

Mohr. (If these names sound like Gaelic or worse to the nonspecialist, it may be said in their defense that they represent things no more outlandish or less tangible than the elementary particles of physics. Whether or not they are more chaotic remains to be seen.) People looking for new ideas or new fields to conquer will find that almost none of the famous controversies on the origins of these rocks have been firmly resolved. There is still plenty to do, as this book helps to show. But a great deal has been done. Hadrian would have liked what underlies and makes up the wall he never saw.

S. A. MORSE

*Department of Geology and
Geography, University of
Massachusetts, Amherst 01003*

The Moon

Planetary Science. A Lunar Perspective. STUART ROSS TAYLOR. Lunar and Planetary Institute, Houston, 1982. xx, 482 pp., illus. \$39.95.

This is the third book concerning the moon written by Taylor. Each book has sought to provide a synthesis of knowledge at an appropriate point in time: following the historic Apollo 11 mission; following study of samples returned by the last Apollo flight; and, now, during a hiatus in planetary exploration. The author properly takes the view that our understanding of the moon is central to the interpretation of remotely sensed data obtained for other planets and satellites.

The book deals with the geology, geophysics, and geochemistry of the moon. The treatment is generally laudable although, by the author's own admission, it is biased toward geochemistry. The origin of the moon is concluded to be in accord with the double planet hypothesis; the capture hypothesis is dismissed, and the fission hypothesis is ruled out for a number of reasons. This discussion is perhaps the least balanced in the book. The evidence of a magma ocean essentially contemporaneous with accretion is very strong, and the author makes a case for melting of the whole moon. The primary differentiation of the moon into crust, mantle, and core (?) occurred during solidification of the magma ocean. The origin of enigmatic KREEP remains obscure but must also be related to the magma ocean. Petrogenesis of mare basalts is complex but is broadly consistent with the remelting of mafic magma ocean cumulates. All of these events have been

observed to a greater or lesser degree by intense cratering events. The moon has been geologically quiescent for three billion years.

The author points out that in some ways our understanding of the moon exceeds our understanding of earth because of the moon's small size and relatively simple geologic history. However, in practical terms our knowledge of the moon is pathetically inadequate. We lack even a low spatial resolution global geochemical and geophysical map of the moon. We lack photographic images of the lunar poles. We have not sampled the most typical lunar terrain. The possibility of a lunar base has been raised, yet we could not sensibly decide on a site for such a base given our current knowledge of the moon.

Overall, the book presents a scholarly synthesis of lunar science in late 1981. I know of no other book in which this task has been attempted. The book is eminently readable and is largely free of typographical errors. Earth and planetary scientists with even a casual interest in the moon will benefit from reading it.

MICHAEL J. DRAKE

*Lunar and Planetary Laboratory,
University of Arizona,
Tucson 85721*

Books Received

Annual Review of Plant Physiology. Vol. 33. Winslow R. Briggs, Paul B. Green, and Russell L. Jones, Eds. Annual Reviews, Palo Alto, Calif., 1982. x, 744 pp., illus. \$22.

Anthropometry and Biomechanics. Theory and Application. Proceedings of a symposium, Cambridge, England, July 1980. Ronald Easterby, K. H. E. Kroemer, and Don B. Chaffin, Eds. Plenum, New York, 1982. x, 328 pp., illus. \$42.50. NATO Conference Series III, vol. 16.

Antiepileptic Drugs. Dixon M. Woodbury, J. Kiffin Penry, and C. E. Pippenger, Eds. Raven, New York, ed. 2, 1982. xviii, 880 pp., illus. \$65.

Application of Electro-Ultrafiltration (EUF) in Agricultural Production. Proceedings of a symposium, Budapest, May 1980. K. Németh, Ed. Nijhoff/Junk, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). 138 pp., illus. Paper, \$22. Reprinted from *Plant and Soil*, vol. 64, No. 1.

The Application of Mathematics in Industry. Papers from a seminar, Canberra, Australia, Dec. 1980. Robert S. Anderssen and Frank R. de Hoog, Eds. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 202 pp., illus. \$32.50.

Applications of Modern Dynamics to Celestial Mechanics and Astrodynamics. Proceedings of an institute, Cortina d'Ampezzo, Italy, Aug. 1981. Victor Szebehely, Ed. Reidel, Boston, 1982 (distributor, Kluwer Boston, Hingham, Mass.). xviii, 374 pp., illus. \$43.50. NATO Advanced Study Institutes Series C, vol. 82.

Applied Geomorphology. Proceedings of a symposium, Kent, Ohio, Oct. 1980. Richard G. Craig and Jesse L. Craft, Eds. Allen and Unwin, Boston, 1982. x, 254 pp., illus. \$30. The "Binghamton" Symposia in Geomorphology: International Series, No. 11.

The Atomic Complex. A Worldwide Political History of Nuclear Energy. Bertrand Goldschmidt. Translation and revision of the French edition (1980). American Nuclear Society, La Grange Park, Ill., 1982. xiv, 480 pp. Cloth, \$31; paper \$24.

Attention and Arousal. Cognition and Performance. Michael W. Eysenck. Springer-Verlag, New York, 1982. x, 210 pp., illus. \$32.

Automatic Control in Desalination and the Oil

Industry. Appropriate Applications. Proceedings of a workshop, Tripoli, May 1980. H. El Hares and T. Dali, Eds. Pergamon, New York, 1982. xxii, 210 pp., illus. \$45.

Available Energy and Environmental Economics. Robert H. Edgerton. Lexington (Heath), Lexington, Mass., 1982. xxii, 450 pp., illus. \$36.95.

Basic Cell Biology. Charlotte J. Avers. Willard Grant Press, Boston, ed. 2, 1982. x, 518 pp., illus. \$20.

Bayesian Reliability Analysis. Harry F. Martz and Ray A. Walker. Wiley, New York, 1982. xxii, 746 pp. \$44.95. Wiley Series in Probability and Mathematical Statistics.

Behavior Modification in Black Populations. Psycho-social Issues and Empirical Findings. Samuel M. Turner and Russell T. Jones, Eds. Plenum, New York, 1982. xviii, 330 pp. \$22.50.

Beyond Cholesterol. Vitamin B₆, Arteriosclerosis, and Your Heart. Edward R. Gruberg and Stephen A. Raymond, St. Martin, New York, 1981. xvi, 190 pp., illus. \$10.95.

Biochemical Actions of Hormones. Vol. 9. Gerald Litwack, Ed. Academic Press, New York, 1982. xiv, 362 pp., illus. \$42.

Biological/Biomedical Applications of Liquid Chromatography IV. Papers from a symposium, Amsterdam, Apr. 1981. Gerald L. Hawk, Robert F. Hutton, Gordon Johnston, and Chris Mol, Eds. Dekker, New York, 1982. xviii, 368 pp., illus. \$55. Chromatographic Science, vol. 20.

The Collection and Preservation of Animal Parasites. Compiled by Mary Hanson Pritchard and Günther O. W. Kruse. Illustrations by Mark Marcuson. University of Nebraska Press, Lincoln, 1982. vi, 142 pp. Spiral bound, \$10.95. Technical Bulletin no. 1.

Commodity and Engineering Plastics. Papers from a symposium, Atlanta, Mar. 1981. Norbert Platzter, Ed. Interscience (Wiley), New York, 1982. xvi, 244 pp., illus. Paper, \$28. Journal of Applied Polymer Science: Applied Polymer Symposium 36.

Common Plants of the Mid-Atlantic Coast. A Field Guide. Gene M. Silberhorn. Johns Hopkins University Press, Baltimore, 1982. xvi, 256 pp., illus. Cloth, \$17.50; paper, \$7.95.

Compendium of Barley Diseases. D. E. Mathre, Ed. American Phytopathological Society, St. Paul, Minn. 1982. vi, 78 pp., illus. Paper, \$12. The Disease Compendia Series.

Competition for California Water. Alternative Resolutions. Papers from a conference, Asilomar, Calif., Sept. 1981. Ernest A. Engelbert and Ann Foley Scheuring, Eds. University of California Press, Berkeley, 1982. x, 212 pp. Cloth, \$27.50; paper, \$8.95.

Computer Network Architectures and Protocols. Paul E. Green, Jr., Ed. Plenum, New York, 1982. xviii, 718 pp., illus. \$59.50. Applications of Communications Theory.

Computer Science and Technologies, 1982. T. Kitagawa, Ed. OHM, Tokyo, and North-Holland, Amsterdam, 1982 (U.S. distributor, Elsevier North-Holland, New York). iv, 366 pp., illus. \$124. Japan Annual Reviews in Electronics, Computers and Telecommunications, vol. 4.

Concepts in Biology. Eldon D. Enger, Andrew H. Gibson, J. Richard Kormelink, Frederick C. Ross, and Rodney J. Smith. Brown, Dubuque, Iowa, ed. 3, 1982. xiv, 500 pp., illus. Paper, \$18.95.

Concepts in Pediatric Neurosurgery I. Karger, Basel, 1981, x, 236 pp., illus. \$114.

Contact with the Stars. The Search for Extraterrestrial Life. Reinhard Breuer. Freeman, San Francisco, 1982. xii, 292 pp., illus. \$28.50.

Contemporary College Algebra. Ignacio Bello and Jack R. Britton. Harper and Row, New York, 1982. x, 384 pp. \$20.95.

Contemporary College Algebra and Trigonometry. Jack R. Britton and Ignacio Bello. Harper and Row, New York, 1982. x, 582 pp., illus. \$21.50.

Contemporary Topics in Analytical and Clinical Chemistry. Vol. 4. David M. Hercules, Gary M. Hieftje, Lloyd R. Snyder, and Merle A. Evenson, Eds. Plenum, New York, 1982. xiv, 382 pp., illus. \$52.50.

Critical Issues in Setting Radiation Dose Limits. Proceedings of a meeting, Washington, D.C., Apr. 1981. National Council on Radiation Protection and Measurements, Bethesda, Md., 1982. vi, 288 pp., illus. Paper, \$15. Proceedings of the Annual Meeting, no. 3.

The Cuicatlan Cañada and Monte Albán. A Study of Primary State Formation. Charles S. Spencer. Academic Press, New York, 1982. xx, 330 pp., illus. \$39. Studies in Archaeology.

Dental Microbiology. Jerry R. McGhee, Suzanne M. Michalek, and Gail H. Cassell. Harper and Row/Lippincott, Philadelphia, 1982. xx, 914 pp., illus. \$32.50.

Design for Independent Living. The Environment and Physically Disabled People. Raymond Lifchez

(Continued on page 863)

Cobalt-57
 Cobalt-58
 Cobalt-60
 Copper-64
 Gadolinium-153
 Gallium-67
 Germanium-68
 Gold-195
 Gold-198
 Hydrogen-3
 (Tritium)
 Indium-111
 Indium-111
 Oxine
 Indium-114m
 Iodine-125
 Iodine-129
 Iodine-131
 Iron-55
 Iron-59
 Krypton-85
 Manganese-54
 Mercury-203
 Molybdenum-99
 Nickel-63
 Phosphorus-32
 Phosphorus-33
 Potassium-42
 Promethium-147
 Rubidium-86
 Ruthenium-103
 Samarium-151
 Scandium-46
 Selenium-75
 Silver-110m
 Sodium-22
 Sodium-24
 Strontium-85
 Strontium-90
 Sulfur-35
 Technetium-99
 Thallium-204
 Thulium-171
 Tin-113
 Tin-119m
 Tin-121m
 Titanium-44
 Ytterbium-169
 Zinc-65
 (and two dozen
 others available
 periodically)

**Nobody offers
 more radionuclides
 or faster response than
 we do. Call 800-225-1572.
 We'll have the nuclide you need,
 packaged the way you want it,
 on its way to you tomorrow.**

Not for use in humans or clinical diagnosis.

New England Nuclear
 549 Albany Street, Boston, MA 02118
 Call toll free: 800-225-1572, Telex: 94-0996
 Mass and Internat'l: 617-482-9595
Europe: NEN Chemicals GmbH, D-6072, W. Germany
 Postfach 401240, Tel. (06103) 803-0, Telex 4-17993 NEN D
NEN Canada: 2453 46th Avenue, Lachine, Que H8T 3C9
 Tel. 514-636-4971, Telex 05-821808 © 1982 NEN

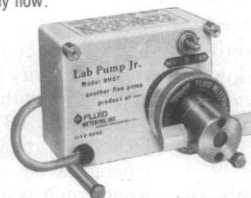
NEN New England Nuclear®
 a Du Pont company

Circle No. 201 on Readers' Service Card

TINY FLOW METERING PUMPS WITH AC MOTOR DRIVE

Those handy little RH pump heads for piddling flow rates now come packaged with their own synchronous AC motor drive. Each has an RH miniature pump head and totally enclosed three-speed motor drive assembly. This provides a choice of 150, 300 or 600 piston strokes per minute by means of a safe and simple belt change arrangement. Motor can be stalled indefinitely without overheating!

Pumps plug into standard 110-volt 60-Hz three-prong sockets. Are steplessly adjustable even while running from zero to maximum flow rate by means of calibrated control ring. Are reversible while operating. And have the exceptional chemical resistance of alumina ceramic and fluorocarbon in the wetted stream. Compression fittings at the ports accept 1/4 OD standard laboratory tubing. Pressures to 50 psi at low flows, to 20 psi at any flow.



Repeat Accuracy to better than 1%!

Model RHSY0CKC \$380
 Max flow rate: 8.5 ml/min at 150 SPM, 17 ml/min at 300 SPM, 34 ml/min at 600 SPM

Model RHSY1CKC \$380
 Max flow rate: 15 ml/min at 150 SPM, 30 ml/min at 300 SPM, 60 ml/min at 600 SPM

Available from stock for immediate delivery. Write or call for Catalog RP401: the FMI LAB PUMP STORY.



FLUID METERING, INC.

29 ORCHARD STREET, OYSTER BAY, N.Y. 11771 • (516) 922-6050

Circle No. 168 on Readers' Service Card

NEW! EXCLUSIVE!

α -EGF

HPLC PURIFIED EPIDERMAL GROWTH FACTOR

A HPLC purified homogenous form of Epidermal Growth Factor. α -EGF is many times more potent than other Epidermal Growth Factor preparations. Biomedical Technologies is a primary manufacturer of Growth Factor Products:

EGF (P-10, DEAE)	Hybridoma Cell Growth Supplement
Endothelial Mitogen	2.5S NGF
FGF (Pituitary)	7S NGF
FGF (Brain)	PdGF (>50,000 units/mg)
Fibronectins	α -Thrombin

For Research Use Only

For more information, please call or write:

bti

Biomedical Technologies Inc.
 22 Thorndike Street
 Cambridge, MA 02141
 (617) 492-6200

Circle No. 214 on Readers' Service Card

BOOKS RECEIVED

(Continued from page 824)

and Barbara Winslow. University of California Press, Berkeley, 1982. 208 pp., illus. Paper, \$9.95. Reprint of the 1979 edition.

