

mately lost because of a large magnetic disturbance that originated from an energetic flare on the sun or references to our descendants billions of years from now and their heroic efforts to maintain their civilization throughout the vicissitudes of the later evolution of the sun. Such an approach keeps the account of the subject from becoming overly pedantic, and the result is a very readable book.

The book begins with a description of the sun as an astronomical object. Stars are the fundamental building blocks of the astronomical universe. Fortunately the sun is quiet and well behaved compared with many of the more bombastic stars studied by astronomers. There is a chapter on the interior of the sun, including a discussion of the means we now have of "observing" the interior layers. This is a new and particularly exciting aspect of solar physics, and this account of the topic brings the reader up to the latest research results. A chapter on sunspots and solar activity is richly illustrated and presents the whole puzzling story of the 11-year solar activity cycle and its many fascinating aspects. The latest views on the mechanism of the activity cycle are discussed, and a thorough treatment of the "Maunder minimum"—the 70-year interval about 300 years ago when the activity cycle seemed to disappear—places this event in the context of other suspected long-term historic activity minima and maxima. The author also devotes a chapter to recent spacecraft observations of the sun, covering wavelength ranges that are inaccessible from the ground. Such observations have been productive and have brought about a whole new approach to problems such as the mystery of the heating of the solar corona.

One of the most interesting chapters deals with possible connections between the sun and the earth's climate. This is the first popular discussion I have seen of this topic, and Noyes handles what is in fact a very controversial subject fairly and objectively. This subject has been characterized at times by poor or incomplete statistical analyses to the extent that it was for a time not a "respectable" one to study. More recently interest has increased in sun-weather relations, especially after the demonstration of some irrefutable correlations, but a mechanism for a connection between the sun and the earth's climate still eludes us.

On the whole, there is a good balance in the book between the various aspects of solar research. One might wonder, however, why the author included a chapter on energy alternatives for the future of our civilization. The chapter is

an interesting essay on the subject, but even if solar energy generation is a viable long-term solution to the world's energy needs this topic really has nothing to do with the sun or solar research.

The book can be recommended for the reader who is curious about the astronomical universe. Those who follow the author in his careful explanation of the sun will be richly rewarded for their efforts.

ROBERT HOWARD

*Mount Wilson and Las Campanas
Observatories of the Carnegie
Institution of Washington,
Pasadena, California 91101*

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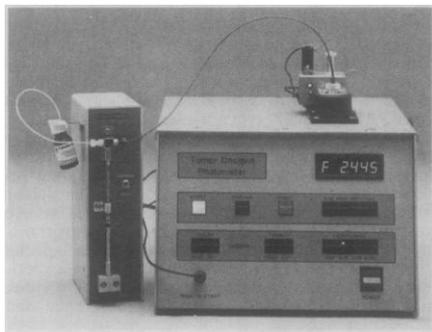
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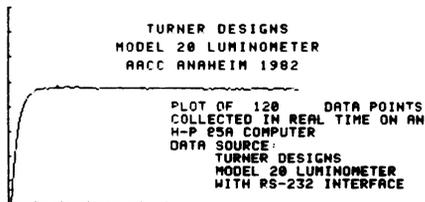
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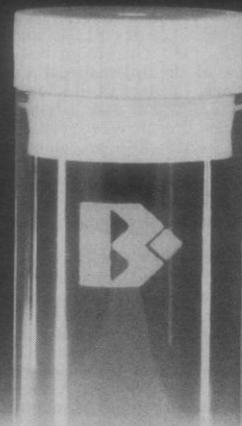
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John T. Cacioppo and Richard E. Petty, Eds. Guilford Press, New York, 1982. xviii, 393 pp., illus. \$34.50.

Philosophers Look at Science Fiction. Nicholas D. Smith, Ed. Nelson-Hall, Chicago, 1982. xii, 204 pp. Cloth, \$20.95; paper, \$10.95.

Physical Chemistry of Surfaces. Arthur W. Adamson. Wiley-Interscience, New York, ed. 4, 1982. xx, 664 pp., illus. \$39.95.

Physics of Stellar Evolution and Cosmology. Howard S. Goldberg and Michael D. Scadron. Gordon and Breach, New York, 1982. xiv, 390 pp., illus. \$59.50.

The Placenta. Human and Animal. Elizabeth M. Ramsey. Artwork by Ranice W. Crosby. Praeger, New York, 1982. xiv, 190 pp. \$32.50.

Plastics Materials. J. A. Brydson. Butterworth, Boston, ed. 4, 1982. xx, 800 pp., illus. \$79.95.

Polyether Antibiotics. Naturally Occurring Acid Ionophores. Vol. 1. Biology. John W. Westley, Ed. Dekker, New York, 1982. xx, 466 pp., illus. \$65.

The Principles of Cerebral Dominance. The Evolutionary Significance of the Radical Deduplication of the Human Brain. Charles W. Needham. Thomas, Springfield, Ill., 1982. xiv, 178 pp. \$24.75.

Proceedings of the International Conference on Low-Dimensional Conductors. Boulder, Colo., Aug. 1981. Arthur J. Epstein and Esther M. Conwell, Eds. Gordon and Breach, New York, 1981 and 1982. Six volumes. Lxxxiv, 2078 pp., illus. Paper, \$620. *Molecular Crystals and Liquid Crystals*, vols. 77, 79, 81, 83, 85, and 86.

Projection Operator Techniques in Nonequilibrium Statistical Mechanics. Hermann Grabert. Springer-Verlag, New York, 1982. x, 164 pp. \$31. Springer Tracts in Modern Physics, vol. 95.

Prospects for Sexing Mammalian Sperm. Papers from a conference, Denver, Mar. 1982. Rupert P. Amann and George E. Seidel, Jr., Eds. Colorado Associated University Press, Boulder, 1982. xviii, 288 pp., illus. Cloth, \$32.50; paper, \$22.50.

PSA 1982. Proceedings of the 1982 Biennial Meeting of the Philosophy of Science Association. Vol. 1, Contributed Papers. Peter D. Asquith and Thomas Nickles, Eds. Philosophy of Science Association, East Lansing, Mich., 1982. xxvi, 414 pp. Cloth, \$21; paper, \$19.

Psionic Medicine. The Study and Treatment of the Causative Factors in Illness. J. H. Reyner, George Laurence, and Carl Upton. Routledge and Kegan Paul, Boston, ed. 2, 1982. x, 152 pp. Paper, \$8.95.

Technology and Reality. James K. Feibleman. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xii, 210 pp. \$25.

Teeth. Form, Function, and Evolution. Papers from a symposium, Turku, Finland, Aug. 1979. Björn Kurtén, Ed. Columbia University Press, New York, 1982. xii, 394 pp., illus. \$50.

Test Equating. Papers from a conference, Princeton, N.J., Apr. 1980. Paul W. Holland and Donald B. Rubin, Eds. Academic Press, New York, 1982. xiv, 366 pp., illus. \$46.

A Textbook of Pharmaceutical Analysis. Kenneth A. Connors. Wiley-Interscience, New York, ed. 3, 1982. x, 664 pp., illus. \$55.

Theoretical Foundations of Programming Methodology. Papers from a summer school, 1981. Manfred Broy and Gunther Schmidt, Eds. Reidel, Boston, 1982 (distributor, Kluwer Boston, Hingham, Mass.). xiv, 658 pp., illus. Cloth, \$78.50; paper, \$39.50. NATO Advanced Study Institutes Series C, vol. 91.

Theory and Research in Behavioral Pediatrics. Vol. 1. Hiram E. Fitzgerald, Barry M. Lester, and Michael W. Yogman, Eds. Plenum, New York, 1982. xviii, 290 pp., illus. \$29.50.

The Theory of Sex Allocation. Eric L. Charnov. Princeton University Press, Princeton, N.J., 1982. x, 358 pp., illus. Cloth, \$40; paper, \$12.95. Monographs in Population Biology, 18.

Thermal Expansion 7. Proceedings of a symposium, Chicago, Nov. 1979. David C. Larsen, Ed. Plenum, New York, 1982. xii, 212 pp., illus. \$45.

Thermal Sensations and Thermoreceptors in Man. Herbert Hensel. Thomas, Springfield, Ill., 1982. vi, 188 pp., illus. \$21.75. American Lecture Series Publication No. 1056.

365 Starry Nights. An Introduction to Astronomy for Every Night of the Year. Text and illustrations by Chet Raymo. Prentice-Hall, Englewood Cliffs, N.J., 1982. xii, 226 pp. Cloth, \$21.95; paper, \$12.95.

The Timetable of Technology. Hearst Books, New York, 1982. 240 pp., illus. \$30.

Tools and Notions for Program Construction. An Advanced Course. Nice, Dec. 1981. D. Néel, Ed. Cambridge University Press, New York, 1982. xiv, 400 pp., illus. \$29.95. CREST Advanced Courses from Cambridge University Press.

Towards a Newer World. B. R. Sen. Tycooly International Publishing, Dublin, 1982. x, 342 pp. + plates. Cloth, \$50; paper, \$30.

Using Multivariate Statistics. Barbara G. Tabachnick and Linda S. Fidell. Harper and Row, New York, 1982. xviii, 510 pp., illus. \$18.95.

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Collagen/Connective Tissue Biochemist. Ph.D. Extensive research experience in soft and hard tissue collagen types, glycoproteins, phosphoproteins, and proteoglycans. Preparative, analytical, and HPLC methods development. Publications. Box 71, SCIENCE. X

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POSITIONS OPEN

ANATOMY FACULTY POSITION

The Department of Anatomy of Wright State University School of Medicine and College of Science and Engineering has a faculty position available at the assistant professor level. Applicants should have a M.D., Ph.D., or equivalent degree. Teaching experience in either gross, microscopic, and/or neuroanatomy would be helpful, but not necessary. The candidate must have a record of ongoing research in cellular or molecular biology. Particular attention will be paid to those candidates whose research is in the areas of membranes, neurotransmitters, cardiac receptor sites, and/or special senses. Salary will be commensurate with experience. Applicants should send their curriculum vitae, a statement of research and teaching preference, and three references to:

Joseph Zambernard, Ph.D., Chairman
Department of Anatomy
Wright State University
Dayton, Ohio 45435

Closing date for receipt of applications will be 1 May 1983. *Wright State University is an Equal Opportunity/Affirmative Action Employer.*

APPLICATIONS SPECIALIST— NUCLEAR MAGNETIC RESONANCE IMAGING

Biochemist or biophysicist, Ph.D. level. Long Island-based firm seeks persons with background knowledge in NMR instrumentation. Research experience and publications required. Position will involve training of operators and supervision of clinical studies. Knowledge of anatomy and experience in medical research a plus. Travel required. Salary commensurate with experience. Interested persons should send résumé to: **Dr. Keeler, FONAR Corporation, 110 Marcus Drive, Melville, N.Y. 11747. An Equal Opportunity Employer.**

ASSISTANT ADMINISTRATOR FOR OCEAN SERVICE AND COASTAL ZONE MANAGEMENT

The National Oceanic and Atmospheric Administration (NOAA) announces Senior Executive Service Vacancy for Assistant Administrator for Ocean Services and Coastal Zone Management, location in Washington, D.C. Duties include establishing program policies and goals and the operations of programs of the component units of the National Ocean Service (NOS). Pay rate for this SES position commensurate with background and experience; current salary range: \$56,945 to \$67,200 per annum. Apply to: **NOAA/NOS, 6001 Executive Boulevard, Rockville, Maryland 20852, attention: PER15 MMT.** Applications must be received by 22 April 1983 to be considered. *Equal Opportunity Employer.*

The Department of Pharmacology, Baylor College of Medicine, invites applications for a tenure-track position at the level of **ASSISTANT PROFESSOR** in the **MOLECULAR BIOLOGY PROGRAM.** The candidates should have experience working with mRNA and genomic libraries. The successful candidate will be expected to develop an independent research program and to participate in the graduate teaching responsibilities of the department. Candidates should submit complete résumé or curriculum vitae, reprints of relevant publications, and a list of professional references. Applications should be submitted to: **Dr. Harris Busch, Chairman, Department of Pharmacology, Baylor College of Medicine, Houston, Texas 77030.**

Baylor College of Medicine is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR OF PHYSIOLOGY

The Physiology Department of the West Virginia School of Osteopathic Medicine (WVSOM) expects an opening in a tenure-track position for a neuro-physiologist. The position will be available on or after 1 July 1983. The duties and responsibilities of the position include the teaching of neuro and muscular physiology, participation in the committee structure of the institution, and participation in a developing research program. Applicants should have a Ph.D. Applications, including a current résumé and the names of three references, should be sent to: **Elizabeth Blatt, Ph.D., Associate Dean for Academic Affairs/Basic Science, West Virginia School of Osteopathic Medicine, 400 North Lee Street, Lewisburg, West Virginia 24901.** Deadline for applications is 1 May 1983.

WVSOM is an Affirmative Action/Equal Opportunity Employer.

