

The oyster, with its protein-poor diet of phytoplankton, uses anaerobic glycolysis to make an array of primary amines; the goldfish, commonly an inhabitant of oxygen-starved lakes, actually ferments glucose to alcohol and effectively pickles its medium by excreting the end product. Many readers will be troubled by the details that are omitted from this short volume—why appreciable activity of the enzyme glutamate dehydrogenase is so hard to detect if the oyster uses the amino group of its substrate, and how alcohol moves across membranes (much less how the fish tolerates it in the blood, surely a point of clinical interest). But nowhere else can one find, in contiguity and with the parallels so clearly drawn, discussion of problems such as how the tuna suppresses lactate production as long as it can swim aerobically and why the production of volatile fatty acids is coupled to carbohydrate metabolism in parasites.

The chapter on helminths, which draws on a highly specialized body of knowledge rarely mastered by investigators of free-living animals, is understandably the weakest. Here the details are frequently in error. Acetate is not formed from pyruvate as suggested but by reactions that take place inside the mitochondria (*J. Parasitol.* **56**, 634 [1970]). The mechanisms responsible for redox balance in the cytoplasm are described correctly, but within the mitochondria redox balance is not maintained by amino acid catabolism. In their studies demonstrating transhydrogenases associated with electron transport, Saz and his co-workers have even localized the redox reactions in various regions of the mitochondria (*J. Cell Biol.* **63**, 125 [1974]; *J. Exp. Zool.* **206**, 167 [1978]). Hochachka's effort, which underscores the kinship of metabolic adaptations found in obligatory anaerobes such as tapeworms and long-term though transient anaerobes such as some of the lower mollusks, is reminiscent of the approach of Von Brand, who also tried to understand both. If it serves to stimulate the long overdue exchange between modern parasitologists and the growing cadre of metabolic biochemists who focus on lugworms and cuttlefish, this chapter on helminths will make an important contribution.

The meaning of the subtitle is not revealed until the seventh of the nine chapters, and it is explored in depth only in the epilogue. Thus a full appreciation of its significance requires a second reading. Closed-system adaptations turn out to be cellular, amply described in metabolic diagrams, and open-system adapta-

tions require exchange of materials between different tissues or organs, the extent of which is not well known.

As physiologists, these reviewers welcomed the last four chapters and the often fascinating exposition of open-system adaptations. Hochachka knows that closed metabolic systems are largely heuristic devices of the laboratory scientist. His appreciation of the importance of the function of an organ in dictating a particular metabolic organization may prove to be as distinctive a contribution as his recognition that the metabolic problems confronting a tuna fish and a mud clam both are and are not the same.

The dichotomy between the comparative and general approaches to biochemistry and physiology is formulated lucidly and succinctly in the epilogue. Though Hochachka is more successful in portraying diversity than in elaborating unifying principles, the closing discussion in this book is a compelling demonstration of the value of his chosen approach.

CHARLOTTE P. MANGUM
NICHOLAS A. MAURO

*Department of Biology,
College of William and Mary,
Williamsburg, Virginia 23185*

Books Received

Acute Care. Proceedings of a symposium, Rio de Janeiro, Nov. 1977. B. M. Tavares and R. Frey, Eds. Springer-Verlag, New York, 1979. xvi, 346 pp., illus. Paper, \$42.90. Anaesthesiology and Intensive Care Medicine, 116.

Advances in Biochemical Engineering. Vol. 13. T. K. Ghose, A. Fiechter, and N. Blakebrough, Eds. Springer-Verlag, New York, 1979. vi, 216 pp., illus. \$48.40.

A Bundle of Feathers. Proffered to Salim Ali for His 75th Birthday in 1971. Sidney Dillon Ripley II, Ed. Oxford University Press, New York, 1979. x, 242 pp., illus. + plates. \$16.95.

Carbanions in Organic Synthesis. John C. Stowell. Wiley-Interscience, New York, 1979. xvi, 248 pp., illus. \$22.50.

Cellular, Molecular, and Clinical Aspects of Allergic Disorders. Sudhir Gupta and Robert A. Good, Eds. Plenum, New York, 1979. xx, 628 pp., illus. \$49.50. Comprehensive Immunology, 6.

Changing Energy Use Futures. Papers from a conference, Los Angeles, Oct. 1979. Rocco A. Fazzolare and Craig B. Smith, Eds. Pergamon, New York, 1979. Four volumes. clxxvi, 2100 pp., illus. + appendices. \$400.

The Endangered Sector. Waldemar A. Nielsen. Columbia University Press, New York, 1979. xii, 280 pp. \$14.95.

Energy. Readings from *Scientific American*. Introductions by S. Fred Singer. Freeman, San Francisco, 1979. viii, 222 pp., illus. Cloth, \$14; paper, \$7.50.

Fear in Animals and Man. W. Sluckin, Ed. Van Nostrand Reinhold, New York, 1979. xiv, 318 pp. \$19.95.

Fever. Its Biology, Evolution, and Function. Matthew J. Kluger. Princeton University Press, Princeton, N.J., 1979. xxii, 196 pp., illus. \$15.

Hess's Paint Film Defects. Their Causes and Care. H. R. Hamburg and W. M. Morgans, Eds. Chapman and Hall, London, ed. 3, 1979 (U.S. distributor, Halsted [Wiley], New York). xiv, 504 pp. \$67.50.

The Higher Levels of Human Growth. Elizabeth Monroe Drews. Philosophical Library, New York, 1979. xiv, 114 pp. \$11.95.

Lectures on Torus Embeddings and Applications. Tadao Oda. Published for the Tata Institute of Fundamental Research by Springer-Verlag, New York, 1978. xii, 176 pp., illus. Paper, \$9.90.

Little America. Town at the End of the World. Paul A. Carter. Columbia University Press, New York, 1979. xiv, 302 pp., illus. \$15.95.

M-Structure and Banach-Stone Theorem. Ehrhard Behrends. Springer-Verlag, New York, 1979. x, 218 pp., illus. Paper, \$12.50. Lecture Notes in Mathematics, vol. 736.

Mammals of the Eastern United States. William J. Hamilton, Jr., and John O. Whitaker, Jr. Comstock (Cornell University Press), Ithaca, N.Y., ed. 2, 1979. 346 pp., illus. \$19.95.

Manganese Nodules. Research Data and Methods of Investigation. Ronald K. Sorem and Ronald H. Fewkes. IFI/Plenum, New York, 1979. x, 724 pp., illus. \$95.

Manual of Internal Fixation. Techniques Recommended by the AO Group. M. E. Müller, M. Allgöwer, R. Schneider, and H. Willenegger. Translated from the German edition (Berlin, 1977) by J. Schatzker. Springer-Verlag, New York, ed. 2, 1979. xii, 410 pp., illus. \$118.

New Techniques and Concepts in Maternal and Fetal Medicine. Harold A. Kaminitzky, Leslie Iffy, and Joseph J. Apuzzio, Eds. Van Nostrand Reinhold, New York, 1979. xx, 390 pp., illus., \$29.50. Van Nostrand Reinhold Semmelweis Memorial Series.