A Desirable Energy Future. A National Perspective. Robert S. Livingston and 5 others. Franklin Institute Press, Philadelphia, 1982. vi, 256 pp., illus. \$24.50.

Determination of Behaviour by Chemical Stimuli. Proceedings of a symposium, Jerusalem, Nov. 1981. J. E. Steiner and J. R. Ganchrow, Eds. IRL Press, Arlington, Va., 1982. viii, 288 pp., illus. Paper, \$24.

Developing Managerial Skills in Engineers and Scientists. Succeeding as a Technical Manager. M. K. Badawy. Van Nostrand Reinhold, New York, 1982. xvi, 368 pp., illus. \$29.50. Van Nostrand Reinhold Series in Managerial Skill Development in Engineering and Science.

The Development of Movement Control and Coordination. J. A. Scott Kelso and Jane E. Clark, Eds. Wiley, New York, 1982. xii, 370 pp., illus. \$49.95. Wiley Series in Developmental Psychology.

The Developmental Psychology of Time. William J. Friedman, Ed. Academic Press, New York, 1982. xiv, 286 pp., illus. \$29. Developmental Psychology Series.

Electrons in Chemical Reactions. First Principles. Lionel Salem. Wiley-Interscience, New York, 1982. xii, 260 pp., illus. \$35.

Electrophoresis. Theory, Techniques, and Biochemical and Clinical Applications. Anthony T. Andrews. Clarendon (Oxford University Press), New York, 1981. xii, 336 pp., illus. \$59. Monographs on Physical Chemistry.

Elements of Biology. Charles K. Levy. Addison-Wesley, Reading, Mass., ed. 3, 1982. xviii, 638 pp., illus. \$23.95.

Elements of Early Modern Physics. J. L. Heilbron. University of California Press, Berkeley, 1982. xii, 302 pp., illus. Cloth, \$30; paper, \$10.95. Chapters 1 and 2 of *Electricity in the 17th and 18th Centuries*, with a condensed, updated version of the remainder.

Elements of Stress Analysis. Jacques Heyman. Cambridge University Press, New York, 1982. viii, 106 pp., illus. \$29.50.

Elk of North America. Ecology and Management. Jack Ward Thomas and Dale E. Towell, Eds. Illustrated by Daniel P. Metz. Stackpole Books, Harrisburg, Pa., 1982. xxii, 700 pp. \$39.95. A Wildlife Management Institute Book.

The Encyclopedia of Chemical Electrode Potentials. Marvin S. Antelman with the assistance of Franklin J. Harris, Jr. Plenum, New York, 1982. xiv, 288 pp. \$37.50.

Energy Futures, Human Values, and Lifestyles. A New Look at the Energy Crisis. Richard C. Carlson, Willis W. Harman, Peter Schwartz, and associates. Westview, Boulder, Colo., 1982. x, 192 pp., illus. Cloth, \$22; paper, \$12.

Engineering and Humanities. James H. Schaub and Sheila K. Dickson, Eds. Wiley-Interscience, New York, 1982. xviii, 504 pp., illus. Paper, \$29.95.

Environmental Planning for Design and Construction. Martin N. Fabrick and Joseph J. O'Rourke. Wiley-Interscience, New York, 1982. xvi, 304 pp., illus. \$41.95. Construction Management and Engineering.

The Enzymes. Vol. 15, Nucleic Acids, Part B. Paul D. Boyer, Ed. Academic Press, New York, ed. 3, 1982. xiv, 660 pp., illus. \$72.

Essays on Archaeological Typology. Papers from two seminars, Kampsville, Ill., 1975 and 1977. Robert Whallon and James A. Brown, Eds. Center for American Archeology Press, Evanston, Ill., 1982. xx, 200 pp., illus. Cloth, \$15; paper, \$9.

Ethnic Relations in America. Lance Liebman, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1982. viii, 184 pp. Paper, \$5.95.

Excitations in Disordered Systems. Proceedings of an institute, East Lansing, Mich., Aug. 1981. M. F. Thorpe, Ed. Plenum, New York, 1982. xiv, 704 pp., illus. \$85. NATO Advances Study Institutes Series B, vol. 78.

Flowering Plants in the Landscape. Mildred E. Mathias, Ed. University of California Press, Berkeley, ed. 2, 1982. xiv, 254 pp., illus. \$16.95.

Flow Visualization II. Proceedings of a symposium, Bochum, Germany, Sept. 1980. Wolfgang Merzkirch, Ed. Hemisphere, Washington, D.C., 1982. xii, 802 pp., illus. \$90.

Follicular Maturation and Ovulation. Proceedings of a symposium, Nijmegen, Netherlands, Aug. 1981. R. Rolland, E. V. van Hall, S. G. Hillier, K. P. McNatty, and J. Shoemaker, Eds. Excerpta Medica, Amsterdam, 1982 (U.S. distributor, Elsevier North-Holland, New York). xii, 432 pp. \$90.75. International Congress Series 560.

From Atoms to Quarks. An Introduction to the Strange World of Particle Physics. James S. Trefil.

Scribner, New York, 1982. xii, 226 pp., illus. Paper, \$6.95. Reprint of the 1980 edition.

Gas Chromatography of Organometallic Compounds. T. R. Crompton. Plenum, New York, 1982. x, 590 pp., illus. \$75.

Genes and Tumor Genes. Papers from a conference, Ising am Chiemsee, Germany, Oct. 1980. Ernst L. Winnacker and Hans-H. Schoene, Eds. Raven, New York, 1982. xvi, 160 pp., illus. \$22.

Genetic Basis of the Epilepsies. V. Elving Anderson, W. Allen Hauser, J. Kiffin Penry, and Charles F. Sing, Eds. Raven, New York, 1982. xvi, 380 pp., illus. \$44.

Genetic Technology. A New Frontier. Office of Technology Assessment. Westview, Boulder, Colo., and Croom Helm, London, 1982. xx, 332 pp., illus. Cloth, \$25; paper, \$15.

Genotoxic Effects of Airborne Agents. Proceedings of a symposium, Upton, N.Y., Feb. 1980. Raymond R. Tice, Daniel L. Costa, and Karen M. Schaich, Eds. Plenum, New York, 1982. xiv, 658 pp., illus. \$75. Environmental Science Research, vol. 25.

Geodynamics. Applications of Continuum Physics to Geological Problems. Donald L. Turcotte and Gerald Schubert. Wiley, New York, 1982. xii, 450 pp., illus. \$29.95.

Geometrical and Structural Crystallography. Joseph V. Smith. Wiley, New York, 1982. xiv, 450 pp., illus. \$27.95. Smith and Wiley Intermediate Geology Series.

The Geomorphology of the Great Barrier Reef. Quaternary Development of Coral Reefs. David Hopley. Wiley-Interscience, New York, 1982. xvi, 454 pp., illus. \$59.95.

Geothermal Energy. Investment Decisions and Commercial Development. Peter D. Blair, Thomas A. V. Cassel, and Robert H. Edelstein. Wiley-Interscience, New York, 1982. xiv, 184 pp., illus. \$32.95. Alternate Energy.

Geothermal Energy Development. Problems and Prospects in the Imperial Valley of California. Edgar W. Butler and James B. Pick. Plenum, New York, 1982. xx, 362 pp., illus. \$39.50.

Getting Better. A Medical Student's Story. Kenneth Klein. Little, Brown, Boston, 1981. viii, 284 pp. \$12.95.

Glossary of Chemical Terms. Clifford A. Hampel and Gessner G. Hawley. Van Nostrand Reinhold, New York, 1982. xii, 306 pp. \$19.95.

God vs. Evolution. Benjamin Zarr. Published by the author, P.O. Box 495, Worcester, Mass., 1982. 184 pp., illus. \$12.50.

The Gonadotropins. Basic Science and Clinical Aspects in Females. Papers from a congress, San Marino, Oct. 1980. C. Flamigni and J. R. Givens, Eds. Academic Press, New York, 1982. xviii, 492 pp., illus. \$64.50. Proceedings of the Sero Symposium, vol. 42.

Inorganic Energetics. An Introduction. W. E. Dament. Cambridge University Press, New York, ed. 2, 1982. xii, 186 pp. Cloth, \$19.95; paper, \$9.95. Cambridge Texts in Chemistry and Biochemistry.

Inquiry into Life. Sylvia S. Mader. Brown, Dubuque, Iowa, ed. 3, 1982. xviii, 756 pp., illus., + appendixes. \$23.95.

Introduction to Molecular Immunology. Alfred Nisonoff. Sinauer, Sunderland, Mass., 1982. x, 204 pp., illus. Paper, \$11.95.

Introduction to Oceanography. David A. Ross. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1982. xvi, 544 pp., illus. \$23.95.

Introduction to the Chemistry of Life. Peter P. Berlow, Donald J. Burton, and Joseph I. Routh. Saunders, Philadelphia, 1982. xvi, 758 pp., illus., + appendix. Cloth. Saunders Golden Sunburst Series.

Markers for Diagnosis and Monitoring of Human Cancer. Papers from a symposium, Milan, Apr. 1981. M. I. Colnaghi, G. L. Buraggi, and M. Ghione, Eds. Academic Press, New York, 1982. xii, 280 pp., illus. \$44.50. Proceedings of the Sero Symposium, vol. 46.

Materials and Apparatus in Quantum Radiophysics. N. G. Basov, Ed. Translated from the Russian edition (Moscow, 1977) by A. Mason. Consultants Bureau (Plenum), New York, 1982. x, 162 pp., illus. Paper, \$39.50. The Lebedev Physics Institute Series, vol. 98.

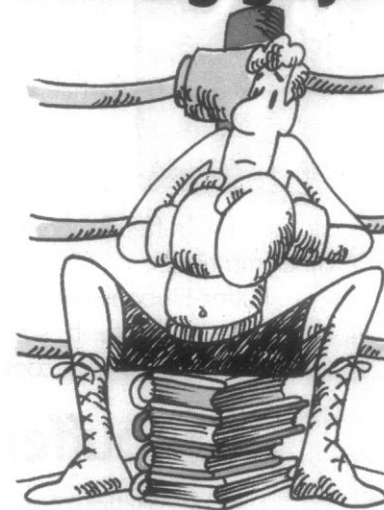
Mathematical Techniques of Optimization, Control and Decision. J. P. Aubin, A. Bensoussan, and I. Ekeland, Eds. Birkhäuser, Boston, 1981. viii, 212 pp. \$24.95. Annals of the CEREMADE.

Mathematics. A Human Endeavor. A Book for Those Who Think They Don't Like the Subject. Harold R. Jacobs. Freeman, San Francisco, ed. 2, 1982. xvi, 650 pp., illus. \$17.95.

Mechanisms of Cell-Mediated Cytotoxicity. Proceedings of a workshop, Carry-le-Rouet, France, Sept. 1981. William R. Clark and Pierre Golstein, Eds. Plenum, New York, 1982. xiv, 598 pp., illus. \$69.50. Advances in Experimental Medicine and Biology, vol. 146.

Mechanisms of Lung Microvascular Injury. Papers from a conference, May 1981. Asrar B. Malik and

How a one-person R & D dept. can match the big guys.



Dialog is the great equalizer in many phases of research. Other firms may have larger staffs and budgets. But with Dialog you have equal time on the world's leading online information retrieval service.

Lockheed's Dialog puts you in instant touch with databases and provides abstracts of journal articles, conference papers, patents, research reports and current news stories. Moreover, Dialog's data goes back 15 years.

What information do you need? New developments in acoustics or zero gravity? What's going on in your field in Japan or Germany? Ask Dialog.

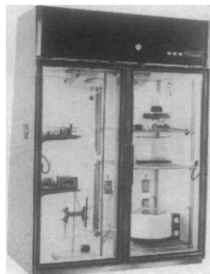
Using a standard computer terminal—in your office or at your library—you can make a quick search that will save hours, days or even weeks of time. And at a surprisingly low cost.

For more information, contact Dialog Information Services, Dept. 83, 3460 Hillview Ave., Palo Alto, CA 94304. Call toll-free (800) 227-1927. In California, call (800) 982-5838.

 **Lockheed Dialog**
Circle No. 132 on Readers' Service Card

You don't have to catch a cold in the name of science.

If you've been trying to conduct chromatography experiments inside a cold room, throw away your mittens and earmuffs and come out of the cold.



Because with Puffer-Hubbard's professional chromatography chambers, you can protect the integrity of your experiments while working in complete comfort.

You'll also enjoy better temperature control — a uniform 4°C — with our forced air cooling system, and have optimum storage for buffers, reagents, fractionating equipment and other materials.

Puffer-Hubbard's chromatography chambers are available in 23, 50 and 75 cu. ft. sizes, with a variety of accessories.

For a copy of our complete catalog, call or write:

puffer-hubbard

Rheem Manufacturing Company Scientific Products Division
Aiken Road Rt.1 Box 275 Asheville, N.C. 28804 Telephone 704 658-2711

Circle No. 259 on Readers' Service Card

1981-1982 Guide to Scientific Instruments



An authoritative, thorough source of information on scientific instruments. Instruments from approximately 2,000 companies are classified for easy reference in more than 2,000 categories.

272 pp. \$10.00
Mail orders to:
AAAS Sales Dept. G-6-81
1515 Massachusetts Avenue, NW
Washington, DC 20005

Nucleotide Reagents: Ready & Waiting!

Vega
Biochemicals
has the nucleotide
reagents you need—now.

We stock a comprehensive range
of products for phosphotriester and
phosphite-based chemistries.

- Protected mononucleosides
- Protected mononucleotide
phosphotriesters
- Protected nucleotide barium salts
- Protected nucleotide
triethylammonium salts
- Protected nucleoside terminators
- Fully protected dinucleotide
phosphotriesters

- Aminomethyl polystyrene resins
- Silica gel resins
- A complete kit for
phosphotriester synthesis

Because we specialize in nu-
cleotide chemistry, we can provide
immediate delivery and competitive
prices. And we guarantee that our
reagents are the highest quality be-
cause we manufacture them all.

Whenever you order, you only

need to make one call.
The nucleotide reagents
you need are ready and wait-
ing at Vega now.

Call toll-free 1-800-528-4882 to
place an order, or to request our free
catalog with complete product listings.

Vega Biochemicals
Division of
Vega Biotechnologies, Inc.
Post Office Box 11648
Tucson, Arizona 85734

Telephone: (602) 746-1401
Telex: 165572 (VEGA BIO TUC)



Norman C. Staub, Eds. New York Academy of Sciences, New York, 1982. xii, 562 pp., illus. Cloth or paper, \$122. Annals of the New York Academy of Sciences, vol. 384.

