

fills a valid need. Because of the weaknesses outlined here, however, the attempted syntheses are unsuccessful.

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Biomechanics

Aspects of Animal Movement. Papers from a symposium, Reading, England, Dec. 1978. H. Y. ELDER and E. R. TRUEMAN, Eds. Cambridge University Press, New York, 1980. x, 250 pp., illus. Cloth, \$44.50; paper, \$16.50. Society for Experimental Biology Seminar Series.

In the old days, most locomotion research was done by biologists who got the physics they needed either from childhood memories or from an hour with a colleague in a nearby department of mathematics, physics, or engineering. With a little effort, they could understand all the papers published on animal locomotion. Things are different now. Mathematicians and engineers are actually involved in the research, working with the biologists in their laboratories or in departments of applied mathematics or engineering. Communication between the biological and mathematical ends of the spectrum is difficult; to produce any satisfactory book with "animal locomotion" in its title has become a daunting task. The present editors started with a further disadvantage: the claim made for the volumes of the Society for Experimental Biology Seminar Series, as stated in the jacket blurb, that "together the contributions form introductory texts for the senior undergraduate, graduate student and research worker looking at the field for the first time." The editors have wisely ignored this, judiciously including the word "aspects" in their title and acknowledging in their preface that the treatment leaves gaps. In short, the book is not, and never could be, a textbook; it is no rival to Alexander and Goldspink's *Mechanics and Energetics of Animal Locomotion* (an excellent modern text) and Gray's *Animal Locomotion* (a good summary from the point of view of the old days).

How, then, are we to regard this book? I see each of its chapters as an essay reflecting the interests, approach, and idiosyncrasies of its author. One chapter is an original contribution in the style of a research paper, asking penetrating questions about locomotor efficiency (Taylor). Several are comprehen-

sive reviews of relatively small and self-contained sections of the subject, such as structural considerations (Currey), water-beetle swimming (Nachtigall), insect jumping (Bennet-Clark), vorticity and flight (Rayner), and walking (Alexander). Other authors attempt to review much wider fields and have to spread their material correspondingly thinly. One chapter, regrettably, seems to have been assembled with scissors and paste out of two of its author's chapters in another book. Some chapters assume familiarity with much of the animal kingdom; others presuppose confidence (or at any rate, no terror) in the presence of mathematics and fluid dynamics.

Anyone claiming an interest in the whole field of animal locomotion (if there be any such persons nowadays) will need this book. Those with narrower interests may read one or two chapters but would do well to read more; they cannot fail to be fascinated and to learn something worthwhile. Certainly it will do a research worker of the mathematical sort good to read the chapters that have no equations in them. The classical biologist, more at home with description than algebra, should, however, beware when seeking to understand the more quantitative chapters: poor typesetting and proofreading, especially of mathematical material, have laid many traps for such a reader. That the highest density of infelicities, errors, and misprints is in a chapter by an author whose mother tongue is not English must lay much of the blame on the editors. Indeed, one wishes that the editors had ruled their contributors, however eminent, with a rather heavier hand; the inconsistency of symbols, units, and even spelling between chapters is disconcerting.

Every serious reader will come to regard three or four of the chapters as the most worthwhile, for a host of subjective reasons. My nomination goes to Currey's "Skeletal factors in locomotion," a lucid and readable review of natural engineering; Rayner's "Vorticity and animal flight," the first readily comprehensible review of this new approach, which was originated by Cone in 1968 but has been highly developed recently and almost independently by C. P. Ellington and Rayner himself; and finally Bennet-Clark's "Aerodynamics of insect jumping," based on experiments that were simple and elegant in conception and obviously fun to do.

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A List of References for the History of Agricultural
(Continued on page 1458)



PRODUCTS and MATERIALS

Gas Chromatograph

The FV 4160 is a capillary dedicated gas chromatograph. It is fitted with a Grob split-splitless injector and a Grob on-column injector. The latter permits samples to be injected directly into the capillary column without a split or vaporizing sequences. No septum is used and problems associated with septa are avoided. This also simplifies quantitative analysis without discrimination of substances' boiling points. In qualitative analysis, the sample contacts only the column. Other features include precise pressure regulators, a high-speed electrometer, interchangeable detectors, and optional temperature programmers. Erba Instruments. Circle 825.

Freezer

Model HT 30-40 is a 30-cubic-foot appliance with a low profile at 89 by 31½ by 40 inches high. It cools down to -40°C and will accommodate up to 1050 units of plasma or other similarly sized samples. It may be ordered as air-cooled, air-cooled with auxiliary water cooling, or water-cooled. The refrigerant is freon. Harris Manufacturing. Circle 839.

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Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsements by *Science* or AAAS is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 1374A and 1458I) and placing it in the mailbox. Postage is free.

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algorithms to facilitate calculation. The instrument supports both the four-parameter log-logit curve transformation for Syva Emit chemistries and the five-parameter log-logit transformation for the new Syva chemistries. Travenol Laboratories, Instrument Division. Circle 840.

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Aliquot Mixer

The Speci-Mix assures uniform mixing of hematologic and urologic specimens in minutes. A gentle, 24° cyclic rocking motion provides thorough mixing of material in up to 16 test tubes at a time. The unit is quiet and compact. Capped tubes up to 20 by 150 millimeters may be continuously placed on the platform cushion without turning off the unit. The tubes are held in separate grooves to prevent breakage and their contents are easily observed during mixing. Thermo-Lyne. Circle 844.

Microbial Monitor

The Bactometer M-120 system accommodates virtually any sample size and medium. The media need not be optically clear. Testing and data reduction are

automated. Up to 480 samples may be analyzed simultaneously. The basic system consists of a 120-sample incubator, a dedicated microprocessor, and a printer. The system may be expanded with up to three more incubators and a display terminal. Samples are monitored every 6 minutes to detect bacterial responses. Bactomatic. Circle 845.

Centrifuges

Microfuge 11 and Microfuge 12 achieve 11,600g and 13,250 revolutions per minute and 12,200g and 12,200 revolutions per minute, respectively. They feature variable speed control and an automatic reset timer for accurate duplication of conditions and protection against imbalance. Microfuge 11 will hold 18 1.5-ml, 1.8-ml, or 500-μl tubes, 30 600-μl tubes, and 48 250-μl or 400-μl tubes. Microfuge 12 accommodates up to 60 1.5-ml or 1.8-ml tubes, up to 72 500-μl or 600-μl tubes, and up to 84 250-μl or 400-μl tubes. A feedback control system maintains the selected speed. Each model has a door interlock. Beckman Instruments, Spinco Division. Circle 838.

Literature

Polyacrylamide Gel Electrophoresis is a laboratory technique manual with detailed, practical descriptions. Pharmacia Fine Chemicals. Circle 832.

Products for Chromatography features sorbents, column packings, reagents, and columns as well as slides and plates. MCB Manufacturing Chemists. Circle 836.

Gas Chromatography is a 160-page catalog of apparatus, supplies, and accessories. Applied Science Division, Milton Roy. Circle 846.

Chemware lists a complete line of laboratory vessels and accessories made of Teflon TFE. Chemplast. Circle 847.

Fractionators includes design specifications, methods of collection, and features. Gilson Medical Electronics. Circle 849.

SeaPlaque agarose gels at low temperatures. This brochure describes its uses. Marine Colloids Division, FMC. Circle 850.

Fiber Optics Handbook is a buyer's guide to suppliers, technology, applications, and research constraints. Information Gatekeepers. Circle 851.

Temperature and Humidity Rooms describes a line of environmental test enclosures of various sizes and capacities. Tenney Engineering. Circle 852.

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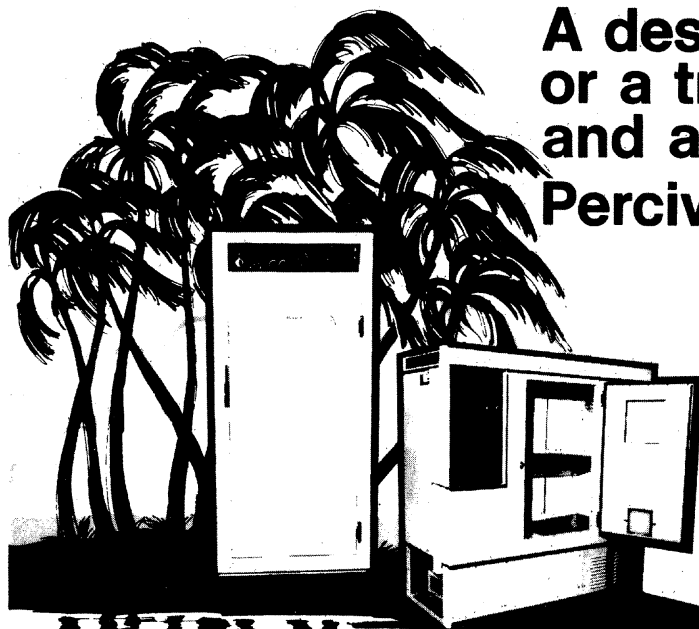


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BOOKS RECEIVED

(Continued from page 1416)

Science in America. Compiled by Margaret W. Rosister. University of California Agricultural History Center, Davis, 1980. viii, 62 pp. Paper.

