

splitting." Finally, in a section entitled "Physical significance of the stress-tensor," we are informed of relatively recent work by R. M. Wald, which establishes the general properties of the stress tensor on abstract principles and provides a solid foundation for the point-splitting method. This section should have come first; the reader would then be better prepared to understand the detailed point-splitting calculations, which could be further clarified by passing immediately to the concrete examples in the next chapter (on applications of renormalization techniques). This organization would also allow certain ambiguities that arise in stress-tensor renormalization to be resolved by appeal to the fundamental requirement that the renormalized tensor be covariantly conserved rather than by a lame-sounding "desire to achieve equivalence with a result [for the tensor's trace] obtained by renormalization of the effective Lagrangian." The discussion of the effective Lagrangian could well be delayed to a separate chapter leading into a treatment of interacting fields and the implications of the theory for quantization of gravity. I urge the reader to give the book a second reading from this reordered perspective.

After a review of quantum effects near black holes, the book concludes with a chapter on interacting fields in curved space. This subject is still in its infancy. What work has been done seems to be tied to the Procrustean bed of flat-space quantum field theory much more than is the noninteracting theory. I missed any mention of the rigorous ("axiomatic") formulation of general quantum field theory in curved space due to C. J. Isham and to J. Dimock. Admittedly this is still just a kinematical framework, not a theory; but I suspect that it will be of more lasting interest than the three or four alternative S-matrix formalisms that are presented right after the admission that S-matrix concepts are inadequate for formulating physics in most curved spacetimes. This is a criticism not of the book but of the rigidity of thought patterns in the physics community.

The reader who will find this book most useful is a graduate student who wants to start thesis research in this field (or a mature researcher coming to the field from the outside), already knowing something about standard quantum field theory and general relativity. Almost every significant paper in the literature is summarized and put in perspective. (The book's usefulness in this regard could have been greatly enhanced by indicating after each item in the 14-page refer-

ence list where in the text it is discussed.) Because of the unavoidable brevity of the book's treatment, the student will need to go to the original article for a full understanding.

I hope that a few such readers will be led on to complete the obvious unfinished business: a sound theory of interacting fields; a more complete and (physically) rigorous theory of detectors; practical methods of calculating expectation values of the stress tensor in generic spacetimes; serious applications of the theory in cosmology and astrophysics; and quantizing gravity.

STEPHEN A. FULLING

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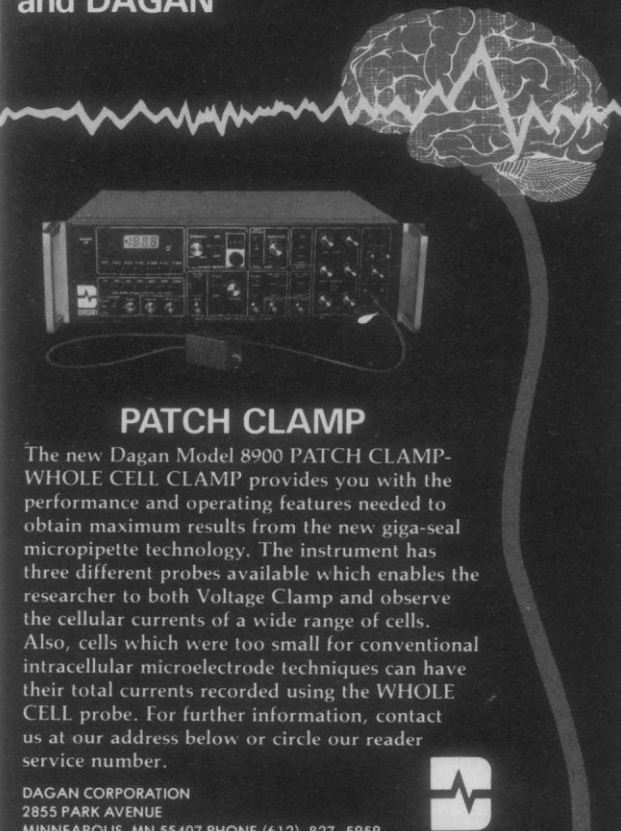
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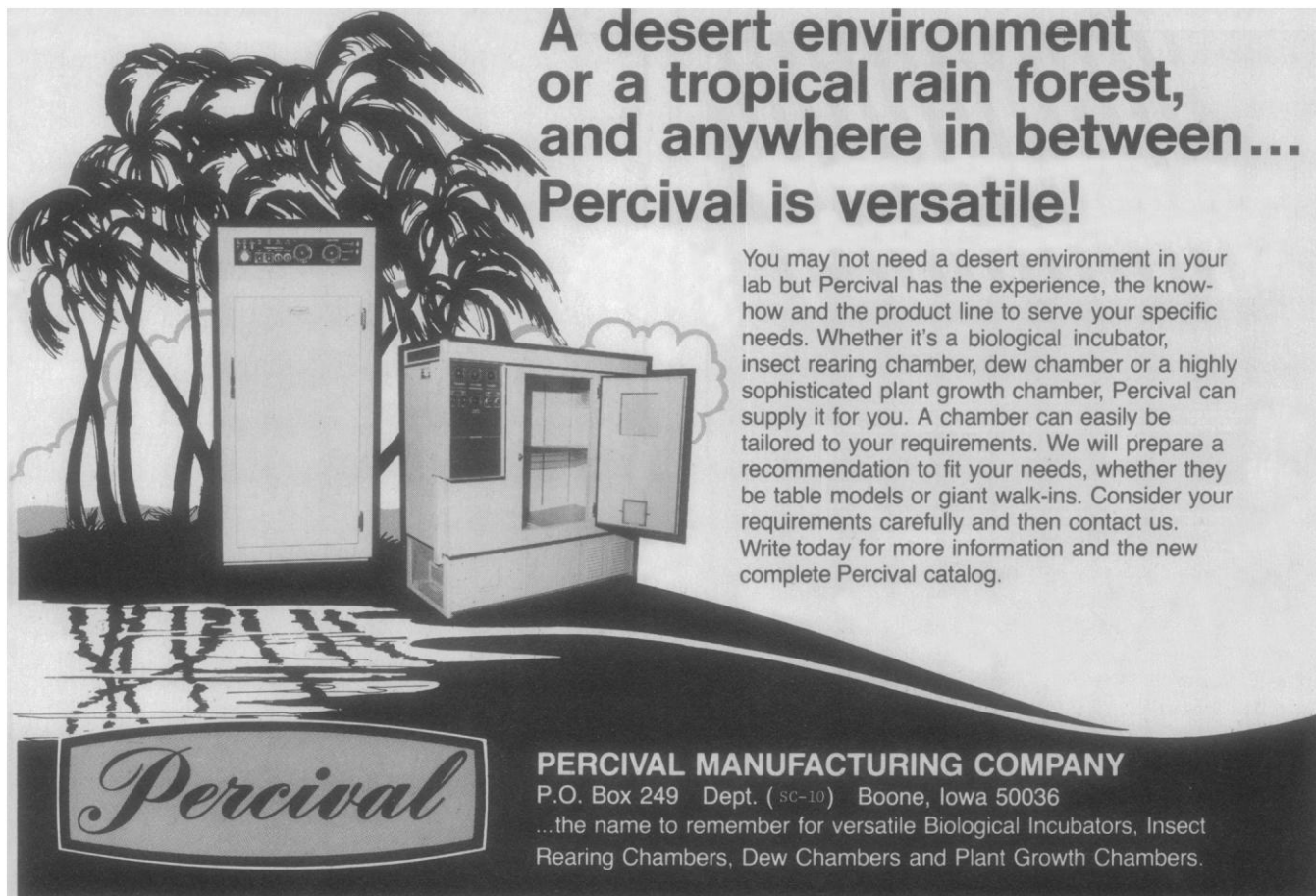
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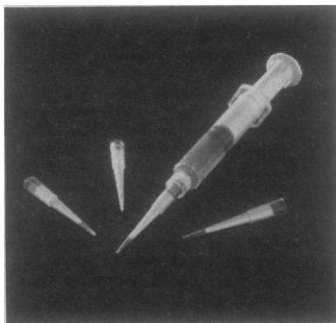
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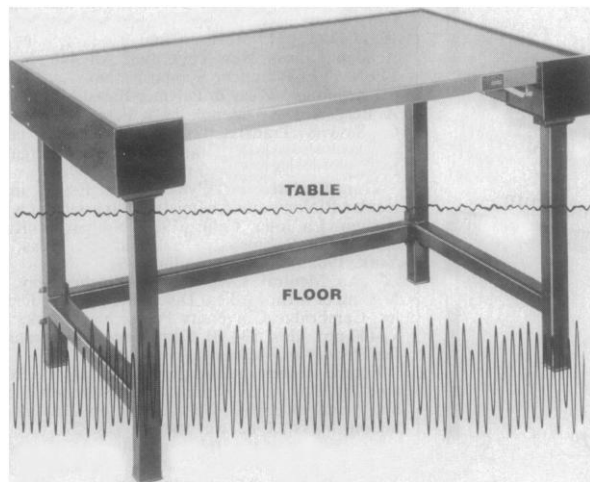
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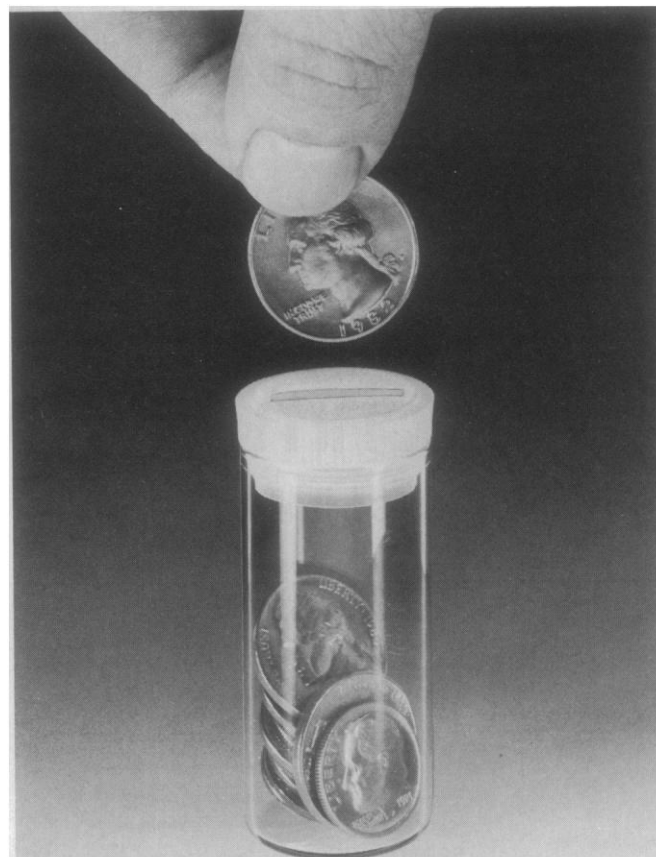
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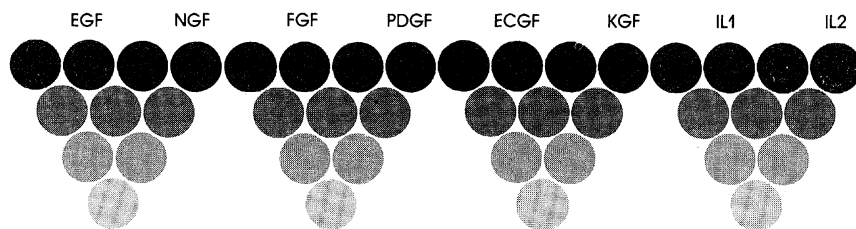


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**The History of Modern Astronomy and Astrophysics.** A Selected, Annotated Bibliography. David H. DeVorkin. Garland, New York, 1982. xxviii, 434 pp. \$65. Bibliographies of the History of Science and Technology, vol. 1.

**History of Science and Scientific Method.** N. K. Jain. Oxford and IBH Publishing Co., New Delhi, 1982. x, 276 pp. Paper, Rs. 33.