Medical Virology. Proceedings of a symposium, Anaheim, Calif., Oct. 1981. Luis M. de la Maza and Ellena M. Peterson, Eds. Elsevier, New York, 1982. xiv, 408 pp., illus. \$60.

Medicinal Uses of Plants by Indian Tribes of Nevada. Percy Train, James R. Henrichs, and W. Andrew Archer. Quarterman, Lawrence, Mass., 1982. x, 140 pp. \$25. Bioactive Plants, vol. 1. Reprint of the 1957 edition.

Membrane Transport of Calcium. Ernesto Carafoli, Ed. Academic Press, New York, 1982. xii, 266 pp. \$45.

Membranes and Transport. Vol. 1. Anthony N. Martonosi, Ed. Plenum, New York, 1982. xxxvi, 688 pp., illus. \$65.

Metastable Materials Formation by Ion Implantation. Proceedings of a meeting, Boston, Nov. 1981. S. Thomas Picraux and W. J. Choyke, Eds. North-Holland, New York, 1982. xvi, 446 pp., illus. \$70. Materials Research Society Symposia Proceedings, vol. 7.

The Methodology of Investigative and Clinical Immunology. George Kwapinski. Krieger, Malabar, Fla., 1982. x, 516 pp., illus. \$42.50.

Methods in Enzymology. Sidney P. Colowick and Nathan O. Kaplan, Eds. Vol. 83, Complex Carbohydrates, Part D. Victor Ginsburg, Ed. Academic Press, New York, 1982. xxviii, 684 pp., illus. \$59.

Methods of Biochemical Analysis. Vol. 28. David Glick, Ed. Interscience (Wiley), New York, 1982. x, 430 pp., illus. \$45.

MHD and Fusion Magnets. Field and Force Design Concepts. Richard J. Thome and John M. Tarrh. Wiley-Interscience, New York, 1982. xx, 348 pp., illus. \$38.95.

Microprocessor Systems. Interfacing and Applications. Robert J. Bibbero and David M. Stern. Wiley-Interscience, New York, 1982. xvi, 196 pp., illus. \$20.

Neuro-Ophthalmology. A Series of Critical Surveys of the International Literature, Vol. 2. S. Lessell and J. T. W. van Dalen, Eds. Excerpta Medica, Amsterdam, 1982 (U.S. distributor, Elsevier North-Holland, New York). xii, 404 pp., illus. \$88.25.

Neuropädiatrie II. F. Vassella, Ed. Karger, Basel, 1982. x, 190 pp., illus. Paper, \$58.75. Pädiatrische Fortbildungskurse für die Praxis, Band 55.

Popular Encyclopedia of Plants. Vernon H. Heywood and Stuart R. Chant, Eds. Cambridge University Press, New York, 1982. 368 pp., illus. \$29.95.

Progress in Medical Virology. Vol. 28. Joseph L. Melnick, Ed. Karger, Basel, 1982. x, 234 pp. \$88.75.

Progress in Nucleic Acid Research and Molecular Biology. Vol. 27. Waldo E. Cohn, Ed. Academic Press, New York, 1982. xvi, 304 pp., illus. \$37.

PSA 1980. Proceedings of a meeting, 1980. Vol. 2, Symposia. Peter D. Asquith and Ronald N. Giere, Eds. Philosophy of Science Association, East Lansing, Mich., 1981. xviii, 678 pp. \$23.75.

Psychodynamique et Psychothérapie Individuelle. Une Perspective Scientifique. David H. Malan. Translated from the English edition (1979) by Dr. Michaux. Mardaga, Brussels, 1982. 372 pp. Paper, 850 BF. Psychologie et Sciences Humaines, 104.

Psychological Life. From Science to Metaphor. Robert D. Romanyshyn. University of Texas Press, Austin, 1982. xviii, 210 pp. \$19.95.

Psychological Perspectives on the Self. Vol. 1. Jerry Suls, Ed. Erlbaum, Hillsdale, N.J., 1982. x, 274 pp. \$24.95.

Sister Chromatid Exchange. Avery A. Sandberg, Ed. Liss, New York, 1982. xviii, 706 pp., illus. \$98. Progress and Topics in Cytogenetics, vol. 2.

Solar World Forum. Proceedings of a congress, Brighton, England, Aug. 1981. David O. Hall and June Morton, Eds. Pergamon, New York, 1982. 4 vols. xlii, 3374 pp., illus. \$450.

Soviet Strategic Power and Doctrine. The Quest for Superiority. Mark E. Miller. Advanced International Studies Institute, Washington, D.C., 1982. xxiv, 298 pp. Cloth, \$13.95; paper, \$9.95. Monographs in International Affairs.

Spacetime and Geometry. The Alfred Schild Lectures. Richard A. Matzner and L. C. Shepley, Eds. University of Texas Press, Austin, 1982. x, 190 pp., illus. \$37.50.

Special Functions in Queuing Theory and Related Stochastic Processes. H. M. Srivastava and B. R. K. Kashyap. Academic Press, New York, 1982. xii, 308 pp. \$37.50.

Verbal Processes in Children. Progress in Cognitive Development Research. Charles J. Brainerd and Michael Pressley, Eds. Springer-Verlag, New York, 1982. xiv, 290 pp., illus. \$24.50. Springer Series in Cognitive Development.

Video and Digital Electronic Displays. A User's Guide. Sol Sherr. Wiley-Interscience, New York, 1982. x, 252 pp., illus. \$29.50.

Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference.

CLASSIFIED ADVERTISING DEADLINES:
17 September issue (mailed 10 September): **27 August**
24 September issue (mailed 17 September): **3 September**
1 October issue (mailed 24 September): **10 September**
8 October issue (mailed 1 October): **17 September**

POSITIONS WANTED: 40¢ per word, plus \$4 for use of box number, per insertion. \$10 minimum, per insertion. Prepayment required. This rate is available only to individuals seeking jobs.

DISPLAY (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth): \$9 per millimeter, \$225 minimum, per insertion (minimum charge covers 25 millimeters on a single column; 25 millimeters equals 10 lines of 50 spaces per line). No charge for use of box number. No agency commission for ads less than 103 millimeters (4 inches). No cash discount. Prepayment required for all foreign ads. Purchase orders and billing information required for all other advertising.

Send copy for all **Positions Wanted** ads and **Display** ads less than 1/6 page in size (125 millimeters) to:

SCIENCE, Room 207
1515 Massachusetts Avenue, NW
Washington, D.C. 20005
Telephone: 202-467-4456

Send copy for **Display** ads 1/6 page and larger to:

Scherago Associates, Inc.
1515 Broadway
New York, N.Y. 10036
Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

Box (give number)
SCIENCE
1515 Massachusetts Avenue, NW
Washington, D.C. 20005

POSITIONS WANTED

Biochemist, Ph.D. Experienced in protein chemistry and purification, lipid metabolism and purification, drug metabolism, membrane fusion. Experience in microbial genetics and protein degradation in membranes. Seeks junior level industrial position. Box 220, SCIENCE. X

Biologist/Anatomist, Ph.D. 1981. Postdoctoral and teaching experience: anatomy, embryology, introductory biology, adult education. Active research in functional morphology with publications. Seeks teaching and/or research position. Box 232, SCIENCE. X

Chemist, B.S.; 8 years of work experience in medical research, pharmacology, and neurology. Variety of biochemical techniques, radioimmunoassays, work with laboratory animals. Publications, excellent references. Seeks career position in pharmaceutical company/university/hospital. Willing to relocate. Box 233, SCIENCE. X

Computer Systems Engineer, B.S., Cornell C.S./E.E. Specialties: real time systems, systems integration. Experience: Lockheed L1011 avionics system, N.S.A. command and control, high-resolution graphics. Presently director of R & D computing facility. Seeks to consult and/or collaborate on challenging projects-software-systems. Send proposal with remuneration schedule to: Box 234, SCIENCE. No agencies or recruiters. 8/27; 9/3

Cytogeneticist, Ph.D., 15 years of research experience in animal/human cytogenetics. Extensive experience in cytotaxonomy, karyotype analysis of human leukemias, lymphomas, SCE in relation to chemical carcinogenesis/industrial toxicology/human monitoring, tissue culture (lymphocyte, fibroblast, epithelial), cellular hybridization in vitro transformation, and tumor studies. Many publications. Seeking position in research/industry. Box 221, SCIENCE. X

POSITIONS WANTED

Biochemist, Ph.D., cardiovascular glycoproteins: structure and function; atherosclerosis. Teaching experience, publications. Seeks position in academic/research institution. Box 235, SCIENCE. X

Physical Biochemist, Ph.D., with more than 15 years of research in academic/industry-oriented research institutes. Extensive experience in structural/functional/denaturation aspects of oligomeric proteins, collagen, protein-ligand interaction, and protein gelation. Extensive experience in the coated vesicles related to receptor mediated endocytosis, assembly of the protein coat around the lipid vesicles; small molecule, toxin, and drug interaction with protein and membrane and protein-membrane interaction. Extensive publications. Seeking position in research/teaching or industry. Box 222, SCIENCE. X

POSITIONS OPEN

ACADEMIC HEMATOLOGIST

Chief, Hematology, VA Medical Center, affiliated with University of Washington, Seattle. Required qualifications include certification in internal medicine (ABIM) and Board qualification or certification in hematology; three or more years of productive research in hematology with interests in immunology preferred; ability to establish active research program and develop junior faculty; ability to attract research support from VA or other source; and ability to administer patient care and teaching activities of Hematology Section and interdigitate these with active Oncology Section. Appointments will be considered at assistant or associate professor level with commensurate salaries. *Equal Opportunity Employer; Hispanics, other minorities, and women encouraged to apply.* Send inquiries to: **John Adamson, M.D., Chairman, Search Committee, Division of Hematology, Department of Medicine (RM-10), University of Washington, Seattle, Wash. 98195.**

ANALYTICAL CHEMISTRY: Seek Ph.D. holders to apply for tenure-track assistant/associate professor position starting August 1983. Rank dependent upon qualifications. Research interest may be in any area of analytical chemistry or at the interface of analytical and other areas of chemistry. Apply by 15 October with complete résumé, undergraduate and graduate transcripts, a description of research plans, plus three reference letters to: **Professor Michael L. Gross, Department of Chemistry, University of Nebraska-Lincoln, Lincoln, Nebraska 68588-0304.** *Affirmative Action/Equal Opportunity Employer; applications from women and minorities encouraged.*

Position available for Ph.D. with minimum of 3 years of postdoctoral experience to assume **ASSISTANT PROFESSORSHIP AND DIRECTION OF MAJOR UROLOGIC RESEARCH LABORATORY.** Interests should include immunohistochemistry, monoclonal antibody technology, endocrinology, and oncology of the male reproductive tract. *In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.* Address all replies in confidence to: **Dr. A. Bruce, Urological Surgery, Toronto General Hospital, 101 College Street, Toronto, Ontario, Canada M5G 1L7.** Deadline: 30 October 1982.

TWO POSITIONS: ASSISTANT PROFESSOR OF ANATOMY, 1 October 1982. Require doctoral degree and postdoctoral experience. Must be able to assume teaching role in gross and/or microscopic anatomy, and provide evidence of productive research and cell biology or neuroscience. Competitive salary and starter funds. Write: **Earl G. Hamel, Jr., Chairman, Department of Anatomy, University of Alabama in Birmingham, University Station, Birmingham, Ala. 35294.** *An Affirmative Action/Equal Opportunity Employer.*

ASSISTANT OR ASSOCIATE PROFESSOR IN PHARMACOLOGY, CANCER RESEARCH. Anti-metabolite, nucleoside pharmacologist for tenure-track faculty position. Primary appointment and laboratory in Pharmacology, Medical College of Wisconsin (MCW); secondary appointment at Pediatric Cancer Center. To work with laboratory committed to folate/antifolate metabolism. Will have teaching responsibilities in pharmacology for medical and graduate students. Applicant should have Ph.D. in pharmacology, strong background in purine/pyrimidine metabolism, and current or pending grant support. Salary/rank commensurate with qualifications. Inquiries to: **Harold F. Hardman, M.D., Ph.D., Chairman, Department of Pharmacology and Toxicology, Medical College of Wisconsin, Milwaukee, Wis. 53226.** *MCW is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR: BIOCHEMISTRY

The Department of Biochemistry at the University of Minnesota Medical School invites applications for a tenure-track position at the assistant professor level. Preference will be given to individuals who have had at least 2 years of postdoctoral experience with a strong background in fundamental biochemical disciplines, who show promise of developing a vigorous research program and whose research interests complement those of the current faculty. Applicants must be qualified to teach biochemistry in graduate and professional school courses. Applications must be postmarked no later than 31 October 1982. Send curriculum vitae, a coherent and comprehensive plan for future research, and names of three references to: **Search Committee, Department of Biochemistry, Medical School, 4-225 Millard Hall, 435 Delaware Street, SE, University of Minnesota, Minneapolis, Minnesota 55455.** *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

ASSISTANT OR ASSOCIATE PROFESSOR OF MICROBIOLOGY (VIROLOGIST)

The Department of Microbiology, Loyola University Stritch School of Medicine, is inviting applications for an **ASSISTANT OR ASSOCIATE PROFESSOR** (tenure-track position) with a specialty in virology. The candidate should have a strong academic background in virology, preferably in human virology. Candidate must have an earned doctorate in microbiology, biology, or virology. Postdoctoral research experience is required. Teaching experience is desirable. The candidate will be expected to carry on independent research, direct graduate students, and seek outside support for research. Those applying at the associate professor level should demonstrate a track record in these areas. Teaching responsibilities include participation in a microbiology course for medical students and presentation of a graduate level course in virology. The position will be filled no later than 1 July 1983. Salary commensurate with qualifications and experience. Send curriculum vitae and names of three individuals who will supply reference letters to: **Chairman, Faculty Search Committee, Department of Microbiology, Loyola University Stritch School of Medicine, 2160 South First Avenue, Maywood, Ill. 60153.** Closing date: 1 November 1982. *An Affirmative Action/Equal Opportunity Employer.*

BIOCHEMISTRY RESEARCH POSITION

To participate in research at VA Medical Center, North Chicago, on the role of protein phosphorylation in the mechanism of cholera toxin action. Applicant should have a Ph.D. in biochemistry or pharmacology and should be knowledgeable about current research in cyclic nucleotide regulation, protein kinase enzymes, and membrane proteins; should be able to operate equipment such as spectrophotometer, ultracentrifuge, liquid scintillation counter, and scanning microdensitometer; and should be familiar with radioisotope usage, gel electrophoresis, chromatographic and autoradiographic techniques. Forty hours per week. Excellent working conditions. Salary in the range of \$15,000 to \$21,000, depending on applicant's qualifications. Applicants must be U.S. citizens. Send curriculum vitae and names and addresses of three references to: **Dr. Harvey S. Kantor, Chief, Infections Disease Section, VA Medical Center, North Chicago, Ill. 60064.** *An Equal Opportunity Employer.*

CELLULAR NEUROPHYSIOLOGIST. The Department of Animal Physiology at the University of California, Davis, invites applications for a tenure-track, 11-month faculty position. Minimum qualifications include a Ph.D. in an area providing training in cellular neurophysiology and a demonstrated ability to conduct high quality, independent, original research in any area of cellular neurophysiology. The successful applicant will be expected to contribute to the department's teaching and advising program in vertebrate physiology for undergraduate and graduate students. The appointment will be at the rank of assistant professor, the level depending on background and experience. Applicants should submit curriculum vitae, bibliography, recent reprints, transcripts (if Ph.D. conferred within last 5 years), and the names of at least three references to: **Chair, Cellular Neurophysiologist Search Committee, Department of Animal Physiology, University of California, Davis, Calif. 95616.** Closing date for receipt of applications is 1 October 1982.

