084.**

POSTDOCTORAL POSITION available immediately to join a group studying defects in red cell membrane proteins. A combination of biochemical and molecular biological approaches will be used in these studies. Candidates should be a recent Ph.D. with experience in protein chemistry and molecular biology. Please send curriculum vitae, a statement of research interests and three letters of recommendation to: **Dr. Robert S. Schwartz, Montefiore Hospital Medical Center-Albert Einstein College of Medicine, Division of Hematology, 111 East 210th Street, Bronx, NY 10467.**

POSTDOCTORAL POSITION IN ENTOMOLOGY

A postdoctoral candidate is needed to participate in ongoing research on the role of mosquitoes in virus transmission cycles. People with experience in applying molecular techniques to biosystematics of insects or in molecular virology are encouraged to apply. Studies in our laboratory examine mosquito-virus evolution, mosquito-vertebrate host interactions, and mosquito systematics. The candidate will be expected to participate in research that combines classical entomology with molecular biology. Submit curriculum vitae, a letter describing research interests and professional goals, and names of three references to: **Dr. Thomas W. Scott, Department of Entomology, University of Maryland, College Park, MD 20742.**

POSTDOCTORAL POSITIONS available beginning spring-summer 1989, 1 to 3 years of tenure. (i) Bioenergetic studies on mitochondria with altered membrane lipid composition and (ii) Methionine metabolism by muscle and other tissues—a new pathway. Send résumé and three letters of recommendation to: **Dr. E. Jack Davis, Indiana University, School of Medicine, Indianapolis, IN 46223.**

POSTDOCTORAL POSITIONS IN AUDITORY PHYSIOLOGY AND NEUROANATOMY

Institutional Postdoctoral Fellowships are available in the Johns Hopkins Center for Hearing Sciences. Current research areas include: hair cell physiology, stimulus coding and signal processing in the peripheral and central auditory system, neuroanatomy of the cochlear nucleus, cellular biophysics and electrophysiology in cochlear nucleus and psychoacoustic measure of hearing in animals.

Send curriculum vitae and names of three references to: **Director, Center for Hearing Sciences, The Johns Hopkins University School of Medicine, Baltimore, MD 21205. The Johns Hopkins University is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION IN MOLECULAR VIROLOGY/BIOLOGY. Successful applicant will work on two existing funded projects in which we are: (i) developing diagnostic procedures for several virus diseases of cultured marine shrimp with immunological and recombinant DNA methods and (ii) using traditional microbiological methods with molecular methods to determine the fate and persistence of genetically altered biological control agents (insect pathogens) in multispecies aquatic laboratory aquaria. Salary: \$19,193 to \$23,032 per calendar year. Closing date: when suitable candidate is found or 1 March 1989, whichever is sooner. Contact or send curriculum vitae and three references to: **Dr. D. V. Lightner or S. Jurmain, Environmental Research Laboratory, University of Arizona, 2601 East Airport Drive, Tucson, AZ 85706. Telephone: 602-741-1990. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS available immediately to study (i) effect of β -glucuronidase inhibitors on rat mammary carcinogenesis. Experience with HPLC, PAGE, hormone receptor assays and histological techniques would be an asset. (ii) Activation of embryonic genes during chemical hepatocarcinogenesis. Experience with protein purification, molecular cloning of genes, and immunochemical techniques are desirable. Send curriculum vitae and names of three references to: **Dr. Z. Walaszek (i) or Dr. M. Hanausek-Walaszek (ii), University of Texas M. D. Anderson Cancer Center, Science Park—Research Division, Smithville, TX 78957.**

POSTDOCTORAL POSITIONS THE UNIVERSITY OF TEXAS (UT) AT AUSTIN

MAMMALIAN DEVELOPMENTAL GENETICS/ MOLECULAR BIOLOGY

Positions available to participate in research on several aspects of the mouse *t*-complex, with emphasis on the structure, organization, and regulation of genes involved in early embryogenesis and gametogenesis. Candidates should have a recent Ph.D. and a strong background in genetics and molecular biology. UT Austin offers an excellent academic and living environment.