**How to Know Western Australian Wildflowers.** A Key to the Flora of the Extratropical Regions of Western Australia. Part IIIB, Epacridaceae—Lamiaceae. W. E. Balckall and B. J. Grieve. Second edition by B. J. Grieve. University of Western Australia Press, Nedlands, 1981 (U.S. distributor, ISBS, Beaverton, Ore.). xiv + pp. 297-456, illus., + appendixes. \$39.

**Human Performance and Productivity.** Edwin A. Fleishman, Ed. Erlbaum, Hillsdale, N.J., 1982. Three volumes. Vol. 1, Human Capability Assessment. xxii, 296 pp., illus. \$29.95. Vol. 2, Information Processing and Decision Making. xiv, 194 pp. \$19.95. Vol. 3, Stress and Performance Effectiveness. xx, 268 pp., illus. \$24.95. The three-volume set, \$60.

**An Island Polity.** The Archaeology of Exploitation in Melos. Colin Renfrew and Malcolm Wagstaff. Eds. Cambridge University Press, New York, 1982. xiv, 362 pp., illus. \$65.

**The Joint Istanbul-Chicago Universities' Prehistoric Research in Southeastern Anatolia.** Vol. 1. Halet Cambel and Robert J. Braidwood with nine others. Istanbul University Faculty of Letters, Istanbul, 1980 (U.S. distributor, University of Chicago Oriental Institute Publication Sales Office, Chicago). xvi, 328 pp. + plates. \$28.

**Language of the Earth.** Frank H. T. Rhodes and Richard O. Stone, Eds. Pergamon, New York, 1981. xiv, 418 pp. Cloth, \$35; paper, \$17.

**Lists of International Biological Standards, International Biological Reference Preparations, and International Biological Reference Reagents 1982.** World Health Organization, Geneva, 1982 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 88 pp. Paper, \$5.50.

**Lung Development.** Biological and Clinical Perspectives. Philip M. Farrell, Ed. Academic Press, New York, 1982. Two volumes. Vol. 1, Biochemistry and Physiology. xxvi, 408 pp., illus. Vol. 2, Neonatal Respiratory Distress. xxvi, 308 pp., illus. The two-volume set, \$47.50.

**Lymphokines in Antibody and Cytotoxic Responses.** Steven B. Mizel, Ed. Academic Press, New York, 1982. xvi, 318 pp., illus. \$39. Lymphokines, vol. 6.

**Malignant Lymphomas.** Etiology, Immunology, Pathology, Treatment. Papers from a symposium, Stanford, Calif., Nov. 1980. Saul Rosenberg and Henry S. Kaplan, Eds. Academic Press, New York, 1982. xxxii, 682 pp., illus. \$47.50. Bristol-Myers Cancer Symposia, vol. 3.

**Manter and Gatz's Essentials of Clinical Neuroanatomy and Neurophysiology.** Sid Gilman and Sarah S. Winans, Eds. Davis, Philadelphia, ed. 6, 1982. x, 218 pp., illus. Paper, \$12.95.

**A Manual of Electroencephalographic Technology.** C. D. Binnie, A. J. Rowan, and Th. Gutter. Cambridge University Press, New York, 1982. x, 364 pp., illus. Cloth, \$59.50; paper, \$22.50.

**Manual of Soil Laboratory Testing.** Vol. 2, Permeability, Shear Strength and Compressibility Tests. K. H. Head. Halsted (Wiley), New York, 1982. xiv pp. + pp. 335-750, illus. \$39.95.

**Marine Biology.** An Ecological Approach. James W. Nybakken. Harper and Row, New York, 1982. xviii, 446 pp., illus. \$26.95.

**Nuclear Stakes.** Race to the Finish. Dervla Murphy. Ticknor and Fields, New Haven, Conn., 1982. viii, 264 pp. \$13.95.

**Numerical Solution of Partial Differential Equations in Science and Engineering.** Leon Lapidus and George F. Pinder. Wiley-Interscience, New York, 1982. xiv, 678 pp. \$44.95.

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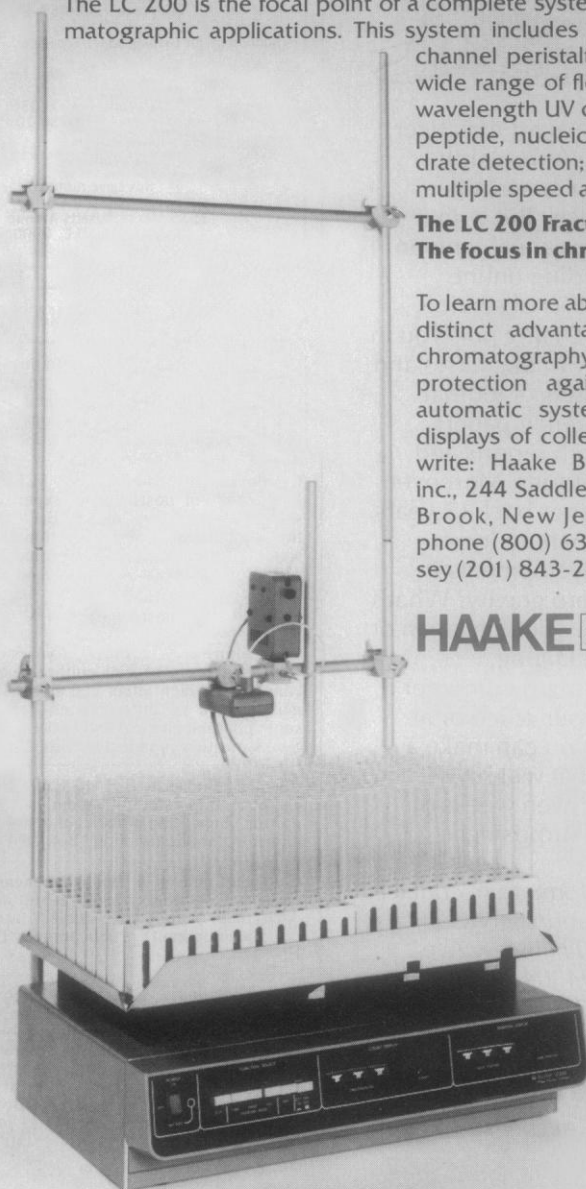
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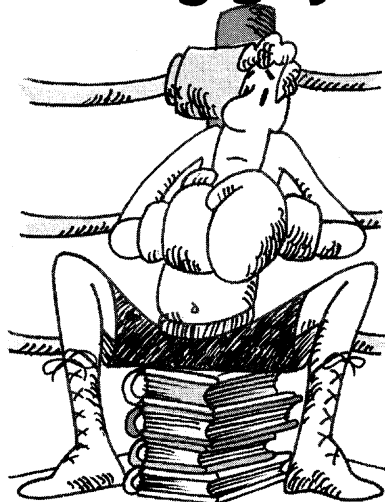
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### POSITIONS WANTED

**General Biologist** seeks entry to mid-level position in research or quality control (pharmaceuticals/bio products/foods/cosmetics/medical/ecology). M.S. plus some industrial microbiology experience. Mid-Atlantic region preferred. Box 288, SCIENCE. X

**Cardiovascular Physiologist**, M.S., Ph.D., 1978. Four years of postdoctoral experience in thoracic surgical laboratory. Myocardial oxygen consumption, global and regional function (ultrasonic analysis), microspheres, cardiopulmonary bypass, cardioplegia; regional and global models of ischemia, chronic instrumentation. Seeks industrial/academic research position. Box 286, SCIENCE. X

**Cell Culture Expert**, Ph.D., 7 years of experience in various aspects of cell culture, especially culture conditions which affect cell survival and long-term maintenance of differentiated cell function. Also some pharmacological and toxicological experience. Seeks position in industry. Box 276, SCIENCE. X

**Chemical Biologist**, B.S. 1978; 3 years as industrial chemist. Interested in analytical procedures supporting elucidation of molecular structure as it determines metabolic function. Box 289, SCIENCE. X

**Collagen/Connective Tissue Biochemist**, Ph.D. Biochemistry of collagen types in soft and hard tissues. Analytical, preparative, clinical, and HPLC methods development. Publications. Box 287, SCIENCE. X

**Multidisciplinary Electronics Engineer**, three degrees, 70 publications, U.S. citizen with 20 years of microwave, telecommunications, biomedical European experience in governmental/industrial research and international consulting; seeks North American position. Current research interest in biomedical, biomechanical topics. M. Brady, Box 154 Vinderen, Oslo 3, Norway; telephone (47 2) 148274.  
10/22, 29; 11/5, 12

### POSITIONS WANTED

**Immunologist/Biochemist**, M.A. 1980. Six years of research experience in murine immunogenetics, biochemistry, and hybridoma technology. Skills include T and B cell differentiation assays, fractionation of lymphocyte subpopulations by numerous procedures, and electrophoresis of radiolabeled cellular proteins. Several publications. Seeks industrial position in San Diego. Box 278, SCIENCE. X

**Pesticide Residue Chemist**. Experienced in pesticide residue analysis of animal feed, feed ingredients, fat and other agricultural commodities. Postdoctoral experience. Ph.D. (agronomy) and M.S. (organic chemistry). Telephone: 601-373-0264 after 5 p.m. CDT. Write: Box 267, SCIENCE.  
10/22; 11/5, 19; 12/3

**Programmer/Analyst**, M.S.E.E. 1964. Consulting and short-term contract programming, specializing in difficult engineering applications, microprocessor-based systems, data acquisition/analysis, and fast video image processing, using assembler as well as high level languages. P.O. Box 971, Amherst, Mass. 01004; telephone: 413-549-3994. 10/22, 29; 11/5

**Renewable Resources Specialist**. Ph.D. Seeks opportunity to apply ecological, economic, and mathematical background toward the solution of natural resource use and development problems. Excellent communication and problem solving skills, highly motivated. Applied research experience in population dynamics and environmental toxicology. Box 284, SCIENCE. 10/22, 29

**Toxicologist**. Ph.D. Four years of experience. Generalist, with expertise in cancer, mutagenicity, and immunotoxicity assessment. Consulting: occupational/environmental health, chemical regulations. FIFRA, TSCA, MSDS. Petroleum, coal, pesticides, industrial chemicals, consumer products. Box 285, SCIENCE. X

### POSITIONS OPEN

#### ANATOMY FACULTY POSITIONS

Applications are invited for tenure-track faculty positions in the areas of cell motility, cell surface, neurobiology, or cellular aspects of development. One position will be at the assistant professor level and the other will be at the assistant or associate level. Applicants are invited to submit curriculum vitae, statement of research interests, and three letters of recommendation by 15 December 1982 to: **Dr. David R. Burgess, Department of Anatomy and Cell Biology (R-124), University of Miami School of Medicine, Miami, Florida 33101. Equal Opportunity/Affirmative Action Employer.**

The Child Study Center at Yale has an **ASSISTANT PROFESSORSHIP** for a person to work on the genetics of behavioral disorders in children as part of an interdisciplinary group working on the genetics of Tourette's syndrome, childhood depression, and stuttering. The individual will be expected to develop an independent research program in this general area. Qualifications include postdoctoral training and expertise in human genetics and family studies of psychiatric disorders. Submit résumé and names of three references by 15 December 1982 to: **Dr. John Schowalter, Yale Child Study Center, 333 Cedar Street, New Haven, Conn. 06510.**  
*An Equal Opportunity/Affirmative Action Employer*

**ASSISTANT/ASSOCIATE PROFESSOR OF LIVESTOCK ENTOMOLOGY.** The Department of Entomology at the University of Maryland invites applicants for a tenure-track position available 1 July 1983. Incumbent will develop basic research programs to support livestock and poultry IPM, and will serve as Extension resource for agents and producers of livestock and poultry. Candidates should possess the Ph.D. in entomology or a related field, and should document training or experience with insects affecting man and animals. Closing date is 15 January 1983 or until a suitable applicant is found, whichever is later. Candidate should forward letter of application, curriculum vitae, and names and addresses of three references to:

**Dr. F. E. Wood**  
Department of Entomology  
University of Maryland  
College Park, Md. 20742

*The University of Maryland is an Equal Opportunity Institution with respect to both Education and Employment.*

## POSITIONS OPEN

### BARUCH COLLEGE

#### The City University of New York

The Department of Natural Sciences invites applications for two tenure-track assistant professor positions opening on 1 September 1983.