The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.

POSITIONS OPEN

ASSISTANT PROFESSOR OF PSYCHIATRY (IMMUNOLOGY). Ph.D. in immunology with postdoctoral training, experience with in vivo and in vitro assays, and a strong commitment to the development of collaborative research in psychoneuroimmunology. Send curriculum vitae, selected reprints, names of references, and a brief statement of research interests to: **Dr. Robert Ader, Director, Division of Behavioral and Psychosocial Medicine, Department of Psychiatry, University of Rochester School of Medicine and Dentistry, Rochester, N.Y. 14642.** *An Equal Opportunity Employer, M/F.*

BIOCHEMIST—MOLECULAR ENDOCRINOLOGIST. (i) Research assistant professor, 3-year appointment for research related to biochemistry of reproduction with emphasis on mechanism of hormone action, receptor purification, membrane biochemistry, glycoprotein hormone chemistry, inhibitors of hormone action, and associated problem areas. At least 2 years of postdoctoral experience required. Opportunity for development of independent research program and eventual entry into tenure-track program. Ph.D. in biochemistry preferred. (ii) Research associate and postdoctoral positions in above areas also available. Please forward curriculum vitae and names of three references to: **Dr. Leo E. Reichert, Jr., Professor and Chairman, Department of Biochemistry, Albany Medical College, Albany, New York 12208.**

Albany Medical College is an Equal Opportunity Employer.

BIOCHEMISTRY FACULTY POSITION. The Department of Biochemistry at the University of Massachusetts Medical Center seeks a faculty member for a tenure-track position with a rank consistent with previous experience and qualifications. The successful candidate will be expected to establish a vigorous research program with external funding and to participate in the teaching of graduate and medical students. Preference will be given to applicants with demonstrated research experience in the regulation of gene expression at the molecular level. Applicants with a Ph.D. or M.D. degree and at least 2 years of postdoctoral research experience may write to:

Biochemistry Search Committee, Dr. Michael P. Czech, Department of Biochemistry, University of Massachusetts Medical Center, Worcester, Mass. 01605.

An Equal Opportunity/Affirmative Action Employer

CLINICAL VIROLOGIST. Experienced in biochemistry, electrophoresis, electrofocusing, and ultracentrifugation. M.S. degree, total of 4 years of laboratory experience, two of them in clinical virology, or B.S. with 6 and 4 years of above experience. N.Y. State and/or N.Y. City medical technologist license desirable. Salary: \$25,483. Send résumé to: **Personnel, Position Number 305, New York State Institute for Basic Research, 1050 Forest Hill Road, Staten Island, N.Y. 10314.** *Affirmative Action/Equal Opportunity Employer, M/F/H.*

DEAN COLLEGE OF MEDICINE

The University of Illinois is seeking candidates and/or nominations for the position of Dean of its College of Medicine. The Dean is responsible for the administration of all phases of a college headquartered in Chicago with programs in three other State locations. The college admits approximately 331 medical students per year; its operating costs are more than \$60 million per year.

Qualified candidates for this position must possess an M.D. or Ph.D. degree in a health related science. They must have demonstrated ability in medical education and administration. Interested individuals should submit their curriculum vitae to:

**William N. Spellacy, M.D., Chair
Search Committee for the Medical Deanship
University of Illinois at Chicago
P.O. Box 6998
Chicago, Illinois 60680**

All applications postmarked before October 1, 1982 will be considered. Starting date and salary are negotiable.

**THE UNIVERSITY OF ILLINOIS IS AN AFFIRMATIVE ACTION/
EQUAL OPPORTUNITY EMPLOYER**

POSITIONS OPEN

CHAIRMAN, DEPARTMENT OF PHYSIOLOGY AND BIOPHYSICS. The University of Washington invites nominations and applications for the chairmanship of Physiology and Biophysics. Selection criteria include a nationally recognized research program, concern for excellence in teaching, and demonstrated administrative skills. Applications, including curriculum vitae and names of three references, should be sent by 1 October 1982 to: **Dr. Cornelius Rosse, Chairman, Physiology and Biophysics Search Committee, Department of Biological Structure SM-20, University of Washington, Seattle, Wash. 98195.**

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

CHAIRMAN DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY MEDICAL COLLEGE OF VIRGINIA VIRGINIA COMMONWEALTH UNIVERSITY

Virginia Commonwealth University (VCU) invites applications from individuals with a strong record of productive research and administrative potential and commitment to education in the health sciences. The successful applicant would be expected to play a leading role in expanding the graduate program and furthering interdisciplinary research.

The Department of Microbiology and Immunology consists of 22 faculty members and 45 graduate students and has strong ties to the other departments in the School of Basic Sciences with teaching responsibilities in graduate programs and health professions.

Candidates should submit letters of interest, their curriculum vitae, and other pertinent information to:

**Dr. M. Martinez-Carrion
Chairman, Microbiology Search Committee
Department of Biochemistry
Box 614, MCV Station
Virginia Commonwealth University
Richmond, Va. 23298**

Applications accepted until 1 October 1982 or until a suitable candidate is identified. *VCU is an Affirmative Action/Equal Opportunity Employer.*

CHAIRPERSON DEPARTMENT OF PATHOLOGY

Applications are solicited for the position of **chairperson** of the Department of Pathology of the Medical College of Wisconsin in Milwaukee, Wisconsin. We seek a candidate with the highest academic credentials and with demonstrated skills of excellence and leadership in the administration, teaching, and research efforts for a vigorous multifaceted Department of Pathology. The department is responsible for undergraduate and graduate medical education and the provision of services in four major affiliate hospitals. *The Medical College of Wisconsin is an Equal Opportunity/Affirmative Action Employer; women and minorities are encouraged to apply.* This position is now available. Submit inquiries and curriculum vitae by 30 September 1982 to: **Thad C. Hagen, M.D., Chairman, Pathology Search Committee, Professor and Co-Chairman, Department of Medicine, c/o J. Robert Koewing, Special Assistant to the Dean, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, Wisconsin 53226.**

FACULTY POSITIONS IN BASIC AND CLINICAL SCIENCE RELATED TO DENTISTRY. Candidates holding a Ph.D. or equivalent qualification who are capable of carrying out independent research in an appropriate discipline are invited to apply. Dental training and a knowledge of French would be an advantage. Applications should be sent to: **Dr. James P. Lund, Assistant Dean for Research, Faculté de médecine dentaire, Université de Montréal, C.P. 6209 Succursale A, Montréal, Québec, Canada H3C 3T9; telephone: 514-343-7815.**

IMMUNOLOGIST/BIOCHEMIST with interest in radiolabeled monoclonal antibodies for tumor detection by imaging. Postdoctoral position available immediately to join an on-going program in radioimmunodiagnosis. Must be trained in the manipulation of antibodies and other proteins. Knowledge of animal tumor model and tissue culture techniques is desirable. Experience with radioisotopes is helpful but is not a requirement. NIH salary guidelines. Please send a detailed résumé and a list of three references to: **Dr. D. J. Hnatowich, Department of Nuclear Medicine, University of Massachusetts Medical Center, Worcester, Mass. 01605.** *An Equal Opportunity/Affirmative Action Employer.*

SCIENCE AND ENGINEERING PERSONNEL DATA SERVICES OFFICER

The Office of Scientific and Engineering Personnel of the National Research Council (NRC) invites applications for the position of **DATA SERVICES OFFICER**. Incumbent will be responsible for management of internal data services and organization of assistance to NRC committees in locating, acquiring, and analyzing existing personnel data in the sciences and engineering, and for familiarizing NRC staff with available resources and data.

A master's degree or doctorate (or equivalent in computer science, statistics, or one of the quantitative social sciences) and at least 4 years of related experience are preferred, but a bachelor's degree and seven or more years of productive professional experience are acceptable. Experience sought includes human-resource studies that have required gathering data in the field and utilizing existing data, or employment in a data center, or service as a staff officer in a foundation or government agency with human-resource programs in science and engineering. Knowledge of a programming language and a strong quantitative and analytical orientation are highly desirable.

A temporary consulting appointment may be considered prior to a staff appointment. The annual salary range is \$28,000 to \$32,000.

Interested applicants should submit curriculum vitae, description of relevant experience, and salary history to:

Dr. William C. Kelly
Executive Director
Office of Scientific and
Engineering Personnel
National Research Council
2101 Constitution Avenue, NW
Washington, D.C. 20418

An Equal Opportunity Employer

ASSOCIATE DEAN DIVISION OF BASIC SCIENCES

FACULTY OF MEDICINE

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

The division includes 42 full-time faculty in the full range of disciplines basic to medicine and is organized on a nondepartmental basis. The Medical School is housed in a new Health Sciences Centre on the University campus and carries full accreditation from LCME/CACMS.

Candidates should have an established reputation in teaching and research and have demonstrated administrative capability. The successful applicant will take up the post in September 1983, or as soon as possible thereafter.

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

Applications with detailed curriculum vitae and names of three referees should be sent to:

Dean A. R. Cox
Faculty of Medicine
Health Sciences Centre
Memorial University of Newfoundland
St. John's, Newfoundland,
Canada A1B 3V6

MEMORIAL UNIVERSITY OF NEWFOUNDLAND FACULTY OF MEDICINE

Applications are invited for a vacancy for a **PHYSIOLOGIST** at the level of **professor or associate professor** in the Faculty of Medicine at Memorial University of Newfoundland.

Preference will be given to a senior person with considerable experience in teaching medical students and organizing courses in the area of gastrointestinal physiology or, alternatively, cardiovascular physiology or medical toxicology. The candidate would be expected to have a vigorous research program in the same or related areas.

In accordance with Canadian immigration requirements, this advertisement is directed, in the first instance, to Canadian citizens and permanent residents of Canada.

The position will be available from 1 September 1982.

Applications, giving the names of three referees, should be directed to:

Dr. J. A. Barrowman
Health Sciences Centre
St. John's, Newfoundland,
Canada A1B 3V6

RESEARCH SCIENTISTS

The Lawrence Berkeley Laboratory, Energy and Environment Division, is in present need of two Research Scientists for our Building Energy Data Group. **STAFF SCIENTIST 3**—Will plan and manage research activities for a technical staff of 12–15 people. Project activities will include: Building Energy Use Compilation and Analysis, Conservation Data Base and Technical Potentials, and primary energy consumption data gathering. Requires demonstrated technical and research management skills and advanced degree. **STAFF SCIENTIST 2**—Requires graduate technical degree and building energy research experience to lead project teams in above areas. Familiarity with conservation technologies and strategies preferred. Interested parties should send two resumes to: **Dr. A. H. Rosenfeld, c/o Ronald Lowder, Employment Office, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, CA 94720. PLEASE SPECIFY JOB #A0280 (3) or #A0466 (2).** An Equal Opportunity Employer M/F/H.

CSIRO

LEADER: CATCHMENT HYDROLOGY SECTION, A\$39,850 to A\$45,500 DIVISION OF WATER AND LAND RESOURCES, CANBERRA, ACT, AUSTRALIA

CSIRO has a broad charter for research into primary and secondary industry areas. The organization has approximately 7500 employees, 2700 of whom are research and professional scientists, located in divisions and sections throughout Australia.

GENERAL: CSIRO has recently formed a Division of Water and Land Resources at Canberra, ACT, and a Division of Groundwater Research at Perth, WA, as part of an expanded research effort by the organization in the field of water research.

The Division of Water and Land Resources in Canberra has the broad aim of promoting better use of water and land resources in Australia. Within this context, a Catchment Hydrology Section will be established to study aspects of the hydrologic cycle affecting the quantity, quality, and movement of water interacting with the landscape, at scales ranging from small plots to major catchments. The appointee will head this section.

The division has extensive experience in the development of computer-based methods in climate, crop, vegetation, and hydrologic modeling involving the use of large data sets. Resource allocation techniques have been developed in the context of geographic information systems. Projects on erosion and sedimentation, field methods for mapping salt accumulation, hill slope hydrology, and techniques for hydrologic characterization of soils are in progress.

The division has well-equipped laboratories and is located on the same site as research groups from CSIRO Divisions of Soils, Plant Industry, Environmental Mechanics, Entomology, and Computing Research. Computing facilities available include a well-developed image processor and computer analysis system for digital, remote-sensed data. In addition, there is a CSIRONET node and plotter with mapping and computer graphic capability.

DUTIES: The appointee will provide research leadership for a team investigating both theoretical and experimental aspects of physical hydrology. The research of the section will be directed towards an appraisal of the existing methods in catchment hydrology and new initiatives in field and modeling studies. This section will also evaluate methods to predict hydrologic consequences of change in land use or management practice. Aspects of water quality, especially the development and amelioration of river salinity and the processes relating to the salinization of agricultural land, will be included in these studies.

QUALIFICATIONS: A Ph.D. or equivalent qualification, in a relevant physical science or engineering, together with an outstanding record of personal research achievement and leadership in scientific hydrology are required. The appointee will also be expected to encourage creative research in water-related aspects of biology, soil and atmospheric physics, and engineering hydrology. Experience in arid, tropical, and temperate environments would be an advantage, as would some understanding of the Australian environment.

TENURE: Indefinite; however, applications will be considered from scientists interested in a term appointment. Superannuation benefits are available.

APPLICATIONS: In writing and stating full personal and professional details, the names of at least two referees, and quoting reference number A5709, should reach: **The Chief, Division of Water and Land Resources, CSIRO, P.O. Box 1666, Canberra City, ACT 2601, Australia**, by 24 September 1982.