Send curriculum vitae, brief description of thesis, and names of three references to: **Dr. Karen Artzt or Dr. Dorothea Bennett, Department of Zoology, The University of Texas at Austin, Austin, TX 78712.**

POSTDOCTORAL POSITIONS (Ph.D. or M.D.) in human behavioral genetics or neurogenetics with emphasis on psychopathology or neurological disorders, using methods such as twin and family studies, gene mapping, quantitative genetic analysis, psychophysiology, brain imaging, or membrane receptor studies. Applications reviewed as received until positions filled. Send curriculum vitae, description of research interests, and three letters of reference to: **Dr. V. Elving Anderson, Dight Laboratories, University of Minnesota, 400 Church Street SE, Minneapolis, MN 55455; telephone: 612-626-2996. The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.**

POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately at Stanford University Medical Center to investigate mechanisms of acute lung injury and strategies for prevention. Laboratory investigates lung injury utilizing small animal models, cell culture techniques, neutrophil signal transduction pathway biochemistry, patch-clamping, and receptor interaction studies. This position will have some supervisory responsibility. Approximate annual salary is \$32,000. Please send curriculum vitae, names of three references, and brief description of interests, experience, and mastered investigative techniques to: **Thomas A. Raffin, M.D., Acting Chief, Division of Respiratory Medicine, Room C-356, Stanford, CA 94305.**

PROTEIN CHEMISTS: Synergen, Inc., the biotechnology company in Boulder, Colorado, currently has openings in pharmaceuticals for Ph.D.'s in physical biochemistry and pharmaceutical chemistry. Successful candidates will have experience in the physicochemical characterization of proteins and/or therapeutic protein formulation and delivery. Please send curriculum vitae, bibliography, and names of references to: **The Director of Recruitment, Synergen, Inc., 1885 33rd Street, Boulder, CO 80301.**

POSITIONS OPEN

POSTDOCTORAL/RESEARCH ASSOCIATE IN GENE EXPRESSION

The named position is available immediately to study muscle gene expression in *Drosophila*. We are studying promoter and splicing function of contractile protein genes in transgenic flies and in in vitro cell-free systems. Applicants must have a Ph.D., and experience in recombinant DNA methods is desirable. Starting salary is competitive. Send curriculum vitae and names of three references to: **Dr. Robert V. Storti, Department of Biochemistry, University of Illinois College of Medicine, 1853 West Polk Street, Chicago, IL 60612.**



UNIVERSITY OF ZÜRICH, CHEMISTRY DEPARTMENT NEW PROFESSORSHIP IN COMPUTATIONAL CHEMISTRY

We are looking for an innovative researcher and teacher in the field of theoretical chemistry with a special interest in molecular mechanics and molecular dynamics. Teaching experience in chemistry or a related subject would be an advantage.

Send full curriculum vitae and list of publications to: **Dekan der Philosophischen Fakultät II der Universität, Professor Dr. H. R. Hohl, Winterthurerstr. 190, CH-8057 Zürich by 15 April 1989.**

PSYCHIATRIST: BOARD-CERTIFIED. The University of Minnesota Department of Psychiatry seeks a nationally known senior research psychiatrist for a tenured full professorship. Demonstration of excellence should include an M.D. degree and at least 10 years of post-completion of residency training in psychiatry. Successful candidates will have demonstrated experience in stress research with primates and humans measuring psychophysiological and psychosocial parameters, epidemiological studies of stress and adaptations in various work place settings, and biopsychosocial studies of psychiatric populations studying endocrine and biologic markers. Candidates must have a national reputation in these areas of expertise, demonstrated ability to work closely with scientists from allied disciplines, junior faculty, psychiatric residents, and medical students, and previous administrative positions of responsibility in a University setting. The successful candidate will head up a multidisciplinary research and academic team to develop a large scale ongoing research initiative in human and animal studies of environmental factors impacting on behavior. He or she must be an excellent teacher and clinical practitioner working with psychiatry residents and medical students in modern, biologically-based, diagnostically-precise, psychiatric patient management. Send correspondence including curriculum vitae and three references to: **James Halikas, M.D., Professor of Psychiatry and Chairman of Psychiatry Search Committee, Department of Psychiatry, Box 393 UMHC, University of Minnesota, Minneapolis, MN 55455.** Last date for the receipt of applications is 31 March 1989. The University of Minnesota is an Equal Opportunity Employer and educator and specifically invites and encourages applications from women and minorities.