- **BIOLOGIST** to teach undergraduate courses in endocrinology and general biology. Ph.D. and research interests in studies of hormone action required.
- **CHEMIST OR PHYSICIST** to teach introductory and/or interdisciplinary courses in environmental studies. Ph.D. and research credentials in environmental studies required.

Salary commensurate with qualifications and experience; superior fringe benefits. Send résumé and three letters of reference directly to: **Dean, School of Liberal Arts and Sciences, Baruch College, Box 302, 17 Lexington Avenue, New York, N.Y. 10010**, by 31 December 1982. *An Equal Opportunity/Affirmative Action Employer.*

### LBJ SCHOOL OF PUBLIC AFFAIRS

The LBJ School invites applications for an **ASSISTANT PROFESSOR** position to teach courses in the quantitative methods sequence, covering topics ranging from linear algebra and mathematical programming to probability and statistical methods. The successful candidate would also teach occasional policy seminars and participate in policy research projects in light of experience and interest.

LBJ students have a variety of academic backgrounds and different levels of previous technical training. The successful candidate should have a solid background in methodology; hold a Ph.D. in statistics, operations research, economics, political science, sociology, or other disciplines relating to public policy; and have expertise and experience in a substantive policy area such as natural resources, environmental issues, energy studies, national defense, or public financial management. Most important is an understanding of the policy role and limitation of quantitative methods.

Interested persons should send—before 15 November—résumé, a description of research interests, and the names of three references to: **Faculty Recruitment Committee, LBJ School of Public Affairs, University of Texas at Austin, Austin, Texas 78712**. *The University of Texas is an Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSORSHIP.** The Division of Biological Sciences, The University of Michigan, announces a tenure-track position commencing September 1983: The Arthur F. Thurnau Assistant Professorship in Molecular Genetics, emphasizing research in the structure, modification, transfer, rearrangement, or function of genes, preferably in relation to higher plants. Postdoctoral experience is desirable for this position. The primary duties involve development of a productive research program and participation in graduate and undergraduate instruction. Applicants should arrange for submission of curriculum vitae, reprints of selected publications, statements of future research plans, and three letters of recommendation to: **Dr. J. Adams, Chairman, Thurnau Professorship Committee, Division of Biological Sciences, The University of Michigan, Ann Arbor, Mich. 48109**. Application deadline is 15 December 1982. *The University of Michigan is a nondiscriminatory, Affirmative Action Employer.*

The Space Sciences Laboratory of the University of California anticipates an opening for an **ASSISTANT RESEARCH ASTRONOMER**, 75 percent Step I beginning in December 1982. The primary responsibility of the position is to carry out fundamental research in high-energy astrophysics using x-ray and optical data.

Applicants must have: (i) a Ph.D. in astronomy and at least 2 years of postdoctoral experience in high-energy astrophysics; (ii) a demonstrated ability to carry out basic research in the field as demonstrated by current publications in appropriate refereed journals; (iii) demonstrated experience with state-of-the-art optical techniques and procedures, including experience with CCD detectors and image dissector scanners; and (iv) current experience with microcomputer data processing techniques as they apply to astronomy. *Women and minorities are urged to apply.*

Salary: \$17,175 per year.

Send résumé and three letters of recommendation by 15 November 1982 to:

**John T. Clarke  
Space Sciences Laboratory  
University of California  
Berkeley, Calif. 94720**

## POSITIONS OPEN

### HAVERFORD COLLEGE

#### ASSISTANT PROFESSOR OF BIOLOGY

The Biology Department has a regular tenure-track position available for September 1983. The department is interested in persons who have a deep commitment to teaching and research. We are looking for a person whose research field of interest is a molecular approach to cellular differentiation. A strong background in cell biology, biochemistry, and molecular biology is essential. Teaching duties involve participation in introductory and advanced courses in core curriculum in cell and molecular biology. The senior-level course involves directing the research of a number of senior majors. The department is committed to a curriculum where research plays a crucial teaching role. Applicants should have postdoctoral research training. Please send curriculum vitae and names of three references to: **M. Santer, Biology Department, Haverford College, Haverford, Pa. 19041**. *An Equal Opportunity/Affirmative Action Employer.*

#### ASSISTANT PROFESSOR BIOLOGY AND NUCLEAR SCIENCE

Tenure-track position available in the Nuclear Science Center in the general area of radiation biology and applications of nuclear and radiation science in the life sciences. Ph.D. required. Publications and teaching experience highly desirable. Qualified applicants should send résumé and at least three professional references to: **Dr. Edward N. Lambremont, Director, Nuclear Science Center, Baton Rouge, La. 70803**. *An Equal Opportunity/Affirmative Action Employer.*

#### ASSISTANT PROFESSOR OF MARINE BIOLOGY

Applications are invited for a position at the assistant professor level with 11-month salary funding. Applicants must hold a Ph.D. degree and have demonstrated excellence and independence in research dealing with marine organisms. The exact field of research interest is open, but it must involve a strong and continued commitment to the study of marine species at the organismic, physiological, cellular, or biochemical level. Applicant will be expected to develop a vigorous grant-supported research program and to teach a course in his or her specialty and supervise graduate students in the Ph.D. program. Deadline for receipt of applications is 15 December 1982. Send curriculum vitae including a statement of research interests and names of three references to: **Chairman, Graduate Department, A-008, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, Calif. 92093**. *An Equal Opportunity/Affirmative Action Employer.*

**ASSISTANT PROFESSOR/FULL-TIME RESEARCHER IN CROP SCIENCE.** Full-time position requiring M.S. in plant science related fields, or B.S. in plant science field with greenhouse experience. Will work with project leaders and research associates and technicians on plant and soil science research and assist with other activities throughout the greenhouse. Send letter of application, résumé, transcripts, and three letters of recommendation to: **Personnel Office, Lincoln University, Jefferson City, Mo. 65101**. All credentials must be received by 5 November 1982. *An Equal Opportunity/Affirmative Action Employer.*

**Advanced Genetic Sciences, Inc.  
P.O. Box 3266  
Berkeley, Calif. 94703**

Postdoctoral position available for a **BACTERIAL PHYSIOLOGIST** to work on survival of nonspore forming bacteria. Interested persons should send curriculum vitae, list of publications, and names of three references to: **Science Director**, at above address.

#### BIOCHEMICAL GENETICS

Applications are invited for a nontenure-track research position to study the regulation of methane biogenesis in bacteria. Candidates should have experience with classical microbial genetics as well as the cloning of genes from methanogens, culture of anaerobic bacteria, use of restriction endonucleases, purification of enzymes and nucleic acids, and extensive experience with regulatory functions in host/vector systems. Part-time salary currently available. Send curriculum vitae and the names of three references to: **Dr. Thomas H. Jukes, University of California, Berkeley, Space Sciences Laboratory, RSSF, 1414 Harbour Way South, Richmond, Calif. 94804**. Deadline for applications is 12 November 1982.

## SYNGENE PRODUCTS & RESEARCH - COLORADO

Career positions for highly motivated individuals are currently available. For our continued growth and diversification we seek scientists in the following areas.

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Ph. D. level individuals with proven abilities are needed to expand research for development of new vaccines.
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Chemist with Ph.D. and experience in automated peptide synthesis is needed to interface with recombinant DNA research team.
- **TECHNICAL ASSISTANTS**  
Individuals with B.S./M.S. degrees and research experience in molecular biology and microbiology are needed.

Syngene is a TechAmerica Group Company pursuing research and development of biologicals and diagnostics for human and veterinary medicine. Excellent salaries and bonus programs are offered. For prompt consideration send curriculum vitae, selected reprints and names of professional references in confidence to: **Personnel, Syngene Products & Research, TechAmerica Research Center, P.O. Box 2211, Fort Collins, Colorado 80522**.

## Research Associate

Stanford University seeks a Ph.D. Research Associate with background in biochemistry and biophysics. 3–5 years post-doctorate experience in drug metabolism or molecular pharmacology, and experience in HPLC, EPR, and purification and reconstitution of proteins. Salary \$21K–\$29K commensurate with experience. Applications should include CV, copies of recent publications, and names for letters of recommendation. Ad paid for by employer. Apply to Mary C. Clark, P.O. Box 5816, Stanford, CA 94305 before 1 December 1982. An equal opportunity employer through affirmative action.

## Stanford University



## POSITIONS OPEN

**BIOCHEMIST:** The Chemistry Department at the University of Maryland, College Park, invites applications for a **FACULTY POSITION** to begin fall 1983. Appointment is intended at the assistant professor level, but appointment as associate professor will be considered for a candidate with an outstanding record of accomplishment. Preference will be given to candidates with research interests in molecular biology and recombinant DNA, but excellent individuals in other areas of biochemistry will be considered. Postdoctoral experience and demonstrated potential for excellence in research required. For full consideration, complete applications should be received 1 December 1982. Send curriculum vitae, a statement of research objectives, at least three letters of reference, and any other relevant supporting material to: **Dr. A. T. Campagnoni, Chairman, Biochemist Search Committee, Department of Chemistry, University of Maryland, College Park, Md. 20742.** *The University of Maryland is an Equal Opportunity/Affirmative Action Employer.*

**BIOCHEMIST-CELL BIOLOGIST.** Position available for investigator with postdoctoral experience to participate in two ongoing areas of study: the study of myocardial metabolic changes during recovery from ischemia and the events which trigger cell proliferation. Independent research interests encouraged. Applicants should be experienced in enzyme assays, chromatography (HPLC), electrophoresis, cell culture, radioimmunoassays, and methods development. Faculty rank will depend on experience and academic qualifications. Applicants should include a résumé of research interests, curriculum vitae, bibliography, and the names of three references. *Women and members of minority groups are encouraged to apply.* Submit all application materials by 1 December 1982. **John Foker, M.D., Ph.D., Department of Surgery, Box 495 Mayo, University of Minnesota Hospitals, Minneapolis, Minn. 55455.** *The University of Minnesota is an Equal Opportunity Employer.*

The **DIVISION OF BIOLOGICAL SCIENCES**, University of Missouri, Columbia (UMC), invites applications for tenure-track positions in each of the following areas: **ecology, neurobiology, and molecular genetics.** In the latter area, applications from individuals trained in higher-plant or yeast genetics are especially encouraged. Some training in electrophysiological techniques required for the neurobiology position. Postdoctoral training desirable. Applicants should submit curriculum vitae, at least three references, and a brief statement of research interests no later than 30 November 1982 to: **Dr. Warren R. Fleming, Director, Division of Biological Sciences, University of Missouri, Columbia, Mo. 65211.** *UMC is an Equal Opportunity/Affirmative Action Employer. Minority and women candidates are especially urged to apply.*

**TENNESSEE—CARDIOPULMONARY PHYSIOLOGIST,** research associate, Department of Pediatrics, University of Tennessee College of Medicine, Knoxville Unit. Ph.D. and research experience required. Research in developmental hemodynamics and respiratory functions preferred. Position will remain open until filled. Rank and salary negotiable. Send curriculum vitae to: **Sachchida N. Sinha, M.D., Professor and Chairman, Department of Pediatrics, U-66, 1924 Alcoa Highway, Knoxville, Tennessee 37920, or telephone: 615-971-3074.** *An Affirmative Action/Title IX/Section 504 Employer.*

### CHAIR, DEPARTMENT OF MEDICAL TECHNOLOGY

Texas Tech University Health Sciences Center (TTUHSC) is searching for a chairperson for its B.S. program in medical technology (MT). The TTUHSC consists of Schools of Allied Health, Medicine, and Nursing; other schools are planned. The MT Department is to be housed in the School of Allied Health. Responsibilities include the research, fiscal management, community service, and clinical practice at four Regional Academic Health Centers. Doctorate with MT (ASCP). Rank of professor; salary mid-to-upper \$40,000's. Applications and three letters of reference must be received by 15 November 1982. Starting date: 1 January 1983 or as soon thereafter as possible. Send résumé and letters to:

**Dr. Robert A. Cornesky, Dean  
School of Allied Health  
Texas Tech University  
Health Sciences Center  
Lubbock, Texas 79430  
Telephone: 806-743-3223**

*Texas Tech University Health Sciences Center is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

1) **A BIOCHEMIST OR BIOPHYSICIST** to study DNA-protein interactions by fast kinetic methods, fluorescence spectroscopy, or photochemical cross-linking techniques.