NMR and Biochemistry. A Symposium Honoring Mildred Cohn. Philadelphia, June 1978. S. J. Opella and P. Lu, Eds. Dekker, New York, 1979. xii, 434 pp., illus. \$45.

Nondestructive Evaluation of Semiconductor Materials and Devices. Papers from a NATO Advanced Study Institute, Villa Tuscolano, Italy, Sept. 1978. Jay N. Zemel, Ed. Plenum, New York, 1979. xii, 782 pp., illus. \$69.50. NATO Advanced Study Institutes Series B, vol. 46.

Recent Advances in Acarology. Vol. 2. Proceedings of a congress, East Lansing, Mich., Aug. 1978. J. G. Rodriguez, Ed. Academic Press, New York, 1979. xx, 570 pp., illus. \$31.50.

Refrigeration Processes. A Practical Handbook on the Physical Properties of Refrigerants and Their Applications. H. M. Meacock. Pergamon, New York, 1979. xii, 228 pp., illus. Paper, \$15. International Series in Heating, Ventilation and Refrigeration, vol. 12.

Speech Communication and Theater Arts. A Classified Bibliography of Theses and Dissertations 1973-1978. Marilyn D. Merenda and James W. Polichak. IFI/Plenum, New York, 1979. xiv, 326 pp. \$75. IFI Data Base Library.

Treatment of Status Epilepticus. Walter Fröscher. Translated from the German edition (Stuttgart, 1976) by H. Lüders. University Park Press, Baltimore, 1979. viii, 90 pp. Paper, \$12.95.

Personnel Placement

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POSITIONS WANTED

Biologist: Ph.D. 1970 (Cambridge, United Kingdom). Experience in plasma membrane and cytoskeleton in cancer, transformation and developmental systems, electron microscopy, cell biology, histology, and so forth. Broad biological and biochemical background. Desires research/teaching position in Philadelphia or south New Jersey. Box 188, SCIENCE. X

Computer Scientist, Ph.D. 1969. Experience in robotics, graphics, image processing, user-machine interaction, communications and operating systems from working in research laboratories and industry, including the direction of research teams. M.S. in E.E. D. Williams, P.O. Box 746-C, Pasadena, Calif. 91104. 8/1, 15

M.Sc. Plant Biochemistry, B.Sc. Biology; 2 years of experience in trace analysis with GC, HPLC. Desires position in environmental contaminants analysis and sampling. L. Segal, 28 Tiverton Drive, Ottawa, Ontario, Canada K2E 6L5. X

POSITIONS OPEN

ASSISTANT OR ASSOCIATE PROFESSOR level candidates sought for the following positions: (i) **clinical investigator** to study lipid-lipoprotein metabolism; (ii) **cell biologist** with biochemical orientation to study arterial wall metabolism; (iii) **investigator** to study the role of platelets and/or thrombosis in atherogenesis. Send résumé to: **GLADSTONE FOUNDATION LABORATORIES FOR CARDIOVASCULAR DISEASE**, P.O. Box 40608, San Francisco, California 94140.

POSTDOCTORAL FELLOWS and RESEARCH ASSISTANTS with experience in biochemistry, immunology, or cell biology wanted to work in the field of lipoproteins and atherosclerosis. Send résumé to: **GLADSTONE FOUNDATION LABORATORIES FOR CARDIOVASCULAR DISEASE**, P.O. Box 40608, San Francisco, California 94140.

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Ph.D. with specialized training and professional experience in air pollution. Candidate must have a strong chemistry background and knowledge of modern instrumental analysis techniques. Position will involve graduate and undergraduate teaching and research in atmospheric chemistry and air pollution. Tenure-accruing position; rank commensurate with qualifications. Available January 1981. Send complete résumé and names of three references to:

Dr. Dale A. Lundgren
Department of Environmental Engineering Sciences
University of Florida
Gainesville, Fla. 32611

Application deadline is 15 October 1980. Salary competitive. *Affirmative Action/Equal Opportunity Employer.*

AQUATIC ECOLOGIST

ICHTHYOPLANKTON. M.S. degree, experience desirable. Successful applicant will be responsible for designing field studies, directing projects, sampling ichthyoplankton and macroplankton, data management, and report writing. Applicant must be interested in ecological problems with ichthyoplankton and doing original research. Send curriculum vitae and names of three references to: **Dr. Louis E. Sage, Academy of Natural Sciences of Philadelphia, Benedict Estuarine Research Laboratory, Benedict, Maryland 20612.** *Equal Opportunity Employer.*

UNIVERSITY OF TORONTO ASSISTANT PROFESSOR (MRC SCHOLAR)

The Banting and Best Department of Medical Research is seeking a scientist interested in carrying out independent research on the cause of insulin-dependent diabetes. A colony of spontaneously diabetic BB Wistar rats will be available for this research. Applicants should have a strong interest in diabetes and training in immunology. The successful candidate is expected to obtain his/her own salary through the MRC Scholarship Program or equivalent (NSERC or JDF Associate Programs) under the sponsorship of the University of Toronto.

Applications with curriculum vitae should be sent to: **Dr. David H. MacLennan, Charles H. Best Institute, University of Toronto, 112 College Street, Toronto, Ontario, Canada M5G 1L6** by 1 September 1980.

The Space Sciences Laboratory of the University of California at Berkeley has two openings for **ASSISTANT RESEARCH ASTRONOMERS or PHYSICISTS** for a period of 2 years beginning 1 November 1980. The responsibilities of the positions include carrying out fundamental research in extreme ultraviolet and/or far ultraviolet astronomy.

Applicants should have a Ph.D. in astronomy or physics with experience in high energy astrophysics. Postdoctoral experience is desirable but not required. *Women and minorities are urged to apply.*

Send résumé and three letters of recommendation by 1 October 1980 to:

Professor C. S. Bowyer
Space Sciences Laboratory
University of California
Berkeley, Calif. 94720

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BIOCHEMISTRY—CELL BIOLOGY. A postdoctoral position is immediately available for a recent Ph.D. with experiences in protein chemistry, immunology, and/or cell biology for research on fibronectin and collagen. The opportunity is available to join active and productive research team for up to 2 years with possibilities for a competent individual to develop own research program in a young and promising institution. Send curriculum vitae and names of three references to: **Dr. Eva Engvall, La Jolla Cancer Research Foundation, 2945 Science Park Road, La Jolla, California 92037.**

CYTOGENETICS TECHNOLOGIST to join five others in a high-volume laboratory using the most modern equipment. Applicant must be familiar with lymphocyte and amniotic fluid cell culture, harvesting, chromosome "banding" methods, and photomicrography. "Sight" analysis of banded chromosomes ("scope analysis") is essential. Salary and benefits are competitive. Send résumé to: **William D. Loughman, Ph.D., Director, Cytogenetics Laboratory (AC-28), University of California, San Francisco, Calif. 94143; telephone: 415-666-3121.**