POSITIONS OPEN

CELLULAR IMMUNOLOGIST for research in liver disease and liver cancer. Position available immediately. Please contact: Dr. Myron J. Tong, Huntington Memorial Hospital, 100 Congress Street, Pasadena, Calif. 91105. *Equal Opportunity Employer.*

University of Pennsylvania
School of Medicine
Department of Pathology and Laboratory Medicine
Division of Laboratory Medicine

Applicants are solicited for **FACULTY POSITIONS** in the chemistry, blood bank, hematology-coagulation, immunology, microbiology, and data-processing sections. Individuals with research interests and backgrounds, as well as a commitment to excellence in patient care, are sought. Medical graduates trained in laboratory medicine or clinical pathology will be considered most seriously. However, M.D.'s or Ph.D.'s with relevant clinical laboratory training or experience are also sought. Academic appointment and salary will be commensurate with previous experience and service responsibility. Send curriculum vitae, list of at least three references, and a statement about research goals and areas of service interest to:

David B. P. Goodman, M.D., Ph.D.
Director, William Pepper Laboratory
Hospital of the University of Pennsylvania
3400 Spruce Street
Philadelphia, Pennsylvania 19104

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

FACULTY POSITIONS IN MEDICAL MICROBIOLOGY

The Department of Medical Microbiology, Faculty of Medicine, University of Alberta, invites applications for two tenure-track faculty positions available immediately. Appointments are usually made at the assistant professor level (1982-1983 salary range: C\$27,720 to C\$39,820 per annum), but higher level appointments may be negotiated on the basis of qualifications and experience.

Successful candidates will have a doctoral degree and at least 2 years of relevant postdoctoral experience in a specialty area of medical microbiology, preferably bacteriology. The ability to develop and maintain an independent research program and a strong commitment towards excellence in teaching are required. Teaching responsibilities will include both undergraduate and graduate courses in medical microbiology (especially courses in mechanisms of microbial pathogenicity and in systematic medical microbiology) to students of medicine and allied health sciences, as well as the direction of graduate students in M.Sc. and Ph.D. programs.

An opportunity exists to apply for establishment funds by competitive application from the Alberta Heritage Foundation for Medical Research.

Please address enquiries, including curriculum vitae with a list of publications and statement of research interests, and the names of three references, to:

Professor F. L. Jackson
Department of Medical Microbiology
1-41B Medical Sciences Building
University of Alberta
Edmonton, Alberta, Canada T6G 2H7

The University of Alberta is an Equal Opportunity Employer.

FACULTY—Molecular Genetics

Research faculty position open at the research assistant/associate professor level in the Division of Medical Genetics at the Mount Sinai School of Medicine. Applicants must have a strong background and demonstrated research in recombinant DNA technology. Duties will include active collaboration with faculty on various projects involving the use of DNA techniques. Projects include cloning, identifying, and sequencing of the normal and mutant genes for various inborn errors of metabolism, gene transfer in mouse embryos and tissue culture, as well as teaching in the genetics program. Rank and salary based on qualifications and experience. Applicants should submit curriculum vitae, statement of research interests, and three letters of recommendation to: Dr. R. J. Desnick, Division of Medical Genetics, MOUNT SINAI SCHOOL OF MEDICINE, Fifth Avenue and 100th Street, New York, N.Y. 10029. *An Equal Opportunity Employer.*

POSITIONS OPEN

FLOW CYTOMETRY TECHNICIAN. Technician to operate and supervise a FACS III facility. Requires a B.S. and experience in immunofluorescence. Experience in flow cytometry and/or computer programming is highly desirable. Please send résumé to: Michael Vittoria, Manager, Professional Placement, University of Massachusetts Medical Center, 55 Lake Avenue North, Worcester, Mass. 01605. *Affirmative Action/Equal Opportunity Employer.*

GENERAL ENGINEER Civil Service Position GS-5 to GS-11

Salary range: \$16,706 to \$25,924.

Position: The U.S. Army Medical Research Institute of Infectious Diseases needs an Engineer for a research team in Aerobiology.

Requirements: Engineering degree required, experience helpful. Background should emphasize math, physics, electric fields and circuitry, fluid mechanics, particle dynamics, mechanical drawing and statistics. **Contact:**

Joseph Hise
Civilian Personnel Office
Fort Detrick
Frederick, Md. 21701
Telephone: 301-663-2314

Equal Opportunity Employer

GEOLOGICAL OCEANOGRAPHER wanted for tenure-track position at assistant, associate, or full professor level beginning February 1983. Ph.D. required. Responsibilities include teaching and research. Résumé and names of three references should be sent by 1 October to: John H. Martin, Director, Moss Landing Marine Laboratories, Moss Landing, Calif. 95039. Telephone: 408-633-3304. *The California State University is an Equal Opportunity/Affirmative Action Employer.*

University of Michigan Medical School, Department of Family Practice, has a position available as an **INSTRUCTOR.** Residency-trained family physicians who are seeking further clinical experience while beginning a career in academic family practice. Appointment as instructor allows such junior faculty to participate in patient care while gaining experience and involvement in teaching, administration, and research. Applicants should write a personal letter and send copy of their curriculum vitae to: Terence C. Davies, M.D., Professor and Chairman, Department of Family Practice, c/o Peggy Alford, University of Michigan Medical School, B1952 Clinical Faculty Office Building, Ann Arbor, Michigan 48109. *A nondiscriminatory, Affirmative Action Employer. Code 18.*

INSTRUCTOR, Nuclear Medicine. Position available immediately for a Ph.D.-level organic chemist. A strong background in organic synthesis is required. Previous experience in the synthesis of opiates and steroids or in the design, synthesis, and evaluation of suicide inhibitors is desired. Send résumé to: Dr. Donald Burns, The Johns Hopkins University, 3100 Wyman Park Drive, Building 6, Baltimore, Maryland 21211. *An Affirmative Action/Equal Opportunity Employer.*

MASS SPECTROSCOPIST, RICE UNIVERSITY—The Department of Biochemistry of Rice University announces the availability of a scientific staff position for an experienced bioorganic mass spectroscopist to operate the GC-MS unit and to participate in research on sterol biosynthesis and chemistry of complex lipids. Salary dependent on qualifications and experience. Position available immediately. Interested persons should send résumé and names of three references to: G. J. Schroepfer, Jr., Department of Biochemistry, Rice University, Houston, Texas 77005. *Rice University is an Equal Opportunity/Affirmative Action Employer.*

The Department of Biochemistry, Rice University, announces the availability of **RESEARCH POSITIONS** for programs of research in the areas of cholesterol biosynthesis and sphingolipid chemistry and metabolism. Experience in cell culture techniques and/or bioorganic chemistry of concerned compounds highly desirable. Positions available immediately. Interested candidates should send résumé and names of three references to: G. J. Schroepfer, Jr., Department of Biochemistry, Rice University, Houston, Texas 77005. *Rice University is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

TWO FACULTY POSITIONS IN PLANETARY PHYSICS AND CHEMISTRY. Massachusetts Institute of Technology (MIT), Department of Earth and Planetary Sciences, seeks a junior and a senior person for regular faculty appointments with starting dates of September 1983 or later. Apply to: Professor Gordon H. Pettengill, Room 54-620, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

MIT is an Equal Opportunity/Affirmative Action Employer.

MEMBRANE BIOLOGIST. Postdoctoral fellowship available in Department of Neurology, Stanford University School of Medicine, for morphologist within multidisciplinary research program on development and plasticity of neural membranes. Experience in electron microscopy essential. Interest or experience in cytochemistry and freeze-fracture desirable. Send curriculum vitae, list of publications, and names of three references to: Stephen G. Waxman, M.D., Ph.D., Professor of Neurology (127), VA Medical Center, 3801 Miranda Avenue, Palo Alto, Calif. 94304. *An Equal Opportunity/Affirmative Action Employer.*

MOLECULAR BIOLOGIST. Tenure-track position at assistant professor level to begin about 1 July 1983. This position is one of several in a newly created Department of Biology. Postdoctoral experience and demonstrated potential for excellence in research required. Send résumé, including a one-page statement of specific research plans, reprints, and the names and addresses of at least three references, to: Molecular Biology Search Committee, Department of Biology, Wilson Hall (046A), University of North Carolina, Chapel Hill, N.C. 27514, by 1 December 1982. *The University of North Carolina is an Affirmative Action/Equal Opportunity Employer.*

FREIE UNIVERSITÄT BERLIN

Has an opening for a

MOLECULAR OR CELL BIOLOGIST

We are looking for a collaborative Ph.D. scientist with experience in modern genetic methods and interest in biological membranes.

A 5-year position is available in a biophysical research group. Salary, dependent on qualification and age, between DM 50,000 and DM 60,000 per year.

Send curriculum vitae, list of publications, and two or three letters of recommendation to: Biophysics Group, Fachbereich Physik, Freie Universität Berlin, Arnimalles 14, D-1000 Berlin 33, West Germany.

NEURAL ULTRASTRUCTURE. Position available for research associate in neural ultrastructure in Department of Neurology, Stanford University School of Medicine. This position is for an individual with the Ph.D. or M.D. degree, who will take part in ongoing studies on development and plasticity of neuronal membranes. Experience in ultrastructure is essential, and previous work in freeze-fracture and/or cytochemistry is desirable. Send curriculum vitae, reprints, and names of three references to: Stephen G. Waxman, M.D., Ph.D., Neurological Unit (127), VA Medical Center, 3801 Miranda Avenue, Palo Alto, Calif. 94304. *An Affirmative Action/Equal Opportunity Employer.*

PHARMACOLOGY. Two assistant or associate faculty positions are available in the Department of Pharmacology at Ponce School of Medicine. Candidates must have a Ph.D. in pharmacology. A strong commitment to teaching medical students is necessary. Research is encouraged, preferably in the area of antibiotics or endocrine pharmacology. One position is immediately available. The second position will be available July 1983. Interested individuals should forward curriculum vitae, names of three references, and a brief statement of research plans by 1 October 1982 to: Dr. Arthur L. Hupka, Professor and Chairman, Department of Pharmacology, Ponce School of Medicine, P.O. Box 7004, Ponce, Puerto Rico 00732. *Equal Opportunity Employer.*

POSTDOCTORAL FELLOW at Massachusetts Institute of Technology (MIT) available immediately to study mechanisms of irreversible thermal inactivation of enzymes. Ph.D. in biochemistry and experience in protein chemistry are required.

Send résumé and names of three references to: Dr. Alexander M. Klibanov, Room 16-209, Massachusetts Institute of Technology, Cambridge, Mass. 02139.

MIT is an Affirmative Action/Equal Opportunity Employer.

DEAN

COLLEGE OF SCIENCE AND ENGINEERING

Housed entirely on the University's Teaneck, N.J., campus, the College has 7 depts.: Chemistry, Electrical Engineering, Engineering Technology, Industrial Engineering and Management Science, Mathematics and Computer Science, Mechanical Engineering, and Physics, serving 2300 students and employing 64 full time and 100 part time faculty. The College offers BS and MS programs in all departmental disciplines, a BS program only in Engineering Technology and several interdisciplinary programs.

The Dean, reporting to the Vice President for Academic Affairs, is expected to administer all academic facets of the College, providing leadership to the faculty, giving guidance to curricular developments and fostering academic/industrial relationships and programs. Prospective candidates should have leadership qualities and ability to identify and develop faculty talents. Additional qualifications include an earned doctorate in Engineering or a related science, evidence of scholarly achievement, and experience in both administration and higher education. Salary commensurate with experience and consistent with University structure. Appointment to commence no later than July 1, 1983.

Submit letter of application, vitae and 3 references no later than Oct. 8, 1982, to: **Mrs. Sheila Allen, Campus Personnel Services Manager.**

fairleigh dickinson university

1000 River Road, Teaneck, NJ 07666
Equal Opportunity/Affirmative Action Employer

Two postdoctoral positions are available in the Gene Expression and Mutagenesis Group of the Division of Biological and Medical Research, Argonne National Laboratory.

Successful applicants will participate in studies on the fundamental biological alterations in mammalian cells during the process of carcinogenesis. Research focuses on (1) mutagenesis and neoplastic transformation induced by chemical and physical agents in cultured mammalian cells, (2) carcinogen metabolism, DNA modification and repair and, (3) factors influencing cell differentiation. Experience in one or more of these areas is preferred.

Qualified applicants must have received their doctorate within three years of the appointment. Salary is commensurate with experience.

Applications should include curriculum vitae and the names of three references. They should be forwarded to



**W. D. McFall, Box BIM-50
Personnel Division
Argonne National Laboratory
9700 South Cass Avenue
Argonne, IL 60439**

An Equal Opportunity/
Affirmative Action Employer

PLANT BIOLOGIST

The FRONTIER SCIENCES DIVISION is seeking a creative scientist to work on a program to develop plant cell culture methods for the improvement of cereal plants.

Applicants should have an advanced degree plus strong training in plant biology, physiology or genetics, and plant cell culture. Experience with breeding methods, or somatic cell genetics for plant species, particularly field crops, is also desirable.

Competition to remain open until a suitable candidate is selected. Salary is commensurate with education and experience.

Please apply in writing quoting Competition No.: ARC-562 to:

**Dr. Toshi Kaneda
Head, Biology Group
Alberta Research Council
11315 - 87th Avenue
EDMONTON, Alberta, Canada
T6G 2C2**



TOXICOLOGY MANAGER

CIBA-GEIGY Corporation, a major producer of pharmaceuticals, specialty chemicals, agricultural and consumer products, has a challenging career opportunity available in its dynamic corporate toxicology group which provides toxicology support and counsel to various sectors of the corporation.

The successful candidate will be responsible for the safety evaluation of products and processes by recommending cost-effective test strategies, designing study protocols, and evaluating results as part of a corporate toxicology support team.

Requirements include a PhD in Toxicology or related biomedical sciences, with a minimum of 5 years experience in industrial or regulatory environment and a background conducting toxicology studies. Preferred areas of expertise include inhalation and consumer product testing. Candidate must have strong management, negotiating and communication skills.

We offer an attractive salary, liberal benefits program and a pleasant suburban location in Westchester County, New York.

Interested candidates should send their resume, in confidence, to: L. Alaburta, Employment Manager, CIBA-GEIGY Corporation, 444 Saw Mill River Road, Ardsley, New York 10502. An equal opportunity employer m/f

CIBA—GEIGY

POSITIONS OPEN

OBSTETRICS AND GYNECOLOGY

Biochemist for full-time research position to study metabolism and mechanism of action of steroid hormones. Please submit curriculum vitae to: **Erilo Gurpide, Ph.D., Obstetrics/Gynecology, THE MOUNT SINAI MEDICAL CENTER, One Gustave L. Levy Place, New York, N.Y. 10029. An Equal Opportunity Employer.**

NEW ZEALAND DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH GRASSLANDS DIVISION PASTURE PLANT BREEDERS

There are two vacancies at the division's headquarters at Palmerston North, for grass and/or legume breeders. The work will include breeding and maintenance of improved cultivars for New Zealand's pastoral agriculture and associated research programmes.

Specific fields of interest include regional breeding projects in various parts of New Zealand, pest and disease resistance, nutritional quality, and generating new variation in interspecific hybridisation.

Following a probationary period, the appointments are permanent. Applicants should have a good degree in agriculture or science, preferably with training or experience in plant breeding. If necessary, on-the-job training will be given.