RESEARCH ASSISTANT

Wake Forest University's Bowman Gray School of Medicine wishes to interview candidates for a research assistant position in the Department of Ophthalmology. Training for this individual would include a B.S. or master's degree and some training in electron microscopy and microsurgical techniques. An individual with some previous research experience in ophthalmology or ophthalmic-related area would be preferred. This position would offer an opportunity for research activity in the area of retinal research and involving use of a new intermediate voltage electron microscope within a well-organized and supported university medical center environment. Administratively, this research assistant would have interface with an established Retinal Research Group consisting of multidisciplinary scientists within the university and Medical School. Twenty-five percent of time is to be designated for assisting an established researcher while learning intermediate voltage electron microscope techniques.

Reply to: **M. Madison Slusher, M.D., Professor and Chairman, Department of Ophthalmology, Bowman Gray School of Medicine of Wake Forest University, 300 South Hawthorne Road, Winston-Salem, NC 27103.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH FELLOW

A postdoctoral position is available immediately. Two areas of on-going research: (i) The regulation of peptide release in the brain with emphasis on: the release of the decapeptide LHRH; the role of copper-prostaglandins-cAMP-opioid peptides; the role of the gonadal and adrenal steroids. (ii) The biochemical mechanisms underlying copper uptake and release in the brain. Appointment will be for 1 year, and can be extended. Salary competitive. Send curriculum vitae, state research interests, provide address and telephone number of three references to: **Dr. Ayalla Barnea, Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center, 5323 Harry Hines Boulevard, Dallas, TX 75235.** An Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE on molecular and biochemical basis of drug action with emphasis on AIDS Therapeutics. Ph.D. with experience in enzymology or molecular biological approaches highly desirable. Salaries are commensurate with experience and begin at \$22,000. Start date is flexible. Send curriculum vitae and names of three references to: **Arnold Fridland, Ph.D., Department of Pharmacology, St. Jude Children's Research Hospital, 332 North Lauderdale, Memphis, TN 38101.**

RESEARCH CENTER DIRECTOR: Center for Separation Science. The director will be responsible for leadership of a well-established center with an international reputation. Qualifications should include an established reputation in biological separation science and entrepreneurial capabilities to further promote the Center. While the Center is closely affiliated with the Department of Chemical Engineering, where the director will hold the position of professor, it is expected that the Center will have interactions with the Colleges of Agriculture, Medicine, Pharmacy, and Arts and Sciences, and the campus Biotechnology Program. Scientific experience and other qualifications will take precedence over formal engineering training, therefore a degree in chemical engineering is not required. Contribution to the department's teaching program is desirable. Position available August 1989. Contact: **Gary K. Patterson, CSS Search Committee Chairman, Department of Chemical Engineering, University of Arizona, Tucson, AZ 85721.** Consideration of candidates will begin on 15 February 1989, but the position will be open until filled. *The University of Arizona is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH SCIENTIST. Cell biologist with interest in the cytoskeleton needed to take part in a study of the effects of trace metals on the central nervous system. Experience in electron microscopy essential. Starting salary \$30,000 to \$38,000 plus fringe benefits depending on level of experience. Position available immediately. Attention: Reference #568; Send résumé to: **Personnel, New York State Institute for Basic Research in Developmental Disabilities, 1050 Forest Hill Road, Staten Island, NY 10314.**