2) **A MOLECULAR OR CELL BIOLOGIST** to study the regulation and mechanism of gene expression in both prokaryotic and eukaryotic cells using recombinant DNA techniques.

Applicants should send curriculum vitae and three letters of recommendation to: **Professor C.-W. Wu, Department of Pharmacological Sciences, Health Sciences Center, State University of New York (SUNY), Stony Brook, N.Y. 11794.** *SUNY at Stony Brook is an Equal Opportunity/Affirmative Action Employer.*

**CELLULAR BIOLOGIST.** The Faculty of Natural Sciences of the University of Tulsa invites applications for a tenure-track teaching/research position in cellular biology, open in August 1983. A Ph.D. degree, experience in undergraduate college teaching, a strong commitment to liberal arts education, and demonstrated ability to conduct independent research are required. Candidates with postdoctoral research training will be favored. Rank will be commensurate with experience.

The Faculty of Natural Sciences offers undergraduate majors in specialized areas, including cellular biology, and offers graduate majors leading to M.S. degrees in environmental science, organismic biology, and genetics. The candidate selected will be expected to teach a cycle of courses in cellular biology (including a freshman course, one or more senior courses, and possibly a graduate course), to establish and maintain a research program, and to participate in the academic advising of students.

For the candidate interested in ultrastructural research, facilities for transmission electron microscopy and the services of an EM technician are available.

Send letter of application, curriculum vitae, a description of research plans and facilities required, reprints, and three letters of recommendation to: **Dr. Barbara Shirley, Faculty of Natural Sciences, University of Tulsa, Tulsa, Oklahoma 74104.** Deadline for applications is 1 December 1982. *The University of Tulsa is an Equal Opportunity/Affirmative Action Employer.*

**GENETICIST.** A tenure-track assistant professorship will be available in the Faculty of Natural Sciences, University of Tulsa, beginning fall semester 1983. The successful candidate will be expected to teach undergraduate courses in genetics and a graduate course in his/her specialty. A Ph.D. degree, experience in undergraduate college teaching, a strong commitment to liberal arts education, and demonstrated ability to conduct independent research are required. Candidates with postdoctoral experience are preferred. A population geneticist is not being sought at this time.

The Faculty of Natural Sciences offers a B.S. degree with majors in specialized areas and M.S. programs in genetics, organismic, and environmental biology.

Applications, including curriculum vitae, reprints, statement of research goals, research facilities required, three letters of recommendation, and transcripts, should be sent to: **Dr. James A. Gore, Faculty of Natural Sciences, University of Tulsa, Tulsa, Oklahoma 74104.** Deadline for receipt of applications is 1 December 1982. *The University of Tulsa is an Equal Opportunity/Affirmative Action Employer.*

**MICROBIOLOGIST/IMMUNOLOGIST.** The Faculty of Natural Sciences, University of Tulsa, invites applications for a tenure-track faculty position in microbiology beginning fall semester 1983. Appointment will be made at the assistant professor level. Teaching will include courses in immunology and introductory microbiology, and courses in area of expertise. A Ph.D. degree, experience in undergraduate college teaching, a strong commitment to liberal arts education, and demonstrated ability to conduct independent research are required. The Faculty of Natural Sciences offers undergraduate majors in specialized areas and offers graduate majors leading to M.S. degrees in environmental science, organismic biology, and genetics. Affiliation with Children's Medical Center Hospital is possible. Salary competitive. Applicants should submit curriculum vitae, a brief statement of research interests and facilities required, reprints, transcripts, and three letters of recommendation to: **Dr. Harrington Wells, Faculty of Natural Sciences, University of Tulsa, Tulsa, Oklahoma 74104.** Deadline for receipt of applications is 1 December 1982. *The University of Tulsa is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**BIOLOGY, MOLECULAR.** Assistant professor position available 1 September 1983. Responsibilities include the design and teaching of a one-semester nonlaboratory course in molecular biology, a one-semester laboratory course with emphasis on the development of plants and animals, and one other one-semester advanced offering in molecular biology. The incumbent also will supervise advanced undergraduates research projects. Ph.D. required; *women and minorities are encouraged to apply.* Send curriculum vitae, undergraduate and graduate transcripts, and three letters of recommendation by 15 November 1982 to: **Dr. Robert Chase, Chairman, Search Committee, Department of Biology, Lafayette College, Easton, Pa. 18042.** *Equal Opportunity Employer, M/F.*

**CHAIRPERSON, DEPARTMENT OF PHARMACOLOGY.** Applications are invited for the position of chairperson of the Department of Pharmacology, University of Washington, School of Medicine. Applicants should have extensive research and teaching experience relative to pharmacology, and should have demonstrated leadership ability appropriate to heading up a strong department. Applications, including complete curriculum vitae and names of three persons who may be contacted for references, should be sent no later than 1 December 1982 to: **Dr. John C. Sherris, Department of Pharmacology Search Committee, Department of Microbiology and Immunology SC-42, University of Washington, Seattle, Wash. 98195.**

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

**CURATOR/MANAGER—Willowbrook Wildlife Haven,** a nature wildlife exhibit and rehabilitation center. Management responsibilities include supervision of personnel, capital improvement projects, grounds maintenance, animal services, exhibits, and financial and budgetary programs. Desire applicant with master's level in zoology, ecology, wildlife management, or similar, and 2 years of administrative experience. Salary: \$20,604 to \$29,618, plus benefits. Mail résumé to: **R. Dan Gooch, Superintendent of Conservation, Forest Preserve District of DuPage County, P.O. Box 2339, Glen Ellyn, Illinois 60137.**

### CYTOMETER LABORATORY

Position available for a technician to operate and supervise the Eastern Virginia Medical School Cytometer facility. Experience in immunofluorescence, flow cytometry, and computer programming is highly desirable. Appointment and salary will be commensurate with experience and degree. Send résumé and list of references to: **Dr. George L. Wright, Jr., Director, Eastern Virginia Medical School Cytometer Laboratory, Immunology Program, Eastern Virginia Medical School, P.O. Box 1980, Norfolk, Virginia 23501.** *An Equal Opportunity/Affirmative Action Employer.*

### DIRECTOR BIOMEDICAL ENGINEERING

Position available for individual with Ph.D. and/or M.D. who has at least one engineering degree. Position offers challenge and opportunity to expand biomedical engineering research program involving the University, area hospitals, and the medical school. It is desirable that applicants have experience in biomedical engineering research and teaching.

The University of Akron, the third largest state university in Ohio, is located within a culturally rich region of concentrated industrial and research activities as well as outstanding health care facilities.

Salary is competitive, fringe benefits are outstanding, and housing is attractively priced.

Send résumé and names of three references by 15 November 1982 to:

**Dean Louis A. Hill Jr.  
College of Engineering  
The University of Akron  
Akron, Ohio 44325**

All materials, including letters from references, transcripts, and so forth will be considered for the position available as early as January 1983. *The University of Akron is an Equal Education/Employment Institution.*

## It's Time To Look Into Collagen



We did back in 1975, when we established a corporation dedicated to developing, producing, and marketing collagen-based products suitable for replacing human tissue that is lost or damaged by disease, trauma, surgery or age. Our first product — Zyderm Collagen Implant — is a purified collagen which provides physicians with an entirely new way to soften scars and restore contour to depressed areas of the skin. Work is underway on new applications in bone reconstruction, wound healing, and other tissue restoration procedures.

The Connective Tissue Research Laboratories, the research arm of Collagen Corporation, has responsibility for basic and applied research leading to new products. The staff will soon occupy new laboratory facilities and will be expanding its personnel and programs. We are currently recruiting for scientists in biology and cell biology to complement programs in biochemistry and engineering.

### Cell Biologist

You will direct a group responsible for electron microscopy, histology and animal studies. You must have a proven record in basic research and the ability to manage a group and work closely with scientists in other disciplines. Knowledge of extracellular matrix biology as well as cell biology is also necessary.

### Immunologist

As an immunologist you will initiate and direct research on the immunologic properties of collagen and other connective tissue components related to biological implants in animals and humans. You will work closely with scientists in other disciplines in joint projects.

Applicants must have a doctoral degree and at least five years' university and/or industrial experience. Salary and benefits are competitive; a stock purchase plan is available.

Please send your resume, a brief account of your interests, and a list of references whom we may contact to: Dr. Karl Piez, Director, Connective Tissue Research Laboratories, Box 101. We are an equal opportunity employer.

Collagen Corporation



2455 Faber Place  
Palo Alto, CA 94303

## RESEARCH OPPORTUNITIES

Competitive visiting scholar awards for one or two years tenure in selected federal laboratories throughout the United States. Opportunities are available for specialized experimental or theoretical research experience—free of interruptions and distractions of other duties—in the general fields of:

**ATMOSPHERIC & EARTH SCIENCES  
LIFE & MEDICAL SCIENCES  
ENGINEERING • PHYSICS • CHEMISTRY  
ENVIRONMENTAL SCIENCES  
MATHEMATICS • SPACE SCIENCES**

Most of the 18 programs are open to U.S. and non-U.S. nationals, and most are open to experienced senior investigators as well as to recent PhDs.

Application materials with details on research opportunities and laboratory locations may be requested by letter, stating the specific area of research interest, to:

Associateship Programs (JH 610-S3)  
**NATIONAL RESEARCH COUNCIL**  
2101 Constitution Avenue  
Washington, D.C. 20418

*National  
Research Council*

National Academy of Sciences  
National Academy of Engineering • Institute of Medicine

**NIOSH NBS**

## RESEARCH BIOCHEMIST, Ph.D.

The Lilly Research Laboratories, a leader in pharmaceutical and agricultural research, seeks a biochemically oriented scientist to expand its fermentation screening program. To be considered for this position, applicants must have a Ph.D. in biochemistry, enzymology, or a related area. The successful applicant will conceive, develop, and implement novel screening methods for the detection of non-antimicrobial activities in fermentation broths. These methods may include enzyme inhibition screens, tissue culture, or other techniques short of whole animal studies. The position requires an ability to work independently, as well as in a multi-disciplinary environment that encompasses chemical, biochemical and biological skills. A working knowledge of mammalian and/or plant physiology would be a definite asset.

Eli Lilly and Company offers an excellent compensation program and opportunities for professional growth. Qualified individuals should send their résumé in confidence to:

Michael J. Schmidt, Ph.D.  
Manager—Personnel  
Lilly Research Laboratories  
304 E. McCarty Street  
Indianapolis, Indiana 46285



*Eli Lilly and Company  
is an equal opportunity  
employer.*

## MEDICAL - SCIENTIFIC EDITOR/ADMINISTRATOR

Mayo Clinic seeks a professional with medical-scientific editing skills and administrative experience to head a large editorial department. Responsibilities include basic manuscript editing, consultation with authors, teaching, and administration of the department. Solid editorial skills are essential but so is the ability to stimulate, motivate, and guide the editorial staff as well as to provide leadership for editor colleagues. An advanced degree in medical or scientific discipline would be highly desirable but would not replace strong writing and editing qualifications and administrative experience.

Mayo Clinic with 800 staff physicians, 800 physicians in residency training program, 700 students and other allied health educational programs, and 5500 paramedical personnel provides an exciting environment for the professional in this position. Mayo also provides an attractive compensation package including an outstanding personal security and benefits program.

Mayo Clinic is located in a unique community of 60,000 persons, 85 miles south of Minneapolis/St. Paul via 4-lane freeway.