LEADER, INFORMATION SCIENCES DIVISION

The Office of Naval Research is seeking an outstanding individual to serve in this Civil Service position in the Senior Executive Service. Salary range is \$56,945 to \$67,200, depending on qualifications.

The Leader, Information Sciences Division is responsible for providing leadership, coordination and direction for ONR's \$7M contract research program in computer science and advanced automation. The position offers a unique opportunity for managing the synthesis of new results and exciting developments across the full range of information science research activity. The Office of Naval Research program in computer science and advanced automation is committed to advancing the scientific foundations of the field, and to extending its applications potential by establishing the conceptual bases for the design of advanced prototype components and systems. Position responsibilities include the direction and integration of research activity addressing both of these interests.

Candidates should possess a Ph.D. or equivalent in computer science or a related discipline and significant research experience in at least two of the following areas: computer software, artificial intelligence, machine architecture, graphics, man-machine interface, robotics, and manufacturing science. In addition to an active career in the conduct of research in the relevant areas, direct experience in the management and coordination of large scale research projects is highly desirable.

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

OFFICE OF NAVAL RESEARCH

Civilian Personnel Division, Code 791SC
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Arlington, VA 22217

Applications will be accepted through 1 June 1983 and must be received by that date.

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Intensive residential laboratory courses to be held at the **University of California at Santa Cruz** in cooperation with its **University Extension**, under the auspices of **Woods Hole Educational Associates**, **Morton D Maser**, Director.

A few places remain in **Scanning Electron Microscopy in the Biological Sciences**, April 11-16, and **Autoradiography in Electron Microscopy**, April 17-22, at the **University of Cincinnati**.



For more information and applications, contact:

Woods Hole Educational Associates
P.O. Box EM, Woods Hole, MA 02543 (617) 540-5594

POSITIONS OPEN

ASSISTANT, ASSOCIATE, OR FULL PROFESSOR—RECOMBINANT DNA STUDIES ON MOLECULAR MECHANISMS OF MICROBIAL PATHOGENESIS

A position at the assistant professor, associate professor, or professor level with teaching and research responsibilities is available in the Department of Bacteriology. Teaching would involve the responsibility for a graduate lecture-laboratory course in recombinant DNA methodology applied to prokaryotic systems, plus other teaching in bacteriology, including the development of an upper division course in the mechanisms of microbial pathogenesis. Candidates who are committed to developing or have already developed a research program involving the application of recombinant DNA technology to the molecular mechanisms of microbial pathogenesis are urged to apply. Research should involve the study of problems in the area of molecular mechanisms of viral or prokaryotic pathogenesis. Excellent molecular biological and biochemical facilities are available; however, animal facilities are quite limited. Send curriculum vitae, including a brief description of research experience, samples of refereed publications, a brief statement of proposed research, and names of three references, by 27 May 1983 to: **Chairman, Search Committee, Department of Bacteriology, University of California, Davis, California 95616.** *The University of California is an Affirmative Action/Equal Opportunity Employer.*

CELLULAR/ANIMAL PHYSIOLOGIST. The Biology Department is seeking applications for a 1-year sabbatical replacement. Ph.D. required. Principle teaching responsibilities include a fall semester, upper division, undergraduate lecture-laboratory course in cellular physiology and a spring semester course in human anatomy and physiology designed mainly for nursing and physical education majors. Send curriculum vitae, transcripts, and three letters of reference by 21 April 1983 to:

Dr. Jerrold Lerum, Chairman
Department of Biology
Pacific Lutheran University
Tacoma, Washington 98447

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KING ABDULAZIZ UNIVERSITY JEDDAH, SAUDI ARABIA FACULTY OF SCIENCE

Applications for academic positions are now being accepted for the academic year 1983/84. If you are interested send the following requirements:

1. Complete resume.
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3. List of research and publications.

All the listed requirements should be sent to:

King Abdulaziz University
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2425 West Loop South, Suite 654
Houston, Texas 77027
Telephone: (713) 629-5170

Deadline for all applications will be April 24, 1983.

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\$56,945 to \$67,200

Directs the environmental satellite and data management activities of the National Oceanic and Atmospheric Administration (NOAA). This includes satellite engineering, research and operations programs as well as environmental data acquisition, enhancement, analysis, and archiving services. Is responsible for mandated commercialization of the LANDSAT program and for enhancement of markets for satellite system products, hardware, and services. Negotiates international and interagency agreements. Manages NESDIS' human and financial resources.

Minimum qualifications: education and experience qualifying for a degree in physical science/engineering, plus demonstrated experience in satellite engineering, technology assessment, data quality, systems design, and information issues. Applicants must supply references attesting to administrative/managerial skills and abilities and achievements in Equal Employment Opportunity and Affirmative Action. This is a general position in the Senior Executive Service. Inquiries, telephone: 301-763-1986.

Applicants should file a Standard Form SF-171, Personal Qualifications Statement, with the: **National Oceanic and Atmospheric Administration, attention: AT/PER13S, Room 2039, FB4, Washington, D.C. 20233.** Reference NOAA/NESDIS 83-11 (MJQ). Closing date: 21 April 1983.

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ASSISTANT PROFESSOR OF HORTICULTURE, Department of Horticulture, University of Wisconsin-Madison. A tenure-track position with a 70/30 percent research/teaching responsibility. Research program will emphasize basic plant biology which can include dry matter production, molecular aspects of gene regulation, and cellular physiology. This program will interface with other departmental research and the horticultural industry. Teaching responsibility will involve teaching of one undergraduate and one graduate course, the nature to depend on candidate's interests. The position is available 1 July 1983 and applications will be accepted until 1 May 1983 or until the position is filled. Applicants should submit a résumé, academic grade transcripts, and three letters of reference to: **The Chairman, Search and Screen Committee, Department of Horticulture, University of Wisconsin, Madison, Wis. 53706.** *The University of Wisconsin provides Equal Opportunities for Employment, and women and minorities are encouraged to apply.*

ASSOCIATE PROFESSOR at Boston University School of Public Health. Ph.D. or M.D. and five-plus years of experience in research required. To develop a research program in formation and repair of genotoxic lesions by environmentally occurring chemicals, teach in toxicology, and develop graduate training program. Submit curriculum vitae, list of publications, synopsis of current research, and names of three references no later than 1 May 1983 to: **Dr. David Ozonoff, Chair, Boston University School of Public Health, 80 East Concord Street, Boston, Mass. 02118.** *An Equal Opportunity Employer, M/F.*

TENURE-TRACK POSITION IN BIOMATERIALS

The Department of Bioengineering at the University of Pennsylvania is searching for qualified applicants to fill a projected tenure-track position in the area of biomaterials. The department is part of the School of Engineering and Applied Science, and maintains academic programs at the bachelor, master's, and doctorate level. Applicants must have a Ph.D. or equivalent degree in engineering or physical science, and must be qualified to teach both undergraduate and graduate engineering courses. Applicants are expected to participate in ongoing research in the area of biomaterials as well as initiate their own research programs in some aspect of biomaterials engineering. Address inquiries and send résumé to:

Dr. Mitchell Litt, Chairman
Department of Bioengineering
University of Pennsylvania
285 Towne Building, D-3
220 South 33rd Street
Philadelphia, Pa. 19104

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POSITIONS OPEN

NATIONAL SCIENCE FOUNDATION (NSF)

NSF, Division of Social and Economic Science, is seeking candidates for the position of **ASSOCIATE PROGRAM DIRECTOR IN SOCIOLOGY.** This is a rotational assignment for 1 or 2 years. The position is excepted from the competitive civil service with a salary range of \$34,930 to \$53,661 per annum (equivalent to GS-13/14). Appointment will begin no later than July 1983. Candidates should have a Ph.D. or equivalent research experience and, in addition, 4 to 6 years of successful scientific research experience beyond the Ph.D. in the field of sociology. A broad, general understanding of current sociological research is required and some administrative experience is desirable. Responsibilities include all aspects of proposal development, review and evaluation, grants and program administration, and representation of sociology within the Foundation and to the research community. Applicants should submit résumés, indicating their current salary, to: **The National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglio, EX 83-32.** For further information, call: **Dr. Joanne Miller, Program Director for Sociology, telephone: 202-357-7802.** *NSF is an Equal Opportunity Employer.*

ST. JOHN'S UNIVERSITY COLLEGEVILLE, MINNESOTA

BIOLOGY. Cell/developmental biologist. One-year position with possibility of becoming a tenure-track position; to begin September 1983. Ph.D. required. To teach cell biology, histology, developmental biology laboratory, and assist in introductory courses. Must be familiar with appropriate instrumentation, including SEM. Send résumé and three letters of recommendation to: **Director of Personnel, St. John's University, Collegeville, Minn. 56321.** Application deadline: 15 April 1983.

BIOTECHNOLOGIST

The Department of Animal and Poultry Science, Ontario Agricultural College, University of Guelph, Guelph, Ontario, Canada, is seeking applicants with a Ph.D. degree for a tenure-track assistant or associate professor position in genetic engineering.

The successful applicant will be expected to develop a strong research endeavour directed towards practical results. Competence regarding regulation of gene expression and experience in the use of recombinant DNA techniques and/or embryo manipulation are desirable.

In addition to establishing a vigorous new laboratory, the incumbent will also be expected to participate in the ongoing undergraduate and graduate teaching program of the department.

This is an opportunity to join a progressive department committed to excellence in research and teaching concerning animal and poultry production.

Applicants should mail curriculum vitae, a statement of current and future research goals, and a list of four referees by 15 May 1983 to: **Dr. R. R. Hacker, Chairman, Department of Animal and Poultry Science, University of Guelph, Guelph, Ontario, Canada N1G 2W1.**

In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and residents of Canada. Position subject to final budgetary approval.

Position in DAIRY SCIENCE: The Department of Animal Science at Washington State University seeks a faculty member at the assistant/associate rank for a tenure-track teaching/research position. Research should include basic approaches to important problems of the dairy industry. Teaching responsibilities will include undergraduate courses in dairy production and management. For more information, write: **Dr. J. K. Hillers, Chair, Screening Committee, Department of Animal Sciences, Washington State University, Pullman, Wash. 99164-6310.** Telephone: 509-335-4022. Review of applications will begin 30 May 1983. *Washington State University is an Equal Opportunity/Affirmative Action Employer.*

DIRECTOR required for Pediatric Department's baby and infant atnea/pulmonary laboratory at the assistant professor level. Some postdoctoral experience required as well as evidence of ongoing research activities. Department of Pediatrics, UMDNJ/Rutgers Medical School of Camden. Reply to: **Jack Wolfsdorf, M.D., Head, Division of Pediatric Intensive Care and Pulmonary Diseases, Cooper Hospital/University Medical Center, One Cooper Plaza, Camden, N.J. 08103.** Telephone: 609-342-2256.

Pharmacodynamics

Two challenging opportunities are available in the Pharmacodynamics Department of the Medical Research Division of American Cyanamid Company.

Group Leader-Bioanalytical

The successful applicant will supervise a group of Scientists and will be responsible for all aspects of Bioanalytical Development and Services. Pharmacodynamics Department is currently establishing a sophisticated analytical laboratory with up-to-date computer capabilities and complete laboratory automation system.

Requirements include a Ph.D. with 4-6 years of industrial or academic research experience in the bioanalytical area, good managerial skills and familiarity with pharmacokinetics.

Drug Metabolism Scientist

The successful applicant will be responsible for initiating and conducting Metabolism Research in various classes of drugs currently under intensive development.

The requirements include a Ph.D. with 1-4 years post-doctoral, industrial or academic research experience, a strong drug metabolism background and familiarity with pharmacokinetics and drug analysis.

These positions are located at Lederle Laboratories, 30 miles northwest of New York City. We offer professional growth, competitive salary and fringe benefit programs. Please send curriculum vitae (principals only) to: Ms. K. McDevitt, Professional Employment Coordinator



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The expansion of Collagen Corporation's Connective Tissue Laboratories within our Department of Biochemistry. You will be joining a team of scientists pursuing the development of collagen-based biomedical products that replace or repair human tissue lost or damaged by disease, trauma, surgery or aging.

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Both positions require a Ph.D. in biochemistry or related discipline and a minimum of 2 years' research experience in protein chemistry, with emphasis in the field of connective tissue biology.

These positions offer an ideal opportunity for recognition and career growth in the biomedical industry. In addition, we offer a competitive compensation and benefits package, including a stock purchase plan.

Please send your resume and a brief description of research interests to Dr. John McPherson, Department of Biochemistry, Box 201, Collagen Corporation, 2500 Faber Place, Palo Alto, CA 94303. EOE.



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2500 Faber Place
Palo Alto, CA 94303

Protein Chemist

Smith Kline & French Laboratories, a leader in pharmaceutical research, invites applications from scientists to participate in a challenging new lymphokine/cytokine research program.

SENIOR INVESTIGATOR

The successful candidate will head a group responsible for biochemical purification and characterization of biological products involved in immunoregulation. Additional responsibilities include the development and deployment of advanced state-of-the-art protein chemistry and purification; peptide sequencing and synthesis techniques.