SOIL SCIENTIST/PLANT PHYSIOLOGIST. Early job alert. The Pacific Northwest Research Station of the USDA Forest Service will advertise for a research soil scientist/plant physiologist at the Forestry Sciences Laboratory, Juneau, Alaska, by approximately 1 May 1989. The incumbent will conduct research on soil and vegetation processes controlling long-term site productivity in coastal Alaska using an ecosystems approach. The position may be filled with a permanent full-time or 2-year term appointment.

Applicant should hold or have substantially completed a Ph.D. in soils, plant physiology, or a related field. A strong background in soil biology/chemistry and/or plant physiology is required. Compensation for the position is anticipated to be at the GS-12 or -13 rate (\$33,218 to \$39,501 per year) and in addition will include the Alaska cost-of-living adjustment (25 percent of the base salary). Interested individuals should respond in writing before 15 March 1989, to: **Wilbur A. Farr, USDA Forestry Sciences Laboratory, P.O. Box 020909, Juneau, AK 99802.** Please include information about your background and credentials.

This is an early alert notice. Formal application will be solicited when the vacancy announcement is issued. All persons responding to this early alert will be notified when the announcement is issued. Women and minorities are especially encouraged to respond.

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE position available summer/fall 1989 in time-resolved fluorescence spectroscopic studies of cell membranes and lipid bilayers with focus on drug-membrane and protein-lipid interactions. Applicants should be recently qualified Ph.D.'s with a general background in either physical chemistry or biophysics with interest or experience in fluorescence spectroscopy or lipid bilayers. The department has a large, well-equipped membrane research group with interests in membrane physical properties and related fields. Send curriculum vitae, reprints of publications, and the names of three references to: **Dr. C. D. Stubbs, Department of Pathology and Cell Biology, Thomas Jefferson University, Philadelphia, PA 19107.** Equal Opportunity Employer.

RESEARCH SPECIALIST TRANSGENIC MICE

Position available immediately for research involving generation and maintenance of transgenic mice. Responsibilities include supervision of mouse colony, microinjection of eggs, and embryo transfers. Minimum requirements include B.S. and 2 years of experience in mouse embryology and microinjection techniques. Salary range \$20,000 to \$26,000, depending on experience. Send curriculum vitae and names of three references to: **Dr. Albee Messing, School of Veterinary Medicine, University of Wisconsin, 2015 Linden Drive West, Madison, WI 53706.** Telephone: 608-263-9191.

SENIOR FELLOW. Senior fellow, analytical chemistry, Ph.D. level or equivalent, experienced in GC/MS and HPLC with interest in neuroscience, to provide supervision and support for clinical pharmacology research group. Responsibilities include development and modification of analytical methods, directing sample and analytical data handling procedures and supervision of research associates. Please send curriculum vitae including salary requirements to: **James M. Perel, Ph.D., Clinical Pharmacology Program, Western Psychiatric Institute and Clinic, University of Pittsburgh, School of Medicine, 3811 O'Hara Street, Pittsburgh, PA 15213.** An Equal Opportunity Employer.

POSITIONS OPEN

RESEARCH ASSOCIATE. Cell biology; \$30,760 per year. Opening for cell biologist trained in protein chemistry and immunochemistry, and possessing a strong background in molecular biology and recombinant DNA technology. Must have the equipment and research methodology skills associated with the following: protein purification; RNA isolation and DNA cloning; SDS electrophoresis; preparation and characterization of polyclonal antibodies; tissue culturing; and Southern, Northern, and Western Blot. Requires B.S. in biochemistry and 2 years of experience in the occupation or M.S. in biochemistry, with 1 year of such experience. Foreign credentials acceptable. Send résumé to: **George Johns, Alabama State Employment Service, 1816 8th Avenue North, Birmingham, AL 35203.** Refer to job order #AL0581067. An Equal Opportunity Employer.