Molecules. L. D. Landau and A. I. Kitaigorodsky. Translated from the Russian edition (1978) by Martin Greendlinger. Mir, Moscow, 1980 (U.S. distributor, Imported Publications, Chicago). 248 pp., illus. \$6.60. Physics for Everyone, Book 2.

Molecules to Living Cells. Readings from *Scientific American*. With introductions by Philip C. Hanawalt. Freeman, San Francisco, 1980. viii, 340 pp., illus. Cloth, \$19.95; paper, \$9.25.

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The Mormon Experience. A History of the Latter-Day Saints. Leonard J. Arrington and Davis Bitton. Vintage (Random House), New York, 1980. xx, 404 pp. + plates. Paper, \$5.95. Reprint of the 1979 edition.

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Multiphase Transport. Fundamentals, Reactor Safety, Applications. T. Nejat Veziroglu, Ed. Hemisphere, Washington, D.C., 1980. Five volumes. lxxx, 2932 pp., illus. \$350.

Multiple Light Scattering. Tables, Formulas, and Applications. Vol. 1. H. C. van de Hulst, Ed. Academic Press, New York, 1980. xiv, 300 pp., illus. + index. \$38.50.

The Mysterious Matter of Mind. Arthur C. Custance with a response by Lee Edward Travis. Zondervan, Grand Rapids, Mich., and Probe Ministries International, Richardson, Tex., 1980. 106 pp. Paper, \$2.95.

Natural Cell-Mediated Immunity Against Tumors. Ronald B. Herberman, Ed. Academic Press, New York, 1980. xxii, 1322 pp., illus. \$65.

Naturally Occurring Carcinogens-Mutagens and Modulators of Carcinogenesis. Proceedings of a symposium, Tokyo, 1979. Elizabeth C. Miller, James A. Miller, Iwao Hirono, Takashi Sugimura, and Shozo Takayama, Eds. Japan Scientific Societies Press, Tokyo, and University Park Press, Baltimore, 1979. xviii, 400 pp., illus. \$67.50.

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Physical Geography. Cuchlaine A. M. King. Basil Blackwell, Oxford, 1980 (U.S. distributor, Barnes and Noble, Totowa, N.J.). x, 332 pp., illus. \$34.50.

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Plants and Islands. Papers from a symposium, Las Palmas de Gran Canaria, Canary Islands, Apr. 1977. D. Bramwell, Ed. Academic Press, New York, 1979. x, 460 pp., illus. \$55.50.

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The Theory of Plant Breeding. O. Mayo. Clarendon (Oxford University Press), New York, 1980. xiv, 294 pp. \$69.

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The Treatment of Medical Problems in the Elderly. M. J. Denham, Ed. University Park Press, Baltimore, 1980. xii, 432 pp., illus. \$32.50. Current Status of Modern Therapy, vol. 3.

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Vitamin D and Calcium Metabolism in Renal Diseases. Contributions from Japan. Joji Ono, Kaizo Kobayashi, and Kenji Maeda, Eds. Karger, Basel, 1980. vi, 120 pp., illus. Paper, \$42. Contributions to Nephrology, vol. 22.

The Way It Works. Man and His Machines. Robin Kerrod. Mayflower Books, New York, 1980. 224 pp., illus. Cloth, \$16.95; paper, \$9.95.

Weeds. Walter Conrad Muenscher. Foreword and appendixes by Peter A. Hyypio. Comstock (Cornell University Press), Ithaca, N.Y., ed. 2, 1980. xviii, 588 pp., illus. \$32.50. Reprint of 1955 edition.

Western Indians. Comparative Environments, Languages, and Cultures of 172 Western American Indian Tribes. Joseph G. Jorgensen. Freeman, San Francisco, 1980. xiv, 674 pp., illus. \$49.95.

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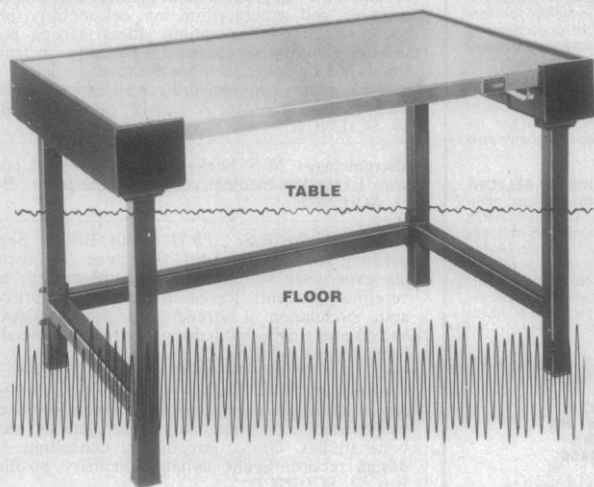
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A World List of Mammalian Species. G. B. Corbet and J. E. Hill. British Museum (Natural History), London, and Comstock (Cornell University Press), Ithaca, N.Y., 1980. viii, 226 pp. \$35.

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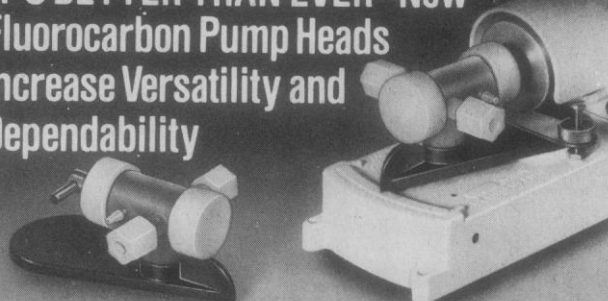
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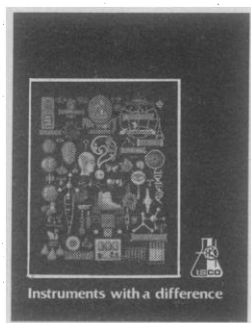
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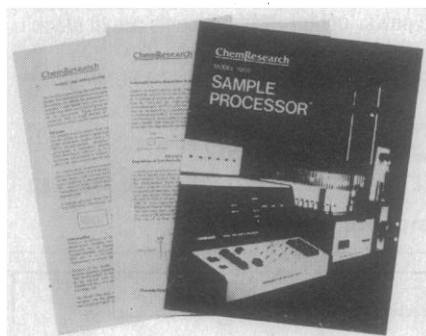
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ASSOCIATE/ASSISTANT PROFESSOR OF WILDLIFE MANAGEMENT. Tenure-track appointment, calendar year. Ph.D. in wildlife biology or related field. Teach undergraduate and graduate courses, advise undergraduate and graduate students, and supervise research of latter at M.S. and Ph.D. levels. Participate in research in cooperation with three other faculty and Cooperative Wildlife Unit adjunct faculty and Pennsylvania Game Commission staff. Start 1 July 1981 or at latest 1 September 1981. Applications by 15 May 1981 or until filled. Submit curriculum vitae, academic records, and three letters of reference to: **Robert S. Bond, Director, School of Forest Resources, 101 Ferguson Building, The Pennsylvania State University, University Park, Pa. 16802.**

BIOLOGY LECTURER. Academic year 1981-1982, appointment renewable for 1982-1983. Responsibilities: teaching freshman and sophomore courses, and academic advising. Send résumé and have three letters of reference sent to: **Professor H. E. Shull, Head, Division of Natural Sciences and Engineering, Department L, The Behrend College, The Pennsylvania State University, Station Road, Erie, Pa. 16563**, by 30 April 1981. *An Equal Opportunity/Affirmative Action Employer.*

BIOLOGIST WANTED. A full-time, 9-month teaching appointment, within the Department of Biology, will be available August 1981. Rockhurst is a coed, private, Jesuit college of approximately 1400 students. Applicants should fit one of the following job descriptions. Applicants should be able to teach some combination of the following courses: human anatomy and physiology (two-semester course for sophomore nursing students), environmental physiology, comparative anatomy, bioengineering-bioinstrumentation, general physiology, or environmental science. **OR** Applicants should be able to teach microbiology, cellular biology, and pertinent areas of environmental science. Ph.D. preferred. Salary and rank commensurate with qualifications. Send curriculum vitae plus letters from three references to: **Dr. Nancy E. Walker, Chairman, Department of Biology, Rockhurst College, 5225 Troost Avenue, Kansas City, Missouri 64110.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

BIOCHEMIST. RESEARCH FACULTY position (research associate appointment) available after 1 July 1981 for a Ph.D. biochemist with at least 2 to 3 years of postdoctoral experience. This person will play a major role in an ongoing, broad research program in the area of vitamin A/retinoid metabolism, particularly dealing with retinoid binding proteins. Salary competitive and flexible depending on qualifications. Please apply with letter, curriculum vitae, bibliography, and three letters of reference to: **DeWitt S. Goodman, Division of Metabolism and Nutrition, Department of Medicine, Columbia University College of Physicians & Surgeons, New York, N.Y. 10032.**

Columbia University is an Equal Opportunity/Affirmative Action Employer.