Candidates must have a doctoral degree in biochemistry or chemistry with emphasis in biological systems and four or more years postdoctoral research experience and:

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- familiarity with state-of-the-art protein/glycoprotein purification techniques
- experience in enzymology and biomacromolecules
- knowledge and experience in peptide chemistry
- general interest and knowledge in molecular immunology
- proven research ability evidenced by outstanding scientific publications
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POSITIONS OPEN

BOTANIST. Ph.D., teaching experience, and publications. Must have credentials, ability, and strong commitment to teach introductory biology courses. Any area of research emphasis in botany or range science is acceptable but preference will be given to applicants trained in plant physiology, rangeland plant physiology, or physiological ecology. A vigorous research program will be required; 24 August 1983. Please submit letter of application, including curriculum vitae, graduate and undergraduate transcripts, and three letters of recommendation by 1 May 1983 to: **Howard C. Stutz (Search Committee Chairman), 451 WIDB, Brigham Young University, Provo, Utah 84602.** *Brigham Young University is an Equal Opportunity Employer.* The person selected must be willing to conform to the behavioral standards of the University (specifics will be provided upon request).

CELL BIOLOGIST/RENAL PHYSIOLOGIST

A Ph.D. research position is available in a newly developing Nephrology Division of a university-affiliated hospital located in a highly desirable area. A major research interest of this position is morphological correlates of epithelial transport. Expertise in the area of transmission electron microscopy and freeze fracture, as well as an interest in epithelial transport is highly desirable. This position is hospital based and not grant dependent. Competitive salary, comprehensive benefit package, and professional working environment. Send curriculum vitae and two letters of recommendation to: **Vincent A. DiScala, M.D., Professor of Medicine, Director, Division of Nephrology, Nassau Hospital, 259 First Street, Mincola, Long Island, New York 11501.**

POSITION IN CELL BIOLOGY. The Program in Genetics and Cell Biology, Washington State University, invites applications for a tenure-track opening at the level of either assistant or associate professor for a cell biologist with postdoctoral experience and an established research record. Outstanding applicants in any area of cellular biology are encouraged to apply. Teaching responsibilities will include appropriate graduate and undergraduate courses. Emphasis will be placed on applicants with outstanding backgrounds. Applications will be considered beginning 1 June 1983 for an appointment to commence between September 1983 and September 1984. Applicants should send curriculum vitae, bibliography with copies of important publications, a summary of research and teaching activities, and the names of three references to: **Chair, Search Committee, Program in Genetics and Cell Biology, Washington State University, Pullman, Wash. 99164-6419.**

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

CELLULAR IMMUNOLOGIST—Applications are invited in our extended search for a tenure-track position at the assistant professor level. Candidates must have at least 2 years of postdoctoral training and have demonstrated a potential for excellence in independent research. Research interests should be in the area of cellular immunology, preferably with experience with separation, characterization, and differentiation processes of lymphocytes subpopulations. Teaching responsibility will include participation in team-taught courses for both medical and graduate students. Interested individuals should send curriculum vitae, brief description of research interests and long-term goals, and three letters of recommendation by 1 May 1983 to: **Dr. Donna Murasko, Department of Microbiology and Immunology, Medical College of Pennsylvania, 3300 Henry Avenue, Philadelphia, Pa. 19129.** *Equal Opportunity Employer, M/F.*

University of Michigan Medical School, Department of Microbiology and Immunology, is seeking applicants for a tenure-track **FACULTY POSITION IN MOLECULAR VIROLOGY.** The University of Michigan has selected the area of gene expression for special emphasis and has designated this position a **THURNAU PROFESSORSHIP** at the assistant or associate level. Candidates should have interest and research experience in the molecular biology of animal viruses. An interest in participating in the medical and/or graduate teaching programs of the department is required. Please send curriculum vitae, a description of research interests and long-term goals, and the names of three references to: **Chairman, Search Committee, Department of Microbiology and Immunology, University of Michigan Medical School, Ann Arbor, Mich. 48109.** *An Affirmative Action, nondiscriminatory Employer.* Code 28.

POSITIONS OPEN

DIRECTOR OF HOSPITAL PATHOLOGY DEPARTMENT OF PATHOLOGY SCHOOL OF MEDICINE UNIVERSITY OF WASHINGTON, SEATTLE

The Department of Pathology, School of Medicine, University of Washington, is seeking a pathologist to direct the activities of the division in the University Hospital and to be responsible for the activities of the divisions of both University Hospital and Harborview Medical Center in the areas of surgical and autopsy pathology. The activities will include, in conjunction with other senior and junior faculty members, diagnostic surgical and autopsy pathology; teaching of residents, housestaff, and medical students; liaison with other relevant hospital and School of Medicine departments and with other affiliated hospitals of the Department of Pathology; and the establishment of an active program of clinical or basic research.

Candidates should possess Board-certification in anatomic pathology, should have a significant degree of experience in surgical pathology, and have proven research capabilities. Academic rank and salary will be commensurate with experience. Qualified applicants should send inquiries with curriculum vitae to: **Dr. Russell Ross, Professor and Chairman, Department of Pathology, SM-30, University of Washington, Seattle, Washington 98195.** Deadline for receipt of applications is 10 April 1983.

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ELECTROPHYSIOLOGIST/EVOKED RESPONSE

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Application deadline: 1 May 1983.
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Applications are invited for an assistant professor of anatomy. This special appointment is contingent on the applicant being successful in obtaining a Medical Research Council of Canada (or equivalent) Scholarship which is awarded for a period of 5 years. A Ph.D. and/or M.D. or D.D.S. degree and minimum of 2 years of postdoctoral experience are essential. Candidates with strong productive research in neuroscience, ultrastructural cell biology, or teratology will be given priority. The successful applicant will be expected to devote at least 75 percent of time to research with limited teaching duties. Ability to teach in two of the four areas (human gross anatomy, neuroanatomy, histology, or embryology) will be an asset. Candidates should arrange to have a copy of their curriculum vitae and three letters of recommendation sent to:

**Dr. M. G. Joneja, Professor and Head
Department of Anatomy
Faculty of Medicine
Queen's University
Kingston, Ontario, Canada K7L 3N6**

Canadian citizens or Landed Immigrants will be given preference. Persons of both sexes are encouraged to apply. Deadline for applications, including references, is 20 April 1983.

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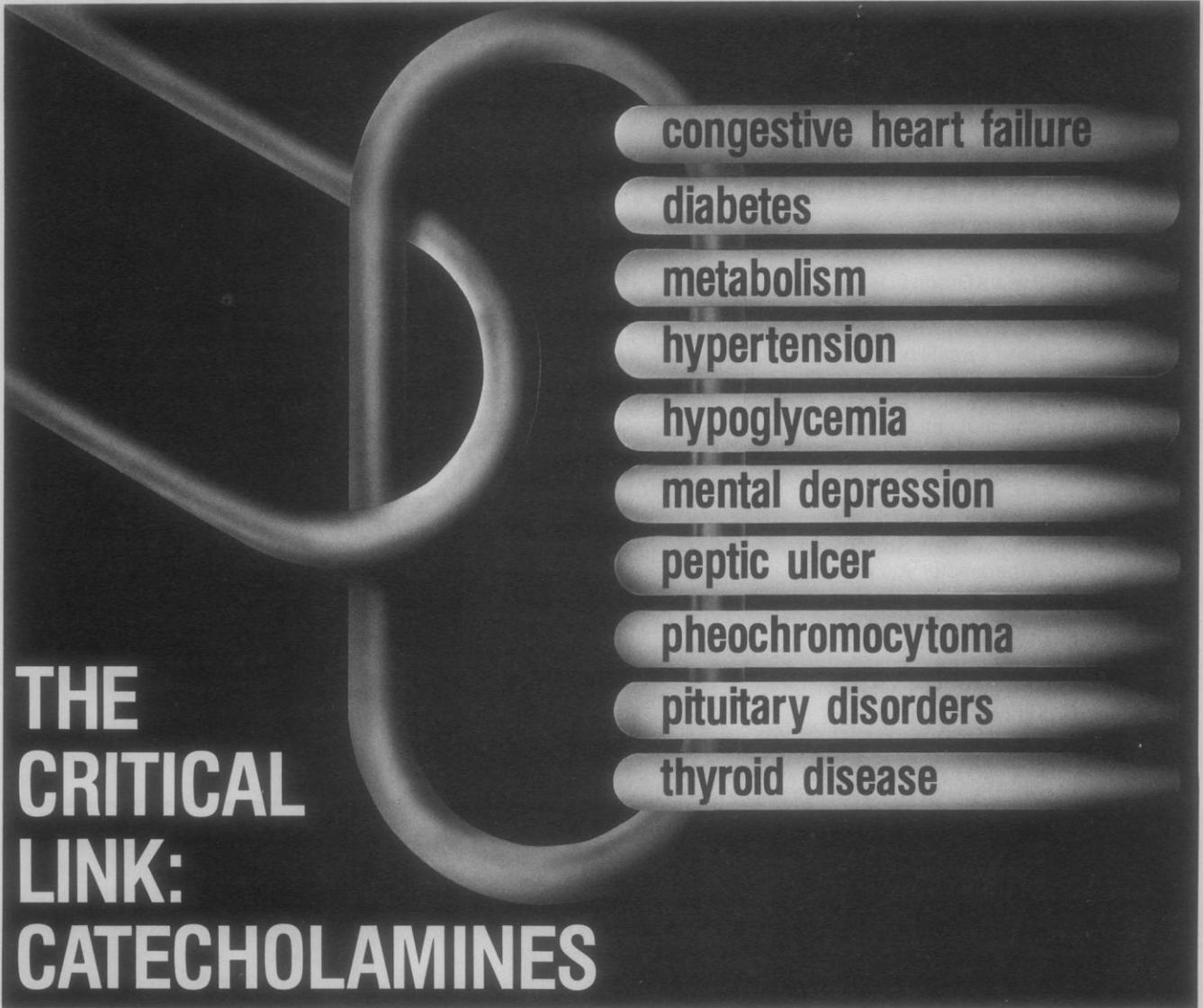
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The University of North Carolina is an Equal Opportunity/Affirmative Action Employer. We are keenly interested in attracting outstanding women and/or minority faculty members to this department. Please send your curriculum vitae and a covering letter in which you state your field of research interest and references to: **Dr. Albert Collier, Associate Director, Center for Environmental Health and Medical Sciences, Department of Pediatrics, University of North Carolina School of Medicine, 535 Burnett-Womack Building-229H, Chapel Hill, North Carolina 27514.**