STRUCTURAL BIOCHEMISTRY FACULTY POSITION UNIVERSITY OF CALIFORNIA, LOS ANGELES

The Department of Chemistry and Biochemistry and the Molecular Biology Institute have a tenure-track opening in structural biochemistry. The position probably will be filled at the assistant professor level, but applications for a more senior position will also be considered. We are seeking a candidate who will establish a strong and innovative research program in the area of biological structure, although highly exceptional applications in other areas will be considered. Teaching responsibilities will include undergraduate biochemistry and participation in graduate courses appropriate to the appointee's interests. Candidates should submit curriculum vitae and statement of research plans, and should have three letters of recommendation sent to:

Dr. David Eisenberg
Department of Chemistry and Biochemistry
University of California
Los Angeles, CA 90024-1569

by 15 April 1989. *The University of California is an Equal Opportunity/Affirmative Action Employer, and encourages applications from women and minority candidates.*



Anti-Inflammatory Research

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CIBA-GEIGY's Pharmaceuticals Division enjoys a distinguished reputation for scientific excellence. Our 100-acre headquarters complex in Summit, New Jersey is the focal point for research and development of drugs to treat inflammatory and other disorders.

You will participate in characterizing novel therapies which modulate inflammatory cells. Responsibilities include profiling compounds in macrophage functional and biochemical assays, development of cytokine assays and investigation of cell activation pathways.

A BS or MS in Biology or Biomedical Sciences is required, along with the ability to interact in a collaborative environment. Candidates should have a minimum of 2-5 years related experience, with a strong background in cell biology and familiarity with tissue culture and spectrofluorometric methods. Previous experience in gene expression techniques or flow cytometry will also be useful.

In return, we provide a competitive salary and excellent benefits as well as ample room for personal and professional growth in a state-of-the-art research environment. For consideration, forward a resume with salary history and requirements to: **Al Aronson, Sr. Staffing Specialist, CIBA-GEIGY Corporation, Pharmaceuticals Division, Dept. 315, 556 Morris Avenue, Summit, New Jersey 07901.** We Are An Equal Opportunity Employer M/F/H/V.

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POSITIONS OPEN

RESEARCH FELLOW IN ENDOCRINOLOGY DIVISION OF NUTRITION AND ENDOCRINOLOGY

A postdoctoral position is available to study the interactions of dietary lipids and hormones in human breast cancer, and investigate the effects of antiestrogens on the synthesis of specific hepatic proteins. Experience in endocrine assay techniques and/or steroid biochemistry is required.

This appointment is well-suited to an individual seeking either a career in clinical laboratory endocrinology or basic endocrine research, at a modern, well-equipped research facility located in northern suburb of New York City. Please submit curriculum vitae to:

Dr. David P. Rose, Division Chief
Division of Nutrition and Endocrinology
American Health Foundation
1 Dana Road
Valhalla, NY 10595

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TEACHING FACULTY BIOLOGY RHODE ISLAND COLLEGE

We invite applications for a tenure-track position in ecology starting fall 1989. Appointment will be at the rank of assistant professor. Requires a Ph.D. in ecology and a strong commitment to undergraduate teaching. Active involvement in current environmental issues desired. Teaching responsibilities to include general ecology, introductory biology, and appropriate advanced courses. The successful candidate will be expected to develop an independent research program that provides research experiences for graduate and undergraduate students, and yields appropriate published work. Applications must be received by 17 February 1989. Send letter of application, curriculum vitae, and three letters of reference to: **Office of Personnel Services, Rhode Island College, Providence, RI 02908. Attention: Chair, Ecologist Search Committee.**