BIOCHEMICAL PHARMACOLOGIST

The Department of Biochemical Pharmacology of the State University of New York at Buffalo (SUNY/B) is seeking a biochemical pharmacologist (second position). An individual is sought with expertise in one or other of the following areas: CNS pharmacology with a biochemical orientation; biochemical endocrine pharmacology; cellular toxicology. The candidate should have a Ph.D. in pharmacology, and two or more years of experience beyond the postdoctoral level. Ideally, the applicant will have an ongoing and funded research program. Teaching responsibilities will include participation in undergraduate general pharmacology courses and research and teaching at the graduate level. Level: assistant professor (or under exceptional circumstances, associate professor), tenure track. This advertisement refers to a second position. Individuals who applied for the previous position will be considered automatically for this position and need not resubmit their application. Please send curriculum vitae and the names of three references to: **Dr. D. J. Trigg, Department of Biochemical Pharmacology, 317 Hochstetter Hall, State University of New York, Buffalo, New York 14260.** *SUNY/B is an Equal Opportunity/Affirmative Action Employer.* Deadline for applications: 1 May 1981.

BIOORGANIC/MEDICINAL CHEMIST

Postdoctoral research on synthesis of mechanism-based inhibitors of key enzymes of aspartate and glutamate metabolism. To learn enzyme assays, kinetics, techniques. Available September 1981. Send curriculum vitae and references by 15 May to: **Dr. Frederick C. Wedler, Biochemistry Program, Pennsylvania State University, Althouse Laboratory, University Park, Pa. 16802.**

Equal Opportunity/Affirmative Action Employer

BIOSTATISTICS—ASSISTANT PROFESSOR; 12-month, tenure-track appointment, Ph.D. required. Biostatistics/biometric background preferred. Teach graduate and service courses. Provide statistical and scientific computing consultation to biomedical investigators. Open June 1981. Contact: **Dr. D. T. Watts, Dean, School of Basic Sciences, Medical College of Virginia/VCU, Box 110, MCV Station, Richmond, Va. 23298.** *An Equal Opportunity/Affirmative Action Employer.*

CELL AND MOLECULAR BIOLOGY

Faculty positions at junior and senior levels are available in the Cell Biology Group of the Worcester Foundation for Experimental Biology. Research in this group focuses on eukaryotic genes, viruses, cell surfaces, and the cytoskeleton. Demonstrated research excellence is a prerequisite for these positions. Send curriculum vitae, a brief synopsis of research plans, and names of references to: **Dr. Thoru Pederson, Co-Director, Cell Biology Group, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

An Equal Opportunity/Affirmative Action Employer

The Cleveland Clinic Foundation is offering a position as a **CLINICAL ASSOCIATE** in the Department of Cardio-Thoracic Anesthesiology. The position emphasizes cardiothoracic anesthesia and postoperative care of cardiovascular patients. The position requires Board-certification. The employee will be required to assume clinical responsibility of patients and participate in teaching programs of the department. Experience with various anesthetic gas machines and various medical devices required. Working conditions in hospital setting, approximately 7:30 a.m. to 5 p.m., Monday through Friday. Salary: \$75,000 per annum. Contact: **David Krol, Ohio Bureau of Employment Services, 9216 Superior Avenue, Cleveland, Ohio 44106.** Telephone: 216-795-1660.

POSITIONS OPEN

CARDIOLOGIST—The Division of Cardiovascular Disease of the Department of Medicine at the University of Alabama in Birmingham has available five positions at the instructor and two positions at the assistant professor level. The positions are open to qualified individuals fulfilling three criteria. First, the individual must have experience in the care and management of patients with cardiovascular disease and in cardiac catheterization. Second, the individual must have a firm commitment to teaching programs oriented to medical students, graduate students, house officers, and fellows. Finally, the individual should have a research background and be able to carry out independent research. Apply to: Division of Cardiovascular Disease, Department of Medicine, University of Alabama Medical Center, Birmingham, Alabama 35294; attention: Norma McSweeney; telephone: 205-934-3285. An Equal Opportunity/Affirmative Action Employer. Expiration date for receipt of applications: 30 April 1981.

CELL BIOLOGIST DEPARTMENT OF PHYSIOLOGY UNIVERSITY OF ALABAMA IN BIRMINGHAM

A tenured or tenure-track position at the assistant, associate, or full professor level is available to applicants in any area of cell biology. Liberal start-up money and salary are available. The successful applicant will be expected to participate in the teaching of medical and dental students, to train graduate students, and to develop an independent research program. The position requires a doctoral degree and postdoctoral training. Send curriculum vitae, a summary of future research plans, and names of three references by 22 April 1981 to:

Professor J. D. Neill
Department of Physiology and Biophysics
University of Alabama in Birmingham
Birmingham, Ala. 35294

The University of Alabama in Birmingham is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF FLORIDA The Katharine Ordway Chair of Ecosystem Conservation

As part of its Eminent Scholars Program, the University of Florida announces the position of **CURATOR AND PROFESSOR** to occupy the Katharine Ordway Chair of Ecosystem Conservation shared jointly by the Florida State Museum and the School of Forest Resources and Conservation. The individual selected for this permanent position must be an experienced scholar of international reputation who will work with faculty and students to develop a multidisciplinary program of ecosystem research that complements the existing wildlife and habitat conservation programs of the two units. The endowment supporting the chair provides substantial operating and technical support, but the ability to attract additional outside support is important. Applicants should have a strong background in animal, plant, or community ecology, or closely related experience in field biology with research and teaching interests focusing on the preservation of unique ecosystems.

This position will be available as of 1 September 1981. Minimum salary: \$40,000, negotiable. Nominations, applications, and inquiries should be submitted by 30 April 1981 to:

Dr. Robert A. Bryan, Chairman
Ordway Chair Search Committee
235 Tigert Hall
University of Florida
Gainesville, Florida 32611

ENVIRONMENTAL TOXICOLOGIST. Assistant professor to teach undergraduate courses and establish an independent research program in environmental toxicology. Ph.D. required; postdoctoral experience preferred. Initial 2-year term appointment. Submit curriculum vitae and names of three referees to: Dr. J. E. Thompson, Chairman, Department of Biology, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1. The effective date of appointment will be 1 July 1981.

FRESHWATER BIOLOGIST. Assistant professor to teach undergraduate courses and establish an independent research program in freshwater biology. Ph.D. required; postdoctoral experience preferred. Initial 2-year term appointment. Submit curriculum vitae and names of three referees to: Dr. J. E. Thompson, Chairman, Department of Biology, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1. The effective date of appointment will be 1 July 1981.

POSITIONS OPEN

CHAIRPERSON, Department of Oncology, Montefiore Hospital and Medical Center. We seek an outstanding clinician scientist to fill this endowed position as the head of a distinguished hospital department. The missions include clinical care, specialty training of residents and fellows, and a major commitment to clinical investigation with basic science interactions. The candidate should be eligible for a professional appointment at the Albert Einstein College of Medicine. Salary and benefits appropriate to position are provided. All interested persons should submit curriculum vitae and bibliography to: Leopold G. Koss, M.D., Chairman, Search Committee, Department of Pathology, Montefiore Hospital and Medical Center, 111 East 210 Street, Bronx, N.Y. 10467. An Affirmative Action/Equal Opportunity Employer, M/F.

CHEMICAL OCEANOGRAPHER—Research associate, M.S., marine organic geochemistry and its relation to ocean productivity, Cooperative Institute of Marine and Atmospheric Sciences, University of Miami, and National Oceanic and Atmospheric Administration (NOAA). Contact: Chairman, Search Committee, D. K. Atwood, NOAA/AOML, 15 Rick-enbacker Causeway, Miami, Florida 33149.

CYTOGENETICIST, Ph.D.

A well-established cytogenetics and prenatal detection laboratory serving the Central Valley of California needs a director as of May 1981: 350 blood and bone marrows; 200 amniocenteses per year. Applicants need strong background and experience in clinical cytogenetics and amniotic fluid cell culture. Teaching and research opportunities. University of California, San Francisco, academic appointment possible. Send résumé to or call: Cynthia Curry, M.D., Director, Medical Genetics, Valley Children's Hospital, 3152 North Millbrook, Fresno, California 93703. Telephone: 209-225-3000, extension 1437.

DEAN, MEDICAL SCHOOL. The University of Louisville is seeking a dean for the School of Medicine within its Health Sciences Center. Candidates should be leaders in medicine, who hold an M.D. degree, and have had significant personal experience in patient care. Candidates should also have a record of substantial scholarly achievement and a background of accomplishment in medical education. Knowledge, understanding, and appreciation of the basic sciences are expected. Previous experience should include administrative responsibilities, leadership roles, capability in recruitment and development of faculty and staff, an understanding of the role of medicine in relation to other components of a major health sciences center, and a record of participation in professional medical organizations. Administrative responsibility is directly to the Vice President for Health Affairs. Salary is competitive with that of similar positions in the United States. *The University of Louisville is an Equal Opportunity/Affirmative Action Employer.* Submit curriculum vitae to: James C. Moore, M.D., Chairman, Dean Search Committee, University of Louisville, Health Sciences Center, Louisville, Ky. 40292.