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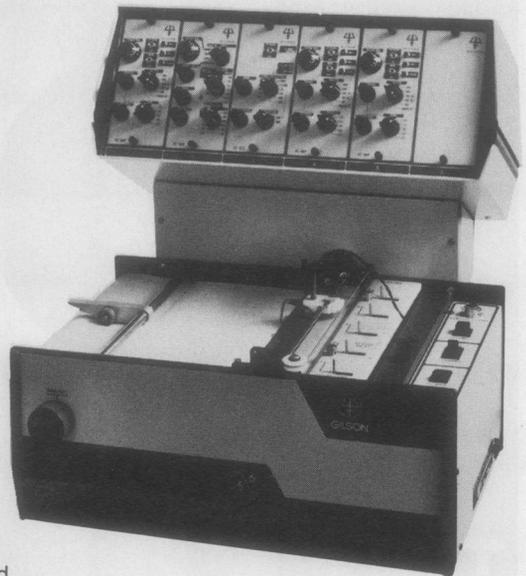
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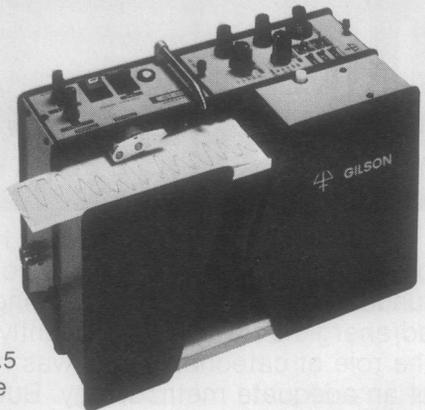
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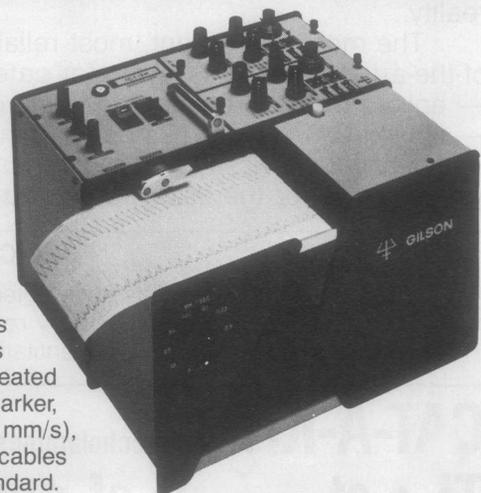
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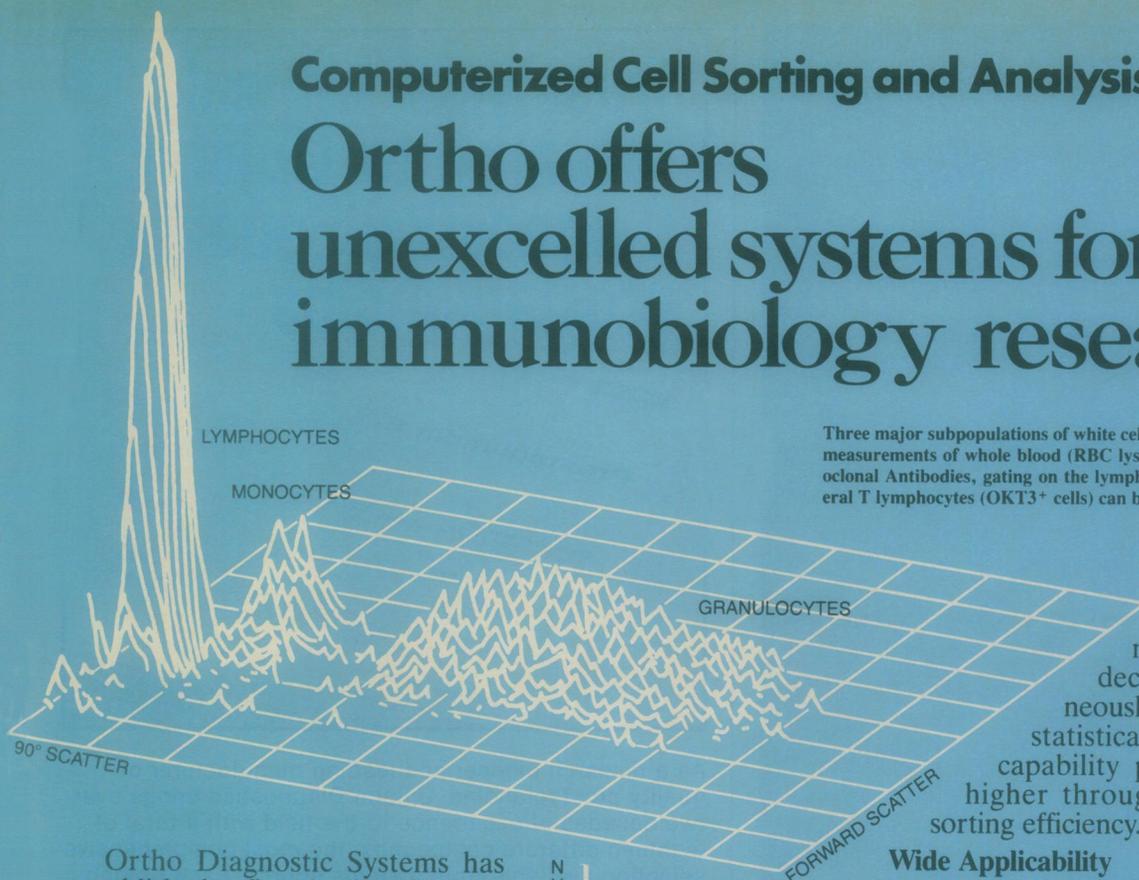
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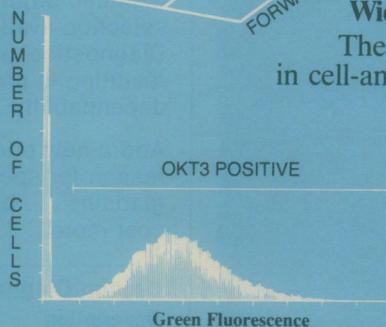
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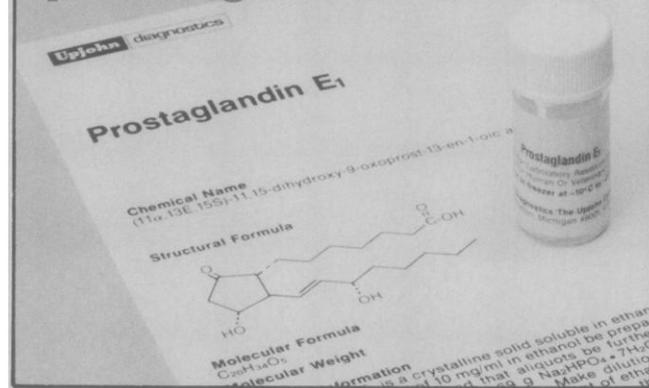


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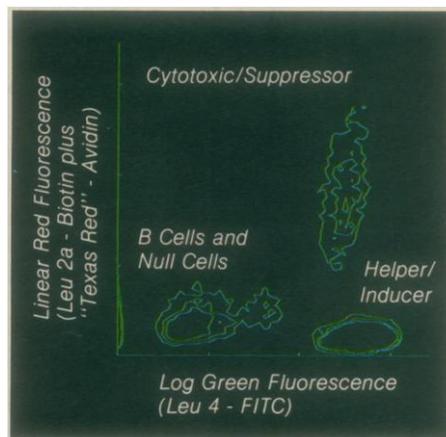
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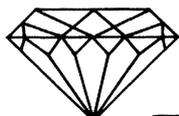
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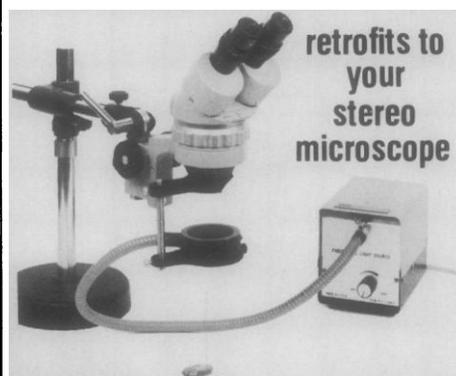
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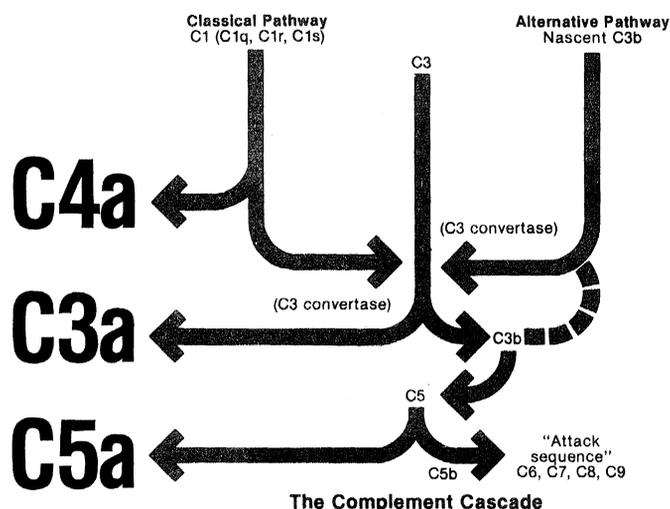
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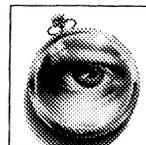
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Please send your resume, a brief account of your interests, and a list of references whom we may contact to: Dr. Carl Piez, Director, Connective Tissue Research Laboratories, Box 102, Collagen Corporation, 2500 Faber Place, Palo Alto, CA 94303. EOE.

Collagen Corporation



2500 Faber Place
Palo Alto, CA 94303

SENIOR INFORMATION SCIENTIST BIOMEDICINE

Pharmaceuticals R&D

Responsibilities include providing literature searches, reference and current awareness services to the biomedical staff using both traditional strategies and computerized approaches.

Incumbent should hold at least a BS degree in one of the biological sciences with 3 or more years of experience in an information environment. On-line searching experience is essential.

One of the newest laboratories in the country in suburban campus setting 25 miles south of Philadelphia. Competitive salaries and benefits, including unique investment program. Moving expenses covered. Please submit full CV. Principals only.

Chas. T. Brodigan



**STUART
PHARMACEUTICALS**
division of ICI Americas Inc.
Wilmington, Delaware 19897
An Equal Opportunity Employer M/F



KING SAUD UNIVERSITY RIYADH, SAUDI ARABIA

King Saud University, College of Science, is seeking highly qualified and experienced technical candidates to work as a team to develop technician training, a technical support service and an equipment maintenance service.

SUPERINTENDENT TECHNICIAN: Responsibilities include operations of a complete technical maintenance, repair and construction service for teaching and research laboratories.

ELECTRONICS TECHNICIAN: Duties include supervision/carrying out of fault diagnosis testing, calibrations of electronic equipment and analytical instrumentations.

MECHANICAL ENGINEERING TECHNICIAN: Responsibilities include testing, fault diagnosis and repair of instruments and precision equipment.

GENERAL MAINTENANCE TECHNICIAN: Duties include fault diagnosis, repair and maintenance of various instrumentations used in teaching and research labs.

QUALIFICATIONS: Applicants must have a university degree or equivalent and five years of experience in their field.

Position offers competitive salary and benefits package. Please send via airmail a detailed resume including salary history before April 30, 1983 to:

The Dean, College of Science
King Saud University Office
P.O. Box 2455
Riyadh, Saudi Arabia

A second copy of the above information should be sent to:

King Saud University Office
2425 West Loop South, Suite 450
Houston, Texas 77027
Attn: Mrs. Norma Carbonari

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for **POSTDOCTORAL FELLOWS GRADE I/RESEARCH FELLOWS/SENIOR RESEARCH FELLOWS** in **JOHN CURTIN SCHOOL OF MEDICAL RESEARCH**.

The School seeks persons with Ph.D. degrees (or equivalent qualifications) and expertise in any areas of research listed below. Up to eight appointments will be available from late 1983 or early 1984.

DEPARTMENT OF BIOCHEMISTRY (head: Professor F. Gibson). Energy-transducing ATPase; membrane assembly; bacterial transport; bioenergetics; mechanism of action of classical and multifunctional enzymes; molecular biology; gene expression; differentiation; oncogenesis.

DEPARTMENT OF EXPERIMENTAL PATHOLOGY (head: Professor P. C. Doherty). Biology and biochemistry of tumour metastasis and malignancy; viral and auto-immune pathological process in the central nervous system; vascular and lymphatic pathology; inflammation; pathogenesis of malaria.

DEPARTMENT OF HUMAN BIOLOGY (head: Dr. R. L. Kirk). Tissue typing; genetic markers; molecular biology of inherited disease and human population genetics.

DEPARTMENT OF IMMUNOLOGY (head: Professor B. Morris). Ontogeny of the immune response; genetics of disease resistance; reproduction and developmental biology; tissue transplantation; lymphocyte physiology.

DEPARTMENT OF MEDICINE AND CLINICAL SCIENCE (head: Professor W. F. Doe). Mediation of mucosal tissue injury; neutral proteases; macrophage differentiation; mucosal immunity; inflammation; interleukins and T cell differentiation; colon cancer; inflammatory bowel disease; cell regulation; malignant hyperpyrexia; asthma; atheroma; haemostasis.

DEPARTMENT OF MICROBIOLOGY (head: Professor G. L. Ada). Histocompatibility antigens; viruses; carcinogenesis; immunity to and epidemiology of viral infections.

DEPARTMENT OF PHARMACOLOGY (head: Professor D. R. Curtis). Mammalian central transmitters; pain and analgesia; mammalian peripheral sympathetic synapses; biophysics of smooth muscle; nerve growth factors.

DEPARTMENT OF PHYSICAL BIOCHEMISTRY (head: Professor L. W. Nichol). Biological macromolecules; interacting protein systems; multienzyme complexes; enzymes of sulphur metabolism; protein conformation and hydration; secretory and blood proteins.

DEPARTMENT OF PHYSIOLOGY (head: Professor (Elect) P. W. Gage from late 1983). Synaptic transmission at peripheral and central synapses; calcium ionic and gating currents; charge movements in nerve and muscle; contractile activation in muscle; visual information processing.

EXPERIMENTAL NEUROLOGY UNIT (director: Professor R. Porter). Neurophysiology; spinal cord; synaptic transmission; control of movement; physiology of the cerebral cortex in primates.

Before you apply, please obtain further information and application details from: **Heads of Departments**.

Salary in accordance with qualifications and experience within the ranges: senior research fellow, \$31,332 to \$37,373 per annum; research fellow, \$22,430 to \$29,467 per annum; postdoctoral fellow grade 1 (at fixed point), \$19,333 to \$22,148 per annum. Current exchange rates: A\$1=U.S. \$0.97=U.K. 63P. Grants are provided towards travel and removal; assistance with housing; superannuation. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, Australian National University, P.O. Box 4, Canberra, ACT, Australia**, with whom applications close on 15 April 1983.