POSITIONS OPEN

UNIVERSITY OF CALIFORNIA, BERKELEY ASSISTANT PROFESSOR OF EXPERIMENTAL NUTRITION

The Department of Nutritional Sciences at the University of California seeks to appoint an assistant professor of experimental nutrition. Position available immediately. Research emphases are not restricted but should be related to biochemical and/or physiological aspects of experimental nutrition. Teaching responsibilities include at least two courses per year (including a laboratory). Level of appointment will depend on qualifications. Applications should be submitted to: **Chairman, Experimental Nutrition Search Committee, Department of Nutritional Sciences, 119 Morgan Hall, University of California, Berkeley, Calif. 94720.** Applications should be accompanied by complete curriculum vitae and publication list, a statement of research interests and areas the applicant hopes to develop, two copies of publications relevant to current research interests, and a brief description of teaching experience. Applicants should submit the names of five referees able to evaluate the academic, teaching, and research potential of the applicant. Deadline for complete applications: 15 August 1980.

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ASSISTANT PROFESSOR, IMMUNOGENETICS

The Department of Medical Genetics of the University of British Columbia invites applications for a tenure-track faculty appointment from individuals with a background in immunogenetics. Experience in the genetics of cellular response is desirable. Applicants should send up-to-date curriculum vitae and the names of three referees before 1 November 1980 to:

Dr. P. A. Baird, Head
Department of Medical Genetics
235-5804 Fairview Crescent
The University of British Columbia
Vancouver, British Columbia, Canada V6T 1W5

The University of British Columbia offers Equal Opportunity for Employment to qualified male and female candidates.

ASSISTANT PROFESSOR—INDUSTRIAL HYGIENE AND INDUSTRIAL TOXICOLOGY PURDUE UNIVERSITY

Assistant professor, tenure-track (12-month) position for teaching undergraduate and graduate courses in occupational health and industrial toxicology. Applicants will be provided excellent facilities and be encouraged to pursue research in areas of interest.

A Ph.D. in industrial hygiene, air pollution, industrial or environmental toxicology is required. Send résumés to:

Dr. John E. Christian
Head, School of Health Sciences
Purdue University
West Lafayette, Ind. 47907

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An **ASSISTANT SPECIALIST** position is available at the University of California, Berkeley, Space Sciences Laboratory, to do research on physical processes in the upper atmosphere. The candidate will be primarily involved with the analysis of data obtained from a satellite-borne EUV spectrometer. In addition, the candidate will design, fabricate, and calibrate an EUV rocket payload for upper-atmosphere studies. A minimum of 1 year of experience in research in the upper atmosphere is required. A Ph.D. in physics or computer science is required or an equivalent combination of education and experience. Salary: \$15,960 to \$18,276. Send résumé and the names of three references by 1 September 1980 to: **Dr. C. S. Bowyer, Space Sciences Laboratory, University of California, Berkeley, Calif. 94720.** *The University is an Affirmative Action Employer.*

CHAIRPERSON, DEPARTMENT OF BIOCHEMISTRY. The University of Utah seeks to recruit a chairperson with a strong background in biochemistry. Administrative and teaching experience and ability to interact with clinical colleagues highly desirable. Research interests in genetics or neurosciences desirable also. Department to be located in new space in Medical Center. Interested individuals should send curriculum vitae and bibliography to: **R. G. Mason, M.D., Department of Pathology, Medical Center, University of Utah, Salt Lake City, Utah 84132**, by 20 August 1980. *The University of Utah is an Equal Opportunity Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR, ENDOCRINOLOGY, Ohio State University; tenure-track; research, teaching, patient care. Should be Board-certified in internal medicine with a minimum of 2 years of training in endocrinology and with experience in research and teaching. Send curriculum vitae and references to: **Dr. Jack George, Director, University Hospital, Columbus, Ohio 43210. Telephone: 614-421-8730. An Equal Opportunity Employer.**

Faculty position available: BOTANIST/BIOLOGIST. Outstanding scholar with a gift for teaching and fieldwork experience abroad wanted to teach a field course in ecology in overseas undergraduate seminars. Ph.D., knowledge of Mediterranean and Western European ecosystems required. Knowledge of agriculture useful. Appointment begins January 1981. Annual salary: \$16,000 to \$21,000, plus benefits. Curriculum vitae and three references due 30 September. No telephone inquiries. **School of Arts and Sciences, P.O. Box 5545, Berkeley, Calif. 94705. An Equal Opportunity Institution.**

CELL PHYSIOLOGIST THE DEPARTMENT OF PHYSIOLOGY-ANATOMY UNIVERSITY OF CALIFORNIA BERKELEY

Invites applications to fill a tenure-track position in physiology at the assistant professor level. Responsibilities will include teaching in undergraduate cellular physiology and advanced courses in the candidate's area of research expertise. In addition to excellence in teaching, candidates should be thoroughly involved in an ongoing, active research project and be successful contributors to that area. Research emphasis should be on physiological problems at the cellular level in areas of neural receptor function, muscle or cytoskeletal function. Interested individuals should write a letter explaining their qualifications for the particular position and enclose current curriculum vitae and a list of three or more persons who could act as referees to: **Physiology-Search Committee, Department of Physiology-Anatomy, 2549 Life Sciences Building, University of California, Berkeley, California 94720.** Applications must be received by 1 December 1980. *The University of California is an Affirmative Action Employer.*

EXPEDITION LEADERS

Expedition leaders with domestic or international projects wanted for 1981. The Expedition Training Institute can sponsor your education/research/adventure oriented project. Application deadline: 15 August 1980. For proposal guidelines, write: **Program Director, Box 1715M, Prudential Center, Boston, Mass. 02199.**

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applicants are solicited for **FACULTY POSITIONS** in the following departments:

MEDICINE—(Number 248) Assistant/associate professor: teaching, patient care, and research programs in infectious diseases in the Department of Medicine. M.D. Board-eligibility or certification in infectious disease. **PSYCHIATRY**—(Number 244) Assistant/associate professor: psychological evaluation, group, and individual therapy on an inpatient psychiatric service. Supervision and instruction of trainees of all mental health interns on the clinical psychology program. Ph.D.; (Number 246) Assistant/associate professor: clinical child psychologist duties include psychological evaluations, group and individual therapy. Ph.D. degree.