HYDROGEOLOGIST (ASSISTANT DIRECTOR)

The Edwards Aquifer Research and Data Center, Southwest Texas State University, announces an opening for a hydrogeologist, 1 June 1981.

Responsibilities include research on the hydrology (including flow characterization and potential for pollutant attenuation) of the Edwards Aquifer; aid in procurement of additional funding for the Center; and oversight of a computerized Data Center. Minimum requirements include a master's degree with academic training in hydrogeology and a minimum of 2 years of appropriate experience. Ph.D. applicants with training in geology and engineering and having field experience will be given preference. Knowledge of limestone aquifers is essential, and knowledge of computer operations is desirable.

Salary for the position is commensurate with qualifications; minimum of \$24,324 per year. Applications will be accepted until 1 June 1981. Applicants should submit curriculum vitae, college transcripts, and three letters of recommendation to: Dr. Glenn Longley, Director, Edwards Aquifer Research and Data Center, Southwest Texas State University, San Marcos, Texas 78666. Telephone: 512-245-2329. *Southwest Texas State University is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

THE UNIVERSITY OF HAWAII-MANOA invites nominations and applications for DEAN of the **COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES (CTAHR)**. The College conducts a full range of instruction, research, and extension programs in agriculture, forestry, natural resources, and human resources. **REQUIRED:** Ph.D. in an appropriate field; experience and demonstrated ability to provide academic leadership and effectively manage programs and resources; teaching at professorial rank in a comparable university; record of creative scholarship, ability to work with enterprises and organizations characteristic of Hawaii's food and fiber systems and to serve on a regional, national, and international level, and breadth of outlook to provide strong impetus to graduate and undergraduate instruction. Send application letter and résumé, and arrange to have three letters of reference sent to: Dean's Advisory Committee Chairperson, c/o Director of Management Services, 3050 Maile Way, Room 203, Honolulu, Hawaii 96822. Deadline: 30 April 1981.

An Equal Opportunity/Affirmative Action Employer

DIRECTOR for the GORGAS MEMORIAL LABORATORY, PANAMA, a private, nonprofit organization. Will direct aggressive expanding medical research and training programs in Latin America. Emphasis on diseases of tropical regions; program areas include ecology, virology, parasitology, bacteriology, epidemiology, and immunology. Experience in management of research programs required. Applicants must have or be willing to develop working knowledge of Spanish and English. Starting salary range: \$48,000 to \$52,000, negotiable based on training and experience. Starting date: fall 1981. Please send letter of interest and current curriculum vitae to: Jack W. Millar, M.D., President, Gorgas Memorial Institute, 2001 Wisconsin Avenue, NW, Washington, D.C. 20007. *Equal Opportunity Employer.*

FACULTY POSITIONS IN BIOMEDICAL ENGINEERING, BOSTON UNIVERSITY COLLEGE OF ENGINEERING. At the assistant/associate professor levels in expanding Department of Biomedical Engineering for September 1981. Applicants should have an earned doctorate, be committed to quality teaching at both undergraduate and graduate levels, and have the desire to develop strong research programs. Collaboration with the Boston University School of Medicine or other departments may be facilitated through a joint faculty appointment. Candidates with backgrounds in mechanical design, electronics, computer engineering, or robotics are especially welcome. Opportunities for part-time (adjunct) faculty positions and for collaborative arrangements with nearby institutions involved in biomedical research and development are also available. There may also be an opportunity for a visiting appointment of 1 or 2 years duration to replace faculty on sabbatic leave. Also sought is an associate or assistant dean to lead and coordinate the graduate instructional and research programs of the College who may have a half-time appointment in the Biomedical Department. Candidate should send résumé, list of publications, names and addresses of at least three references, and a brief statement of teaching and research interests to: Dr. Henry D'Angelo, Chairman, Engineering Search Committee, College of Engineering, 110 Cummington Street, Boston, Mass. 02215. *Boston University is an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION

Assistant Professor of Pharmacology
University of Massachusetts Medical Center

Available: Summer/fall 1981.

Requirements: Candidates must have either an M.D. or a Ph.D. (or equivalent) degree in pharmacology and at least 1 year of postdoctoral experience.

Duties include:

- 1) The teaching of medical and graduate pharmacology, particularly in areas involving general principles and the drug groups affecting the cardiovascular and nervous systems,
- 2) Development of an independent, externally funded research program in one of the above areas, and
- 3) Committee and service activity typically performed by medical school basic science faculty.

To apply: Submit a résumé and the names of three persons who can serve as references before 1 May 1981 to: Dr. Neal Brown, Department of Pharmacology, University of Massachusetts Medical School, Worcester, Mass. 01605.

An Affirmative Action/Equal Opportunity Employer

BIOTECHNOLOGY

General Manager/
Director of Research

Multi-national biotechnology company is seeking both a General Manager and a Director of Research. The successful candidate or candidates should have a broad background in technology and administration, with direct experience in some of the following: molecular biology, recombinant DNA, genetics, cell fusion, microbiology and fermentation. Both positions will report directly to the Board of Directors comprised of prominent members of the scientific and financial community. A liberal compensation package including equity and competitive salary is envisioned. The company location for this position will be on the East Coast with convenient access to major metropolitan areas.

Please address inquiries to:

**General Manager/
Director of Research
Science Box 59**

Physicist/Physical Chemist

Come experience the technology, the excitement, the high national visibility of Lawrence Livermore National Laboratory...and enjoy life in the beautiful San Francisco Bay Area.

The Lawrence Livermore National Laboratory is currently seeking a Physicist/Physical Chemist to conduct research on the photochemical separation of light isotopes using lasers. Position involves carrying out ongoing experimental projects in the isolation of hydrogen isotopes as well as creating new approaches to light element isotope separation. Pursuit of related basic research is encouraged as is interaction with the wider range of applied research projects within the Special Studies Program of the Physics Department. The scope of the isotope-related research ranges from characterizing fundamental new phenomena in chemical physics (e.g. multiple-photon dissociation) to the consideration of how such phenomena might be incorporated in commercially feasible isotope separation processes. Extensive laser facilities and diagnostic tools, including pulsed infrared laser systems, and visible and UV lasers are available for use. Technical leadership opportunities are available for suitably qualified candidates.

Competitive candidates should possess a PhD or equivalent in Physics, Chemistry, or Chemical Engineering. Several years of research experience in using lasers, and in molecular physics, physical chemistry, or photochemistry are desired. Applicants must have a demonstrated commitment to excellence and creativity in prior research.

Interested and qualified candidates are invited to submit resumes to: **Art Wong, Professional Employment Division, LAWRENCE LIVERMORE NATIONAL LABORATORY, P.O. Box 808, L-425, Dept. KSC-031, Livermore, CA 94550.** U.S. Citizenship is required. An equal opportunity employer.

University of California

 **Lawrence Livermore
National Laboratory**

BIOCHEMIST

New Drug Research

Ortho Pharmaceutical Corporation, A Johnson & Johnson Company has an opportunity available for an aggressive individual interested in joining a progressive, expanding laboratory.

Successful candidate will be involved in studies on the role of calcium in cardiovascular, hypersensitivity and gastrointestinal disorders. Individual will possess a Ph.D. in Biochemistry or Biochemical Pharmacology with related industrial and/or postdoctoral experience.

Familiarity with radioimmunoassays, enzyme analysis isotopic methods preferred.

Ortho is located in central New Jersey and offers a competitive salary, bonus, benefits package, coupled with a growth environment that provides opportunities for advancement and personal development.

Send resume to R. T. Elliott
Group Manager-Selection

**ORTHO
PHARMACEUTICAL
CORPORATION**
Rte. 202, Raritan, NJ 08869

an equal oppty. employer (M/F)

A Johnson & Johnson Company



Biochemist/ Microbiologist

Pfizer Central Research is seeking a Ph.D. Molecular Biologist/Biochemist to join a multidisciplinary team engaged in the development of new approaches to the treatment of infectious diseases and microbial resistance. Individuals with significant post-graduate and/or industrial experience could look forward to rapid advancement to a commensurate position.

Applicants should hold a Ph.D. in Biochemistry, Molecular Biology, Microbiology or an allied area, particularly with experience in membrane biology and transport mechanisms. A publication and grant request record of creative ability in project conceptualization and experimental design will be essential for the successful candidate. Exploitation of novel biological mechanisms and observations leading to new therapeutic approaches are critical components of the current position. The publication of important findings will be encouraged.