POSITIONS OPEN

FACULTY POSITION IN PLANT ECOLOGY. A tenure-track position is available in the Botany Department at the University of Massachusetts/Amherst. Candidates should have a strong background and research interest in some area of physiological ecology, for example, stress physiology, nitrogen fixation in plants, and so forth. The successful applicant will be expected to maintain an active research program, participate in undergraduate and graduate teaching in ecology, and develop an advanced course in own area of specialization. The position will be filled at a level commensurate with experience. Starting date may be 1 September 1983, 1 February 1984, or 1 September 1984. Send curriculum vitae with a brief statement of present and future research, copies of recent publications, and three letters of recommendation to: **Ecology Search Committee, Department of Botany, University of Massachusetts, Amherst, Mass. 01003**. Closing date for applications is 22 April 1983. *An Affirmative Action/Equal Opportunity Employer.*

FACULTY POSITION ASSISTANT PROFESSOR (PATHOGENIC BACTERIOLOGY)

The Department of Microbiology invites applications for a tenure-track appointment at the University of Texas Medical Branch at Galveston; salary is commensurate with qualifications. Candidates are expected to have a Ph.D. or equivalent degree with postdoctoral experience in the area of pathogenic bacteriology. Emphasis will be given to applicants with research experience in the area of bacterial genetics, pathophysiology, or host-defenses mechanisms. In addition to establishing an independent research program, the successful candidate will also be expected to participate in the teaching of medical and graduate students.

Applicants should send curriculum vitae, bibliography, and names, addresses, and telephone numbers of three references to:

Dr. Johnny W. Peterson
Chairman, Search Committee
Department of Microbiology
University of Texas Medical Branch
Galveston, Texas 77550

An Equal Opportunity/Affirmative Action Employer, M/F/H.

FISHERY BIOLOGIST/SCIENTIST DEPARTMENT OF NATURAL RESOURCES COLLEGE OF AGRICULTURE AND LIFE SCIENCES, CORNELL UNIVERSITY

Assistant professor of fishery biology/science available in January 1984. This is a 12-month, tenure-track appointment requiring a Ph.D. in fishery biology or science. Responsibilities carry a 60 percent research and 40 percent teaching commitment. Research would be expected to focus on the management of cold-water fisheries, primarily in New York State, with an emphasis on population dynamics. Teaching commitment includes introductory fishery biology, techniques in fishery science and management, and advising undergraduate and graduate students. Applications must be received no later than 25 April 1983. Send letter of application with curriculum vitae and names of three references to: **Dr. W. D. Youngs, Department of Natural Resources, New York State College of Agriculture and Life Sciences, 8C Fernow Hall, Cornell University, Ithaca, N.Y. 14853**. *Cornell University is an Equal Opportunity/Affirmative Action Employer.*

HEAD, DEPARTMENT OF BIOLOGY. East Texas State University, enrolling about 8000 students, invites applications and nominations for the headship of a nine-member Department of Biology offering the B.S. and M.S. degrees in biology, botany, and zoology. Among selection criteria are an earned doctorate in a biological discipline; 5 years of full-time college or university experience, including undergraduate and graduate teaching; and evidence of current research, scholarship, ability to attract extramural funding, effective interaction with people, and potential to lead the department in developing and maintaining quality instruction and research programs. Provide résumés and transcripts and have three letters of recommendation sent before 1 May 1983 to: **Dr. Stephen L. Razniak, Chair, Department of Biology Search Committee, College of Arts and Sciences, East Texas State University, Commerce, Texas 75428**. *East Texas State University is an Affirmative Action/Equal Opportunity Employer and encourages applications from minorities and women.*

Career Opportunities At WYETH LABORATORIES

Wyeth Laboratories, a leading pharmaceutical company in suburban Philadelphia, has several challenging positions available for the following qualified personnel:

Project Leader-Recombinant DNA Research

Ph.D. Molecular Biologist to manage Recombinant DNA Research. The candidate should be a recognized contributor in recombinant DNA research and, preferably, have cloned a product of biomedical importance. The successful candidate should have administrative and supervisory experience and demonstrated ability to lead a research team to achieve company objectives.

Molecular Biologist-Plasmid Construction

Requires a Plasmid Molecular Biologist at the Ph.D. level with at least two years of direct experience. Research efforts will emphasize the construction of plasmids and the expression of cloned DNA sequences at the protein level.

Molecular Biologist-Antigen Detection Specialist

Ph.D. with at least two years experience in molecular biology or immunology. The candidate will work in the detection of cloned genes in bacteria and isolation of minute quantities of the antigen produced by recombinant DNA technology.

Molecular Biologist-Protein Sequencing and Characterization

Excellent position available in a recombinant DNA program for a qualified Protein Molecular Biologist. The candidate should have a Ph.D. in molecular biology/biochemistry and at least two years experience in microsequencing and characterization of proteins.

If interested, send resume including salary requirements in strict confidence to:

Wyeth Laboratories, Inc.
P.O. Box 8299
Philadelphia, PA 19101
Equal Opportunity Employer M/F/H



**KING ABDULAZIZ UNIVERSITY
JEDDAH, SAUDI ARABIA
FACULTY OF MARINE SCIENCES**

Applications for academic positions are now being accepted for the academic year 1983/84. If you are interested send the following requirements:

1. Complete resume.
2. Copies of degrees and letter of experience.
3. List of research and publications.

All the listed requirements should be sent to:

King Abdulaziz University Recruitment Office
c/o Saudi Arabian Educational Mission
2425 West Loop South, Suite 654
Houston, Texas 77027
Telephone: (713) 629-5170

Deadline for all applications will be April 24, 1983.

**Bioanalytical
Laboratory Supervisor
(Chromatography)**

Boehringer Ingelheim Ltd. is a major European/American company in highest quality pharmaceuticals/health care, committed to major R & D expansion to meet long range corporate goals. We are now seeking a P.D. Bioanalytical Chemist or Biochemist with 0-3 years post-graduate experience in bioanalytical methods development, specializing in HPLC and GLC methods of analysis. The successful candidate will supervise a laboratory to develop chromatographic assays for drugs in biofluids in support of pharmacokinetic and bioavailability studies.

Our new facilities and equipment, professional staff and suburban Connecticut surroundings make this an attractive opportunity for the highly motivated research scientist. To inquire send resume, with salary requirement to:

Stuart E. Rapp, Personnel Manager, R & D



**Boehringer
Ingelheim Ltd.**

90 East Ridge, Ridgefield, Ct. 06877

An Equal Opportunity Employer M/F/H

**INTERNATIONAL CENTRE FOR DIARRHOEAL
DISEASE RESEARCH, BANGLADESH
(ICDDR,B)**



WANTED

ICDDR,B is an international institution situated in Dhaka, Bangladesh, for research and training in diarrhoeal diseases and directly related subjects of nutrition and fertility to develop improved health programmes for control of diarrhoeal diseases in developing countries.

Applications are invited for the following positions:

1. Director

The successful applicant will have:

- * Established leadership in research training and management skills.
- * An extensive experience in running a large research organization.
- * Recognised ability of working in developing countries.
- * Seniority (over 40 years of age)
- * Willing to work with personnel from many countries and agencies which support the Centre.
- * Research Doctoral Degree, an M.B.B.S. or M.D. with professional speciality and research training beyond the internship.

2. Senior Scientists—(equivalent to Professor)

One position for each of the following disciplines:

- (a) EPIDEMIOLOGY (b) HEALTH SERVICES RESEARCH
(c) CLINICAL/NUTRITION RESEARCH

The successful applicants will have:

- * Capability of conducting research independently as well as leading a team of scientists and supervising scientific support services in the respective area.
- * Twenty or more (10 or more as senior author) publications in edited journals or chapters of published book.
- * Nine or more years of research experience in the respective research area.
- * Research Doctoral Degree, an M.B.B.S. or M.D. with professional speciality and research training beyond the internship.

3. Scientists—(equivalent to Associate Professor)

One position for each of the following disciplines:

- (a) EPIDEMIOLOGY (b) OPERATIONS RESEARCH/ECONOMICS
(c) DEMOGRAPHY/STATISTICS (d) IMMUNOLOGY
(e) MICROBIOLOGY

The successful applicants will have:

- * Capability of conducting research in the respective area independently and provide professional advice to fellow scientists.
- * Fifteen or more (5 or more as senior author) publications in edited journals or chapters of published books.
- * Six or more years of research experience in the related discipline.
- * Research Doctoral degree or an M.B.B.S. or M.D. with post professional speciality and research training beyond the internship.

—All these positions carry U.N. salary level (Director/Professional) and all usual benefits.

—The position of Director will be available from July 1, 1985.

—Other positions are immediately available.

—Appointment of Director will be made for three-year term, renewable for three years. The period of contracts of other positions are negotiable, preference for two 2-yearly contracts.

For further information or to apply write with complete C.V. by April 30, 1983 to

**Director
ICDDR,B
G.P.O. Box 128
Dhaka-2
Bangladesh**

POSITIONS OPEN

FACULTY POSITIONS IN PHARMACOLOGY

The Department of Pharmacology, University of Missouri-Columbia, invites applications for two tenure-track positions at the **assistant professor** rank beginning 1 September 1983. Under unusual circumstances, appointment at a more senior level may be considered. Candidates must have a Ph.D. or M.D. degree with two or more years of postdoctoral research experience. For one position, preference will be given to candidates with a strong background in insulin and/or lipoprotein receptor characterization, membrane transport, membrane-related enzymology, or regulation of metabolism. For the other position, preference will be given to candidates with a strong background in biochemical aspects of neuropharmacology. Candidates will be evaluated on the basis of research, potential to interface with current research interests in the department, and teaching skills. Successful candidates will be expected to obtain extramural funding and participate in the teaching of medical and graduate students. Competitive salary commensurate with experience. Please send a brief description of research plans, curriculum vitae, and the names of three references by 1 June 1983 to: **Dr. Leonard R. Forte, Chairman of the Search Committee, M-523 Medical Sciences Building, School of Medicine, University of Missouri, Columbia, Missouri 65212.** *An Equal Opportunity/Affirmative Action Employer.*

The Biological Sciences Department at the University of California, Santa Barbara, invites applications for an anticipated nontenure-track appointment at the level of **VISITING LECTURER** in the area of **BIOCHEMISTRY**. The appointment is for a 1-year period with the possibility of renewal up to a maximum of 4 years. Candidates should possess a strong background in biochemistry and molecular biology, and a demonstrated commitment to excellence in teaching and research. The department is particularly interested in persons whose training and research is relevant to biochemical elucidation of control of cell division in lower eukaryotes. Applicants should submit curriculum vitae, a summary of teaching interests and research experience, copies of two representative publications, and names of three references to: **The Chairman, Department of Biological Sciences, University of California, Santa Barbara, California 93106.** Applications must be postmarked no later than 10 April 1983. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

SCIENCE LIBRARIAN THE UNIVERSITY OF CHICAGO

Librarian sought to direct science libraries. The University is constructing an \$18-million science library into which most of its collections and services for science, medicine, and technology and those of the John Crerar Library will be merged. Candidates should be familiar with the scientific information needs of both the corporate and the academic communities, have a broad understanding of the issues confronting research libraries, and have library management experience. This new position reports to the director of the University Library. Salary is competitive. Appointment by September 1983. Send curriculum vitae and names of three references by 15 April 1983 to: **Science Librarian Search Committee, c/o Jane E. Marshall, Personnel Librarian, The University of Chicago Library, 1100 East 57 Street, Chicago, Ill. 60637.** *The University of Chicago is an Equal Opportunity Employer.*

A **POSTDOCTORAL POSITION** will be available soon for suitably qualified applicants interested in studying immunity to cancer. The research program of the Trudeau Institute involves the use of animal models of infectious diseases and cancer to analyze mechanisms of protective immunity at the physiological and cellular levels. Applicants should have some training in immunobiology. The starting salary is \$14,500 plus a liberal fringe benefit package. Subsidized housing is available.

The Trudeau Institute is a not-for-profit pure research institute located on the shore of Saranac Lake, 10 miles from Lake Placid, N.Y. Send résumé and names of three references to:

**Dr. Robert J. North, Director
Trudeau Institute
P.O. Box 59
Saranac Lake, N.Y. 12983**
An Equal Opportunity Employer

POSITIONS OPEN

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL DEPARTMENT OF FAMILY PRACTICE

The University of Michigan, Department of Family Practice, has a unique opportunity for 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 a copy of their curriculum vitae to:

**Terence C. Davies, M.D.
Professor and Chairman
c/o Peggy L. Alford**

**Department of Family Practice
University of Michigan Medical School
B1952 Clinical Faculty Office Building
Ann Arbor, Michigan 48109**

The University of Michigan is an Equal Opportunity/Affirmative Action Employer. Code 15.