Applicants should send curriculum vitae, identifying vacancy number for which they are applying, to: **Thomas N. Lynn, M.D., Dean, College of Medicine, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Okla. 73190. We are an Equal Opportunity Employer.**

FACULTY POSITION IN MEDICINAL CHEMISTRY—Applications are invited for a 12-month, tenure-track, state-funded faculty position. Ph.D. required; postdoctoral experience highly desirable. Primary research goals must be related to aspects of fundamental processes involved in the metabolism of xenobiotics. Teaching responsibilities in medicinal chemistry and drug metabolism at the undergraduate and graduate levels. An active research program is expected. Send résumé, transcripts, description of research interests, and three letters of reference to: **W. L. Nelson, Department of Medicinal Chemistry BG-20, School of Pharmacy, University of Washington, Seattle, Washington 98195. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

DATA MANAGER

B.S. or M.Sc. level. To plan, implement, and maintain an environmental data management system at a field laboratory at Grafton, Illinois, 45 minutes north of St. Louis, Missouri. Advise on formatting, storing, and integrating biological, water quality, and hydrological data generated during a 2-year investigation of the effects of river navigation on aquatic resources, and supervise a transcriber/key-puncher. Two computer systems will be available: a Tektronics 4051 graphics terminal and a CYBER mainframe. Knowledge of BASIC and the use of canned CYBER programs necessary. Environmental or biological background desirable. Potential for long-term position with other projects being conducted by the INHS staff.

FISHERIES SCIENTIST

M.Sc. level. Assist in a 2-year study to assess fish utilization of main channel habitats in the Mississippi and Illinois rivers and investigate effects of boat traffic on fish populations. A combination of netting, radio/ultrasonic tracking, and sonar techniques anticipated. Responsibilities include advising graduate students and technicians, sampling, data analysis, and report writing. Experience with the above techniques, large rivers, and publications highly desirable.

Immediate starting date for both positions, but deadline for submission of résumés is 15 August 1980. Send résumé and addresses and telephone numbers of three references to:

**Dr. K. S. Lubinski
Pool 26-River Research Laboratory
Illinois Natural History Survey
Route 1, Box 221
Grafton, Ill. 62037**

DIRECTOR, LABORATORY OF ORNITHOLOGY CORNELL UNIVERSITY

Applications are invited for the directorship of the Laboratory of Ornithology.

The appointee is expected to be an established ornithologist with a record of scholarly research. Depending on qualifications and interest, the director also may hold a tenured (or tenure-track) faculty appointment in the Division of Biological Sciences.

Applicants should have demonstrated administrative capabilities, have a strong interest in serving the amateur ornithologist, and be able to foster amateur participation in productive research programs.

Send curriculum vitae and names of references by 5 September 1980 to: **James W. Spencer, Vice-Provost, 303 Day Hall, Cornell University, Ithaca, New York 14853.**

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SMITHSONIAN TROPICAL RESEARCH INSTITUTE (STRI) MARINE BIOLOGIST

The Smithsonian Tropical Research Institute announces a vacancy for a scientist interested in the evolutionary aspects of the physiology, behavior, or ecology of marine organisms. The successful candidate will also be expected to spend part of his/her time in the coordination of the activities of staff, visiting scientists, and students at the Naos Island (Pacific) Marine Facility at STRI. Preference may be given to a candidate with a research program designed to take advantage of the unique opportunities for two-ocean comparative studies offered by the Isthmus of Panama, although candidates with more geographically proscribed interests may also apply. A candidate will be expected to have a Ph.D. degree, and knowledge of, or willingness to learn, Spanish would be helpful. *The Smithsonian Tropical Research Institute is an Equal Opportunity Employer; candidate will be selected on scientific merit, without consideration of nationality, sex, race, or religion.*

This is a full-time, permanent, excepted authority federal position (GS 11-13) with starting salary range of \$20,611 to \$29,375, plus benefits. Candidates should send their complete curriculum vitae, the names, addresses and telephones of three references familiar with their work, copies of publications and papers in press, and a brief outline of the research they would like to pursue in Panama.

Closing date for application: **15 September 1980.** Address applications to:

**Chairman, Marine Search Committee
Smithsonian Tropical Research Institute
APO Miami 34002**

POSITIONS OPEN

DIRECTOR JACKSON LABORATORY BAR HARBOR, MAINE

The Jackson Laboratory is seeking a person with an outstanding record in biological research (preferably with emphasis in some area of genetics) and evident administrative skill. Reply to:

**Dr. Dorothea Bennett, Search Committee Chairman
Sloan-Kettering Institute for Cancer Research
New York, N.Y. 10021**

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MASS SPECTROSCOPIST RICE UNIVERSITY

The Department of Biochemistry of Rice University announces the availability of a staff position for an experienced bioorganic mass spectroscopist to operate GC-MS unit and to participate in research on sterol biosynthesis and chemistry of complex lipids. Additional experience in IR and NMR desired but not essential. Salary dependent on qualifications and experience. Position available immediately. Interested persons should send résumé and the names of three references to: **G. J. Schroepfer, Jr., Biochemistry Department, Rice University, Houston, Texas 77001. An Equal Opportunity/Affirmative Action Employer.**

ORGANIC CHEMIST LABORATORY TECHNICIAN

B.S./M.S. degreed person to assist in nitrosamine chemistry research. Nonroutine analyses and kinetics/mechanism studies. Knowledge of TEA, HPLC, GLC an asset. Strong organic chemistry background necessary.

Please send résumé and academic transcripts to:

**Personnel
Position Number 1601
FREDERICK CANCER RESEARCH CENTER
Litton Bionetics, Inc.
P.O. Box B
Frederick, Md. 21701**

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INDUSTRIAL HYGIENIST

The University of Texas Medical Branch (UTMB) is seeking a qualified individual to conduct its program for the control of toxic chemicals and hazardous biological agents. Candidates should have a M.S. in industrial hygiene, public health, or related field and a working knowledge of microbiology, biochemistry, toxicology, and general principles of laboratory ventilation. An ability to communicate effectively with individuals of differing levels of education is essential. Candidates should have a minimum of 2 years of experience, preferably in a medical or academic institution.

Send résumé and references to:

Leo Wade, Jr., Ph.D.
Office of Environmental Health
Room 106 Basic Science Building
University of Texas Medical Branch
Galveston, Texas 77550

UTMB is an Equal Opportunity/Affirmative Action Employer, M/F/H.

MECHANICAL ENGINEERING FACULTY POSITION

The Joint Center for Graduate Study at Richland, Washington, is an educational center, administered jointly by the University of Washington and Washington State University, with program participation by Oregon State University. The Center is seeking a resident faculty member to coordinate the graduate program in mechanical engineering, sponsored by Oregon State University, and the undergraduate program, sponsored by Washington State University. Candidates must hold a Ph.D. degree in engineering and have a broad interest in developing collaborative educational and research programs in mechanical engineering with the sponsoring universities and the Hanford area laboratories. Academic and industrial mechanical engineering experience in teaching, research, and administration are desirable. The appointment level for the position will depend upon the qualifications of the applicant, and the appointment date is negotiable. Applications, including three letters of reference and current curriculum vitae, should be addressed to: **Chairman, Mechanical Engineering Screening Committee, Joint Center for Graduate Study, 100 Sprout Road, Richland, Washington, 99352.** Deadline for applications is 15 September 1980. An Equal Opportunity/Affirmative Action Employer.