In addition to excellent potential for professional recognition and career growth, we offer a competitive salary/benefits package and the opportunity to live in an attractive shore community, midway between New York and Boston. Please send resume in confidence to: **Mr. F. G. Ziegler, Pfizer Central Research, Eastern Point Road, Groton, CT 06340.**



An Equal
Opportunity Employer

CELL BIOLOGIST

The Biology Department at Brookhaven National Laboratory anticipates a staff opening in cell biology. Applicants should have one or more years of postdoctoral experience and demonstrated research ability. Preference will be given to applicants with interests relevant to lung biology and pathology. The Biology Department has about 30 independent investigators with research programs in molecular and structural biology, including virology and mammalian cell repair.

Applicants should send their curriculum vitae, names and addresses of three references, and a description of their research experience and interests to:

**Elliott N. Shaw, Chairman,
Cell Biology Search Committee,
Biology Department,
Brookhaven National Laboratory,
Associated Universities, Inc.,
Upton, N.Y. 11973**
*An Equal Opportunity
Employer, M/F*

**BROOKHAVEN
NATIONAL
LABORATORY**

bnl

FACULTY POSITIONS OPEN COLLEGE OF AGRICULTURE SCIENCES AND FOODS

**KING FAISAL UNIVERSITY
HOFUF, SAUDI ARABIA**
Academic Year 1981-1982

The expanding College of Agricultural Sciences and Foods of King Faisal University invites inquiries from qualified applicants for the 1981-1982 academic year in the following fields:

Biology	Plant Pathology
Chemistry	Agricultural
Physics	Economics
Biochemistry	Animal Science
Agronomy	Animal Ecology
Horticulture	Dairy Science
Bee Keeping	Agricultural Engineering
Poultry Science	Water Resources and
Home Economics	Climatology
Agricultural Extension	Aquatic Wealth

PREREQUISITES: Ph.D. or master's or equivalent degrees, practical and/or teaching experience. Knowledge of Arabic helpful, but not required. Language of instruction is English.

Positions available September 1981: interviews scheduled with the dean in Houston and London in April/May 1981.

SALARY RANGES (approximate annual U.S. dollars):

Professor—\$25,469 to \$33,965
Associate professor—\$22,779 to \$28,973
Assistant professor—\$18,750 to \$27,487
Lecturer—\$11,611 to \$16,035

Salaries are paid monthly in Saudi riyals.

BENEFITS: Free furnished accommodations; substantial education allowance for up to four children. Air tickets to and from Saudi Arabia once per year for family of four. Sixty-day paid summer holiday, overweight allowance. No Saudi income tax. Contracts are for 1 year and renewable.

Send curriculum vitae with current telephone number, and the names, addresses, and telephone numbers of three references to: **Dr. Yahia Makki, Dean, College of Agricultural Sciences and Foods, King Faisal University, c/o Saudi Arabian Educational Mission, 2425 West Loop South, Houston, Texas 77027, OR c/o P.O. Box 2, Sudbury-on-Thames, Middlesex, TW16 5JP, England.**

POSITIONS OPEN

DEVELOPMENTAL NEUROBIOLOGY. Postdoctoral position to participate in cellular studies of the formation of nerve-muscle synapses using electrophysiological, tissue culture, and EM techniques. Projects include studies of neonatal synapse elimination, d-c electric fields around end plates, and in vitro synapse formation. Contact: **Dr. William Betz and Dr. John Caldwell, Department of Physiology, University of Colorado Medical School, Denver, Colo. 80262.** *Equal Opportunity/Affirmative Action Employer.*

SCHOOL OF PUBLIC AND ENVIRONMENTAL AFFAIRS

The School of Public and Environmental Affairs provides graduate and undergraduate degree programs, as well as research, professional, and technical services on the Bloomington, Indianapolis, Northwest (Gary), South Bend, Fort Wayne, and East (Richmond) campuses of Indiana University. The principal location for the following position will be on the **Indianapolis campus** and will be subject to final budgetary approval. Effective date is open. All applicants should have a Ph.D. and/or demonstration of equivalent research/creative activities. Interested applicants should send curriculum vitae to the address listed below:

**Dr. Roy Jumper, Associate Dean
School of Public and Environmental Affairs
400 East 7 Street, Room 317
Bloomington, Ind. 47405**

ENVIRONMENTAL HEALTH SCIENTIST (assistant or associate professor) with ongoing program in environmental health sciences. Expertise in environmental health science or engineering including areas such as air and water quality control, solid and hazardous waste management, toxicology, or occupational health and safety. Primary responsibilities will include undergraduate and graduate teaching as well as research in a systemwide professional school.

*An Equal Opportunity/Affirmative Action Employer,
M/F*

FACULTY POSITION/BIOCHEMISTRY. Available 1 July 1981 for candidates with postdoctoral research experience and interests in developing a research program applying recombinant DNA technology to health related problems. Departmental instructional programs serve medical students, graduate students, and undergraduates. Send curriculum vitae, names of three references, and research plans to: **Chairman, Department of Biochemistry, College of Medicine, University of Kentucky, Lexington, Ky. 40536.**

An Affirmative Action/Equal Opportunity Employer

FACULTY OPENING IN PHYSICS/ENERGY

Seek physicist with deep commitment to undergraduate interdisciplinary team teaching for a permanent or visiting position beginning fall 1981. Requires Ph.D. and demonstrable excellence in teaching. Must be capable of teaching in environmental studies, energy systems and undergraduate physics/physical chemistry, and history and philosophy of science.

Evergreen is a public, liberal arts college. No departments, no faculty ranks. Salary based upon experience.

Completed applications must be received by 1 May 1981. To apply, send a résumé, two letters of recommendation from students and colleagues, and a statement of educational philosophy to: **Barbara Smith, Academic Dean, The Evergreen State College, Olympia, Washington 98505.**

MICROBIAL ECOLOGIST. Tenure-track position. Assistant professor level. Department of Biology, East Carolina University. Successful applicant will be expected to build a strong research program in the area of specialization, develop courses, and teach microbiology. Ph.D. required; postdoctoral experience and work with systems analysis/computer modeling preferred. Salary commensurate with experience. Graduate program to master's level. Coastal location with opportunities for research in wetland, estuarine, and marine ecosystems. Available 24 August 1981. Please send curriculum vitae, transcripts, description of research interests, and three letters of recommendation by 1 May 1981 to: **Dr. Wendall E. Allen, Chairman of Search Committee, Department of Biology, East Carolina University, Greenville, North Carolina 27834.** *East Carolina University is an Equal Opportunity/Affirmative Action Employer and a constituent institution of The University of North Carolina.*

POSITIONS OPEN

FACULTY POSITION COLLEGE OF MEDICINE UNIVERSITY OF KENTUCKY

CHAIRMAN, DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY. The College of Medicine, University of Kentucky, invites applications and nominations for the position of professor and chairman for the Department of Medical Microbiology and Immunology. Applications should be received no later than 15 May 1981. Submit résumé to:

**Jacqueline A. Noonan, M.D.
Chairman, MMI Search Committee
University of Kentucky
800 Rose Street
Lexington, Kentucky 40536**

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

TWO FACULTY POSITIONS

**Biology Department, Hamline University
Saint Paul, Minn. 55104**

Position One: This is a renewable, full-time, nontenurable position. Applicants should be qualified to teach lecture and laboratory sections of biochemistry and plant physiology. Nonmajor courses in alternate spring terms, anatomy and physiology or environmental biology.

Note: This position was recently advertised as a half-time position.

Position Two: Sabbatical replacement, fall semester 1981 only. Lecture and laboratories of a general physiology course to sophomore biology majors.

Please send a letter of application, curriculum vitae, transcripts, and three letters of recommendation by 15 April 1981 to: **Dr. Ellis J. Wyatt, Chairman, Department of Biology, Hamline University, St. Paul, Minn. 55104.**

Hamline University is an Affirmative Action/Equal Opportunity Employer.

GENETICIST

A 1-year, nontenure-track position will be available beginning 1 September 1981, in the Genetics Center/Department of Biological Sciences, North Texas State University. Assistant professor: Ph.D. required; postdoctoral experience desirable. Assignment will be to teach cytogenetics and another genetics course of choice. Equipped laboratory available for rapidly establishing research program and/or interface with existing funded research in population genetics, cytogenetics, mutagen-DNA interaction, and DNA repair. Possibility position will become tenure track. Send curriculum vitae and three letters of reference to: **David L. Busbee, Ph.D., Chairman, Search Committee, P.O. Box 5218—N.T. Station, Denton, Texas 76203.** *An Equal Opportunity/Affirmative Action Employer.*

HEMATOLOGIST—Academic, full-time. Junior faculty positions in the Blood Bank Division of the Hematology Service of Mount Sinai Medical Center in New York City. Experience in immunohematology, blood collection, and preservation. Opportunities for clinical and basic research. Curriculum vitae and bibliography to: **Charles G. Zaroulis, M.D., Medical Director of Blood Bank, THE MOUNT SINAI MEDICAL CENTER, One Gustave L. Levy Place, New York, N.Y. 10029.** *An Equal Opportunity Employer.*

TENURE-TRACK POSITION DEPARTMENT OF MINERAL ECONOMICS THE PENNSYLVANIA STATE UNIVERSITY

Applicants are sought for a tenure-track position at the full, associate, or assistant professor level in the Department of Mineral Economics, The Pennsylvania State University. The position will be filled for the academic year 1982-1983. Applicants must have a Ph.D. in economics, geological sciences, material sciences, operations research engineering, geostatistics, management sciences, finance or resource economics, with a demonstrated interest in applying their professional knowledge to the study of mineral resources and industries. Applicants at the higher levels must have demonstrated research potentials appropriate to the faculty rank. The Department of Mineral Economics offers B.S., M.S., and Ph.D. degrees in mineral economics and has an interdisciplinary faculty. The salaries at each level are competitive. Please send résumé and example of published papers no later than 30 October 1981 to: **Dr. William A. Vogely, Head, Department of Mineral Economics, 220S Walker Building, The Pennsylvania State University, University Park, Pa. 16802.**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

HEAD OF THE DEPARTMENT OF BIOCHEMISTRY

The Faculty of Medicine at the University of British Columbia is seeking a head for the Department of Biochemistry. The individual appointed will be responsible for directing and developing the teaching and research programs of the department. Individuals with a Ph.D. and/or M.D. as well as substantial academic experience are invited to apply for the position.