Interested and qualified candidates should send a resume and other pertinent material to:



**F. W. Iossi**  
Division of Education  
**Mayo Foundation**  
200 1st Street S.W.  
Rochester, Minnesota 55905  
We Are An Equal Opportunity Employer

## POSITIONS OPEN

## COMPARATIVE VERTEBRATE

## PHYSIOLOGIST

## UNIVERSITY OF CALIFORNIA, IRVINE

The Department of Developmental and Cell Biology is recruiting for a position in comparative vertebrate physiology at the assistant, or beginning associate professor level. Fields of interest include respiratory physiology, muscle physiology, adaptational biochemistry, and comparative endocrinology. The candidate is expected to establish a productive research program and to participate in an ongoing program of graduate student training in comparative physiology, and assume undergraduate teaching responsibilities in vertebrate physiology. The candidate must have Ph.D. degree and postdoctoral experience is desired. Applicants should submit curriculum vitae and copies of publications and should request that three or four letters of recommendation be sent to: Chair, Comparative Physiology Search Committee, Department of Developmental and Cell Biology, University of California, Irvine, CA 92717. Applications should be completed by 31 December 1982. The University of California is an Affirmative Action/Equal Opportunity Employer.

## DIRECTOR—CLINICAL LABORATORY

A tenure-track faculty position for a Ph.D. or M.D., diplomate of the American Board of Microbiology, at least 3 to 5 years of experience beyond training highly desirable. In addition to being responsible for the clinical laboratory, the director is expected to maintain a vigorous research program and participate in the teaching of medical students, residents, and graduate students. Faculty rank and salary will depend on qualifications and experience. Application should include curriculum vitae and at least two letters of recommendation, which may be forwarded separately. Send by 15 December 1982 to: J. R. Christensen, Department of Microbiology, Box 672, University of Rochester, Rochester, N.Y. 14642. Equal Opportunity/Affirmative Action Employer

**DIRECTOR OF WEBB-WARNING LUNG INSTITUTE** Applications are solicited for candidates with demonstrated capacity for leadership in scientific research and administration of Institute affairs. The Institute is limited to research and training in pulmonary diseases and contains 30,000 square feet of space. All investigators are active members of the University of Colorado medical school faculty. The Institute is an Equal Opportunity/Affirmative Action Employer. Interested individuals write: Dr. Henry W. Toll, Jr., Chairman Search Committee, Webb-Warning Lung Institute, Box C321, University of Colorado Health Sciences Center, Denver, Colorado 80262, by 1 December 1982.

## ENVIRONMENTAL CHEMIST

A position is immediately available for a person with M.S. in environmental/water chemistry and water resources management to do work in the field of environmental chemistry. The successful applicant will be responsible for both environmental analysis and the manufacture and quality assurance of rodenticides. At least 1 year of experience in manufacturing and laboratory synthesis of industrial anticonagulants and chemical analysis of same in biological and environmental samples by GC, HPLC and UV/VIS is a prerequisite. The salary will be \$13,000 per year; full-time; 40 hours per week. Send resume to: Seth Menon, Wisconsin Job Service, 206 North Broom Street, Madison, Wis. 53703.

**FACULTY POSITION.** The Department of Microbiology invites applications for a tenure-track appointment as an assistant professor at the School of Medicine, University of Pittsburgh. We are particularly interested in individuals with a strong background in molecular biology. Preference will be given to those working in an area related to immunology, but other qualified candidates will be considered. This person would be expected to develop an independent research program and to have an interest in and an aptitude for teaching graduate and medical students. Candidates must have a Ph.D. or M.D. degree and at least 2 years of pertinent postdoctoral experience. Send curriculum vitae, bibliography, a description of future research plans, and names and addresses of three references to: Dr. Julius S. Youngner, Department of Microbiology, School of Medicine, University of Pittsburgh, Pittsburgh, Pa. 15261. The University of Pittsburgh is an Affirmative Action/Equal Opportunity Employer.

## POSITIONS OPEN

## DIRECTOR, INSTITUTE FOR PHYSICAL

## SCIENCE AND TECHNOLOGY

## UNIVERSITY OF MARYLAND,

## COLLEGE PARK

The University of Maryland, College Park, invites nominations and applications for the **DIRECTOR** of the Institute for Physical Sciences and Technology. The Institute is an interdisciplinary research unit with strong ties to several academic departments. Current areas of research include applied mathematics, atmospheric science, fluid mechanics, optics, physics of condensed matter, statistical mechanics. The present faculty numbers approximately 39, including several joint appointments with other academic units. The director is responsible for selecting and developing significant new research initiatives in the physical and engineering, and for enhancing appropriate ongoing research projects in those areas. Nominations and applications received by 15 November 1982 will be given full consideration. Responses to this advertisement should be sent to: J. K. Goldhaber, Chairman Institute Search Committee c/o Provost, MPSE Division College Park, Maryland 20742 An Equal Opportunity/Affirmative Action Employer



Department of Biology  
University of Maryland  
College Park, Maryland 20742

The Department of Biology of the University of Pennsylvania expects to appoint a **DIRECTOR** of its proposed **PLANT SCIENCE INSTITUTE**. Candidates should have scientific credentials sufficient to merit a professorship within the Department of Biology, and should, in addition, be able to provide intellectual and administrative leadership to scientists currently pursuing research in plant molecular biology, biochemistry, biophysics, physiology, genetics, development, and evolution. Although a candidate with research expertise in plant molecular biology, biochemistry, or physiology would be preferred, more emphasis will be placed on the quality of the candidate's research program than on its subject. The appointment can begin as early as 1 July 1983. Please send nominations, curriculum vitae, or letters of inquiry to: Professor William J. Ecker, Chairman PSI Director Search Committee Department of Biology/G7 University of Pennsylvania 19104 Philadelphia, Pennsylvania 19104 An Equal Opportunity/Affirmative Action Employer

**IMMUNODIAGNOSTICS DIVISION LEADER** TechAmerica Research Center - Colorado An energetic division leader with industrial experience and sound scientific background is sought to direct a developmental research team for production of immunodiagnostic kits. Individual will interact with a basic research group which will supply a variety of purified antigens and monoclonal antibodies. Development of diagnostics for a variety of human and animal diseases is currently underway. Research groups are aligned with production and marketing capabilities of the TechAmerica Group companies. This is an opportunity to participate in new programs of an innovative rapidly growing company. We offer competitive salaries and a generous bonus plan. Please send resume, selected reprints, and names of professional references in strict confidence to: Personnel, TechAmerica Research Center, P.O. Box 2211, Fort Collins, Colorado 80522. TechAmerica Group, Inc.

## POSITIONS OPEN

## DIRECTOR

## NEW YORK STATE AGRICULTURAL

## EXPERIMENT STATION AND

## ASSOCIATE DIRECTOR FOR RESEARCH

## COLLEGE OF AGRICULTURE

## AND LIFE SCIENCES,

## CORNELL UNIVERSITY

Cornell University invites applications and nominations for the position of director, New York State (NYS) Agricultural Experiment Station, Geneva, N.Y., and associate director for research of the College of Agriculture and Life Sciences, Ithaca, N.Y. Responsibilities include leadership and administration of the Station, involvement in the College's overall research program, and relationships with state and federal agencies and constituencies. The station has five of the college's 22 departments, 66 faculty, a 650-acre campus, and a \$9 million budget. Qualifications must include an earned doctorate in one of the agricultural or life sciences; demonstrated research and administrative accomplishments; and ability to work effectively with research faculty. Nominations and applications, including a resume of professional experience and qualifications, will be received until 31 December 1982. Applications should be addressed to: Dr. Kenneth E. Wing, Associate Dean NYS College of Agriculture and Life Sciences Cornell University 102 Roberts Hall Ithaca, N.Y. 14853 Telephone: 607-256-7720 An Equal Opportunity/Affirmative Action Employer

**DIRECTOR, CENTRE FOR MOLECULAR GENETICS**—The University of British Columbia invites applications for the position of director, Centre for Molecular Genetics. Candidates should have a substantial record of research accomplishment in the area of recombinant DNA approaches to problems of medical significance. The successful applicant will have qualities of leadership and innovation; and will be responsible for building a focus of excellence in this field at the University and for directing an active research program. The Centre is interdisciplinary in nature with several departments (microbiology, biochemistry, medical genetics, medicine, and so forth) participating. A cross appointment as faculty member in one of these departments will be made. This is a tenure-track appointment and the position is available on or after July 1983 subject to availability of funds. Salary will be commensurate with experience and qualifications. Curriculum vitae and the names and addresses of three references should be sent to: Dr. P. A. Baird, Professor and Head, Department of Medical Genetics, Room 222 Westbrook Building, 6174 University Boulevard, University of British Columbia, Vancouver, British Columbia Canada V6T 1W5. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Equal Opportunity will be given to male and female applicants.

## FACULTY POSITION OPEN

Associate/assistant professor of surgery, Trauma Service, Division of General Surgery, available in The University of Texas Medical School at Houston. A full-time, tenure-track faculty position is open on this very active service for an individual with training and demonstrated excellence in trauma surgery and in clinical and/or laboratory research. This individual will also serve as surgical coordinator of the Surgical Intensive Care Unit. (1) Board Certification or Applications accompanied by curriculum vitae and full list of publications should be addressed to: Frank G. Moody, M.D., Professor and Chairman, Department of Surgery, The University of Texas Medical School at Houston, 6431 Fannin—Room 4020, Houston, Texas 77030. An Equal Opportunity/Affirmative Action Employer.

**VISITING FACULTY POSITION.** The University of Notre Dame is seeking candidates for a rotating visiting faculty position in the Department of Chemistry. Rank and area are open and salary is negotiable. Minimal teaching will be required. The position is primarily intended for persons with faculty positions elsewhere seeking sabbatical year support. Please send curriculum vitae and the names of three referees to: Professor Thomas P. Fehlner, Chairman, Department of Chemistry, University of Notre Dame, Notre Dame, Ind. 46556. The University of Notre Dame is an Equal Opportunity Employer.

## POSITIONS OPEN

### FACULTY POSITION IN PLANT MOLECULAR GENETICS DEPARTMENT OF BIOLOGICAL SCIENCES, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Applications are invited from individuals with research interests in the molecular biology of plants, emphasizing the use of modern techniques for the study of gene organization and expression in various plant cells. We anticipate that this will be a tenure-track, 9-month faculty position in the Section of Biochemistry-Molecular Biology. The successful applicant will be expected to organize a vigorous research program involving graduate students and postdoctorals. Teaching duties will include graduate and undergraduate courses on various topics in modern molecular biology.

Applicants must hold a Ph.D. degree plus postdoctoral experience in the field. Appointment will probably be at the assistant professor level, although applications from more senior individuals will also be considered. Submit curriculum vitae, brief summaries of previous and projected research, and the names of at least three scientists familiar with your work to: **The Chairman, Department of Biological Sciences, University of California, Santa Barbara, Santa Barbara, California 93106.**

Applications must be postmarked no later than 1 February 1983. *The University of California is an Equal Opportunity/Affirmative Action Employer.*

**LABORATORY SUPERVISOR POSITION** available spring 1983. This is a state-funded position with duties involving supervision and operation of a departmental cardiovascular chemistry laboratory. Requirements are B.S. or M.S. degree and at least 3 years of experience in performing radioimmuno- and radioenzymatic assays (renin, aldosterone, catecholamines, and so forth), automated chemistries, and routine chemical analyses of biological fluids and the ability to implement new chemical techniques as required. Send résumé and names of three references to: **Dr. Harris J. Granger, Professor and Head, Department of Medical Physiology, Texas A & M University, College Station, Texas 77843.** *Texas A & M University is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### FACULTY POSITION IN ECONOMIC GEOLOGY

The Department of Geological Sciences of Columbia University is seeking a new faculty member (tenure-track or tenured) in economic geology. Consideration will be given to candidates in a broad range of disciplines including but not limited to the geochemistry of metallic ores and the flow of fluids through porous media. Appointees would be expected to develop a vigorous research program at Lamont-Doherty Geological Observatory, and to contribute to undergraduate and graduate teaching both in the classroom and in the field.