NEUROENDOCRINOLOGY, IMMUNOCYTOCHEMISTRY. Position open immediately for staff research associate to perform immunocytochemical studies on hypothalamic peptide systems and on pituitary receptors involved in the secretion of reproductive hormones. Extensive experience in LM and EM immunocytochemistry required. Advanced degree and strong background in neuroanatomy, reproductive endocrinology, and immunology preferred. Salary: \$20,800 to \$25,000, including benefits. Send curriculum vitae and names of three references to: **Dr. Paul C. Goldsmith, Department of Obstetrics, Gynecology and Reproductive Sciences, University of California School of Medicine, San Francisco, California 94143.** An Equal Opportunity Employer.

POSTDOCTORAL POSITIONS

Three postdoctoral fellowships beginning on or before 1 September 1980 will be available in the following areas:

1) **Evolutionary Biology.** The successful applicant in this area will collaborate on experimental research into the evolution of life history features, with emphasis on longevity. Contact: **Dr. L. S. Luckinbill.**

2) **Developmental Molecular Genetics.** Successful applicant will be involved in a project investigating the organization and expression of developmentally regulated eukaryotic genes. Some experience with recombinant DNA methodology is desirable. Contact: **Dr. W. E. Timberlake.**

3) **Molecular Virology.** Applicant will participate in a project to develop tobacco rattle virus RNA into a cloning vehicle for plants. Contact: **Dr. Albert Siegel.**

Salary and benefits are competitive and negotiable. Applications should include three letters of recommendation, together with reprints and curriculum vitae designating the position of interest. Direct applications to the above named individuals at: **The Department of Biological Sciences, Wayne State University, Detroit, Mich. 48202.** An Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

PHARMACOLOGIST—CLINICAL PHARMACOLOGIST. The University of Arkansas for Medical Sciences is seeking an assistant professor of pharmacology in the Division of Clinical Pharmacology. The position requires an M.D. or Ph.D. degree. Individuals with research interests in drug metabolism, pharmacokinetics, receptors, or toxicology are preferred. A record of research productivity and teaching expertise is required. Send curriculum vitae and two letters of reference to: **Donald E. McMillan, Professor and Chairman, Department of Pharmacology and Interdisciplinary Toxicology, University of Arkansas for Medical Sciences, 4301 West Markham Street, Little Rock, Ark. 72205.** An Affirmative Action Employer.

PLANT SOMATIC CELL GENETICS

We are seeking applications for a position in our biological sciences research group located in Richmond, California. The principal responsibility will be in the area of genetic modifications in cell cultures of major crop species. You will be working in cooperation with our ongoing plant cell culture and genetic engineering programs. Applicants should possess a Ph.D. or equivalent experience in plant genetics or related fields as well as experience in plant cell culture and somatic cell genetics. An interest in crop improvement is desirable.

We offer a competitive salary and fringe benefits package in addition to an attractive San Francisco Bay area location. Applicants should send curriculum vitae, statement of research interests and experience, reprints, and the names of three references by 25 August 1980 to:

James P. Baker
Personnel Manager
Stauffer Chemical Company
de Guigne Technical Center
1200 South 47th Street
Richmond, Calif. 94804

Stauffer is an Affirmative Action/Equal Opportunity Employer.

POPULATION ECOLOGIST

Applications are invited for a tenure-track position in population ecology beginning September 1981 at assistant professor or higher rank. Applicants should be engaged in active research in population biology which is broadly defined to include behavioral ecology, community ecology, ecological genetics, or evolutionary ecology. The appointment will strengthen the existing population group within a faculty of 25 ecologists and behavioral biologists. Applications should include curriculum vitae, copies of publications, transcripts or a list of relevant graduate and undergraduate courses, a statement of research and teaching interests, and three letters of reference (sent separately). Review of applications will begin 15 October 1980; interviews will be scheduled for late November and early December. Respond to: **Dr. Patrice A. Morrow, Search Committee Chair, Department of Ecology and Behavioral Biology, University of Minnesota, 318 Church Street, SE, Minneapolis, Minnesota 55455.**

An Affirmative Action/Equal Opportunity Employer

POSTDOCTORAL INVESTIGATOR GEOCHEMIST. A position is open in 1980 for a geochemist interested in continental and marine hydrothermal and volcanic systems. Direct experience not a prerequisite. Send résumé, reprints, and inquiries to: **Personnel Manager, Woods Hole Oceanographic Institution, Woods Hole, Mass. 02543.** An Equal Opportunity Employer, M/F/H.

POSTDOCTORAL POSITION available immediately to study the molecular biology of human adenoviruses. The projects involve DNA sequencing, mRNA isolation, and cloning. Experience in tissue culture and/or nucleic acid chemistry is preferable. Send curriculum vitae to: **Dr. R. Padmanabhan, Department of Biological Chemistry, University of Maryland School of Medicine, 660 West Redwood Street, Baltimore, Md. 21201.**

POSTDOCTORAL POSITION IN IMMUNOLOGY. Recent Ph.D. with expertise in cell culture techniques and immunoregulation desired for postdoctoral position beginning 1 September 1980. Stipend is guaranteed for 1 year with possibility of second year renewal. The research interests of the laboratory center on idiotype regulatory mechanisms that underlie immune responses. Please send curriculum vitae and the names of three references to: **Dr. Robert T. Woodland, Department of Microbiology, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, Mass. 01605.**

POSITIONS OPEN

POSTDOCTORAL POSITION. Experience in tissue culture techniques essential. Preference will be given to candidates with a background in hemostasis/blood coagulation and sound knowledge of biochemistry. Salary commensurate with experience. Contact: **S. F. Mohammad, Department of Pathology, University of Utah, Salt Lake City, Utah 84132.**

POSTDOCTORAL POSITION IN THEORETICAL AND COMPUTATIONAL PLASMA PHYSICS. Electronics Research Laboratory, University of California, Berkeley. Temporary full-time position for 1 year commencing fall 1980; possibility of extension contingent upon funding. Salary currently \$19,700 to \$20,500 per year, depending on qualifications. Theoretical and computational evaluation of two- and three-dimensional finite β MHD equilibria and stability in linear magnetic fusion devices. Particular emphasis on calculation of ballooning mode limits in minimum-average- β devices. Primary applications will be to the 10-meter multiple-mirror confinement experiment at Berkeley, but there will be close collaboration with the tandem mirror group at the Lawrence Berkeley Laboratory, Livermore, Calif. Preference given to candidates with background in fluid computational plasma physics. Send résumés, including publications to: **Professor A. J. Lichtenberg, Department of Electrical Engineering and Computer Sciences, University of California, Berkeley, Calif. 94720.** The University of California is an Affirmative Action Employer.