Starting date and salary are subject to negotiation.

Applications, accompanied by detailed curriculum vitae and the names of two individuals for references, should be directed to: **Dr. W. A. Webber, Dean, Faculty of Medicine, University of British Columbia, Vancouver, British Columbia, Canada V6T 1W5.**

HUMAN ANATOMY AND PATHOLOGY

Applications are invited for a tenure-track position to teach **human anatomy and dissection and introduction to pathology** beginning 1 June 1981 at a salary commensurate with academic preparation, experience, and educational qualifications, with appointment expected to be at the instructor or assistant professor ranks. Master's required. Letter of application, résumé, transcripts, and three letters of recommendation must be received by 15 April 1981 in the office of: **Dr. Lucille W. Patton, Dean, School of Special Arts and Sciences, Central State University, 100 North University Drive, Edmond, Oklahoma 73034. Central State University is an Equal Opportunity/Affirmative Action Employer.**

THE CHINESE UNIVERSITY OF HONG KONG invites applications for **LECTURESHIP IN PSYCHOLOGY** tenable from August 1981. Applicants should have a Ph.D. and be competent in developmental, learning, psychometrics, information processing, or perception. Knowledge of Chinese or Chinese culture preferred but not essential. Salary range: HK\$95,700 to HK\$160,180 per annum, depending on qualifications and experience. (Exchange rate approximately U.S.\$1 = HK\$5). Additional benefits include superannuation (university 15 percent, appointee 5 percent), medical benefits, paid long leave, housing, and passages for overseas appointees. Write to: **Personnel Section, The Chinese University of Hong Kong, Shatin, N.T., Hong Kong** for details and application forms. Application, together with one set of major publications and copies of testimonials, should reach the University before 30 April 1981.

Department of Mathematical Sciences UNIVERSITY OF NEVADA LAS VEGAS, NEVADA 89154

Tenure-track position in **MATHEMATICS** available fall 1981. Salary and rank dependent upon qualifications and experience. Ph.D. in mathematics with research interest in algebra is required. Preference given to applicants with background in statistics. Must be willing and able to teach undergraduate courses in statistics and be willing to participate in the masters' programs. Send letter of application, transcripts, and names and addresses of four references to: **Paul S. Aizley, Search Committee.** Applications must be received by 10 April 1981. *An Equal Opportunity/Affirmative Action Employer.*

PHYSICAL OCEANOGRAPHER. A grant-supported postdoctoral or research associate position is available for theoretical and/or experimental work on bottom boundary layer and turbulence on the shelf or on nearshore processes. A Ph.D. is required. Submit applications, with names of three referees, before 1 May 1981 to: **Dr. David Huntley, Department of Oceanography, Dalhousie University, Halifax, Nova Scotia, Canada B3H 4J1.**

POSITIONS OPEN

INSECT PATHOLOGIST—Assistant professor, tenure-track position, with responsibility for research and teaching. Opportunity for personal scientific and scholarly growth and for collaboration with scientists in biological control, IPM, molecular biology, ultrastructure, and recombinant DNA. Ph.D. in biological science required, with formal training and experience in invertebrate pathology. Submit application and curriculum vitae and arrange for academic transcripts and at least three letters of recommendation to be sent by 30 April 1981 to: **Dr. James L. Nation, Search Committee Chairman, Department of Entomology and Nematology, University of Florida, Gainesville, Fla. 32611. Affirmative Action/Equal Opportunity Employer.**

INSTRUCTOR MOLECULAR BIOLOGY

Teaching and postdoctoral research position available September 1981; 1 year, renewable; \$16,434, good fringe benefits, annual increments.

Research on regulation of protein metabolism in relation to environmental temperature. Opportunity for fieldwork at the Marine Biological Laboratory, Woods Hole, and in Antarctica.

Send applications with curriculum vitae and names of two referees to:

**Dr. Audrey Raschemeyer
Department of Biological Sciences
Hunter College of City University of New York
New York, N.Y. 10021**

An Affirmative Action/Equal Opportunity Employer

MENTAL RETARDATION RESEARCH CENTER (MRRC)—

University of California, Los Angeles (UCLA)

A "hard money" faculty position for a neuroscientist or behavioral scientist with a primary interest in mental retardation. Research activities should be enhanced by direct access to a developmentally disabled population and/or an extensive data base concerning such individuals. Research should complement an ongoing program in human biochemical genetics, neurophysiology, epidemiology, or service system evaluation. The successful candidate must have sufficient professional experience to generate independent research support.

Submit curriculum vitae and the names of three references by 15 May 1981 to: **Norma Antrim, Administrative Manager, UCLA-MRRC Research Group, Lanterman State Hospital, P.O. Box 100-R, Pomona, Calif. 91769.**

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

DEPARTMENT OF MICROBIOLOGY UNIVERSITY OF GENEVA MEDICAL SCHOOL

Has an opening for an independent position of

MICROBIOLOGIST

with a good record of research in **molecular and medical bacteriology**; must be capable of **teaching in fluent French**. Send application with curriculum vitae, list of publications, and references to:

Department of Microbiology, 64, Avenue de la Roseraie, 1205 Geneva, Switzerland.

MICROBIOLOGIST

Microbiologists interested in molecular aspects of regulation are invited to apply for a tenure-track faculty position. We are seeking an individual who will develop an active program in a department committed to research excellence. Rank and salary are open. Send curriculum vitae, copies of relevant publications, and names of three references to: **Dr. David Njus, Department of Biological Sciences, Wayne State University, Detroit, Michigan 48202. An Equal Opportunity/Affirmative Action Employer.**

MICROBIOLOGIST/BIOCHEMIST. The Departments of Veterinary Microbiology and Parasitology and Biochemistry and Biophysics are seeking applications for a 12-month, tenure-track position. Academic rank and salary will be commensurate with experience. Applicants should have a terminal doctorate, postdoctoral experience, and the demonstrated ability to establish a research program in immunochemistry and glycoprotein biochemistry with special emphasis on *Brucella* antigens. Duties will be approximately 75 percent research and 25 percent teaching. Applicants should send curriculum vitae, statement of research interests, and names of three references to: **Dr. L. G. Adams, Department of Veterinary Pathology, Texas A & M University, College Station, Texas 77843, no later than 1 May 1981.**

An Equal Opportunity/Affirmative Action Employer

MARINE ECOLOGIST: The Southeast Fisheries Center's Beaufort Laboratory of the National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce, in Beaufort, North Carolina, is seeking a marine ecologist with scientific expertise in zooplankton feeding selectivity to serve for a period of 2 years under an Intergovernmental Personnel Assignment (IPA). The assignee will work cooperatively with investigators from the Beaufort Laboratory, NOAA's Atlantic Oceanographic and Meteorological Laboratory, and Woods Hole Oceanographic Institution to determine the structure and function of larval fish food webs in the northern Gulf of Mexico. This research effort is part of a larger program to determine the effect of contaminants on food-chain dynamics in the Gulf of Mexico. Specific research responsibilities will include participation in cruises and conducting field and laboratory research on the feeding selectivity and carbon assimilation of zooplankton species which have been determined to be important food of larval fish. Only employees of state or local governments or institutions of higher education, who can obtain a 2-year leave of absence, are eligible to apply and must be able to begin work on or before 30 September 1981. An extension of 1 to 2 years is possible, depending upon research progress and availability of funds. Assignee will remain an employee of his/her respective organization. Base salary range is \$22,486 to \$30,543. Final salary determination will be based on candidate's current salary and qualifications. Reimbursement for salary, travel, benefits, cost-of-living adjustments, moving expenses, and so forth, is negotiable between employee's organization and NMFS. **TO APPLY:** Send an SF-171 "Personal Qualifications Statement," which can be obtained from any post office, and a list of publications to: **Dr. Ford Cross, National Marine Fisheries Service, Southeast Fisheries Center, Beaufort Laboratory, Beaufort, N.C. 28516.** For further information, telephone: **Dr. Cross at 919-728-4595 (FTS-670-2451).** Applications must be postmarked by 1 May 1981 in order to receive consideration. *An Equal Opportunity Employer.*

CONSULTANT— PHARMACEUTICAL RESEARCH AND DEVELOPMENT

Applications are invited from persons with considerable (10 to 15 years) experience in pharmaceutical research and development, to act as consultant for a leading Spanish pharmaceutical company. The post will be very well remunerated and traveling expenses will be paid. It would entail visiting the company's research laboratories four to five times per year. A suitably qualified applicant may also be entitled to join the company's Board of Consultants.