Salary will depend on qualifications and experience.

Further information, application forms, and so forth, may be obtained from: **The Ambassador Extraordinary and Plenipotentiary, New Zealand Embassy, Washington, D.C.** Applicants should quote vacancy number 4032 and forward applications, accompanied by a résumé, to:

**The Ambassador Extraordinary and Plenipotentiary
New Zealand Embassy
Observatory Circle, NW
Washington, D.C. 20008**

The closing date for applications to be received is 8 October 1982.

PHYSICISTS

Dynamic research group is looking for several experimentalists with strong backgrounds in building energy science for research in energy-efficient buildings. Applicants should have expertise in the thermal sciences, measurement techniques, data analysis, electronics, and statistics. Prefer an advanced degree in experimental physics or engineering. Managerial and administrative skills desirable for the higher level positions. Salaries range from \$20,000 to \$38,000 per year, based on position assumed and experience. Please send two résumés, including salary history, to: **Employment Office, Lawrence Berkeley Laboratory, One Cyclotron Road, Berkeley, Calif. 94720. PLEASE SPECIFY JOB NUMBERS A508/A509/A0236.**

An Equal Opportunity Employer, M/F/H

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE. Research position studying regulation of gene expression with emphasis on the molecular basis of metabolite regulation, enzyme overproduction, and tissue-specific expression of human argininosuccinate synthetase. Availability of cloned DNA and overproducing cell lines combine with regulatory aspects of this system to offer unique opportunities. See *J. Biol. Chem.* 256, 11826 (1981). Work on a separate project related to lysosomal lipases and phospholipases is also possible. The laboratory has general interests in regulation of gene expression and molecular approaches to human genetic diseases. Send curriculum vitae and letters of recommendation to: **Arthur L. Beaudet, Department of Pediatrics, Baylor College of Medicine, Houston, Texas 77030.**

POSTDOCTORAL RESEARCH ASSOCIATE position available 1 October 1982 for a project investigating normal and malignant cell growth regulation and cancer chemotherapy. Applicants preferred with Ph.D. in tumor cell biology, pharmacology, or biochemistry. Experience with tissue culture techniques, including the human tumor stem assay, is desirable though not essential. Salary range: \$18,000 to \$20,000 per year, depending on experience. Send complete résumé, transcripts, and three letters of reference to: **Dr. Robert A. Hickie, Department of Pharmacology, College of Medicine, Health Sciences Building, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.**

POSITIONS OPEN

POSTDOCTORAL POSITIONS IN INSECT BIOCHEMISTRY. Study metabolism of chitin or tyrosine and synthesize compounds that inhibit cuticle formation and degradation. Send résumé and names of three references to: **Dr. Karl J. Kramer, Department of Biochemistry, Kansas State University, Manhattan, Kans. 66506. Kansas State University is an Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately to study various aspects of adenylate cyclase regulation with particular emphasis on the role of stimulatory and inhibitory GTP regulatory proteins. Previous experience of membrane systems desirable. Send curriculum vitae and names of references to: **Dr. Dermot M. F. Cooper, Department of Pharmacology (C236), University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80262. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available for recent Ph.D. in microbiology or biochemistry. Studies of bacterial cell walls, cell surface, and secreted polymers. Program involves the use of microbiological, biochemical, and immunological (monoclonal antibody) techniques. Send curriculum vitae and names of three references to: **G. D. Shockman, Department of Microbiology and Immunology, Temple University Medical School, 3400 North Broad Street, Philadelphia, Pa. 19140. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION. Molecular biologist to investigate nuclear RNA-protein particles reacting with human autoantibodies. Experience in RNA isolation and gel electrophoresis technology required. Available this fall. Send curriculum vitae and other information to: **Dr. A. Douvas, University of Southern California School of Medicine, Clinical Immunology Section, 2025 Zonal Avenue, HMR Number 711, Los Angeles, California 90033.**

POSTDOCTORAL POSITION available immediately to study hormonal regulation of ovarian adenylate cyclase activity, with emphasis on adenylate cyclase desensitization. Background in biochemistry or endocrinology preferred. Send curriculum vitae and names of three references to: **Dr. M. Hunzicker-Dunn, Department of Molecular Biology, Northwestern University Medical School, 303 East Chicago Avenue, Chicago, Illinois 60611.**

POSTDOCTORAL POSITION to study neural control of eye movements. Current projects include single-unit studies in trained monkeys and intracellular recording and labeling studies (using HRP) in cats. Starting date: September 1982 with salary to be arranged. Please send curriculum vitae, representative publications, a statement of research goals, and three letters of recommendation to: **Dr. W. Michael King, Department of Physiology, Box 642, University of Rochester Medical Center, Rochester, N.Y. 14642. The University of Rochester is an Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION is available for studies on receptors for drugs and hormones that regulate calcium fluxes in cardiovascular plasma membranes. Background in protein chemistry, cell membrane biochemistry, and organic chemistry desirable. Salary: \$15,000 plus fringe benefits. Send curriculum vitae and three references to: **Dr. Terry B. Rogers, Department of Biochemistry, University of Maryland, School of Medicine, 660 West Redwood Street, Baltimore, Maryland 21201. An Equal Opportunity Employer.**

POSTDOCTORAL OR RESEARCH ASSOCIATE. Immediate openings in a project on steroid hormone biosynthesis; areas of focus include P-450 type hydroxylase mechanisms, regulation, and pharmacological control. A background in synthetic organic chemistry, enzyme biochemistry, or cell culture biology is desirable. Send curriculum vitae and names or letters of reference to: **Dr. Larry Vickery, Department of Physiology and Biophysics, University of California, Irvine, Calif. 92717.**

POSTDOCTORAL RESEARCH CHEMIST, \$1500 per month. Conduct independent cancer research. Investigate pathways by which different RNA tumor viruses transform cells of various embryological lineages. Must have Ph.D. in chemistry and background in molecular biology, nucleic acids, and protein chemistry. Send a copy of this ad with résumé to: **Number 8120, P.O. Box 865, Sacramento, California 95804, no later than 27 September 1982.**

POSITIONS OPEN

POSTDOCTORAL POSITION to study the regulation of peptide hormone receptors in cell culture. Background in biochemistry and/or cell biology and some experience in hormone receptors is preferred. Knowledge of cell cultures helpful. Available immediately. Send curriculum vitae and three letters of reference to: **Dr. M. K. Raizada, Department of Physiology, J-274 JHMC, University of Florida, Gainesville, Florida 32610. Telephone: 904-392-3791.**

POSTDOCTORAL POSITION IN IMMUNOLOGY OF DIABETES available immediately for recent Ph.D. with interests in immunology/immunogenetics/autoimmunity. Program entails study of the nature and pathogenetic significance of immune complexes in genetically diabetic mice. Send résumé and names of three references to: **Dr. E. H. Leiter, The Jackson Laboratory, Bar Harbor, Maine 04609.**

POSTDOCTORAL POSITION available immediately for crystallographic study of the **LAMBDA REPRESSOR-OPERATOR COMPLEX.** Recent structural studies of repressor are described in *Nature* 298, 441-451 (1982). Current work includes the study of several co-crystals that contain the N-terminal fragment of repressor and a synthetic operator site. Background in macromolecular crystallography preferred. Please send curriculum vitae and names of three references to: **Dr. Carl O. Pabo, Department of Biophysics, Johns Hopkins Medical School, 725 North Wolfe Street, Baltimore, Md. 21205.**

POSTDOCTORAL POSITION available immediately to study molecular genetics, biochemistry, and structure-function relationships of murine histocompatibility antigens and cell surface proteins relevant to host-tumor interactions. Prefer recent Ph.D. in molecular genetics, biochemistry, or immunology. Send letter, curriculum vitae, and references to: **Dr. G. N. Callahan, Department of Immunology, Scripps Clinic and Research Foundation, 10666 North Torrey Pines Road, La Jolla, Calif. 92037.**

POSTDOCTORAL POSITION available 1 January 1982 in area of eukaryotic DNA replication. Ph.D. or M.D. with expertise in cell and/or molecular biology. Have curriculum vitae and three letters of reference sent to: **Dr. J. L. Hamlin, Department of Biochemistry, University of Virginia School of Medicine, Charlottesville, Va. 22908. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available for research on the chemistry-biochemistry of regulatory cerebral neuropeptides in insects. An individual with a background in the purification and chemistry of peptides is preferred. Submit curriculum vitae and names of three references to: **Dr. W. E. Bollenbacher, Department of Biology, Wilson Hall 046A, University of North Carolina, Chapel Hill, N.C. 27514. An Equal Opportunity/Affirmative Action Employer.**

DEPARTMENT OF PSYCHOLOGY CORNELL UNIVERSITY

Professorial Position in Experimental Psychology—Level Open

The Department of Psychology has an opening effective at the start of the 1983-1984 academic year for an experimental psychologist interested in cognition, language, and/or perception. We invite applicants of a wide variety of interests in experimental psychology, including cross-cultural, developmental, differential, and mathematical perspectives. This is a tenure-track position. We will consider applicants at all academic ranks. Candidates should submit curriculum vitae and reprints or preprints of recent research as soon as possible and arrange that at least three letters of recommendation be sent to:

**Experimental Psychology Search Committee
Psychology Department
Uris Hall
Cornell University
Ithaca, New York 14853**

Cornell University is an Equal Opportunity/Affirmative Action Employer.

RENAL PHYSIOLOGIST

A Minneapolis-based Nephrology Department seeks an individual for a permanent full-time position. The qualified candidate must possess a Ph.D. in physiology, with a renal specialty preferred, and 1 year of responsible research experience. Please submit résumé, stating education/employment history, potential starting date, and salary requirement, to: **Personnel Director, REGIONAL KIDNEY DISEASE PROGRAM, 527 Park Avenue, Minneapolis, Minnesota 55415. An Equal Opportunity Employer.**

SCIENTIFIC TECHNICIAN

The University of New Brunswick (UNB) is actively searching for a qualified scientific technician in the area of SEM x-ray energy-dispersive analysis. Working in the Electron Microscopy Facility on the Fredericton campus, this position is available immediately.

The successful applicant will be responsible for the maintenance and operation of the x-ray energy-dispersive system of the UNB Electron Microscope Unit and will carry out qualitative and quantitative analyses of geological, biological, soil, and engineering specimens.

Candidates should have a university degree, or equivalent, in the physical sciences. Previous experience is desirable, but demonstrated interest and ability in the areas of spectroscopy, computer programming, and electronics may be deemed sufficient. The successful applicant will receive training on the job and may be given the opportunity to work toward an advanced degree involving x-ray energy-dispersive analysis.

The University offers an excellent fringe benefits package and a salary for this position to be made on appointment, based on experience and qualifications.

In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents.

Please direct applications to:

Personnel Services
University of New Brunswick
P.O. Box 4400
Fredericton, New Brunswick
Canada E3B 5A3



UNIVERSITY OF NEW BRUNSWICK

Animal Health Research of a major corporation has immediate openings for the following outstanding Senior Scientists.

Immunologist

The successful applicant will have a Ph.D. in immunology with 5 or more years of post-doctoral experience. Must be familiar with state of the art immunology techniques to initiate and develop an immunologic program in animal health.

Microbiologist

The successful applicant will have a Ph.D. in microbiology with 5 or more years of post-doctoral experience. Must have the ability to develop novel *in vitro* and *in vivo* test models for evaluation of antimicrobial substances along with knowledge of systems to test immunologic modifiers. A knowledge of organic chemistry, helpful.

For both positions, functioning in an interdisciplinary team effort is required. Applicants should have a desire to continue laboratory research. Industrial experience preferred.

We are a Fortune 150 company with businesses in the energy, chemicals and life sciences. Our modern Corporate Research facility is located in a beautiful rural setting with convenient access to a major metropolitan area. Outstanding living, recreational, educational opportunities available in the immediate area. We offer an excellent compensation/benefits program and the opportunity for personal and professional growth. Please forward resume with salary requirements to:

Box 230
SCIENCE

An Equal Opportunity Employer M/F/H/V

ABBOTT EXPANDS ACTIVITIES IN IMMUNODIAGNOSTICS

OPPORTUNITIES IN RESEARCH AND TECHNICAL SUPPORT

The Diagnostics Division of our \$2.5 billion international health care corporation currently has challenging positions available for talented scientists due to continued growth and expansion of our operations.

RESEARCH BIOCHEMIST

Position involves the optimization and development of monoclonal antibody enzyme immunoassays. Qualified candidates should have a Ph.D. in Biochemistry or Immunochemistry with 2-5 years post-doctoral experience including a background in protein purification and protein conjugation. Knowledge of Fluorescence Polarization would also be desirable.

RESEARCH SCIENTIST

Position will involve reagent and instrument development for a new Automated Immunoassay System. Background should include a Ph.D. in Biochemistry, Immunochemistry or Clinical Chemistry with 2-5 years post-doctoral experience with EIA development. Ideal candidate should have good mechanical aptitude, familiarity with automated laboratory instrumentation, and good verbal and written communication skills.

PROCESS BIOCHEMIST

This position in Technical Support involves troubleshooting on product and process problems, working on product improvement projects, and acting as an interface between our extensive R&D function and manufacturing on projects involving scale-up for new product introductions. Qualified candidates should have an M.S. or Ph.D. in Biochemistry or Clinical Chemistry with 2-5 years of clinical/industrial lab experience involving immunoassay technology and the potential to assume supervisory responsibility. Strong statistical skills would also be advantageous.

We offer an excellent salary and benefits package plus outstanding opportunity for career advancement. Abbott Park, Abbott's headquarters, is located in an attractive suburban area on the Lake Michigan shoreline, 30 miles north of Chicago. For consideration, please send a resume with salary history in confidence to: **Chris Gude / Corporate Placement.**

ABBOTT
ABBOTT PARK ILL. 60064

"HEALTH CARE WORLDWIDE"

Abbott is an Affirmative Action Employer

POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION. A position is available in chemical carcinogenesis to study the molecular biology of carcinogen-DNA interactions. These studies are designed to investigate the role of carcinogens in the alteration of gene expression. Some organic chemistry or experience in oligonucleotide synthesis would be helpful. Other backgrounds applicable are biophysics, biochemistry, or molecular biology. Apply by sending curriculum vitae and three letters of recommendation to: **Dr. Thomas Meehan, Michigan Molecular Institute, 1910 West St. Andrews Road, Midland, Mich. 48640. An Equal Opportunity Employer.**

PROFESSOR AND HEAD DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

Applications are invited for the position of professor and head of the Department of Pharmacology and Therapeutics at the Faculty of Medicine, University of Manitoba.

Candidates should have a substantial record and academic achievement in pharmacology and extensive experience in teaching and research. The department is responsible for programs of education at the undergraduate and graduate levels in medicine and offers programs leading to the M.Sc. and Ph.D. degrees. The department also cooperates with other clinical departments in the teaching of clinical pharmacology. *Both men and women are encouraged to apply.* In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada.