POSTDOCTORAL POSITION

Applicant must have Ph.D. in organic chemistry. Thorough knowledge of chromatographic techniques (TLC, HPLC, GLC), spectroscopic methods (IR, NMR, V), and familiarity with enzyme kinetics essential. Successful candidate would be involved with the synthesis of a variety of new organic compounds for cardiac and cerebral metabolism research. There will be considerable opportunity for growth with a challenge to produce high-level creative work. Starting date: 1 September 1980. Salary range: \$14,000 to \$18,000. Please send curriculum vitae, graduate transcripts, and two letters of recommendation to: **Laboratory Personnel Officer, University of California, Los Angeles, Laboratory of Nuclear Medicine and Radiation Biology, 900 Veteran Avenue, Los Angeles, California 90024.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available 1 October 1980 to study mammalian membrane biogenesis, glycoproteins, and isolation of glycoprotein mutants [see *Cell* 19, 597 (1980), *J. Biol. Chem.* 255, 4348 (1980), and *Fed. Proc. Fed. Am. Soc. Exp. Biol.* 39, 2092 (1980)]. Dr. C. B. Hirschberg, Department of Biochemistry, St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis, Mo. 63104.

POSTDOCTORAL POSITION in studying mechanisms for regulation of cellular energy metabolism by hormones and Ca^{2+} . Experience in metabolic measurements calmodulin related techniques, hepatocytes, and radioimmunoassay desirable. Stimulating academic environment in one of the most exciting cities of the United States. Salary: \$15,000; available 1 September 1980. Send résumé and two letters of recommendation to: **J. A. Spitzer, Ph.D., Department of Physiology, Louisiana State University Medical Center, 1542 Tulane Avenue, New Orleans, La. 70112.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION IN CELLULAR IMMUNOLOGY. San Francisco Peninsula. For 3-year project to study the effects of toxic chemicals on immune function. Candidates should have broad experience with in vitro assays of cell-mediated and humoral immunity. Familiarity with hypersensitivity and toxicology would be helpful. Send résumé to: **B. Solomon, SRI INTERNATIONAL, 333 Ravenswood Avenue, Menlo Park, Calif. 94025.** An Equal Opportunity Employer.

POSTDOCTORAL POSITION

To study catecholamine neurotransmission in peripheral and central tissue of normal and hypertensive animals. Position available immediately. Send curriculum vitae and three references to:

Dr. Thomas C. Westfall
Department of Pharmacology
St. Louis University Medical Center
1402 South Grand
St. Louis, Missouri 63104

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POSITIONS OPEN

POSTDOCTORAL POSITION available at the University of Vienna, Austria, for 2 years after 1 October 1980, to study regulation of hemoprotein biosynthesis in yeast with the help of DNA cloning techniques and in vitro translation of messenger RNA's. Applications to: **Dr. Helmut Ruis, Institut für Allgemeine Biochemie der Universität Wien, Währinger Strasse 38, A-1090 Wien, Austria.**

POSTDOCTORAL PSYCHOLOGY TRAINEES

Two postdoctoral psychology trainee positions are available in the Experimental Psychology Program of the Graduate School of Arts and Science of New York University. Requirements include a Ph.D. in any area of experimental psychology or in computer science, mathematics, or biological science for candidates wishing to change fields. Yearly stipend is \$13,380 and up, depending on years of relevant experience, and duration of the fellowship is from 1 to 2 years. Send curriculum vitae, statement of research interest, and three letters of recommendation by 15 August to:

NEW YORK UNIVERSITY
Graduate School of Arts and Science
Department of Psychology
6 Washington Place
New York, N.Y. 10003
Attention: J. G. Snodgrass

New York University is an Equal Opportunity Employer.

RESEARCH ASSISTANT PROFESSOR WANTED

Applications are invited for a tenure-track position available 1 September 1980, for a Ph.D. with extensive experience in tissue culture. Successful candidate will be expected to set up an independent research program as well as interact with other faculty in ongoing cancer research. Preference will be given to candidates with expertise in cell hybridization or protein chemistry. Send complete curriculum vitae and names of three references to: **Craig W. Beattie, Ph.D., Division of Surgical Oncology, University of Illinois Medical Center, 840 South Wood, Chicago, Illinois 60612. Telephone: 312-996-3340. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE

Ph.D. in experimental psychology, physiology, physiological optics, or equivalent to assist in experiments in human visual electrophysiology (VEP, ERG) funded by NEI. Experience with DEC computers essential, with knowledge of various signal analysis techniques (averaging, Fourier spectrum, cross-correlations, and so forth) necessary. Experience and ability to record from single neurons in primate visual system desirable, but not mandatory. Salary: \$12,000 per year, minimum. Position available fall 1980. Deadline for application is 22 August 1980. Send curriculum vitae and three letters of recommendation to: **John B. Siegfried, Ph.D., Coordinator, Neuro-Visual Science Tract, Pennsylvania College of Optometry, 1200 West Godfrey Avenue, Philadelphia, Pa. 19141. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL/RESEARCH ASSOCIATE: Two positions to study cAMP-stimulated synthesis of cAMP and cGMP, and the effects of calcium thereon. Social amoeba *D. discoideum* used as a model system to study these hormone-like effects. Work either on characterization of adenylate cyclase, or on physiological responses of cells. Background in enzymology, cell physiology, or membrane biochemistry desirable. Send résumé and three letters of reference to: **Dr. Michael Brenner, Department of Biochemistry, Temple University Medical School, Philadelphia, Pa. 19140.**

POSTDOCTORAL RESEARCH ASSOCIATE position available 1 January 1981 to Ph.D. applicants with background in biochemistry or related field. Duties will include conducting research on biochemical properties of microtubules. Experience in protein chemistry research is preferred. Salary will be \$13,000 per year. Application deadline: 1 October 1980. Contact: **Dr. Richard Himes, Division of Biological Sciences, University of Kansas, 329 Haworth Hall, Lawrence, Kans. 66045. Telephone: 913-864-4021** for interview or further information. *The University of Kansas is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

RESEARCH DIRECTOR RECLAMATION OF PHOSPHATE-MINED LANDS

The Florida Institute of Phosphate Research, a newly formed agency of the State of Florida, has a challenging opportunity for an individual in the area of reclamation of phosphate-mined lands. The applicant must have a B.S. degree in biological science, environmental science, or related physical science. A Ph.D. degree in one of the above areas or the equivalent experience in the area of reclamation research is preferred.

This individual will be responsible for establishing a research and development program in the area of reclamation of phosphate-mined lands. This includes monitoring of background environmental conditions prior to mining and the restoration of pre-mined conditions or alternative improved conditions.

Application deadline is 15 September 1980. Please submit detailed résumé, transcripts, and three letters of recommendation to: **Dr. D. P. Borris, Executive Director, Florida Institute of Phosphate Research, P. O. Box 877, Bartow, Florida 33830.**

Equal Opportunity/Affirmative Action Employer

STOMATAL PHYSIOLOGIST

The Department of Biological Sciences at Stanford University is seeking the employment of a botanist of international stature to interface with research programs in the physiology, development, and ecology of plants, with emphasis on stomatal physiology. The position available is that of an adjunct professor of research, and appointment will be made for a limited 6-year-term appointment, coterminous with the candidate obtaining grant support for both salary and research activities. The person appointed will be involved solely with research activities and will interface with other research programs in the department.