Interested persons should apply to the:

**Managing Director
P.O. Box 3224
Madrid, Spain**

POSITIONS OPEN

MORPHOLOGIST/PHYSIOLOGIST

The Institute of Marine Biomedical Research and the Department of Biology of The University of North Carolina at Wilmington are seeking applicants for a tenure-track position at the level of assistant professor. Twelve-month appointment; 50 percent research at the Institute and 50 percent teaching at the Biology Department. Applicant must possess a Ph.D. degree, should have postdoctoral research experience, and have demonstrated research ability. Preferred areas of interest to include but not necessarily be limited to structure/function relations with special emphasis on ion transport and energy production systems in tissue-grade animals, including vertebrates as well as invertebrates. Applicant must be familiar with operation and maintenance of transmission electron microscope, and have some experience in administering an EM facility. Position available 1 August 1981. Applications, including letter of intent and curriculum vitae, and supported by letters from three individuals well acquainted with candidate, are all to be submitted before 22 April 1981 to:

Dr. Ralph W. Brauer
Chairman of Search Committee
7205 Wrightsville Avenue
Wilmington, North Carolina 28403

Affirmative Action/Equal Opportunity Employer

NEUROCHEMIST OR NEUROBIOLOGIST, research position at postdoctoral level, available 1 July 1981, for purification and characterization of growth factors and related proteins from the brain in collaboration with Dr. Ramon Lim in a Division of Neurochemistry. Prefer background in protein chemistry, neurobiology, or cell biology. Send curriculum vitae, résumé, and names of three references to:

Dr. M. W. Van Allen
Department of Neurology
University of Iowa College of Medicine
Iowa City, Iowa 52242

The University of Iowa College of Medicine is an Equal Opportunity/Affirmative Action Employer.

PHYSIOLOGIST/CELL BIOLOGIST. Applications for a tenure-track faculty position starting 24 August 1981 are invited. Candidates must hold the Ph.D. degree and be competent to: (i) teach general physiology, cell biology, and an advanced course in area of specialty; (ii) direct graduate research; and (iii) maintain a vigorous research program. Preference will be given to candidates with demonstrated research experience in marine/aquatic invertebrate systems. Reasonable teaching assignments, excellent research facilities in newly completed building on campus, and access to research laboratories in nearby coastal environments are conducive to research productivity. Rank dependent upon qualifications. Salary competitive. Closing date is 13 April 1981. Application should include a statement of research interest, curriculum vitae, copies of relevant reprints, and names, addresses, and telephone numbers of three persons from whom you have requested letters of recommendation.

Mail to: **Physiologist/Cell Biologist Search Committee, Department of Biology, University of Southwest Louisiana, Lafayette, Louisiana 70504. Telephone: 318-264-6748. An Equal Opportunity/Affirmative Action Employer.**

PHYSIOLOGY. Tenure-track position at the assistant/associate professor level in the areas of cardiovascular or respiratory physiology. Meritorious candidates in other areas would be also considered. Candidates must have postdoctoral research experience. Responsibilities include teaching of graduate, medical, and other health science students. Spanish desirable but not required. Send curriculum vitae and three letters of recommendation to: **F. Vargas, Chairman, Department of Physiology, School of Medicine, University of Puerto Rico, Box 5067, San Juan, P.R. 00936.**

PLANT GENETICS

Applications are invited for a tenure-track position in Department of Plant Science, University of Manitoba. Applicants should have a Ph.D. in plant science with specialization in cytogenetics and/or quantitative genetics. Salary commensurate with qualifications and experience. Anticipated that the appointment will be made at a senior rank. Responsibilities include teaching at undergraduate and graduate levels, supervising graduate students, and conducting research on cereal crop genetics. Applicants should submit curriculum vitae, bibliography, and names of three referees to: **Dr. L. E. Evans, Head, Department of Plant Science, University of Manitoba, Winnipeg, Manitoba, Canada R3T 2N2.**

POSITIONS OPEN

IMPERIAL CANCER RESEARCH FUND (ICRF) Applications are invited for TWO ESTABLISHED POSITIONS

One appointment will be in the field of drug targeting. Specific interests could include types of drug, nature of the carrier, drug-carrier attachment, mechanisms of uptake by cells, and release of drug. Extensive use may be made of the spectrum of cell-specific monoclonal antibodies which are currently available at ICRF. The successful candidate will be expected to coordinate our current activities in drug targeting and related research, as part of his or her own relevant research programme. (Reference DT.)

The field of the second appointment could be in any area of eukaryotic cell or molecular biology of relevance to cancer. Preference may be given to the areas of cell growth and transformation factors, the cytoskeleton, phosphorylation as a regulatory mechanism, or cell-cell recognition and interaction. (Reference EC.)

Candidates should have made major contributions to knowledge in one of the above or in related fields. The pensionable appointments are expected to be in the nonclinical senior grade (salary range: £11,165 to £13,980) or the special appointments grade (salary range: from £14,275) with entry depending on qualifications and experience, plus, in either case, London allowance of £967 a year.

Applications with full curriculum vitae and names and addresses of three referees should be sent to: **Secretary, ICRF, 44 Lincoln's Inn Fields, London WC2A 3PX, England, by 30 April 1981, quoting reference as above. Further information may be obtained from the director of research, Dr. W. F. Bodmer.**

POSTDOCTORAL. Enzyme reaction mechanisms. The project will involve mechanistic studies of enzymes catalyzing the formation of carbon-carbon bonds to acetyl-coenzyme A. Experience with or a knowledge of enzyme kinetics, radioisotopes, HPLC, and physical organic chemistry would be helpful but not necessary. The initial appointment will be for 1 year at \$17,000, with the option of an additional 1- or 2-year appointment. Send curriculum vitae and the names of three professional references to: **Dr. H. F. Gilbert, Department of Biochemistry, Baylor College of Medicine, Houston, Texas 77030. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORATE APPOINTMENT available immediately. Participate in projects concerned with electromagnetic fields and cell systems. Expertise in cellular and molecular biology required. Knowledge of microbial genetics, fluorescent probes, and electrophoretics desirable. Contact: **Dr. S. Motzkin, POLYTECHNIC INSTITUTE OF NEW YORK, 333 Jay Street, Brooklyn, N.Y. 11201. Equal Opportunity Employer, M/F/V/H.**

POSTDOCTORAL ASSOCIATE POSITION available after 1 June 1981 for person with Ph.D. in biochemistry to study the properties of cAMP-dependent protein kinase and myosin light-chain kinase in cardiovascular tissues. Experience in enzymology and protein separating techniques desirable. Salary: \$13,000 to \$14,500 per annum. Send curriculum vitae and two references to: **Dr. R. C. Bhalla, Department of Anatomy and Cardiovascular Center, Box 12972, BSB, University of Iowa, Iowa City, Iowa 52242. The University of Iowa is an Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE and RESEARCH ASSOCIATE positions are available beginning May 1981 for 2 to 3 years to join a research group using immunological, genetic, and recombinant DNA techniques to dissect the gene families responsible for African Trypanosome pathogenicity and life-cycle morphological form differentiations. The postdoctoral candidate should have some prior experience in molecular biology techniques. Salaries will be commensurate with appropriate experience. Please send all inquiries and/or curriculum vitae and names of two references to: **Dr. Kenneth B. Marcu, Biochemistry Department, State University of New York at Stony Brook, Stony Brook, N.Y. 11794. An Equal Opportunity/Affirmative Action Employer.**

TWO POSTDOCTORAL RESEARCH POSITIONS in molecular immunology of human hepatitis viruses. Require background in molecular biology and cellular immunology. Salary: \$15,000 to \$17,000, depending upon relevant experience. Send curriculum vitae to: **Dr. G. N. Vyas, University of California, San Francisco, Calif. 94143. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

POSTDOCTORAL ASSOCIATE IN PROTEIN CHEMISTRY OF PLANT VIRUSES. Opportunity at Cornell University available now, for at least 1 year, for research in plant virology. Emphasis will be on the role of virus capsid protein in governing selectivity of a particular plant virus group (luteoviruses) in circulation through aphid vectors. Training in virology is less important than experience and imagination in protein chemistry. Opportunity to study replication of luteoviruses or other plant viruses and viroids is also possible. Send curriculum vitae and names of three references to: **Dr. W. F. Rochow or Dr. M. Zaitlin, Department of Plant Pathology, Cornell University, Ithaca, New York 14853. An Equal Opportunity/Affirmative Action Employer**