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TWO TENURE-TRACK OPENINGS

University of Pittsburgh—Associate professor or professor in industrial hygiene and chemical analysis. Two tenure-track positions in the Department of Industrial Environmental Health Sciences, Graduate School of Public Health are available immediately for teaching and research in the areas of industrial hygiene, environmental sampling, exposure and hazard assessment, chemical analysis or engineering control. Responsibilities include developing and applying state-of-the-art techniques in these fields relative to occupational and environmental exposures. The candidates will be expected to supervise graduate students, teach courses, have active research programs, and interact with the University's Center for Environmental Epidemiology. Apply to: **Dr. M. H. Karol, Chair of Search Committee, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA 15261. An Affirmative Action/Equal Opportunity Employer.**

VISION RESEARCH

Search reopened. A joint appointment with the Department of Ophthalmology and R. S. Dow Neurological Sciences Institute of Good Samaritan Hospital and Medical Center is available for a **SCIENTIST**, with research interests in the cell biology, molecular biology, biochemistry, or immunology of the cornea. Vision scientists who are experienced in cell culture, growth factors, receptors or regulation of gene expression, and who would be willing to apply their skills to problems in the cornea, are also encouraged to apply. The successful candidate will be expected to establish a laboratory conducting independent basic research that complements current departmental clinical research interests in cornea. Postdoctoral research experience required. Level of appointment will depend upon research accomplishments. Send curriculum vitae with names of three references by 31 March 1989 to: **M. W. Kaplan, Ph.D., Chairman, Vision Scientist Search Committee, R. S. Dow Neurological Sciences Institute, Good Samaritan Hospital and Medical Center, 1120 NW 20th Avenue, Portland, OR 97209-1595.**

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COURSE

TOXICOLOGY UPDATE '89 CURRENT CONCEPTS IN INHALATION TOXICOLOGY 24 to 26 April 1989

The Johns Hopkins University, School of Hygiene and Public Health, Baltimore, Maryland. Registration fee: \$450. Course limited to 50 registrants. Course directors: **Thomas Kensler, Ph.D., and Michael Trush, Ph.D.**

This course will examine the principles underlying how inhaled chemicals interact with biological systems and the toxicological consequences of such interactions to the lung as well as distal organs. The lectures will provide an in-depth analysis of inhalation as a route of chemical exposure, insights into the mechanisms and sites of action of selected agents, and approaches for both evaluating and managing the risk to human health from inhaled agents. The course is intended for physicians, industrial hygienists, toxicologists, interested scientists, and individuals involved in the regulatory aspects of chemical exposures.

Appropriate credits have been applied for. For further information contact: **Dr. Jacqueline Corn, The Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Room 1003, Baltimore, MD 21205. Telephone: 301-955-2609.**

PROGRAM

CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain the Doctor of Optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education and research. Contact: **Dr. D. Chauncey, Program Director, Accelerated Program, The New England College of Optometry, Room S, 424 Beacon Street, Boston, MA 02115.**

DOCTORAL PROGRAM IN MOLECULAR AND CELLULAR BIOLOGY AND PATHOBIOLOGY. Interdisciplinary program seeks qualified candidates interested in fundamental molecular and cellular biology and its application to disease. Stipends of \$9000 available on a competitive basis. Contact: **Director, MCBP Program, College of Graduate Studies, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425.**

Medical University of South Carolina offers **PROGRAMS** leading to Ph.D. and M.D./Ph.D. degrees in each of the basic biomedical sciences (anatomy, biochemistry, biometry, microbiology and immunology, pathology, pharmacology, and physiology), pharmaceutical sciences, and molecular and cellular biology/medicine. \$9000 assistantships available to highly qualified students. Contact: **College of Graduate Studies, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425.**