Applications and nominations should be accompanied by curriculum vitae and submitted to:

**Dr. T. W. Fyles, Chairman,
Pharmacology Search Committee,
753 McDermot Avenue,
Winnipeg, Manitoba, Canada R3E 0W3**

RESEARCH ASSOCIATE/SCIENTIST. M.S. in radiopharmacy, biochemistry, or biology. To conduct research on the toxic effects of organic compounds on red blood cells. Labeling red blood cells with radioactive compounds. Job site: Los Angeles; \$15,000 per year. Send advertisement with résumé to: **Number 8116, P.O. Box 865, Sacramento, Calif. 95804, no later than 27 September 1982.**

RESEARCH ASSOCIATE/POSTDOCTORATE. Position available immediately to conduct single-unit electrophysiology related to the role of the vestibular system in space travel. Position involves 6 months' residence at University of Texas Medical Branch and 6 months at NASA-Ames, Sunnyvale, California. Vertebrate extracellular, single-unit electrophysiology experience required. Quantitative bias preferred. Contact: **Professor M. J. Correia, ENT Research, Unit 9-A, JSH, University of Texas Medical Branch, Galveston, Texas 77550-2778, telephone: 713-765-2721. We are an Equal Opportunity/Affirmative Action Employer, M/F/H/V.**

RESEARCH ASSOCIATE

Postdoctoral position available in an active and well-equipped biochemistry laboratory. Research area will include characterization of receptor proteins by HPLC. Minimum qualifications include Ph.D. in bioscience specialty and 2 years of laboratory experience. Submit résumé by 12 September 1982 to: **Stephanie Vessel, University of Kentucky, Medical Center Personnel, 800 Rose Street, Lexington, Ky. 40536. Telephone: 606-233-5207.**

An Equal Opportunity University

RESEARCH ASSOCIATE position available 1 October 1982 for Ph.D. biochemist or physiologist to study prostaglandin synthesis by isolated intestinal epithelial cells and the role of arachidonic acid metabolites in intestinal electrolyte transport and inflammation. Experience in prostaglandin biochemistry preferred. Send curriculum vitae and names of three references to: **Dr. D. W. Powell, Division of Digestive Diseases, 326 Burnett-Womack Building, University of North Carolina, Chapel Hill, N.C. 27514. The University of North Carolina is an Equal Opportunity/Affirmative Action Employer. We are keenly interested in attracting outstanding women and/or minority faculty members to this department.**

POSITIONS OPEN

RESEARCH ASSISTANT PROFESSOR

Full-time research position; requires expertise in tissue culture and experimental pathology. Current research involves study of aqueous humor as a modulator of fibroblastic proliferation. Opportunity for development of laboratory research program in all fields of ophthalmology. Send curriculum vitae and reprints of publications to:

**Jonathan Herschler, M.D., Chairman
Department of Ophthalmology
University of Arizona Health Sciences Center
Tucson, Arizona 85724**

Equal Opportunity/Affirmative Action/Title IX/Section 504 Employer.

RESEARCH ASSOCIATES—UNIVERSITY OF MARYLAND. Two positions: (i) field collection and analysis (mostly nuclear) of atmospheric particulate material and statistical analysis of data and (ii) analysis of biological samples with nuclear methods in collaboration with NBS National Specimen Bank. Require Ph.D. in chemistry or B.S./M.S. with experience. Analytical experience needed. Nuclear techniques and computer background desirable. Start approximately November 1982 for 1 year, with possible renewals. Salary: (i) \$18,000 plus and (ii) \$16,000 plus, depending on experience. Supervisors: **G. E. Gordon and W. H. Zoller. Send curriculum vitae and three letters of reference to: W. H. Zoller, Department of Chemistry, University of Maryland, College Park, Md. 20742 by 1 October. Equal Opportunity/Affirmative Action Employer.**

RESEARCH ENTOMOLOGIST. Career Federal Service. Project leader, responsible for research on physiology of parasites and predators of insect pests. Will conduct studies on in vitro rearing and immunity of beneficial organisms. Position located with the Biological Control of Insects Research Laboratory, Columbia, Missouri. GS-11/12, GM-13 position, salary based on qualifications and experience. Candidates must be U.S. citizens. For applications: **J. Brooks, USDA-ARS-B38, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7813. An Equal Opportunity Employer.**

RESEARCH POSITION

For recent Ph.D. in biochemistry—cell biology to join newly established laboratory in gynecologic oncology and study in vitro metabolism/activation of estrogens and carcinogens. Salary: \$18,000. Send curriculum vitae and names of three references by 30 September 1982 to: **John Tsibris, Ph.D., or Josh Tunca, M.D., Department of Obstetrics and Gynecology, University of Illinois College of Medicine, 840 South Wood Street, Chicago, Illinois 60612.**

Affirmative Action/Equal Opportunity Employer

VIROLOGIST ASSISTANT/ASSOCIATE PROFESSOR West Virginia University Medical Center

Tenure-track position now available in the Department of Microbiology. Applicants must be interested in teaching in medical and graduate programs. The successful applicant must be able to establish a strong research program in one or more of the following areas of medical virology: molecular, clinical, or tumor virology, viral immunology, mechanisms of viral infection. Rank will be based upon qualifications, as will salary level. Applications will be accepted through 15 October 1982. Please send curriculum vitae, names of three references, and a description of research interests to: **Dr. Irvin S. Snyder, Professor and Chairman, Department of Microbiology, West Virginia University Medical Center, Morgantown, W. Va. 26506. West Virginia University is an Affirmative Action/Equal Opportunity Employer.**

VIROLOGIST/VETERINARY VACCINE DEVELOPMENT

ADVANCED GENETICS RESEARCH INSTITUTE (AGRI), a growing San Francisco Bay area biotechnology company, needs skilled B.S./M.S./Ph.D. scientists with comprehensive experience in viral vaccine development. Position requires demonstrated hands-on expertise in virus production, serology and design, conduct, evaluation of immunization/vaccination regimens. Prefer strong immunochemical background, including purification, labeling, and assays for antibodies/antigens. Experience with viral pathogens relevant to veterinary medicine a distinct advantage. Please send résumé to: **Personnel Director, AGRI, 2220 Livingston Street, Oakland, Calif. 14606.**

POSITIONS OPEN

SQUIBB

RESEARCH ASSOCIATE

The Squibb Institute for Medical Research located in Princeton, New Jersey, is presently accepting applications for entry and intermediate level positions in our Organic Chemistry Department in the following areas of specialization.

SYNTHESIS of peptides, prostaglandins, steroids and beta-lactam antibiotics. To be considered for these positions, interested candidates should possess either a Bachelor's or Master's Degree in Chemistry (or equivalent) with up to five years related experience.

ANTIBIOTICS GROUP has an opening for an individual to aid in the isolation and structure determination of antibiotics and other pharmacologically active substances. Required is a working knowledge of chromatographic methods (ion exchange, size exclusion, normal phase, reverse phase, TLC, HPLC, etc.). Qualified candidates should have a Bachelor's or Master's Degree in Chemistry (or equivalent) plus two years of related experience in the isolation of natural products.

E.R. Squibb & Sons, Inc. offers an opportunity to work in our very sophisticated laboratory facilities. We offer an excellent salary commensurate with background and experience and a comprehensive benefits package including full tuition reimbursement. Qualified applicants should forward resume indicating desired position and salary requirements in complete confidence to **Employment Office, Dept. CC, E.R. Squibb & Sons, Inc., P.O. Box 4000, Princeton, New Jersey 08540. Equal Opportunity Employer, M/F/H/V. Principals only apply.**

RESEARCH SCIENTIST to study aqueous humor dynamics and pharmacokinetics of the eye in glaucoma research laboratory. Doctorate in pharmacology plus 1 year of postdoctoral experience. One year of experience in ocular research (neurochemistry and neurophysiology) essential. Must also have 1 year of experience with HPLC and electrochemical detection. Send curriculum vitae and three letters of reference to: **Oklahoma State Employment Service, 515 N.W. 23, Oklahoma City, Oklahoma 73103. Refer to number 090144.**

SCIENTIST—PHYSICIAN IN NUTRITION Department of Medicine and Regional Primate Research Center UNIVERSITY OF WASHINGTON

Candidates sought for appointment to faculty of Department of Medicine (Division of Metabolism and Endocrinology) with joint appointment as core staff scientist of Primate Center. Activities to include research, teaching, and clinical service, including supervision of home parenteral nutrition program. Research should involve use of nonhuman primate models to elucidate human nutritional phenomena. Primary selection criteria: history of scientific excellence, promise of continued research of highest scientific and academic standard, and evidence of capacity to coordinate an integrated clinical and teaching program in human nutrition. Address letter of application, curriculum vitae, and three personal references to: **John A. Glomset, M.D., Chairman, Search Committee, Regional Primate Research Center SJ-50, University of Washington, Seattle, Wash. 98195. Affirmative Action/Equal Opportunity Employer.**

BIOLOGY/ BIOCHEMISTRY ASSISTANT

The Upjohn Company has an immediate opening in Cancer Research for a Biology/Biochemistry Assistant to assist in developing new *in vitro* screening systems for detection of potential antitumor agents. The individual will study biochemical mechanisms of action of the antitumor agents, monitoring the characteristics of mammalian cell cultures.

Applicants should have an M.S. or B.S. degree in Biology or Biochemistry with a minimum of 2 years current research experience in cell biology and biochemistry.

For confidential consideration, please send your resume to:

Lance D. Williams - 14413
5044-41-1

THE UPJOHN COMPANY
7000 Portage Road
Kalamazoo, MI 49001

An Equal Opportunity Employer M/F

R&D DIRECTOR Parenteral Nutrition

This person will be responsible to direct all functions for the research development and testing of parenteral nutrition products.

Specific requirements of the position are:

- Coordinates functions of various departments on specific projects.
- Formulates and/or reviews formulations for nutritional products for pre-clinical and clinical use.
- Designs and/or brings into Cutter new nutrients for use in specialized medical conditions.
- Maintains and promotes contacts with authorities in the field of nutrition for purposes of consultation; clinical investigations; and a means of remaining abreast of the state of the art.
- Prepares and administers capital and operating budgets, including major appropriation requests.

Education and Experience:

Requires knowledge ordinarily acquired from 4-6 years of post graduate level courses in Nutrition, Pharmacy, Biochemistry, Organic Chemistry, or related medical sciences. A minimum of 3 years experience in management or an equivalent combination of education and experience and a demonstrated ability to perform and report original independent research is required. A professional record of patents and publications is necessary.

In addition to an excellent employee benefits package, we provide comprehensive relocation benefits including payment of moving and travel expenses and, if applicable, real estate closing costs and a mortgage interest differential allowance.

Located on San Francisco Bay, we offer a unique opportunity to improve your quality of life and enhance your education at nearby outstanding institutions, such as the University of California, Stanford, and many more.

If you are interested in pursuing this opportunity please send your C.V. to my attention at **Cutter Laboratories, Inc., Attn: Dean Gallinatti, PO Box 1986, Berkeley, California 94701**, or call me at **(415) 420-5295** to discuss this position. An Equal Opportunity/ Affirmative Action Employer.

Cutter

**CUTTER
Laboratories, Inc.**



The Aga Khan Hospital and Medical College, Karachi

A newly commissioned philanthropically supported 721-bed general medical and surgical Hospital, Medical College, and Nursing School seeks Professors, Associate Professors, Assistant Professors, Lecturers and Tutors for its teaching units in :

Anatomy, Physiology Community & Social Medicine

Applicants must possess a Ph.D. or an equivalent degree. Previous medical college teaching experience necessary.

Salaries and other benefits negotiable depending on previous experience and seniority. Persons intending to develop careers in Pakistan favoured. Applications will be evaluated as they are received.

Appointments will be made in 1982-1983 prior to start of the first medical class in 1983.

Resume (2 copies) and at least two letters of reference should be sent to :

The Personnel Manager,
The Aga Khan Hospital and Medical College,
P.O. Box 3500, Stadium Road, Karachi-5
PAKISTAN

AAAS Memberships and Subscriptions

- Whenever you write us about your membership or subscription, please attach a Science address label to ensure prompt service.

- **Mail to:** Membership and Subscription Records, AAAS, 1515 Massachusetts Ave., NW, Washington, D.C. 20005.

- ☐ **Change of Address:** Please provide 6 weeks' notice. Paste an address label from a recent issue in the space provided. Print new address below.

- ☐ **Query:** If you have a question, place your address label here and attach this form to your letter.

- **To join or subscribe:** Mail this form with your payment, mark the appropriate boxes, and print your name and address in the space below. (For renewals, attach label.)

- ☐ **Membership rates** (individual only)
 - ☐ \$48 USA ☐ \$72 Canada ☐ \$75 Foreign
 - ☐ \$103 air-surface delivery via Holland

- ☐ **Subscriber rates**
 - ☐ \$85 USA ☐ \$109 Canada ☐ \$112 Foreign
 - ☐ \$140 air-surface delivery via Holland

- ☐ Payment enclosed ☐ Bill me later

Name Please print

Address

City State Zip

MX08

**ATTACH
LABEL
HERE**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE—Position available immediately to study the enzymology and regulation of adrenal steroid hormone biosynthesis and kidney vitamin D activation. Experience in enzyme purification, kinetics, and membrane reconstitution preferred. Send curriculum vitae and three letters of recommendation to: **Dr. J. D. Lambeth, Department of Biochemistry, Emory University School of Medicine, Atlanta, Ga. 30322. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH SCIENTIST—The Biology Department of the Woods Hole Oceanographic Institution is seeking to add one or two members to the tenure-track scientific staff in the general areas of ecology of larval and early post-larval fishes. We are interested in candidates who would develop research programs that are designed to elucidate mechanisms which effect the recruitment into adult populations. Such research would involve integrated laboratory and field observations and might include studies of larval feeding, nutrition, growth, survival, and predator-prey interactions.

Possibilities exist for interactions with scientists in the Biology Department, working on microzooplankton ecology, phytoplankton nutrition and production, plankton food-chain dynamics, gelatinous zooplankton ecology, population modeling, and zooplankton nutrition and energetics and with scientists at the Coastal Research Center and in other departments doing research on transport of particulate matter, coastal and oceanic circulation, microstructure, nutrient cycling, and the benthic boundary layers. Candidates must have demonstrated competence to design and conduct basic research in their area. They will be expected to lead their research through grants and contracts. Initial support may be available from the Coastal Research Center.