*Columbia University is an Equal Opportunity/Affirmative Action Employer.*

Applications or nominations (the former accompanied by curriculum vitae and the names of three referees) should be sent prior to 1 December 1982 to: **Professor James D. Hays, Chairman of Economic Geology Search Committee, Lamont-Doherty Geological Observatory, Palisades, New York 10964.**

### MOLECULARLY ORIENTED BIOLOGIST

The Department of Biology invites applications for a tenure-track position at the assistant professor level. Candidates must have the potential for, or have demonstrated, excellence in teaching and research. Research interests should be concerned with molecularly oriented biology. The precise field of specialization is open. Areas of interest would include developmental biology, biochemistry, molecular cell biology, or molecular genetics. The successful candidate will be expected to develop a strong program in research. Teaching responsibilities will include an undergraduate course in developmental-cellular biochemistry and a graduate level course in the area of specialization. Interested candidates should send curriculum vitae, brief statement of research and teaching interests, and three letters of recommendation to: **Mordecai J. Jaffe, Chairman of Search Committee, Department of Biology, Wake Forest University, Winston-Salem, North Carolina 27109.** Deadline for receipt of all credentials will be 15 December 1982.

*Wake Forest is an Equal Opportunity Employer.*

## POSITIONS OPEN

**FACULTY POSITION IN WILDLIFE MANAGEMENT;** 12-month continuing appointment. Ph.D. in wildlife management or closely related field is required, preferably with a broad management background and quantitative training. Ability to conduct basic and applied research involving graduate students, publish results, and obtain research grants must be evident. Candidate must have the ability and desire to teach well. Written inquiries, curriculum vitae, undergraduate and graduate transcripts, and names of three references should be submitted to: **Dr. Gerald H. Cross, Head, Department of Fisheries and Wildlife Sciences, 100 Cheatham Hall, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061; telephone: 703-961-5573.** Applications will be accepted until 1 December 1982 or until a suitable candidate is selected. *An Equal Opportunity/Affirmative Action Employer.*

**FACULTY POSITIONS IN BIOCHEMISTRY.** Applications are invited for two tenure-track positions at the assistant professor level. Candidates should have two or more years of postdoctoral experience and a strong commitment to research. Preference will be given to individuals with a background in molecular biology interested in new areas of the biochemistry of eukaryotes. Please send curriculum vitae and a summary of research plans and arrange to have three letters of recommendation forwarded to: **Search Committee, Department of Biochemistry, Dartmouth Medical School, Hanover, New Hampshire 03756.** *Dartmouth Medical School is an Equal Opportunity/Affirmative Action Employer.*

**DEPARTMENT HEAD.** The Department of Chemistry of the University of Arizona invites applications and nominations for the position of professor and department head. We are seeking an outstanding scientist and experienced educator with the leadership ability to move a strong department to a position of national stature. Appointment begins fall 1983. Contact: **Dr. M. Barfield, Chairman, Search Committee, Chemistry Department, University of Arizona, Tucson, Arizona 85721; telephone: 602-626-3465.** *An Equal Opportunity/Affirmative Action Employer.*

## GI Pharmacologist

SmithKline & French, a leader in pharmaceutical research, is seeking a pharmacologist to join an interdisciplinary research program investigating new approaches to the therapeutic control of gastro-intestinal disorders.

Qualified scientists should have a Ph.D. in pharmacology or physiology with at least two years post doctoral experience in GI pharmacology. Formal training in GI smooth muscle pharmacology, smooth muscle electro-physiology, control mechanisms of GI motility or secretion, and GI peptides also required.

We offer excellent salary and benefits and an attractive relocation policy. For confidential consideration, send your CV and names of three references to: **Smith Kline & French Laboratories, a division of SmithKline Beckman Corporation, 1564 Spring Garden Street, Phila., PA 19101.** We are an equal opportunity employer, M/F/H/V.

**SK&F**  
a SmithKline company

## Protein Biochemist

The Molecular Genetics Department of Pfizer Central Research seeks an individual with a PhD and a minimum of two years postdoctoral experience. Applicants must have demonstrated in depth experience with state of the art methodologies for the isolation, detection, and characterization of proteins evidenced by excellent publications. Candidates with a background in protein microsequencing techniques or the enzymology of nucleic acid biochemistry are preferred.

This person will have an opportunity to develop an independent research program in a multidisciplinary project team environment. Primary responsibilities will include the characterization of proteins made by genetically

engineered microorganisms and studies of the structure-activity relationships of biologically important proteins.

Pfizer Central Research is the dynamically growing biomedical research division of Pfizer Inc., a U.S. based, multinational, agricultural, pharmaceutical and chemical corporation. This position provides excellent opportunities for professional recognition and considerable interaction with scientists in other disciplines. In addition we offer career growth, a competitive compensation/benefit package and the opportunity to live in an attractive Connecticut shoreline environment. Please send resume in confidence to:

**Dr. J. K. Larson, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.**

An equal  
opportunity employer

**Pfizer**



## POSITIONS OPEN

### ICHTHYOLOGIST

The Academy of Natural Sciences has an endowed research opening for an ichthyologist, preferably at the level of associate curator or curator. Preference will be given to candidates with a demonstrated commitment to collection-oriented research on the systematics of fish; superb library and laboratory facilities and collections of fish come with the position. Experience in program development is desirable. Salary negotiable in relation to rank and experience.

Please send letter of research interest, curriculum vitae, and names of three references to:

**Dr. Frank B. Gill**  
Chairman, Fish Search Committee  
The Academy of Natural Sciences  
19th and the Parkway  
Philadelphia, Pa. 19103

Closing date: 31 December 1982.

*An Equal Opportunity Employer; women and minorities are encouraged to apply.*

### IMMUNOLOGIST

Applications are invited in our extended search for an immunologist at the assistant/associate professor level (Ph.D. and/or M.D.). The specific area of research interest is secondary to clear evidence of scholarship, productivity, and a commitment to an academic career in research. Ability to teach at clinical as well as basic levels would be an asset. We offer new facilities, ample laboratory space, and start-up support within a unit possessing multi-disciplinary expertise. Salary would be highly competitive. The position is currently open and applicants are encouraged to apply no later than 1 December 1982. We require current curriculum vitae, including a brief description of research and the names of three references, to be sent to:

**Chairman, Search Committee for Immunology**  
University of Illinois  
College of Medicine at Rockford  
1601 Parkview Avenue  
Rockford, Illinois 61107-1897

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

**MATHEMATICAL POPULATION BIOLOGY.** Position at postdoctoral or junior faculty level for quantitative research in **DEMOGRAPHY, ECOLOGY, EPIDEMIOLOGY, EVOLUTION, PUBLIC HEALTH, APPLIED STOCHASTIC PROCESSES**, or other basic or health-related aspects of the study of populations. Demonstrated ability in mathematics or statistics required. Prior training or research in an empirical science, preferably biology or health-related, desired. Position starts 1982-1983 and is renewable. Send curriculum vitae, brief description of research interests and major accomplishments, and names, addresses, and telephone numbers of four references to: **Joel E. Cohen, Department of Populations, Rockefeller University, 1230 York Avenue, New York, N.Y. 10021.** *An Equal Opportunity Employer.*

### MEDICINAL CHEMISTRY FACULTY POSITION

College of Pharmacy, University of Michigan. Tenure-track position at assistant professor level effective 1 July 1983. Applicants should have Ph.D. degree in medicinal chemistry, organic chemistry, biochemistry, or related discipline and at least one year of relevant postdoctoral experience. Position will require teaching medicinal chemistry at graduate and undergraduate levels and establishing a vigorous research program. Applicants should submit detailed curriculum vitae, list of publications, detailed summary of research interests, and three letters of recommendation to: **Dr. Leroy B. Townsend, Chairman, Search Committee, College of Pharmacy, The University of Michigan, Ann Arbor, Michigan 48109.** Applications should be received and completed by 31 December 1982. *A nondiscriminatory, Affirmative Action Employer.*

**MOLECULAR BIOLOGIST—MICROBIOLOGIST.** Assistant professor of biology. Colby College, starting 1 September 1983, to teach majors and nonmajors and to pursue research. Ph.D. required. Applicants should be broadly educated in the biological sciences, and experienced in molecular biology and microbiology. Preference may be given to those whose papers are received by 15 January 1983. Send curriculum vitae and three letters of recommendation to: **Dr. Miriam F. Bennett, Department of Biology, Colby College, Waterville, Maine 04901.** *An Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

**MICROBIOLOGY,** tenure-track position in Basic Sciences Division of medical school. Candidates should have a Ph.D. in microbiology, postdoctoral training, and be able to teach a microbiology/infectious disease course. Preference will be given to candidates with research interests in the area of cell surface receptors for bacterial and eukaryotic viruses and/or gene regulation in viruses, prokaryotic, and eukaryotic cells. Candidates should forward curriculum vitae, a brief statement of research plans, and the names of three individuals who can provide references, to: **Dr. Stephen M. Boyle, Chairman, Search Committee, Basic Sciences Division, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, A1B 3V6.**

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

**MICROBIOLOGIST/BIOCHEMIST.** We are seeking qualified candidates to fill a GS-11/12 (\$23,500 to \$28,200) research staff scientist position to our Fermentation Laboratory, Northern Regional Research Center, U.S. Department of Agriculture (USDA), Peoria, Illinois. Our research program is targeted toward increasing the fermentative capabilities of microorganisms. Current research is centered on enzymatic pathways that may allow the generation of sugar/chemical products from previously unused agricultural resources. The appointee must be capable of establishing a vigorous, independent research program utilizing modern molecular biological and recombinant DNA methodologies to investigate eukaryotic gene expression and regulation. The incumbent will be involved in devising strategies and conducting experiments leading to genetic manipulation/transformation of selected genes into eukaryotic hosts for maximal expression. Preference will be given to candidates with experience in cDNA cloning. Salary based upon qualifications and experience. Must be a U.S. citizen. Send curriculum vitae and references to: **Dr. R. W. Detroy, Northern Regional Research Center(s), 1815 North University Street, Peoria, Ill. 61604.** *An Equal Opportunity Employer. Telephone: 309-685-4011.*

**MOLECULAR AND CELLULAR BIOLOGIST.** A tenure-track position for an individual with postdoctoral experience in molecular and cellular biology. Will be part of a research and teaching group being constructed to support our In Vitro Cell Biology and Graduate Programs. Responsibilities include teaching courses in genetics and in modern laboratory technologies of molecular and cellular biology. The candidate will be expected to conduct an active, fundable research program in the molecular biology of eukaryotic cells. Date of appointment: 1 January 1983 or as soon as possible thereafter. Send curriculum vitae, reprints, statements of research goals, and three letters of recommendation no later than 30 November 1982 to: **Dr. Ralph M. Clark, Acting Chairman, Department of Biological Sciences, Box 1000, State University of New York, Plattsburgh, N.Y. 12901.** *We encourage applications from qualified minority and woman candidates. An Equal Opportunity/Affirmative Action Employer.*

### NEUROPATHOLOGIST

The Department of Pathology, University of Maryland, is seeking candidates for the position of **head, Division of Neuropathology.** Applicants must have neuropathology Board-certification and strong academic and research background. Send curriculum vitae to: **W. J. Mergner, M.D., Ph.D. Department of Pathology, University of Maryland School of Medicine, 10 South Pine Street, Baltimore, Md. 21201.** *An Equal Opportunity/Affirmative Action Employer.*

**POSTDOCTORAL FELLOW**—Postdoctoral position in Clinical Research Section of Division of Emergency Medicine at major East Coast medical center. Recent Ph.D. in physiology or pharmacology required with good knowledge of biostatistical procedures. Send curriculum vitae with references to: **Box 283, SCIENCE. Equal Opportunity Employer, M/F.**

### POSTDOCTORAL FELLOW ASSOCIATE RESEARCHER

Position available for chemist/biochemist to study molecular biology of carcinogenesis. Experience in recombinant DNA and oligonucleotide synthesis preferred. Please send curriculum vitae and three letters of reference to: **Dr. Gerhard Stöhrer, Department of Chemical Carcinogenesis, Sloan-Kettering Cancer Center, 145 Boston Post Road, Rye, N.Y. 10580.**