Interested persons should apply to: **Robert T. Schimke, Chairperson, Department of Biological Sciences, Stanford University, Stanford, California 94305.**

Stanford is an Equal Opportunity Employer.

VACANCY DIRECTOR, BUREAU OF MEDICAL DEVICES FOOD AND DRUG ADMINISTRATION SALARY: \$47,889 TO \$50,112 (SENIOR EXECUTIVE SERVICE)

The Food and Drug Administration, Rockville, Maryland, invites applications for the position of Director, Bureau of Medical Devices. The director is responsible for the overall planning and direction of the Agency's scientific and regulatory efforts to develop national medical device standards and regulations. The individual selected will have the responsibility for implementation of the 1976 Medical Device Amendments to the Food, Drug, and Cosmetic Act.

This is an exciting and challenging opportunity for an individual who has worked professionally in the medical devices field and has the executive qualifications necessary to direct the operations of approximately 200 scientists and professionals. Candidates will be evaluated on: (i) the quality of their experience in the medical devices field; (ii) their abilities to plan, implement, and evaluate programs; attract, retain, and motivate well-qualified professional and scientific personnel; enforce rules and regulations; represent the organization; implement equal employment opportunity; and (iii) their professional stature.

A federal applications form (SF-171) with curriculum vitae should be sent to: **The Division of Personnel Management (HFA-425), Food and Drug Administration, Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20857.** For further information, please telephone: **Mr. Dolch collect on 301-443-4210.** To ensure full consideration, applications should be received by 15 August 1980.

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POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE, endocrinology and metabolism, available 1 September 1980, Ph.D. or M.D. Emphasis on regulation of calcium and phosphorus homeostasis and vitamin D and bone metabolism. Applicants with experience in membrane biochemistry and/or vitamin D metabolism preferred. Salary at current NIH stipend level. Please send curriculum vitae and names of three references to: **Marc K. Drezner, M.D., Box 3285, Division of Endocrinology and Metabolism, Duke University Medical Center, Durham, N.C. 27710. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE

Postdoctoral research associate to study the metabolism of tRNA modified nucleoside Q. Research will involve isolation and characterization of tRNA, study of Q precursors and catabolites, in vitro protein synthesis, two-dimensional acrylamide electrophoresis of proteins, cell culture techniques, and the effects of Q base on neoplastic growth, with emphasis depending on the training and interest of the applicant. Available for a 2- to 3-year period; \$14,000 per year. Contact: **Jon R. Katze, Department of Microbiology, University of Tennessee, College of Medicine, 858 Madison Avenue, Memphis, Tennessee 38163.**

Harvard University. The Department of Psychology and Social Relations is searching for candidates for a **TENURED PROFESSORSHIP IN COGNITION**. Specialization could be in any aspect of human information, learning, or perception. Address inquiries, including curriculum vitae and the names of at least five referees familiar with your work, to: **Professor David M. Green, Chairman, Department of Psychology and Social Relations, Harvard University, Cambridge, Mass. 02138.** Deadline for application is 1 October 1980. *Harvard University is an Equal Opportunity/Affirmative Action Employer.*

Harvard University. The Department of Psychology and Social Relations is opening a search for a **FULL PROFESSOR IN SOCIAL PSYCHOLOGY** to begin 1 July 1981. The program is broad in scope, including the sociological as well as the psychological side of the discipline, with a strong emphasis on methods, and upon application as well as theory. Address inquiries, including curriculum vitae, and the names of at least five referees familiar with your work, to: **Professor David M. Green, Chairman, Department of Psychology and Social Relations, Harvard University, Cambridge, Mass. 02138.** Deadline for application is 1 October 1980. *Harvard University is an Equal Opportunity/Affirmative Action Employer.*

Harvard University. The **Department of Psychology and Social Relations** is searching for nontenure appointees (initially for a 5-year term beginning 1 July 1981) in the areas of **SOCIAL, PERSONALITY, AND COGNITIVE PSYCHOLOGY**. In each case a secondary competence in developmental psychology is welcome but not essential. Applications should include current curriculum vitae, and applicants should ask at least three individuals familiar with their work to write directly to: **David M. Green, Chairman, Department of Psychology and Social Relations, Harvard University, 33 Kirkland Street, Cambridge Mass. 02138.** Applications received after 1 November 1980 may not be considered. *Harvard University is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSISTANT PROFESSOR

Candidate with experience in behavior and neurochemistry with technical and conceptual ability to play a leading role in the investigation of memory and cerebral neurotransmitters following head injury. Submit curriculum vitae, bibliography, and three letters of recommendation to: **Professor Eliot Stellar, Department of Anatomy, University of Pennsylvania School of Medicine/G3, Philadelphia, Pa. 19104. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSISTANT PROFESSOR. Nontenure-track. Full-time research on biophysical and bioinorganic chemical studies on hemoproteins by IR, NMR, EPR, resonance Raman, Mössbauer spectroscopic methods and rapid kinetics and thermodynamic measurements. Extensive experience in these areas is essential. Send résumé to: **Dr. David Trentham, Chairman, Department of Biochemistry and Biophysics/G3, University of Pennsylvania School of Medicine, Philadelphia, Pa. 19104, by 15 August 1980. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL RESEARCH POSITION available immediately for research on mitochondrial respiratory complexes. Chemistry-oriented biochemist with experience in enzymology and protein chemistry and some familiarity with modern analytical instrumentation is desirable. Salary: \$11,500 to \$14,000 plus fringe benefits, depending on qualifications. Send curriculum vitae and two letters of recommendation to: **Dr. John S. Rieske, Department of Physiological Chemistry, College of Medicine, The Ohio State University, Columbus, Ohio 43210. An Equal Opportunity Employer.**

RESEARCH ASSOCIATES; Ph.D. in biochemistry, cell, or molecular biology; are available for at least 3 years. Positions in metabolic regulation involves studies of the role of cyclic AMP-dependent phosphorylation in the hormonal regulation of gluconeogenesis and transport processes in kidney. These systems will be examined with isolated enzymes and with epithelial cells in culture.