TRUDEAU INSTITUTE

A position exists for an **IMMUNOBIOLOGIST** at the **ASSISTANT PROFESSOR** level to develop an independent research program related to immunity to cancer or infectious diseases. Applicants should have at least 3 years of postdoctoral experience and provide visible evidence that they already have been scientifically productive. Funds are available to support the successful applicant for a minimum of 3 years. The Trudeau Institute is a not-for-profit pure research institute situated on the shore of Saranac Lake, 10 miles from Lake Placid, N.Y. Send résumé and names of three references to:

**Dr. Robert J. North, Director
Trudeau Institute, Inc.
P.O. Box 59
Saranac Lake, N.Y. 12983**

An Equal Opportunity Employer

INSTRUCTOR/ASSISTANT PROFESSOR Wayne County General Hospital

The University of Michigan Medical School, Department of Pathology, is seeking a pathologist (Board-certified or -eligible in both anatomic and clinical pathology) for an academic position that will involve responsibility for service activities in the Clinical Laboratories. There will be opportunities for teaching related to medical students and residents as well as opportunities to become involved in research activities. Appointment in this position at Wayne County General Hospital carries a full academic title in the Department of Pathology at the University of Michigan Medical School. *The University of Michigan is a nondiscriminatory, Affirmative Action Employer.* Code 44 FO. Candidates should contact:

**Peter A. Ward, M.D.
Department of Pathology
University of Michigan Medical School
M5240 Medical Science I Box 045
1315 Catherine Road
Ann Arbor, Mich. 48109
Telephone: 313-763-6484**

or

**Robert W. Schmidt, M.D.
Department of Pathology
Wayne County General Hospital
2345 Merriman Road
Westland, Mich. 48185**

Telephone: 313-274-3000, extension 6171

MICROBIOLOGY: The West Virginia School of Osteopathic Medicine (WVSOM) invites applications for two tenure-track positions available 1 July 1983. Though preference will be given to those applicants whose background is in virology and/or immunology, successful candidates will be expected to teach in the general microbiology course (including parasitology), participate in the committee structure of the School, and take part in a developing research program. Rank and salary will be commensurate with experience. Applications, including current curriculum vitae and the names of three references, should be sent to: **Elizabeth Blatt, Ph.D., Associate Dean for Academic Affairs/Basic Science, West Virginia School of Osteopathic Medicine, Lewisburg, West Virginia 24901.** Deadline for applications is 1 May 1983.

WVSOM is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

INVERTEBRATE ZOOLOGIST, Ph.D. preferred. Emphasis on developmental biology or comparative physiology; 2-year, nonrenewable appointment, beginning fall 1983; to teach one course each semester plus participate in introductory biology course. A research program which can include senior undergraduates is expected. Send curriculum vitae, including statement of research activities, as soon as possible, but no later than 15 April, to: **Dr. C. Thomas Settlemyre, Biology Department, Bowdoin College, Brunswick, Maine 04011.** *Affirmative Action/Equal Opportunity Employer.*

The University of Michigan (UM)-Flint, Biology Department, invites applications for full-time **LECTURER** beginning fall 1983 with responsibilities for laboratory instruction in histology and one or more of the following areas: gross anatomy, physiology, neuroanatomy, and general biology. Requirements: master's or equivalent, demonstrated teaching ability, and broad training in biology. Send résumé, including teaching areas, copies of representative recent publications, and three letters of recommendation, by 15 April 1983 to: **Dr. Michael Hendrix, Biology Department, University of Michigan-Flint, Flint, Mich. 48503.** The University of Michigan-Flint, established in 1956, is an urban regional unit of The University of Michigan. *UM-Flint is a nondiscriminatory, Affirmative Action Employer.*

POSTDOCTORAL ASSOCIATES (TWO)

IN TRANSPORT PHYSIOLOGY

Positions for recent Ph.D. graduates in cellular physiology, biochemistry, or related discipline to carry out studies on mechanism and regulation of sodium pump using reconstituted red cell ghosts or purified renal enzyme. Experimental approaches include isotopic transport and biochemical reaction initiated by photo-released (caged) substrates. Experience in radioisotope flux studies and/or biochemical techniques desirable. Available from spring 1983, for up to 3 years. Salary at appropriate NIH level. Send application with curriculum vitae and names of three references to: **Dr. Jack H. Kaplan, University of Pennsylvania, Department of Physiology, Philadelphia, Pa. 19104.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL FELLOW/RESEARCH ASSOCIATE AND/OR RESEARCH ASSISTANT PROFESSOR supported by grants for at least 2 years to study **BIOCHEMISTRY, CELLULAR and/or MOLECULAR BIOLOGY of PARASITIC PROTOZOAN MACROPHAGE** in vitro interactions in **LEISHMANIASIS**. Immediate opening. Salary commensurate with qualifications. Send résumé and three letters of recommendation to: **Dr. K.-P. Chang, Department of Microbiology, University of Health Sciences/The Chicago Medical School, 3333 Green Bay Road, North Chicago, Ill. 60064.** *Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available at UCLA School of Medicine to study transduction in photoreceptors or synaptic mechanisms in retinal cells using patch clamp techniques on isolated cells in tissue culture. No previous experience with these techniques is necessary, but extensive background in membrane biophysics is required. Applicant must be U.S. citizen or permanent resident. Send inquiries to: **G. L. Fain, Laboratoire de Neurobiologie, Ecole Normale Supérieure, 46 rue d'Ulm, 75005 Paris, France.**

POSTDOCTORAL POSITION available immediately to work on microbial iron metabolism. Ph.D. in biochemistry or strong biochemistry background required. Attractive recreational area. Send résumé, transcripts, and two letters of recommendation to: **Dr. T. Emery, Department of Chemistry and Biochemistry, Utah State University, Logan, Utah 84322.** *Utah State University is an Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately to study interaction of hormones and calcium in regulating pituitary gene expression [see *J. Biol. Chem.* 257, 8569 (1982)]. Biochemistry background required, and recombinant DNA background desirable. Salary is negotiable. Send curriculum vitae and names of references to: **Dr. Carter Bancroft, Cellular Gene Expression and Regulation Laboratory, Sloan Kettering Institution, 1275 York Avenue, New York, New York 10021.**



Director of the Biochemical Laboratories

In the Department of Biochemistry and Molecular Biology of the Faculty of Arts and Sciences, bears primary responsibility for all non-academic departmental administration and building services. Assists Department and Chairperson in formulation of administrative, fiscal, and academic policies. Supervises the operation and maintenance of the 106,000 square foot Fairchild Biochemistry Building and related physical plant facilities. Manages all laboratory and building support services, and plans and oversees all building renovations. Develops and submits to the office of the Dean of the Faculty of Arts and Sciences the departmental and building budgets. Manages these fiscal resources (over \$2 million in departmental and building budgets) and oversees accounting and administration of over \$4 million in active research grants and gifts. Supervises a building and departmental support staff of 15 in accounting, purchasing, building maintenance, computer services, chemical disposal, and general administrative operations. Participates in fundraising and in the preparation and administration of departmental grants for equipment acquisition and graduate and postdoctoral research. Serves as Department representative and liaison to numerous University offices (Safety, Office for Sponsored Research, Buildings and Grounds, Graduate School of Arts and Sciences), to the office of the Dean of the Faculty of Arts and Sciences, to other academic departments of the University, and to government agencies.

The Director is a member of the Faculty of Arts and Sciences and serves on several departmental and University committees. If warranted, the Directorship may be accompanied by a part time academic teaching appointment at the rank of Lecturer.

A PhD or equivalent experience in the fields of Biochemistry, Molecular Biology, Chemistry, or related physical or life science is preferred. The position requires 2-4 years' experience in managing a scientific and/or academic administrative unit and the ability to relate well to people on all professional levels and to understand management problems from the point of view of the working scientist.

Applicants should submit vitae and the names of 3 references in confidence, before April 15, 1983, to: Directorship Search Committee, Fairchild Biochemistry Building, Harvard University, 7 Divinity Avenue, Cambridge, MA 02138.

An equal opportunity/affirmative action employer.

HARVARD UNIVERSITY

VACANCY

ASSISTANT ADMINISTRATOR FOR OCEANIC AND ATMOSPHERIC RESEARCH

The Office of Oceanic and Atmospheric Research (OAR), National Oceanic and Atmospheric Administration (NOAA), has announced the vacancy of Assistant Administrator for Oceanic and Atmospheric Research, located in Rockville, Maryland. The Office of Oceanic and Atmospheric Research is responsible for an integrated NOAA oceanic and atmospheric research and development program. The program consists of laboratory and extramural research projects that are relevant to NOAA service and resource management programs, and that provide sound technological and scientific principles on which to base improvements of those services and products. The assistant administrator is responsible for the direction and administration of all activities within OAR, including the management of a coordinated research program that will ensure OAR's compatibility and effectiveness in serving NOAA's programmatic needs. Incumbent is responsible for effecting a research program in support of NOAA services including cognizance over all agency research, management of in-house non-fisheries laboratories, and maintenance of a balanced, externally conducted, research and development program which complements in-house research efforts. The assistant administrator promotes the transfer of research results and new technology to other components of NOAA and, as appropriate, to scientific organizations outside NOAA. He/she advises the administrator on the need for and efficiency of NOAA's total research and technology development effort. **QUALIFICATIONS:** This is an exciting and challenging opportunity for an individual with demonstrated knowledge of: (one) oceanographic, meteorological, environmental, physical, and/or engineering sciences (including at least 24 semester hours in physical science and/or closely related engineering science at the college level). Experience in direction and administration of programs in research and development in the field of oceanic and atmospheric science is required. **SALARY:** This position will be filled under the Senior Executive Service (SES). Salary could range from \$56,945 to \$67,200 per annum. **APPLICATION:** Interested persons should call the NOAA Headquarters Personnel Section, telephone: 301-443-8373, to receive a copy of the complete vacancy announcement and qualification requirements. Applicants must also send a U.S. Standard Form 171, Personal Qualifications Statement, to: Susan D. Cisar, Personnel Management Specialist, Headquarters Personnel Section, AT/PER11, NOAA, 6001 Executive Boulevard, Rockville, Maryland 20852, by 22 April 1983. *The Department of Commerce, National Oceanic and Atmospheric Administration, is an Equal Opportunity Employer.*

RESEARCH POSITIONS

Enzo Biochem, Inc., a dynamic company working in areas of Biomedical Research and Development, is offering important research positions to persons with proven competence in the areas of Recombinant DNA, Monoclonal Antibodies, Immunology and Organic Chemistry.

• MONOCLONAL ANTIBODIES

Expertise in Cellular Biology with emphasis on modern techniques of monoclonal antibodies.

• RECOMBINANT DNA

Competence in Recombinant DNA techniques and experience in cloning microbial DNA.

• ORGANIC CHEMIST

Demonstrated expertise in organic synthesis in the area of nucleic acid or carbohydrate chemistry

• IMMUNOLOGIST

Experience in novel immunodetection techniques as applied to diseases of animals and plants.

In all disciplines the persons sought must have a Ph.D. degree or equivalent, and must be able to demonstrate scholarly and creative competence in their respective areas of specialization.

We offer liberal employment terms and a pleasant working environment.



Please send a resume to:

Personnel Department NK-1
Enzo Biochem, Inc.
325 Hudson Street
New York, N.Y. 10013

VACANCY ANNOUNCEMENT

National Institutes of Health Public Health Service Department of Health and Human Services

The National Institutes of Health invites nominations and applications for the position of Chief, Mineralized Tissue Research Branch, NATIONAL INSTITUTE OF DENTAL RESEARCH (NIDR). This is a Civil Service position in the Senior Executive Service with a salary range of \$56,945 to \$63,800 per annum. The person selected may be eligible for Physician's Comparability pay up to \$10,000 per year. A one-year probationary period must be served if the individual selected is not currently in the Senior Executive Service.

The Chief, Mineralized Tissue Research Branch, NIDR, provides leadership and direction for a comprehensive scientific research program involving basic and clinical research directed to the study of the development, structure, function and metabolism of mineralized tissues of diseases and disorders, both systemic and localized, that affect bones and teeth.

Further information about the position and qualification requirements may be obtained by contacting Mrs. Bonnie R. Kalberer at 301-496-6971. Applications (SF-171, Personal Qualifications Statement) accompanied by a current curriculum vitae and bibliography should be submitted to Mrs. Kalberer at: NIDR Personnel, Building 31, Room 2C-23, National Institutes of Health, 9000 Rockville Pike, Bethesda, Maryland 20205.

Applications must be postmarked not later than March 31, 1983. (The SF-171 form is available at all Federal Personnel Offices and Job Information Centers.) Applications from women and minority group candidates are solicited.

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NEUROSCIENTIST—ASSISTANT PROFESSOR OF PHYSIOLOGY

A tenure-track position is open in the Department of Physiology and is jointly sponsored by the School of Medicine and the College of Science and Engineering.

Applicants must have a terminal doctoral degree, at least 2 years of postgraduate research experience in neurosciences, and teaching abilities in neurophysiology. Preference will be given to those who are interested in systems or regulatory neurophysiology. Other skills, such as computer and electronic technology, will be considered.

Salary is commensurate with qualifications. The AAMC tables are used as a guide. The position is to be filled on or after 1 July 1983.