Appointment level and salary will depend on the experience of the successful applicant(s). If interested, send résumé and list of publications to: **Personnel Manager, Box 54P, Woods Hole Oceanographic Institution, Woods Hole, Mass. 02543. An Equal Opportunity Employer, M/F/H.**

Ph.D. SCIENTISTS/ISRAEL

International Genetic Sciences Partnership, a new scientific company being established in Jerusalem, is seeking Ph.D. scientists in the areas of cell and molecular biology. Experience in techniques of recombinant DNA and plant and mammalian tissue culture preferred. Operations are scheduled to start within 8 to 12 months. Send curriculum vitae, list of publications, and recommendations to:

**International Genetic Sciences Partnership
155-25 Styler Road
Jamaica, New York 11433
Telephone: 212-526-0400**

FELLOWSHIPS

NSERC RESEARCH FELLOWSHIPS University of Victoria DEPARTMENT OF BIOCHEMISTRY and MICROBIOLOGY

Applications are invited for NSERC Research Fellowships in the following areas:

**Immunoparasitology
Molecular biology
Molecular membranology
Nucleic acid chemistry
Molecular pathogenesis
Protein chemistry
Environmental toxicology**

Appointments will be made at the assistant professor rank (without term), initially for a period of 3 years, but on a renewable basis.

Applicants must be either Canadian citizens or landed immigrants at the time of application and must have postdoctoral experience.

Applicants should submit curriculum vitae and a statement of research interests and long-term goals, and should also request the assessments of three referees to be forwarded directly to:

**Dr. William W. Kay, Acting Chairman
Department of Biochemistry and Microbiology
University of Victoria
Victoria, British Columbia, Canada V8W 2Y2**

FELLOWSHIPS

NSERC RESEARCH FELLOWSHIPS University of Victoria AQUATIC TOXICOLOGY

Applications are invited for NSERC Research Fellowships in the areas of molecular aspects of bacterial virulence for salmonids, immunology of salmonids, and environmental toxicants and susceptibility of salmonids to infectious diseases.

Appointment will be made at the assistant professor rank for an initial period of 3 years, renewable.

Qualifications required include Ph.D. with 1 or 2 years of relevant research experience. *Applicants must be either Canadian citizens or landed immigrants at the time of application.*

Applicants should submit curriculum vitae and ask three referees to send confidential assessments directly to:

**Dr. William W. Kay, Acting Chairman
Department of Biochemistry and Microbiology
University of Victoria
Victoria, British Columbia, Canada V8W 2Y2**

NSERC RESEARCH FELLOWSHIPS University of Victoria AQUATIC TOXICOLOGY

Applications are invited for NSERC Research Fellowships in environmental toxicology, biochemistry of salmonids exposed to sublethal levels of heavy metals, pesticides, and organic compounds.

Appointment will be made at the assistant professor rank for an initial period of 3 years, renewable.

Applicants must be Canadian citizens or landed immigrants at the time of application. Qualifications required include Ph.D. with 1 or 2 years of relevant research experience.

Applicants should submit curriculum vitae and ask three referees to send confidential assessments to:

**Dr. William W. Kay, Acting Chairman
Department of Biochemistry and Microbiology
University of Victoria
Victoria, British Columbia, Canada V8W 2Y2**

POSTDOCTORAL FELLOWSHIP— MOLECULAR GENETICS

NIH postdoctoral position in human genetics available September 1982 for individuals with experience in nucleic acid technology. Research projects will involve use of recombinant DNA techniques to clone, identify, and sequence genes for human enzymes and to perform gene transfer experiments in embryonic mice and tissue-culture cells. Experience in recombinant DNA technology is required. Only U.S. citizens and permanent residents are eligible. Send curriculum vitae and three letters of recommendation to: **Dr. R. J. Desnick, Division of Medical Genetics, MOUNT SINAI SCHOOL OF MEDICINE, Fifth Avenue and 100th Street, New York, N.Y. 10029. An Equal Opportunity Employer.**

IMPERIAL CANCER RESEARCH FUND (ICRF) RESEARCH FELLOWSHIP

Applications are invited for a 3-year postdoctoral appointment to undertake the cloning of genes encoding lymphocyte glycoproteins and the expression of the cloned genes by the use of DNA transfection techniques. Prior experience in recombinant DNA research is desirable.

Salary range: £8787 to £10,837 (inclusive of London Allowance), with entry according to experience. The appointment is based at the ICRF Tumour Immunology Unit at University College London.

Applications with full curriculum vitae and the names and addresses of two referees should be sent to: **The Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2, England, and should quote reference 104/82.**

PROGRAMS

CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain a doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: **The Dean of Admissions, The New England College of Optometry, Room 801, 424 Beacon Street, Boston, Mass. 02115.**

PROGRAMS

The Committee on Scholarly Communication with the People's Republic of China (CSCPRC) announces opportunities under the **National Program for Advanced Study and Research in China** for graduate students and postdoctoral scholars in the natural sciences, engineering, social sciences, and humanities for 1983-1984. This program makes possible long-term study (10 to 12 months) or research (3 to 12 months) in affiliation with Chinese universities and research institutes. *Application is open to citizens of the United States regardless of national origin, sex, or religious affiliation.* Grants, the number of which depends on available funding, include transportation to and from China, stipend, living and travel allowances while in China, and a limited research and educational materials allowance. The program does not provide dependent travel or support. The program has two components; application should be made either to the Graduate Program or to the Research Program. Inquiries should be addressed to: **The CSCPRC, National Academy of Sciences, 2411 Constitution Avenue, Washington, D.C. 20418.**

Postmark/mailling deadline for applications: 5 November 1982.

SYMPOSIUM

FOURTH INTERNATIONAL OCEAN DISPOSAL SYMPOSIUM at Plymouth Polytechnic Plymouth, Devon, England 11 to 15 April 1983

Topics include: (i) biological effects of wastes in the ocean; (ii) biological accumulation and concentration of wastes; (iii) dispersion, settling, and transport processes; (iv) fate of radioactive wastes in the ocean; (v) physical and biochemical modeling on the effect of wastes in the ocean; (vi) availability of pollutants from sediments into hydrosphere and biosphere; (vii) residence time of wastes in the ocean; (viii) scientific criteria for site selection and disposal methods; (ix) use of microcosms in the investigation of waste disposal; and (x) solution and solid-phase physical chemistry of wastes.

Send abstract (500 to 1000 words) by 30 September 1982 to:

**Professor Iver W. Duedall
Executive Committee Chairman
Fourth International Ocean Disposal Symposium
Marine Sciences Research Center
State University of New York
Stony Brook, N.Y. 11794
Telephone: 516-246-3367**

MARKETPLACE

WANTED: Used Anim Husb/Diet Prep Equipment:
Large Cage/Rack Washer, Large
Double Door Autoclave, 3 cu. ft.
Mixer, Bedding Dispenser,
Sizer and grinder

**Contact: Karl P. Baetcke, Ph.D.
Intox Laboratories, Inc.
P.O. Box 3397 (501/374-1296)
Little Rock, AR 72203**



**Thermocouple
THERMOMETERS**

We make 14 thermometers, with digital or meter readout. All read in 2 secs, are extremely easy to use. Simply apply probe — read temperature.

Unbreakable probes are steel sheathed including World's Smallest Microprobe, 0.01" dia.

Models
BAT-4 BIOLOGICAL
BAT-5 CRYOGENIC
BAT-12 DIGITAL
BAT-8 DIGITAL °C or °F
TH 3 NEW CLINICAL TYPES

BAILEY INSTRUMENTS INC.
Saddle Brook, N.J. 07662 • (201) 845-7252

Circle No. 13 on Readers' Service Card

KUWAIT
University of Kuwait Health Science Centre
Faculty of Medicine
MEDICAL SCIENCE AND CLINICAL APPOINTMENTS

Applications are invited for the following appointments in the Faculty of Medicine:

Anatomy

Assistant Professor in Neuroanatomy. Candidates should have teaching experience in topographic anatomy including neuroanatomy, and research experience in the neurosciences.

Assistant Professor in Histology. Candidates should have teaching and research experience in topographic anatomy and histology. A thorough knowledge of ultrastructure and cell biology is essential.

Assistant Professor in Human Development (Embryology). Candidates should have teaching experience in topographic anatomy and embryology, and research experience in experimental embryology or genetics.

Assistant Professors in Gross Anatomy (2 posts). Candidates should have teaching and research experience in topographic anatomy.

Preference for the above posts will be given to suitable, medically qualified candidates.

Biochemistry

Associate Professor. Candidates should be experienced in the field of molecular biology with an interest in recombinant DNA methodologies.

Community Medicine

Assistant Professor in Biostatistics.

Assistant or Associate Professor or Professor in Medical Demography.

Assistant or Associate Professor or Professor in Epidemiology (2 posts). Preference will be given to suitable, medically qualified candidates.

Assistant or Associate Professor or Professor in Health Planning. Candidates must be medically qualified with experience in hospital administration.

Assistant or Associate Professor or Professor in Psychology. Candidates should have a particular interest in psychology as applied to medical situations.

Medicine

Assistant or Associate Professor in Dermatology.

Assistant or Associate Professor in Nephrology.

Assistant or Associate Professor with special interest in Respiratory Medicine.

Microbiology

Associate Professor in Clinical Immunology.

Assistant or Associate Professor in Clinical Microbiology.

Assistant or Associate Professor in Clinical Parasitology.

Assistant or Associate Professor in Clinical Virology.

Paediatrics

Assistant or Associate Professor with special interest in Paediatric Neurology and Developmental Medicine.

Assistant or Associate Professor with special interest in Paediatric Haematology and Oncology.

Pathology

Assistant Professor and Professor in Histopathology (2 posts).

Associate Professor in Haematology.

Pharmacology

Professor in Cardiovascular Pharmacology. Candidates should be medically qualified and will be expected to carry out duties connected with clinical pharmacology.

Associate Professor in Toxicology.

Physiology

Assistant or Associate Professors (2 posts).

Surgery

Assistant and Associate Professors in Anaesthesia (2 posts).

Associate Professors in Orthopaedic Surgery (2 posts).

Associate Professor in Ophthalmology.

Candidates for surgical posts should have at least 5 years' clinical and teaching experience in their respective specialties.

Requirements for Appointment

Applicants should possess a Ph.D., or higher professional medical qualification, in their respective specialty and have conducted and published research in their field. Professors should have 14 years' experience, 4 as an associate professor or its equivalent, i.e. senior lecturer or reader. Associate professors should have 9 years' experience, 4 as an assistant professor or its equivalent, i.e. lecturer.

Conditions of Appointment

Salaries: Total monthly salaries will be within the following scales according to qualifications and experience (1 KD = £1.8, US \$3.5 approx.).

Professors with clinical appointments: KD 1190–1350 (8 increments).

Professors medically qualified with medical science appointments: KD 1120–1280 (8 increments).

Professors non-medically qualified: KD 1050–1210 (8 increments).

Associate Professors with clinical appointments: KD 969–1129 (8 increments).

Associate Professors medically qualified with medical science appointments: KD 704–864 (8 increments).

Assistant Professors non-medically qualified: KD 660–820 (8 increments).

Clinical supplements: In addition to the above University salaries there will be a monthly clinical supplement paid by the Ministry of Public Health for ten months' a year to medical school staff with clinical service commitments.

These are: Professor and Chairman	— KD 250
Professor	— KD 200
Associate Professor	— KD 150
Assistant Professor	— KD 100

Gratuity: There is a gratuity of one month's basic salary for each year employed payable on termination of contract.

Housing: Suitably furnished, air-conditioned accommodation, electricity and water are provided free of charge.

Medical Care: Free, comprehensive treatment is available in Kuwait under the State Health Service.

Travel: Air tickets are provided from the country of recruitment for the appointee, spouse and up to three dependent children under 20 years. Thereafter, return air tickets are issued annually to the country of citizenship or permanent residence. On termination of contract, air tickets are provided to the country of recruitment. A baggage and freight allowance is also provided. In addition, travel expenses for attending one scientific meeting a year are paid by the University.

Vacation: Sixty days paid annual leave and various national holidays.

Education: This is provided free in schools where the instruction is in Arabic. Staff who have to send their children to non-Arabic schools in Kuwait will have the tuition fees of up to a maximum of three met by the University.

Taxation: There is no income tax in Kuwait. Currency is transferable without restriction.

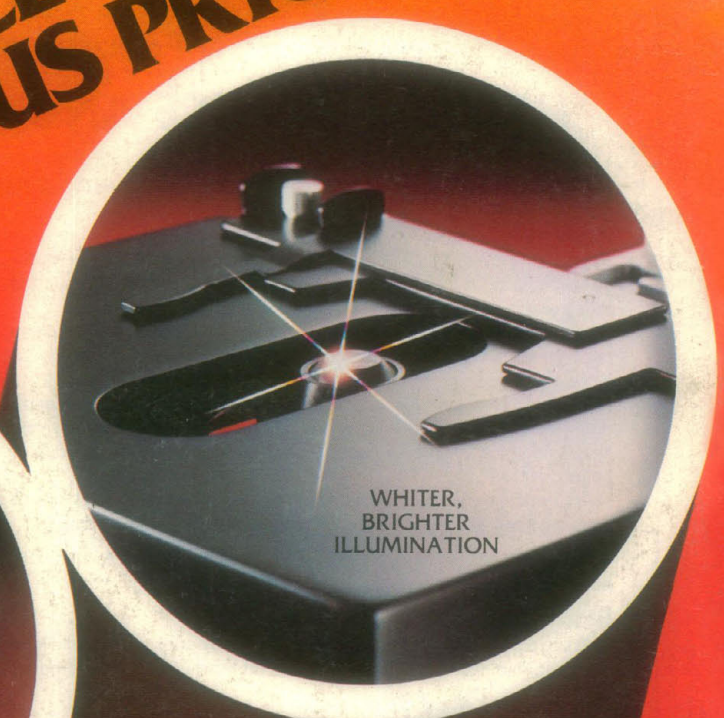
Method of Application

Curriculum vitae in duplicate, which should include the names of three referees, personal particulars, qualifications with dates, career history, teaching experience, research accomplishments and, where appropriate, clinical experience should be sent to the **Dean, Faculty of Medicine, University of Kuwait Health Science Centre, P.O. Box 24923 Safat, Kuwait** to arrive no later than 30th October 1982.

**NEW!
PROVABLE
PERFORMANCE.
PARSIMONIOUS PRICE.**



NEW SERIES
OF CLINICAL
PLANACHROMATS



WHITER,
BRIGHTER
ILLUMINATION

**PRESENTING THE NEW
SERIES 100 FROM AO.**

Exciting new optics achieve a startling clarity. Sharper. Crisper. More vividly defined.

Improved illumination provides an acutely brilliant view, snappier at all magnifications.

And a more cost-effective manufacturing technique enables AO to deliver the SERIES 100 at a surprisingly economical price -- another American idea.

See for yourself. Ask your AO dealer or representative for a personal viewing, or write for our brochure:

AO, Scientific Instruments,
Box 123, Buffalo, N.Y. 14240.



Circle No. 107 on Readers' Service Card

AO
SCIENTIFIC INSTRUMENTS