## POSITIONS OPEN

### GENETICIST AND NEUROBIOLOGIST CARLETON COLLEGE

Applications are invited for two tenure-track positions available September 1983 in the Department of Biology. One position is for a molecular eukaryotic geneticist. The other is for a neurobiologist. Responsibilities include teaching an upper-division course in genetics and neurobiology, respectively; a course related to her/his specialty; and involvement in a team-taught introductory course. The applicant's area of expertise will be important in the selection. The department is interested in persons with a commitment to teaching and research in the context of a liberal arts college. Applicants must have a Ph.D., and postdoctoral training is advantageous. Applications, including curriculum vitae, undergraduate and graduate transcripts, a summary of research goals, and three letters of professional recommendation, should be sent to: **Dr. J. L. Tymoczko, Department of Biology, Carleton College, Northfield, Minn. 55057,** by 15 December. *Carleton College is an Equal Opportunity/Affirmative Action Employer.*

**NUTRITIONIST,** Ph.D. or equivalent, staff officer, Food and Nutrition Board, National Academy of Sciences, National Research Council. Preference given to individual with education or experience in nutrition problems in developing countries. Send curriculum vitae to: **Dr. Myrtle L. Brown, Food and Nutrition Board, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.** *An Equal Opportunity Employer.*

### NUTRITION: CHAIRMAN

The Department of Nutrition of Simmons College is seeking a nutritional scientist to assume the chairmanship on 1 July 1983. The successful candidate will be experienced in both teaching and research in nutritional biochemistry, possessing a significant record of refereed publications, and qualified for a senior level, tenure-track appointment. The chairman will serve as a teacher, researcher, and facilitator, devoting considerable energy to the growth of the department. Reply with application letter, résumé, and three letters of reference by 1 December 1982 to: **Dr. Marion Mason, Simmons College, 300 The Fenway, Boston, Mass. 02115.** *Simmons College is an Equal Opportunity/Affirmative Action Employer.*

Tenure-track position in **PHARMACOLOGY,** South Bend Center for Medical Education, Indiana University School of Medicine. Applicants should have a Ph.D. and be capable of teaching a course in general pharmacology to second-year medical students. Candidates will be required to show evidence of a strong research commitment; postdoctoral experience desirable. The 12-month appointment would begin in summer 1983. Send curriculum vitae and letter describing current research activities, future goals, and teaching interests to: **John F. O'Malley, Ph.D., Associate Director, South Bend Center for Medical Education, Haggard Hall, University of Notre Dame, Notre Dame, Ind. 46556.** *An Equal Opportunity/Affirmative Action Employer.*

**PHARMACOLOGIST.** Tenure-track faculty and postdoctoral science-associate positions are available to qualified candidates with track records in research broadly related to areas in CNS and/or membrane pharmacology. Send inquiries or applications with curriculum vitae, career goals statement, and at least three references to: **Dr. Harbans Lal, Professor and Chairman, Department of Pharmacology, Texas College of Osteopathic Medicine, Fort Worth, Texas 76107.** *Affirmative Action/Equal Opportunity Employer.*

**POSTDOCTORAL POSITIONS.** Biophysical and biochemical studies of blood coagulation and lactose biosynthesis (enzymology, NMR, ESR, fluorescence). Salary (minimum): \$13,440. Available immediately. Send résumé, reprints, and names of three references to: **Professor Lawrence J. Berliner, Department of Chemistry, The Ohio State University, 140 West 18 Avenue, Columbus, Ohio 43210.** Telephone: 614-422-0134.

**POSTDOCTORAL POSITION** available for studies involving the metabolism and pharmacokinetics of medicinal agents in man. The position involves collecting biological samples from patients and use of high pressure liquid chromatography of radiolabeled (<sup>14</sup>C) substances in biological fluids and tissues. Available immediately. Send résumé, including three references, to: **Dr. P. G. Welling, School of Pharmacy, University of Wisconsin, 425 North Charter Street, Madison, Wis. 53706.**

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## BIOTECHNOLOGY

Repligen Corporation offers outstanding opportunities for exceptionally well-qualified scientists to help lead the biotechnological revolution. Repligen is devoted to the design and implementation of molecular solutions to problems in several key market areas and currently requires Ph.D. level scientists in:

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## CARDIOVASCULAR PHARMACOLOGIST

The Merck Institute for Therapeutic Research is presently searching for an innovative and creative scientist to work in cardiovascular research at our West Point research facilities. The applicant we are seeking should have a doctorate with completed postdoctoral training in cardiovascular pharmacology or physiology with a special interest in autonomic and receptor pharmacology. An interest in the biochemical aspects of this area would be helpful.

The successful candidate's published work should reflect creativity and the ability to perform independent work, as the position is one which involves exploring new approaches to the understanding and treatment of various cardiovascular diseases.

The Merck Institute provides an exceptional environment for research, which includes modern laboratory facilities and excellent technical support. Our research facilities are located in a rural setting 25 miles NW of Philadelphia.

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Mr. Jacques P. Kueny  
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**Merck Sharp & Dohme  
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West Point, PA 19486  
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## DEPARTMENT OF HEALTH AND HUMAN SERVICES PUBLIC HEALTH SERVICE NATIONAL INSTITUTES OF HEALTH NATIONAL HEART, LUNG, AND BLOOD INSTITUTE

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

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

### DIRECTOR...DIVISION OF LUNG DISEASES

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

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

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

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

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

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

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## POSITIONS OPEN

### PHYSIOLOGIST

Applications are solicited for a tenure-track position at the assistant or associated professor level, available immediately in the Department of Physiology, Tufts University Schools of Medicine, Dental Medicine, Veterinary Medicine, and the Sackler School of Graduate Biomedical Sciences. The department currently has strengths in developmental neuro- and cardiovascular physiology, as well as in exocrine secretory function. Candidates with active research programs in any of these areas and with teaching experience in physiology are particularly encouraged to apply. Duties will include research and the teaching of veterinary and graduate students. Applicants should have a Ph.D. and/or D.V.M. degree, as well as at least 2 years of postdoctoral research experience. Applications with curriculum vitae, publication list, and three letters of recommendation should be sent to: **Dr. Eunice I. Bloomquist, Department of Physiology, TUFTS UNIVERSITY, 136 Harrison Avenue, Boston, Mass. 02111. An Affirmative Action/Equal Opportunity Employer.**

### PLANT PHYSIOLOGY—MICROSCOPY

The Department of Biology invites applications for a tenure-track position at the associate professor level. Candidates must have demonstrated excellence in teaching and research. Research interests should lie in the areas of plant physiology and microscopy. Teaching responsibilities will include both graduate and undergraduate courses in physiology, cell biology, and/or microscopy. Interested candidates should send curriculum vitae and the names of three references to: **Dr. Gerald Esch, Chairman, Department of Biology, Wake Forest University, Winston-Salem, North Carolina 27109. Deadline for receipt of credentials will be 15 December 1982.**

*Wake Forest University is an Equal Opportunity Employer.*

### POPULATION ECOLOGIST

Vassar College, Biology Department, seeks applicants at the assistant professor rank for fall 1983 (3 years; renewal possible). Must have broad biological background and ability to teach introductory biology and ecology. Competency in plant-animal interactions desirable. Teaching experience and active research program expected; postdoctoral experience favorable. Facilities include a 500-acre ecological preserve and field station. Curriculum vitae, including teaching and research interests, and three letters of reference to: **Chairman, Department of Biology, Box 377, Vassar College, Poughkeepsie, N.Y. 12601. Deadline: 10 December 1982. An Equal Opportunity/Affirmative Action Employer.**

**POSTDOCTORAL FELLOW.** Two-year appointment to study the mechanism of cellulase secretion in a fungus (*Trichoderma reesei*). Study will include cell fractionation, electron microscopic cytochemistry, autoradiography, and in vitro synthesis. Salary: \$16,000. Immediate opening. Send curriculum vitae and references to: **Gwen Doyle, Personnel Department (209), UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY—Rutgers Medical School, P.O. Box 101, Piscataway, New Jersey 08854. An Equal Opportunity/Affirmative Action Employer, M/F.**

### POSTDOCTORAL/RESEARCH ASSOCIATES

Research on: (i) coated vesicle assembly using available monoclonal probes, (ii) membrane, coat, and receptor relationships, and (iii) transcellular IgG transport in a unique in vitro system. Salary: \$14,000 to \$19,000. Send curriculum vitae, statement of research interests, and telephone numbers of three referees to: **Dr. Thomas F. Roth, Department of Biological Sciences, University of Maryland Baltimore County (UMBC), Catonsville, Md. 21228.**

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

**RESEARCH POSITION** for Ph.D. biochemist with experience in glycoprotein purification to work in male reproduction in Department of Medicine research laboratory. Send curriculum vitae to: **Philip Troen, M.D., Professor and Vice-Chairman, Department of Medicine, University of Pittsburgh, Physician-in-Chief, Montefiore Hospital, 3459 Fifth Avenue, Pittsburgh, Pa. 15213. Montefiore Hospital is an Equal Opportunity Employer.**

## POSITIONS OPEN

**POSTDOCTORAL FELLOW** to join established, multidisciplinary, research team studying lipoprotein and cholesterol metabolism. The candidate will participate in basic research projects with emphasis on the relationship of these projects to atherosclerosis and heart disease. Responsibilities include conducting and developing studies of lipo-protein-cell membrane interaction using physical biochemical techniques. Candidates should have a relevant Ph.D. and research experience. Stipends are at NIH levels, ranging from \$14,000 to \$17,000. Candidate should be U.S. citizen or permanent resident. Send curriculum vitae and names of three references to: **Dr. Michael C. Phillips, Professor of Biochemistry, Department of Physiology and Biochemistry, Medical College of Pennsylvania, 3300 Henry Avenue, Philadelphia, Pa. 19129. Equal Opportunity Employer, M/F.**

### POSTDOCTORAL FELLOW

Research institute is seeking Ph.D. (one or more). The successful applicant will participate in program project to study the growth, function, and aging of differentiated cells in culture. Knowledge of cell biology or biochemistry is necessary. Special consideration will be given to candidates with experience in culture or biochemical function of differentiated cells.

Send résumé and three letters of reference to:

**Personnel Office  
W. Alton Jones Cell Science Center  
Old Barn Road  
Lake Placid, New York 12946**

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### POSTDOCTORAL POSITION

Two to three postdoctoral positions are available immediately to study drug interactions with the acetylcholine receptor/channel complex and with sodium and potassium channels of nerve and muscle membranes using advanced electrophysiological techniques including voltage and patch clamp and noise analysis. Familiarity with electrophysiological techniques desirable. Send letter, curriculum vitae, and three references to: **Search Committee, Department of Pharmacology and Experimental Therapeutics, University of Maryland School of Medicine, Baltimore, Md. 21201. An Affirmative Action/Equal Opportunity Employer.**

**CENTER FOR MATHEMATICAL ANALYSIS OF MACROMOLECULAR SEQUENCES** invites applications for the positions of **POSTDOCTORAL RESEARCH ASSOCIATES** (two) at salaries of \$18,000 to \$20,000 and **RESEARCH ASSOCIATE** at a salary of \$28,000 to \$32,000.

The Center is involved in the development of mathematical methods, including appropriate algorithms for the analysis of nucleic acid and protein sequences. Candidates should have some expertise in molecular biology, basic mathematical tools, or computer implementations.

Candidates should send curriculum vitae and names of three references to: **Dr. Michael Waterman, Director, Center for Mathematical Analysis of Macromolecular Sequences, University of Southern California, University Park, Los Angeles, Calif. 90089-1113.**

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### SENIOR RESEARCH ASSOCIATE

Foundation for experimental biology seeks senior research associate to work as nucleotide chemist in program designed to develop treatment for cancer virus. Applicant will be responsible for research to develop methods to: synthesize ribonucleotide oligomers as potential inhibitors of influenza virus replication; synthesize deoxyribonucleotides to serve as templates for the initiation of eukaryotic DNA synthesis; sequencing of nucleic acid; carry out high performance liquid chromatographic isolation of oligonucleotides; and carry out enzymatic synthesis of DNA in purified eukaryotic systems.