Other positions are available to study the biosynthesis and secretion of cell surface antigens in tumor cells and acidic mucin glycoproteins in respiratory tissue. Salary range from \$13,500 to \$16,000. Send résumé and references to: **Dr. Joseph Mendicino, Department of Biochemistry, University of Georgia, Athens, Ga. 30602.**

RESEARCH ASSOCIATE position in nutrition available 1 September 1980 to investigate the regulation of energy metabolism as related to obesity. Ph.D. required. Salary competitive. Send curriculum vitae and three letters of recommendation to: **Dr. Dale Romsos, Department of Food Science and Human Nutrition, Michigan State University, East Lansing, Mich. 48824.**

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

RESEARCH ASSOCIATE—State position available immediately to study hormonal regulation of fetal growth. Background: tissue culture, RIA, radio-receptor assays desirable. Ph.D. with thesis in related field or equivalent combination of education and experience required. Salary: \$12,250 to \$17,300, plus excellent fringe benefits. Send curriculum vitae and three letters of recommendation to: **Personnel Office, Upstate Medical Center, 155 Elizabeth Blackwell Street, Syracuse, New York 13210. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH SCIENTIST/ENGINEER. The Clinical Neurophysiology Laboratory of the Department of Neurology, Massachusetts General Hospital and Harvard Medical School, is seeking an engineer/scientist with the following characteristics: broad training in electrical or mechanical engineering at the undergraduate level; Ph.D. required in biomedical or related engineering; full-time research experience for at least 5 years, preferably with electro-mechanical properties of muscle; and familiarity with computer technology. This person must be able to participate as an equal in ongoing studies of mechanical properties of skeletal muscle as they relate to stretch reflex function; appointment at assistant professor or associate professor level. *Applications from women and minorities will be especially welcome.* Please contact (as soon as possible): **Dr. R. R. Young, Clinical Neurophysiology Laboratory, Massachusetts General Hospital, Boston, Mass. 02114. An Equal Opportunity/Affirmative Action Employer.**

SENIOR BIOSTATISTICIAN

Dartmouth Medical School is recruiting a biostatistician for appointment at the associate or full professor level in the Department of Community and Family Medicine. Responsibilities of the position include:

- 1) Teaching biostatistics to medical students,
- 2) Conducting independent research,
- 3) Collaborating with other investigators in the design and analysis of epidemiologic studies, and
- 4) Collaborating with investigators conducting clinical trials and laboratory research.

Opportunities may also exist for teaching statistics to Dartmouth College undergraduates.

Qualifications: doctoral degree in statistics and a record of accomplishment in research, teaching, and consultation. Experience in initiating and conducting epidemiologic research desirable.

Send curriculum vitae with references to: **Jack Wennberg, M.D., Chairman, Search Committee, Department of Community and Family Medicine, Dartmouth Medical School, Hanover, N.H. 03755.**

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POSITIONS OPEN

RESEARCH SCIENTISTS BIOLOGICAL SCIENCES

The Life Sciences Division of IIT Research Institute, a not-for-profit, Chicago-based research organization, has several staff positions for biologists. Requisite are Ph.D. in physiology, toxicology, or experimental pathology. Preference will be given to candidates with postdoctoral research experience in chemical carcinogenesis, pharmacology, or an interest in long-term in vivo toxicity and carcinogen bioassay studies. Opportunity is available to develop independent research projects in own field of expertise. Salary commensurate with experience and qualifications.

Please submit résumés, including salary history, to:

**L. Amft
Professional Staffing
IIT RESEARCH INSTITUTE
10 West 35 Street
Chicago, Ill. 60616**

IITRI is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and members of minority groups.

VETERINARY ENTOMOLOGIST CORNELL UNIVERSITY

Tenure-track position; preferably assistant professor level. Ph.D. with postdoctoral or similar experience desirable. Research (65 percent); focused on ecology of arthropods associated with domestic animals; extension (35 percent); implementing pest management programs for livestock and poultry industries in the state; no formal teaching responsibility. Send résumé and names of five references to: **Professor E. H. Smith, Department of Entomology, Cornell University, Ithaca, N.Y. 14853.** Application deadline: 1 September 1980. *Cornell is an Equal Opportunity/Affirmative Action Employer.*

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP BIOCHEMICAL PHARMACOLOGY

A position is available immediately for an individual with biochemical background to study the role of lipids in drug metabolism, with emphasis on age-related changes. Send résumé and three references to: **Martin P. Schulman, Department of Pharmacology, University of Illinois Medical Center, P.O. Box 6998, Chicago, Ill. 60680.**

GEORGE S. WISE POSTDOCTORAL FELLOWSHIPS

The George S. Wise Faculty of Life Sciences at Tel Aviv University offers postdoctoral fellowships commencing 1 October 1980 or 1 April 1981 in basic and applied biology.

The faculty is engaged in various research areas such as anatomy, taxonomy and physiology of plants; anatomy, sociobiology, and physiology of animals; marine biology; cellular and molecular biology and genetics; lipid and protein research; bioenergetics; neurobiochemistry; immunology; virology, biotechnology, and nature preservation.

Applications should be sent to: **The Dean, The George S. Wise Faculty of Life Sciences, Tel Aviv University, Tel Aviv, Israel.** They should indicate the area of interest of the applicant and contain complete curriculum vitae, list of publications, and names of three references.

POSTDOCTORAL FELLOWSHIP available immediately for U.S. citizen or permanent resident to study neurotoxicity of environmental chemicals, Ph.D. in neuroscience, biochemistry, or biochemical pharmacology and experience in biochemical techniques is required. Send curriculum vitae and three letters of recommendation to: **Dr. M. I. Sabri, Institute of Neurotoxicology, Albert Einstein College of Medicine, Box 23, 1300 Morris Park Avenue, Bronx, N.Y. 10461; telephone: 212-430-3385. An Equal Opportunity Employer.**

POSTDOCTORAL FELLOWSHIP, Ph.D. in biophysics or biochemistry, physical biochemistry or biophysics of contractile proteins of muscle. Available at once. Send curriculum vitae and two letters of recommendation to: **Dr. William F. Harrington, Department of Biology, The Johns Hopkins University, Baltimore, Maryland 21218.**

MASS SPECTROMETRY ASSISTANT

The Upjohn Company, Kalamazoo, Michigan, a worldwide producer of pharmaceuticals, health care products, chemicals and agricultural products, has an opening in its Physical and Analytical Chemistry unit for a Mass Spectrometry Assistant. This position will be responsible for running service samples on a computerized high and low resolution mass spectrometer, interpreting and reporting the generated data, and for the maintenance and performance of the instruments.

The successful applicant will possess a BS/MS degree in Chemistry with emphasis in organic chemistry and several years mass spectrometry experience. Ability to communicate with other professional specialists is essential.

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SUPERVISOR

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Senior Organic Chemist INDIA

The Boots Company (India) Limited is setting up a Research Unit in Bombay and wishes to appoint a creative chemist, who will lead a group which will be engaged in the synthesis of new organic compounds designed for the treatment of tropical diseases.

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chemistry and should have at least 5 years' experience in synthetic medicinal chemistry, preferably in the pharmaceutical industry.

This appointment in Bombay is permanent and pensionable and will, therefore, be specially attractive to scientists who seek career development in India. Remuneration and benefits are designed to attract candidates of high calibre. Full details of career to date and salary progression should be sent to:

J. L. Muncey, Recruitment & Development Manager,

The Boots Company Limited,
Nottingham NG2 3AA. U.K.



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Jean L. Marx and Gina Bari Kolata

Cardiovascular diseases — diseases of the heart and blood vessels — are the leading cause of death in this country. They afflict more than 29 million people and are responsible for almost a million deaths per year in the United States alone. The American Heart Association estimates that the total economic costs of these diseases in 1978 will be in excess of \$28 billion.

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