Please submit curriculum vitae, a copy of reprints demonstrating research interest and competence, and the names and addresses of three references by 15 April 1983 to:

Samuel N. Kolmen, Ph.D.
Chairman, Department of Physiology
Wright State University School of Medicine
Dayton, Ohio 45435

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

POSTDOCTORAL FELLOW—Ph.D. in physical biochemistry and preferably one or more years of subsequent research experience, to undertake both structural and mechanistic studies on membrane bound enzymes. Must have experience in low- and high-angle x-ray diffraction of reconstituted protein-lipid vesicle systems, freeze-fracture and standard electron microscopy techniques, fluorescence and fluorescence polarization techniques, differential thermal analysis, membrane and membrane protein isolation, reconstitution of artificial membrane systems, preparation and isolation of covalently modified apolar proteins, enzyme kinetic and rapid reaction stopped-flow techniques with reconstituted membrane systems. Strong references relative to research talent and independent effort are essential. Salary: \$15,000 to \$17,000. Send all applications to: **The Department of Biochemistry, University of Connecticut Health Center, Farmington, Conn. 06032.**

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POSTDOCTORAL POSITION available immediately for studies of the mechanism of action of insulin and cyclic AMP in cultured cells. Experience in cell culture and molecular biology is desirable. Send curriculum vitae and names and telephone numbers of three references to: **Dr. Daryl K. Granner, Department of Medicine/Biochemistry, The University of Iowa, Iowa City, Iowa 52242.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS (two) for an organic chemist and a molecular biologist, to participate in immunochemical studies of nucleic acids. Organic chemist with knowledge of or training that can be adapted to nucleotide synthesis. Molecular biologist familiar with recombinant DNA techniques. We offer excellent training in immunology and immunochemistry, including hybridoma technology. Send curriculum vitae and names of three references to:

Dr. Bernard F. Erlanger
Department of Microbiology
Columbia University
701 West 168 Street
New York, N.Y. 10032

POSTDOCTORAL POSITION available 1 September 1983 for 2 years to work on the membrane biology of intestinal lipid absorption. Experience with either isolated brush border vesicles, mucus glycoproteins, or fatty acid binding proteins is desirable. Salary: \$17,500 per calendar year. Send curriculum vitae and names and telephone numbers of three references by 15 May to: **Dr. John Patton, Microbiology Department, University of Georgia, Athens, Ga. 30602.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITIONS for teaching and research starting August 1983, for 2 years, to support half-time teaching of laboratory sections in introductory biology and half-time research in collaboration with a member of the faculty who provides the facilities. To obtain information on areas of research or to apply, send résumé and three letters of recommendation by mid-April to: **Paul Megrew, Department of Zoology, University of Iowa, Iowa City, Iowa 52242.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

POSTDOCTORAL POSITIONS available immediately to study structure, function, and biosynthesis of yeast glycoproteins and the molecular biology of deoxyribonucleotide metabolizing enzymes in eukaryotic and prokaryotic organisms. The processing and functional role of oligosaccharides in enzyme action, clarification of substrate binding sites, regulation of gene expression, and effect of mutagenesis on enzyme function are some of the projects to be undertaken in a well-equipped core facility. Cloning and sequencing experience desirable, but not essential. Initial stipend: \$16,600 for a 1-year appointment, renewable. Send résumé and names of references to: **Dr. Robert Trimble or Dr. Frank Maley, Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, New York 12201.** *An Equal Opportunity/Affirmative Action Employer.*

TWO POSTDOCTORAL POSITIONS are open immediately for the study of (i) internalization of parathyroid hormone and its receptors and (ii) cellular regulation of proteolysis. Ph.D. in biochemistry or cell biology preferred. Apply to: **Dr. James E. Zull, Department of Biology, Case Western Reserve University, Cleveland, Ohio 44106.**

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POSTDOCTORAL POSITION. Biochemistry Department—Research in the regulation of adrenal steroid synthesis. Position available immediately. Please send résumé to: **Dr. Seymour B. Koritz, Department of Biochemistry, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 10029.** *An Equal Opportunity Employer.*

POSTDOCTORAL POSITION available immediately for recent Ph.D. in neurochemistry or related field. Project involves the isolation, purification, and identification of neurotransmitters in coelenterates. Send curriculum vitae and names of three references to: **Dr. Peter Anderson, C. V. Whitney Laboratory, University of Florida, Route 1, Box 121, St. Augustine, Fla. 32084.** *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 use of microbiological, biochemical, and immunological (monoclonal antibody) techniques. Ability to work independently is essential. Send curriculum vitae and names of three references to: **G. D. Shockman, M.D., Department of Microbiology and Immunology, Temple University Medical School, 3400 North Broad Street, Philadelphia, Pa. 19140.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE-SHIP IN ULTRASTRUCTURE: Research on malaria parasite-host cell interactions, using EM autoradiography and immunocytochemistry. Background in parasitology is not required. Send curriculum vitae and statement of research experience to: **Dr. Jerome Vanderberg, Division of Parasitology, Department of Microbiology, New York University Medical School, 550 First Avenue, New York, N.Y. 10016.**

POSTDOCTORAL SCIENTIST

Position available 1 May 1983 for recent Ph.D. with experience with a wide range of chromatographic methods, particularly HPLC, and, preferably, some experience with radionuclides. Research project (jointly with the Joslin Diabetes Center) involves metabolic studies of radiolabeled insulin and other hormones. Respond with curriculum vitae and three letters of reference to: **Dr. Alan B. Packard, Division of Nuclear Medicine, Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Mass. 02115.** *An Affirmative Action/Equal Opportunity Employer, M/F.*

PULMONARY INTENSIVIST

Assistant/associate professor; Board-eligible or certified in pediatrics or anesthesiology; training in pulmonary diseases in children and intensive care units (or clinically relevant experience); participate in clinical activities and house-staff and student teaching; responsible for clinical and research programs in pulmonary diseases and intensive care.

Contact: **Robert P. Kelch, M.D., Chairman, Department of Pediatrics, University of Michigan, Ann Arbor, Michigan 48109.** *An Equal Opportunity Employer. Code 110.*

POSITIONS OPEN

The University of Pittsburgh is searching for a replacement for Dr. C. C. Li who has retired as **UNIVERSITY PROFESSOR OF HUMAN GENETICS.** The individual should be a recognized authority in the field of human genetics eligible for a tenured professorship in the Graduate School of Public Health. The individual should have expertise in human genetics and in either biochemical or molecular genetics, as well as a proven record of successful research and teaching at the graduate level. This person will be expected to take responsibility for the Human Genetics Program within the School of Public Health and collaborate with faculty interested in genetics within the Health Center and College of Arts and Sciences. Interested individuals should send curriculum vitae to the attention of: **Dr. Lewis H. Kuller, University of Pittsburgh, Graduate School of Public Health, 130 DeSoto Street, Pittsburgh, Pa. 15261.** *The University of Pittsburgh is an Affirmative Action/Equal Opportunity Educational Institution.*

RESEARCH ASSOCIATE OR POSTDOCTORAL POSITION in the Laboratory of Developmental Neurobiology. Candidate for this long-term position should have extensive experience with axoplasmic tracer techniques and an interest in neuroembryology. Salary negotiable, depending on experience. Send inquiries and curriculum vitae to: **Dr. Joseph Altman, Department of Biological Sciences, Purdue University, West Lafayette, Indiana 47907.** *An Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSOCIATE. Postdoctoral position for 3 years to evaluate spatial variations in stream chemistry and biology. Strong background in aquatic microbiology (decomposition), chemistry and statistics, and demonstrated ability to conduct independent research required. Submit curriculum vitae and three letters of reference by 8 April 1983 to: **Dr. Charles T. Driscoll, Department of Civil Engineering, 150 Hinds Hall, Syracuse University, Syracuse, N.Y. 13210.** *Syracuse University is an Equal Opportunity/Affirmative Action Employer.*

NEW ZEALAND FOREST SERVICE SCIENTIST FOREST RESEARCH INSTITUTE (FRI) ILAM, CHRISTCHURCH

The New Zealand Forest Service has a vacancy for an eco-physiologist with good knowledge in modern techniques of foliar gas-exchange and data analysis. The appointee will join a small well-equipped research unit within the forest ecology section of FRI, Ilam.

Emphasis lies in comparative studies defining adaptive strategies evolved by woody plants to grow in different environments. Leaf photosynthesis, water use efficiency through stomatal behaviour, and tree carbon balance will form important areas of work, to be linked with parallel aut- and syn-ecological studies of forest stand dynamics.

The appointee must be willing to work extensively with complex instruments in the field. Experience in infra-red gas-analysis, climatised cuvette technology, CO₂ porometry, and computerised data acquisition will be an advantage.

Qualifications required at Ph.D. level. Preference will be given to applicants with postdoctoral experience.

Salary up to NZ\$30,127, depending on qualifications and experience. Application forms may be obtained from: **The Ambassador, New Zealand Embassy, 37 Observatory Circle, NW, Washington, D.C. 20008.** Completed applications accompanied by a résumé should be submitted to the above address by 20 April 1983.

SYNTHETIC CHEMIST. The Contrast Media Laboratory, Radiology Department, University of California San Francisco (UCSF), seeks a chemist and scientific director. New academic appointment; assistant professor level; available immediately. Synthesis of paramagnetic nitroxide and organometallic complexes plus thorough knowledge of NMR required. Also peptide conjugation experience and knowledge of ESR useful. This laboratory is developing new contrast agents for use in humans being imaged by NMR and x-ray. Interdisciplinary group includes pharmacologists, physicians, and physicists. Respond with résumé and two letters of recommendation by 15 April to: **Robert C. Brasch, M.D., Department of Radiology, UCSF, San Francisco, Calif. 94143.** *The University of California is an Equal Opportunity/Affirmative Action Employer. Minority groups, women, and the handicapped are encouraged to apply.*

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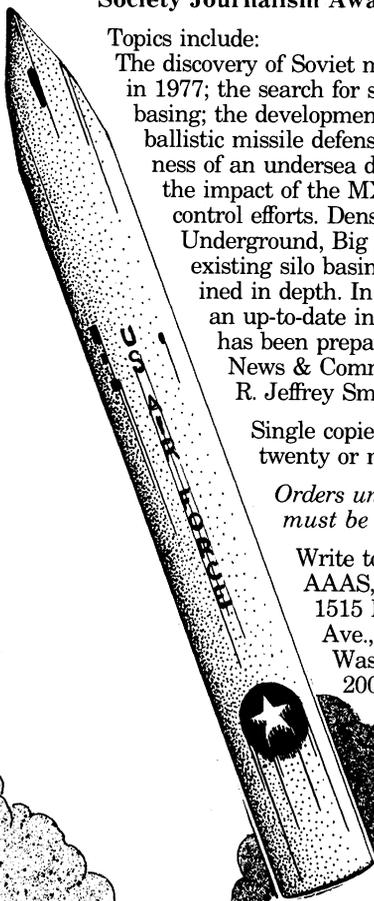
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POSITIONS OPEN

POSTDOCTORAL RESEARCH FELLOW position (available summer 1983) for at least 2 years to study the electrophysiology/pharmacology/anatomy of dopamine neurons. Experience in extracellular and intracellular recording desirable. Send curriculum vitae and the names of three references to: **Dr. D. C. German, Department of Physiology, University of Texas Health Science Center, 5323 Harry Hines, Dallas, Texas 75235. Equal Opportunity Employer.**

RESEARCH ASSOCIATE DEPARTMENT OF RADIATION MEDICINE

Research associate position available for Ph.D. in radiation biophysics to conduct independent investigation of boron capture therapy as an adjunct to Cf-252 implant therapy of brain tumors. Applicant must be knowledgeable in neutron transport codes, microdosimetry, brain physiology, oncology, and animal handling. Salary is \$15,000. Send résumé to: **T. Moore, Department for Manpower Services, 300 South Upper Street, Lexington, Kentucky 40508.**

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Carcinex, a new biotechnology firm located in the San Francisco Bay area, is seeking several immunologists. The successful candidate will have a Ph.D. or M.D. degree and experience in one or more of the following areas:

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Starting salaries will range from \$40,000 to \$50,000 per year, depending on experience. An attractive benefit package, including stock options and medical insurance, will be included. Positions are immediately available. Please send curriculum vitae and the names of three references to:

**Carcinex, Inc.
9 Mt. Darwin
San Rafael, Calif. 94903**

VETERINARY BACTERIOLOGIST (D.V.M./Ph.D. or Ph.D. or comparable degrees) at the assistant, associate, or full professor rank to develop and continue research program in enteric diseases of swine. Some teaching in undergraduate and graduate courses in veterinary microbiology. Send résumé to: **R. F. Ross, Chairman of Search Committee, Veterinary Medical Research Institute, Iowa State University, Ames, Iowa 50011. Iowa State University is an Equal Opportunity/Affirmative Action Employer.**

COURSES

The University of Southern California (USC) announces

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10 June to 19 June

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Field Methods Course in Underwater Archaeology

Drs. D. McCaslin, F. Frost, and others
5 July to 1 August

To request admissions application and information on financial aid, write: **Dr. Robert R. Given, Director, Catalina Marine Science Center, P.O. Box 398, Avalon, Calif. 90704; telephone: 213-743-6792.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP. Position open to work in electrophysiology of epithelial tissues and its correlation with molecular membrane phenomena such as receptor function and physicochemistry. Good background in microelectrode recording, ion-sensitive electrodes, and physicochemistry preferred. Chemistry background welcomed. Write to (include curriculum vitae): **Dr. J. A. Zadunaisky, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016.**

HARVARD SCHOOL OF PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS



Interdisciplinary Programs in Health (IPH) invites applications from promising graduates of advanced degree programs in the natural or social sciences interested in turning to research in environmental health and public policy. The program focuses on the scientific and analytical foundations for environmental decisions.