Applicant must have a Ph.D. in organic chemistry, with a strong background in synthetic nucleotide chemistry. At least 2 years of postdoctorate research experience required, part of which must be in the areas of nuclear magnetic resonance, high performance liquid chromatography, synthesis of ribonucleotide and deoxyribonucleotide polymers, ligation of polymers, enzymatic techniques, and sequencing of nucleic acid. Salary: \$20,300 per year, 40-hour week. *An Equal Opportunity/Affirmative Action Employer.* Send résumé to: **Job Number 2608, Clayton Kasper, Division of Employment Security, 51 Myrtle Street, Worcester, Mass. 01608.**

## POSITIONS OPEN

### POSTGRADUATE RESEARCH DEPARTMENT OF BIOLOGY PRINCETON UNIVERSITY

NIH postdoctoral training grant positions for recent Ph.D.'s in the areas of biochemical and genetic aspects of cell differentiation (Doctors T. Cline, E. Cox, A. Newton, P. Schedl, and E. Wieschaus), cell biology and development (Doctors J. Bonner, E. Luna, and M. Steinberg), and behavioral and population genetics (Doctors J. Gould, R. Greenspan, J. Hoogland, R. May, W. Quinn, D. Ready, and D. Rubenstein) are available. Candidate must be U.S. citizen or national or permanent resident and must have Ph.D. degree at time of appointment.

Applications should include curriculum vitae, references, and summary of research interest. Application closing date: 15 November 1982. Inquiries or applications should be sent to: **Dr. E. C. Cox, Chairman, Department of Biology, Princeton University, Princeton, New Jersey 08544.**

*Princeton University is an Equal Opportunity/Affirmative Action Employer.*

**POSTGRADUATE RESEARCH CHEMIST.** Duties: synthesis of unique organic structures as model coenzyme systems and kinetic studies of their reactions. Requirements are a B.S. in organic chemistry and at least 6 years of experience in organic synthesis and chemical kinetics. Applicants must be experienced in instrumental techniques including: GC, TLC, IR, UV/VIS, NMR. Job site is Goleta, California. Salary: \$15,936 per year. Reply by résumé no later than 22 November 1982 to: **Number 2051, P.O. Box 865, Sacramento, Calif. 95804.**

**RESEARCH ASSOCIATE—NEUROSCIENCE PROGRAMMER.** We seek a colleague whose primary interest would be in software development for our research group. Responsibilities include system management, and development of collection and data analysis programs for neurobehavioral experiments. Experience with PDP-11 minicomputers, assembly and higher level languages, and the RT-11 operating system is desirable. Starting salary up to \$26,000. Send résumé to: **Dr. Vernon B. Mountcastle, Department of Neuroscience, Johns Hopkins University School of Medicine, 725 North Wolfe Street, Baltimore, Maryland 21205.**

**RESEARCH ASSOCIATE** position for Ph.D. biochemist to participate in research program on control mechanisms for cell growth. Focus on the molecular signals controlling transcription and translation of cardiac proteins. Expertise in purification and identification of isozymes. Laboratory and personnel management experience essential. This is a collaborative program between the Department of Surgery at Yale Medical School and the Department of Biology, Yale University. Starting salary: \$24,000. Send all curriculum vitae to: **Graeme Hammond, M.D., Department of Surgery, 310 Cedar Street, New Haven, Conn. 06510. Equal Opportunity Employer.**

**RESEARCH ASSOCIATE—ECOLOGY OF SOIL BIOTA.** University Agronomy Department in Missouri area seeks an individual for research under a sponsored project concerned with sewage sludge application to agricultural land and the role of soil biota in the carbon balance of soils under various agro-ecosystems. Applicants must have Ph.D. in soil microbiology with at least 3 years of postdoctoral research experience in soil biology and/or biochemistry. Appointment will be for 1 to 3 years at a salary of \$19,000. Send résumé, transcripts, list of publications, and names of three references to: **Division of Employment Security, Box 421, East Dunklin, Jefferson City, Missouri 65104, attention: John Scott. Refer to job order number 601790. Application deadline is 1 December 1982.**

### VIROLOGISTS VETERINARY VACCINE DEVELOPMENT

**ADVANCED GENETICS RESEARCH INSTITUTE (AGRI),** a growing San Francisco Bay area biotechnology company needs skilled B.S./M.S./Ph.D. scientists with comprehensive experience in viral vaccine development. Positions require demonstrated hands-on expertise in virus production, serology and design, conduct, and evaluation of immunization/vaccination regimens. Prefer strong immunochemical background, including purification, labeling, and assays for antibodies/antigens. Experience with viral pathogens relevant to veterinary medicine a distinct advantage. Send résumé to: **Personnel Director, AGRI, 2220 Livingston Street, Oakland, Calif. 94606; telephone: 415-534-2474.**

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Willis H. Shapley, Albert H. Teich, and Jill P. Weinberg

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**POSTDOCTORAL OR RESEARCH ASSOCIATE** position open immediately in a project on gene regulation in early mammalian development. Experience in RNA/DNA hybridization, recombinant DNA techniques, and gel/filter transfer is required. Salary range \$18,000 to \$20,000 per annum, depending upon experience. Send curriculum vitae and references to: **Dr. Cole Manes, Center for Neurologic Study, 11575 Sorrento Valley Road, Unit 206, San Diego, Calif. 92121.**

**PRE- AND POSTDOCTORAL TRAINING IN AGING AND THE NERVOUS SYSTEM.** A NIA training grant awarded to the Sanders-Brown Research Center on Aging of the University of Kentucky provides support for pre- and postdoctoral fellows to work with a multidisciplinary faculty studying aging and the nervous system. Resources include a new 30,000-square-foot building for aging research, EM facilities, and a university-wide commitment to gerontology. Interested applicants should contact: **William R. Markesbery, M.D., Director, Sanders-Brown Research Center on Aging, University of Kentucky, Lexington, Ky. 40536-02301.**

**RESEARCH ASSISTANT PROFESSOR** to work in biochemical pharmacology and toxicology of anti-cancer drugs. Laboratory committed to development of new drugs and studies of toxicity of existing agents. Applicants should have Ph.D. and postdoctoral training in pharmacology. Inquiries to: **Dr. Irwin H. Krakoff, Director, Vermont Regional Cancer Center, University of Vermont, 1 South Prospect Street, Burlington, Vt. 05401. An Affirmative Action Employer. Women and minorities encouraged to apply.**

### THE JACKSON LABORATORY

Research staff positions for persons having two or more years of postdoctoral experience are available at the Jackson Laboratory, a nonprofit, basic biomedical research laboratory. Of particular interest are scientists specializing in genetics, molecular genetics, or developmental biology of mammals. Rank and salary commensurate with experience. Send curriculum vitae and a description of research interests to: **Chairperson, Search Committee, The Jackson Laboratory, Bar Harbor, Maine 04609. The Jackson Laboratory is an Equal Opportunity Employer.**

### DUKE UNIVERSITY VERTEBRATE BIOLOGIST

The **DEPARTMENT OF ZOOLOGY** seeks a vertebrate biologist with a comparative or evolutionary viewpoint to fill a tenure-track opening at the rank of assistant professor to begin in fall 1983. The appointee will have demonstrated outstanding ability in research. Teaching responsibilities are to develop an imaginative one-semester course in either animal diversity or introductory biology, and an advanced offering in the other semester. By 30 November 1982, send curriculum vitae, brief statements of research and teaching interests, and the names of three references to: **Dr. Henry M. Wilbur, Department of Zoology, Duke University, Durham, N.C. 27706. Equal Opportunity/Affirmative Action Employer.**

### VIROLOGIST

A tenure-track position is open in the **DEPARTMENT OF MICROBIOLOGY, UNIVERSITY OF NOTRE DAME**, at the assistant professor level beginning 1 September 1983. We seek an outstanding individual to conduct an active research program in **VIROLOGY**, preferably at the **MOLECULAR** level. Responsibilities include the direction of graduate students and the presentation of one advanced undergraduate and one graduate course in virology. Applicants should have postdoctoral experience and strong prospects for funding. We offer the successful candidate adequate seed money, a modern research laboratory (including germfree animal facilities), a competitive salary, and colleagues with complementary research interests.

Submit curriculum vitae, a summary of research interests, and the names of three references by 15 January 1983 to:

**Dr. Morton S. Fuchs  
Department of Microbiology  
University of Notre Dame  
Notre Dame, Indiana 46556**

*This University is an Equal Opportunity/Affirmative Action Employer.*

## POSITIONS OPEN

### RESEARCH TECHNOLOGIST

A rapidly expanding biotechnology company located on Long Island, N.Y., has an immediate opening for person with B.S. or M.S.—biology/chemistry; experience in hybridoma technology, protein purification column chromatography, and immunoassay. We offer an excellent salary and benefits package. Send résumé (salary requirements must be included) to: **Box 282, SCIENCE.**

## CONFERENCE

### International Conference on EXTRAHEPATIC DRUG METABOLISM AND CHEMICAL CARCINOGENESIS Stockholm, Sweden; 17 to 20 May 1983

The meeting will focus on various aspects of chemical carcinogenesis in extrahepatic tissues which exhibit a high incidence of cancer in man. Properties and control of drug-metabolizing enzymes, the interaction of reactive electrophiles with DNA, and different models for chemical carcinogenesis will be emphasized. The number of participants is limited to 150. Proceedings will be published. Information and application forms: **Dr. J. Rydström, Department of Biochemistry, Arrhenius Laboratory, University of Stockholm, S-106 91 Stockholm, Sweden.**

## TRAINEESHIPS

### VIROLOGY

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

## FELLOWSHIPS

**RESEARCH FELLOWSHIP.** Postdoctoral research traineeship available immediately for 1, 2, or 3 years in the area of neural control of the circulation and neurogenic mechanisms of systemic hypertension. Ph.D. in physiology or biochemistry. Must have experience in neurochemistry, radioimmunoassay of peptide hormones and neurotransmitters, radioenzymatic and HPLC assays for catecholamines and metabolites, use of stereotaxic instruments for invasive brain study, and experience with in vitro superfusion techniques for quantifying hormone and neurotransmitter release from hypothalamus and pituitary. Contact: **Suzanne Oparil, M.D., University of Alabama in Birmingham, 1012 Zeigler Building, University Station, Birmingham, Alabama 35294. An Affirmative Action/Equal Opportunity Employer.**

### POSTDOCTORAL AWARDS IN OCEAN SCIENCE AND ENGINEERING

Woods Hole Oceanographic Institution invites applications for 1-year postdoctoral scholar awards from new and recent doctorates in fields of biology, chemistry, engineering, geology, geophysics, mathematics, meteorology, and physics, as well as oceanography. Recipients of awards are selected on a competitive basis, with primary emphasis placed on research promise.

Fellowship stipend is \$21,500. Appointees are eligible for group health insurance and a modest research budget. Recipients are encouraged to pursue their own research interests independently or in association with resident staff. Completed applications must be received by 1 January 1983 for 1983-1984 awards. Awards will be announced by 1 March. Write for application forms to: **Dean of Graduate Studies, P.O. Box S, Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543.**

*Equal Opportunity/Affirmative Action Institution*

## FELLOWSHIPS

**TWO-YEAR POSTDOCTORAL FELLOWSHIP** available immediately for **motor systems neurobiologist.** Individual will participate in studies on the organization of motoneuron pools and the functional partitioning of motor units. Research techniques will include intracellular recording and staining of spinal neurons, muscle histochemistry, and computer-assisted reconstructions. Please send curriculum vitae and the names of three referees to: **P. R. Lennard, Department of Biology, Emory University, Atlanta, Ga. 30322. Equal Opportunity/Affirmative Action Employer.**

### DEVELOPMENT AND GENETICS OF NEURAL SYSTEMS

Fellowships are available for postdoctoral training in the following areas of research with the indicated faculty: cell membranes (J. F. Ash), neurite growth (F. D. Collins), neuronal plasticity (K. A. Crutcher), clonal analysis (M. Jacobson), visual system (A. G. Leventhal), mammalian neurogenetics (R. J. Mullen), auditory system (T. N. Parks), neurulation (G. C. Schoenwolf). For more information, telephone: **801-581-6728**, or write to: **M. Jacobson, Anatomy Department, University of Utah School of Medicine, Salt Lake City, Utah 84132.**

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Presenting the AO Histostat Tissue Embedding Center -- a compact, integrated three-in-one work station that makes tissue embedding faster, easier and less expensive.

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