TRAINING PROGRAM

RESEARCH FELLOWSHIP AND TRAINING PROGRAM IN PSYCHONEUROIMMUNOLOGY at University of California at Los Angeles (UCLA). Available for 1 or 2 years beginning July 1989 following completion of Ph.D. degree, or an M.D. and residency program. Practical and didactic research training provided in immunology, behavioral sciences and neurosciences, and in basic or clinical interdisciplinary research under preceptorship of one or more senior investigators. Fellows will be expected to acquire knowledge of all aspects of this interdisciplinary field, in which they lack the background. Salary ranges competitive, depending on level of experience. Address letters of inquiry, outline of a proposal, curriculum vitae, and three letters of recommendation to: **Herbert Weiner, M.D., Professor and Program Director, Room C8-861 Neuro-psychiatric Institute, UCLA, 760 Westwood Plaza, Los Angeles, CA 90024-1759. UCLA is an Equal Opportunity/Affirmative Action Employer.**

TRAINING PROGRAM

The Basic Science Departments (Cell Biology and Neuroanatomy, Biochemistry, Microbiology, Pathology, Pharmacology, Physiology), Medical School, University of Minnesota, periodically have openings for **POST-DOCTORAL TRAINING.**

For information about possible openings in these programs, write, specifying department of interest to:

University of Minnesota Medical School
Box 293 UMHC
420 Delaware Street, S.E.
Minneapolis, MN 55455
Attention: **James C. Nelson**

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

TRAINEESHIP

TRAINEESHIPS: Medical Scientist Training Program offers \$9000 stipends for studies leading to combined M.D./Ph.D. degrees in each of the basic biomedical sciences and molecular and cellular biology/medicine. Contact: **Director, Medical Scientist Training Program, College of Graduate Studies, Medical University of South Carolina, 171 Ashley Avenue, Charleston, SC 29425.**

FELLOWSHIPS

PREDOCTORAL FELLOWSHIP IN MOLECULAR ENTOMOLOGY \$15,000/Year, 3 Years

This program, by entomology, genetics, biochemistry, and zoology faculty, is a fusion of the principles of molecular biology with the fundamentals of insect biology. It is intended to make the Fellow competent in molecular technologies applicable to insect control. Internships with biotechnology companies available. Contact: **Dr. Arden O. Lea, Department of Entomology, University of Georgia, Athens, GA 30602; Telephone: 404-542-2816. Equal Opportunity/Affirmative Action Employer.**

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Paravax, Inc., an innovative new company focusing on the development of vaccines against parasites, has challenging opportunities for research scientists at all levels. Applicants should have training in one of the following areas:

- cDNA cloning methodology
- heterologous gene expression systems including living recombinant vectors
- mammalian or invertebrate cell culture

A background in the immunology or molecular biology of parasitic disease or in veterinary vaccine development is also desirable.

For consideration, please send resume and names of references to:

Scientific Director
Paravax, Inc.
3181 Porter Drive
Palo Alto, CA 94304

Paravax, Inc.

RESEARCH SCIENTISTS MAMMALIAN CELL GENE EXPRESSION

Amgen, an industry leader in applied biotechnology, has an immediate need for 2 Research Scientists to contribute to our research programs in mammalian cell gene expression.

RESEARCH SCIENTIST CELLULAR PHYSIOLOGY

Dept. #347

This position requires a Ph.D. in mammalian cellular physiology and/or somatic cell genetics as well as a minimum of 2 years' postdoctoral experience in growth regulation and differentiation of animal cells. Familiarity with culturing various primary and established cell lines as well as experience in cloning and sorting cells and selecting metabolic and drug resistant mutants are essential. Some understanding and experience in cell culture scale-up are desirable.

RESEARCH SCIENTIST GENE REGULATION

Dept. #348

Qualified candidates for this position will have a Ph.D. and a minimum of 2 years' postdoctoral experience in eukaryotic post-transcriptional gene regulation, including protein processing and secretion. Familiarity with glycosylation pathways and signal transport at the molecular level is essential.