Fellows will be appointed for an initial term of 1 year, which may be renewable. Deadline for applications is 15 April 1983. Decisions will be announced in May.

For information, write to:

**Professor Donald F. Hornig
Director, IPH
Harvard School of Public Health
665 Huntington Avenue
Boston, Massachusetts 02115**

UNIVERSITY OF SASKATCHEWAN DEPARTMENT OF BIOLOGY

Applications are invited from Canadian citizens or permanent residents in Canada who wish to be nominated for an NSERC University Research Fellowship in the area of the molecular genetics of eucaryotic organisms. Candidates should have a Ph.D. degree and, preferably, additional research experience with recombinant DNA techniques. An interest in and knowledge of the structure and function of eucaryotic chromosomes is essential.

Candidates should be aware that time spent at this university as an NSERC Research Fellow can count towards probation under some circumstances should the fellow be appointed to a tenurable position or if the fellowship is renewed beyond 5 years.

Send curriculum vitae and at least two letters of reference by 31 July 1983 to: **Dr. J. King, Head, Department of Biology, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.**

POSTDOCTORAL FELLOWSHIP

Postdoctoral fellowship positions in neuroscience available in July 1983 for individuals with the Ph.D. or M.D. degree interested in training in neurochemistry, neurophysiology, neuroendocrinology, or neuropharmacology. Clinical research may be included in the PET/Cyclotron Center which is currently dedicated to investigation of metabolic processes in the brain. Contact: **Sid Gilman, M.D., Department of Neurology, The University of Michigan Medical School, 1405 East Ann Street, Ann Arbor, Michigan 48109. The University of Michigan is a nondiscriminatory, Equal Opportunity Employer.**

PREDOCTORAL FELLOWSHIP—GENETIC ENGINEERING. The Institute for Molecular and Agriculture Genetic Engineering (IMAGE) invites applications from well-qualified students for a special fellowship in genetic engineering. The program is designed to lead to the Ph.D. degree in bacteriology, biochemistry, or chemical engineering with research to be conducted in one of the following areas: (i) mapping, cloning, and expression of genes for insecticidal toxins derived from viral, bacterial, and fungal sources; (ii) genetic engineering of bacteria for enzyme production, biomass conversion, and improved biotechnology; and (iii) hybridoma development for monoclonal antibody production. The fellowship carries a stipend of \$12,000 and includes all fees. For information, contact: **Dr. Don L. Crawford, Chairman, Graduate Committee, IMAGE Program, Department of Bacteriology and Biochemistry, University of Idaho, Moscow, Idaho 83843. Affirmative Action/Equal Opportunity Employer.**

FELLOWSHIPS

THE UNIVERSITY OF SYDNEY PROFESSOR HARRY MESSEL RESEARCH FELLOWSHIP IN PHYSICS

Applications are invited for the above postdoctoral fellowship for research in physics in the University of Sydney.

The annual stipend shall be within the range for University of Sydney postdoctoral research fellowships (currently A\$20,461 to A\$21,024 per annum). The fellowship is tenable for 1 year but may be renewed from year to year.

Application forms and further information may be obtained from: **The Registrar (Scholarships Section), University of Sydney, NSW 2006, Australia, with whom applications close on Friday, 29 April 1983.**

TRAINEESHIPS

PRE- AND POSTDOCTORAL TRAINEESHIPS in an interdepartmental **EXPERIMENTAL PARASITOLOGY** program are available from July 1983 at the University of Massachusetts/Amherst. Traineeships in biology, immunology, biochemistry (including recombinant DNA studies), and chemotherapy of human and veterinary parasites are limited to U.S. citizens or permanent residents. Nonresidents can apply for positions on research grants dealing with immunology and pathogenicity of trichomonads and African trypanosomes and with drug resistance of helminths. Write to: **Dr. B. M. Honigberg, Department of Zoology, University of Massachusetts, Amherst, Mass. 01003-0027. Deadline for submission of applications: 30 September 1983. An Affirmative Action/Equal Opportunity Employer.**

GRADUATE STUDY

GRADUATE STUDY IN CELL AND DEVELOPMENTAL BIOLOGY CORNELL UNIVERSITY GRADUATE SCHOOL OF MEDICAL SCIENCES

Tuition scholarships and stipends are available for qualified Ph.D. candidates in a newly established graduate program. Areas of research emphasis include: cell motility, muscle differentiation, molecular biology of early development, immunochemistry, developmental neurobiology, reproductive biology, membrane biogenesis, and cytoskeletal function. Write: **Dr. Donald A. Fischman, Department of Cell Biology and Anatomy, Cornell University Medical College, 1300 York Avenue, New York, N.Y. 10021.**

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Openings for Ph.D. candidates interested in the synthesis and characterization of organic and inorganic radiotracers for chemical and biomedical applications. Undergraduate degree in chemistry or biochemistry required. Fellowship provides stipend, tuition, and certain fees. For further information, write: **Dr. H. Donald Burns, The Johns Hopkins University, 615 North Wolfe Street, Baltimore, Md. 21205.**

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Information for Contributors

The Editors of *Science*

Papers published in *Science* often receive far more attention than papers published in specialty journals. As a consequence, the rate of submission of papers is high—about 5000 manuscripts are submitted each year. The rejection rate of about 80 percent contrasts with that of most specialty journals, which is usually about 30 percent. Most of the material submitted to *Science* is of good quality and worthy of publication, and virtually all the scientific papers are eventually published somewhere. In selecting papers for *Science*, the editors consider the needs of a broad audience. Preference is given to items that seem to be of general significance.

General Information

Five types of signed papers are considered: Articles, Research Articles, Reports, Letters, and Technical Comments. The author's membership in the AAAS is not a factor in selection. Material that has been published before is ineligible for publication. Papers are considered with the understanding that they have not been published and are not under consideration elsewhere. Authors will usually be notified of acceptance, rejection, or need for revision in 6 to 8 weeks (Research Articles and Reports) or 8 to 10 weeks (Articles).

Outside reviews. Almost all articles and reports, including those solicited by the editor, are sent to two or more outside referees for evaluation. Referees suggested by authors are used at the discretion of the editors. Papers that depend on statistical inference for their conclusions may be sent to statisticians (in addition to other referees) for review.

Length limits. Papers that exceed the length limits cannot be handled expeditiously and will usually be returned without review.

1) Articles: Up to 5000 words (approximately five printed pages in *Science*), including the references and notes and the figure and table legends. The illustrations (figures and tables) when printed in *Science* should together occupy no more than one page.

2) Research Articles: From 2000 to 4000 words (3 to 3½ printed pages in *Science*) including the references and notes and the figure and table legends. Illustrations (figures and tables) may together occupy up to one printed page.

3) Reports: Up to 2000 words (approximately 1½ printed pages in *Science*), including the references and notes and the figures and table legends. The illustrations (figures and tables) when printed in *Science* should occupy no more than half a page.

4) Letters: Up to 250 words.

5) Technical Comments: Up to 500 words, including references and notes.

Selection of Manuscripts

1) Articles: About half the Articles published in *Science* are solicited by the editor. Both solicited and unsolicited Articles undergo outside and in-house review. Articles are expected to (i) provide a review of new developments in one field that will be of interest to readers in other fields, (ii) describe a current research problem or a technique of interdisciplinary significance, or (iii) present a study of some aspect of the history, logic, philosophy, or administration of science or a discussion of science and public affairs. Readers should be able to learn from a technical Article what has been firmly established and what are significant unresolved questions; speculation should be kept to a minimum. Preference is given to Articles that are well written, well organized, and within the length limit. Balance of subject matter in *Science* is an important consideration when a choice is made between acceptable Articles.

2) Research Articles: These articles, selected for publication on the basis of outside and in-house reviews, are expected to contain new data and to represent substantial contributions in their fields.

3) Reports: Reports are selected on the basis of reviewers' comments and an in-house review. Reports are expected to contain solid research results or reliable theoretical calculations. Preference is given to those that describe departures

or discoveries that will be of broad interdisciplinary interest or of unusual interest to the specialist. In making the final selection, the editors take into consideration (i) the reviewers' comments; reports most likely to be accepted are those that receive persuasive outside reviews favoring publication; (ii) clarity of presentation within the prescribed length limit; and (iii) subject matter in relation to that of other papers on hand. An attempt is made to balance the subjects of Reports so that one discipline is not overrepresented to the exclusion of others.

4) Letters: Letters are selected for their pertinence to material published in *Science* or because they discuss significant problems of interest to most scientists. Letters of a highly technical nature are usually transferred to the Technical Comments section. Letters pertaining to material published in *Science* may correct errors, provide support or agreement, offer different points of view, clarify, or add information. Outside reviewers may be consulted on questions of accuracy. Insinuations and conjecture about another author's motives, abilities, or intelligence are considered inappropriate for publication. The selection of letters is intended to reflect the range of opinions received.

5) Technical Comments: Technical Comments may be selected for publication if they express significant criticisms of papers published in *Science* or offer useful additional information. The authors of the original paper are usually asked for an opinion of the comments and are given an opportunity to reply if the comments are accepted for publication. Discussions of minor issues or priority claims are not deemed appropriate, nor are questions that can be resolved by correspondence between the critic and the original authors.

6) Book Reviews: The selection of books to be reviewed and of reviewers is made by the editors.

Submission of Manuscripts

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

1) the name(s) and telephone number(s) of the author(s);

2) the title of the paper and a statement of its main point;

3) the names, addresses, telephone number, and fields of interest of four to six persons in North America but outside your institution who are qualified to referee your paper;

4) the names of colleagues who have reviewed your paper;

5) the total number of words included in your manuscript; and

6) a statement that the material has not been published and is not under consideration for publication elsewhere.

Manuscript Preparation

Typing. Use double-spacing throughout the text, tables, figure legends, and references and notes.

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

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

References and notes. Number references and notes in the order in which they are cited in the text. Place references cited only in tables or figure legends after the text references. Gather all acknowledgments into a single, brief statement at the end. Use *Bibliographic Guide for Editors & Authors* (American Chemical Society, Washington, D.C.) for abbreviations of journal titles. For journals not listed there provide the full title. Use the following forms:

For a journal paper: H. Smith, *Am. J. Physiol.* **98**, 279 (1931).

For a book: F. Datchille and R. Roy, *Modern Very High Pressure Techniques* (Butterworth, London, 1961), pp. 163–180.

For a paper in a compilation: F. Datchille and R. Roy, in *Reactivity of Solids*, J. H. de Boer, Ed. (Elsevier, Amsterdam, 1960), p. 502.

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

Illustrations. For each illustration submit three copies of a quality suitable for reproduction. Label each on the back with the name of the author and the figure number. Plan figures for the smallest printed size consistent with clarity. Color may be used if necessary but authors are expected to pay the full cost of reprints. Cite all illustrations in the text and provide a brief legend for each.

Tables. Type each table on a separate sheet, give it a number and title, and cite it by number in the text. Give each column a heading. Indicate units of measure in parentheses in the heading for each column and do not change the unit of measure within a column.

Equations and formulas. Use quad-

ruple spacing around equations and formulas that are to be set off from the text. Define all symbols.

Special Requirements and Procedures

1) **Articles:** Provide a title of one or two lines of not more than 26 characters and spaces each; a brief author note giving your position and address; and a summary of 50 to 100 words. The summary should convey to the general reader the main point of the paper and outline the results or conclusions. The introduction should portray the broad significance of the work, and the whole text should be intelligible to scientists in different disciplines. Explain all technical terms likely to be known in only one field. Insert short subheadings at appropriate places in the text to mark your main ideas. Provide a reference list in accord with *Science* style. Reference lists should not be exhaustive; citation of a single review article can often replace many references. A maximum of 40 references is suggested.

2) **Research Articles:** Provide a title of one or two lines of not more than 54 characters and spaces each and an abstract of about 100 words. The abstract should portray for the general reader the results described and their significance. The whole text should be intelligible to readers in more than one discipline. Provide a brief outline of the main point of your paper in a short introductory section, then describe your experiments and the results, and conclude with a discussion. Italic subheadings may be used to indicate the different sections of the paper. Provide a reference list in accordance with *Science* style.

3) **Reports:** Provide a title of one or two lines of not more than 54 characters and spaces each and an abstract of 50 to 75 words. The abstract and the first portion of the report should portray for the general reader the results described and their significance. The body of the report should be intelligible to scientists in other fields of expertise. Complete documentation need not be presented but should be available in cited references.

4) **Letters:** Letters should be short (up to 250 words) and to the point; they should be carefully phrased, free of technical jargon, and nonrepetitive. When a Letter refers to an article published in *Science* the original author is usually given an opportunity to reply. Letters are

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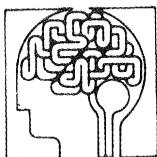
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