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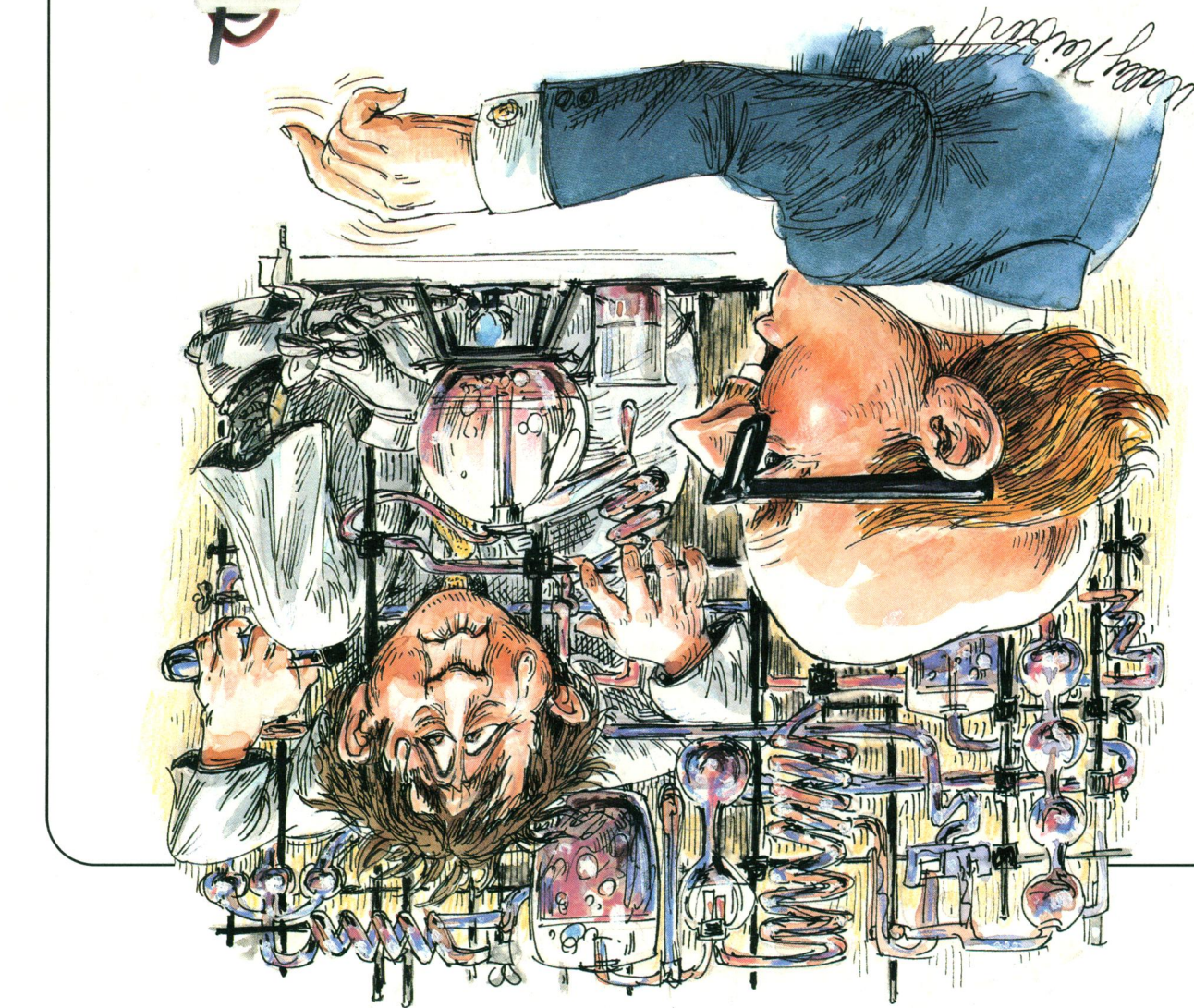
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McLean, VA & San Antonio, TX

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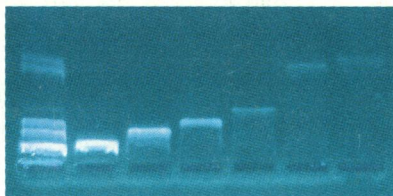
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