POSTDOCTORAL POSITION available beginning fall 1981 in the Developmental Biology Center, University of California, Irvine. Recent Ph.D. required, preferably in the areas of molecular biology, developmental biology, or genetics. Research will be conducted in the laboratories of P. J. Bryant, J. L. Marsh (*Drosophila* developmental and molecular genetics), or R. Meyer (goldfish developmental neurobiology). *The University of California is an Equal Opportunity/Affirmative Action Employer.* Arrange for three letters of reference to be sent and submit a résumé and brief description of research interests and experience to: **J. L. Marsh, Developmental Biology Center, University of California, Irvine, Irvine, California 92717 by 1 May 1981.**

POSTDOCTORAL POSITION (University of Nebraska Medical Center) available, starting 1 May 1981, to study the effects of ethanol on protein and glycoprotein metabolism and the covalent binding of hepatotoxins to macromolecules. Salary is negotiable; project is NIH supported. Send inquiries and résumé to: **Dean J. Tuma, Ph.D., or Michael F. Sorrell, M.D., Liver Study Unit, VA Medical Center, 4101 Woolworth Avenue, Omaha, Neb. 68105. Telephone 402-346-8800, extension 404. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS for teaching and research starting August 1981 for 2 years, to support half-time teaching of laboratory sections in introductory biology and half-time research in collaboration with a member of the faculty who provides the facilities. To obtain information on areas of research or to apply, send résumé and names of three references by mid-April to: **Paul Megrew, Department of Zoology, University of Iowa, Iowa City, Iowa 52242. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS

Applicant must have Ph.D. in chemistry. Will conduct research on the synthesis and characterization of new organic compounds for neuroreceptor studies and for cardiac and cerebral metabolism research. Knowledge of biochemistry and handling of radioactive materials will be helpful. Starting date: spring 1981. Salary range: \$14,900 to \$18,700, plus fringe benefits depending on qualifications. Send résumé and two letters of recommendation to: **Laboratory Personnel Officer, UCLA Laboratory of Nuclear Medicine and Radiation Biology, 900 Veteran Avenue, Los Angeles, Calif. 90024. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITIONS—Microbial pathogenesis, bacteriology, animal virology, molecular biology. Positions are available in several faculty laboratories to investigate both molecular biology and pathogenesis of infections caused by *C. diphtheriae*, *V. cholerae*, *E. coli*, *S. typhimurium*, herpes simplex viruses, varicella-zoster virus, and coronaviruses. Ph.D. or equivalent degree in microbiology, biochemistry, molecular biology, or related discipline required. Submit applications with curriculum vitae, bibliography, and names of three references to: **Dr. Randall K. Holmes, Chairman, Department of Microbiology, c/o Personnel/Manpower Division, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Md. 20014. Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION—Plant biochemistry and physiology. Available immediately for project involving analysis of fractionation of stable isotopes of oxygen and hydrogen during photosynthesis [for example, *Science* 204, 51 (1979)]. Research experience in evaporative-transpiration or plant intermediary metabolism desirable. Send curriculum vitae and names of three references to: **Dr. M. DeNiro, Earth and Space Sciences, University of California, Los Angeles, Calif. 90024. An Equal Opportunity/Affirmative Action Employer.**

SCIENTIST BIOCHEMISTRY AND PHYSIOLOGY OF GROWTH

The Upjohn Company is seeking a scientist to conduct studies on the regulation of protein and energy metabolism as it relates to growth. The research will be conducted in collaboration with a multi-disciplinary research team exploring the role of the endocrine system in the regulation of growth in food producing animals.

This opening is classified as a Visiting Scientist position and will be filled by either a postdoctoral scientist or an established scientist wishing an industrial sabbatical. The position is for one to two years. Salary and benefits are equivalent to those of permanent employees with similar work experience.

Applicants must have a Ph.D. in Biochemistry or Physiology with a demonstrated interest in the mechanisms regulating protein and energy metabolism.

Living in Kalamazoo, a mid-sized Southwestern Michigan community, provides immediate access to an excellent mix of cultural/recreational opportunities including lakes, nearby colleges, and a four-season climate. Excellent salary and benefits programs are available.

Please send resume in confidence to:
William J. Hall 12832
Employment Representative

Upjohn

The Upjohn
Company
7000 Portage Road
Kalamazoo, MI 49001

An Equal Opportunity Employer M/F

Chairperson Department of Pathology College of Medicine University of South Florida

The newly formed, scholarly, forward looking administration of this College of Medicine is reopening the search for Chairperson of Pathology. The candidate must have a commitment to academic excellence including a distinguished research background, development of a strong clinical pathology program and teaching expertise. Administrative experience must also be demonstrated.

The candidate should possess an M.D. degree with appropriate board certification.

Salary is competitive and negotiable. The position is available July 1, 1981. The application deadline is April 30, 1981.

Nominations or applications including a curriculum vitae and a list of at least three references should be sent to:

Dr. Carleton Baker
Associate Dean for Research
and Graduate Affairs
College of Medicine, Box 40
University of South Florida
12901 N. 30th Street
Tampa, Florida 33612

The University of South Florida is an affirmative action/equal opportunity employer.

DIRECTOR OF RESEARCH ADMINISTRATION THE UNIVERSITY OF CHICAGO

The Director will supervise the Office of Sponsored Programs, which reviews all grant and contract proposals to the federal, state and local governments and to foundations. This individual must be able to maintain liaison with members of the faculty and various government agencies. The Director will be expected to have had substantial experience with the federal government and with private universities, including knowledge of the ways in which basic research is conducted and funded. Research and teaching experience at the university level would be desirable.

Other duties will include relations with government science agencies and the Argonne National Laboratory, administration of the University's patent policy, and coordination of work of the Committee on Human Subjects, the Committee on Bio-Hazards, and the University's Radiation Protection Service. The Director will report to the Provost of the University.

The University of Chicago is a private research university with a small undergraduate college. It has nearly 8000 students, more than 1000 faculty members and 7200 non-academic staff.

Compensation will be commensurate with experience.

Candidates should submit a letter of application, curriculum vitae, and the names of 3 references to:

**Office of the Provost
THE UNIVERSITY
OF CHICAGO**

5801 South Ellis Avenue
Chicago, Illinois 60637

*An Affirmative Action
Equal Opportunity Employer*

RENEWABLE/ NONCONVENTIONAL ENERGY SPECIALIST

The Asian Institute of Technology (AIT) in Thailand is seeking a specialist in renewable/nonconventional energy technologies for a period of 2 years as part of a cooperative energy project between the United States [Agency for International Development (AID)] and the Association of Southeast Asian Nations.

Responsibilities: The specialist would be a visiting faculty member in the Energy Technology Division of AIT and would be involved in three basic activities during the 2-year assignment;

- 1) Teaching courses and seminars at AIT;
- 2) Participating in the expanding energy research program at AIT;
- 3) Providing advice to institutions in the ASEAN countries. Approximately half the time would be devoted to consultation with ASEAN institutions on field projects.

Desired qualifications: The desired qualifications of the specialist are as follows:

- 1) Ph.D. in a technical field;
- 2) Teaching experience at graduate level in energy or energy-related disciplines, or equivalent professional experience;
- 3) Research (field laboratory or other) experience in one or more of these fields—industrial applications of solar energy biomass conversion (especially alcohol), assessment of renewable energy technologies for rural village use; and
- 4) Experience with alternative energy technology projects in developing countries.

Financial and other support:

A contract will be negotiated with AIT and will cover salary, housing, family moving expenses, books and research assistance costs, and regional and international travel costs.

Application: Interested applicants should send a letter of interest and full curriculum vitae to: **Dr. Robert F. Ichord, Jr., USAID, Bureau for Asia, Office of Technical Resources, Room 702, SA-18, Washington, D.C. 20523.** Applications should be received no later than 30 April 1981.

POSITIONS OPEN

POSTDOCTORAL POSITION available to study the organization and expression of immunoglobulin genes. Experience in nucleic acids methodology essential. Send curriculum vitae, statement of research background and interests, together with names of three to five references to: **Dr. Ursula Storb, Department of Microbiology and Immunology, SC-42, University of Washington, Seattle, Washington 98195. Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE to study the role of multiple forms of choline acetyltransferase in acetylcholine synthesis. Ph.D. in biochemistry desired. Position could begin immediately but will be held open for a suitable applicant. Salary is competitive. Send curriculum vitae and the name of three references to: **Dr. Louis B. Herch, Department of Biochemistry, Southwestern Medical School, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity/Affirmative Action Employer.**

PROFESSEUR

DISCIPLINE: Littoral physical oceanography.

INSTITUTE: INRS-Océanologie
310, avenue des Ursulines,
Rimouski, Québec, Canada

RESPONSIBILITIES:

- Research:** Conduct research projects in marine hydraulics focused on the dynamics of littoral, infralittoral, and estuarine zones (importance of tidal currents and wave action, transport mechanisms of suspended and bottom sediments). Formulate predictive mathematical models associated with studies on sediments.
- Teaching:** Less than 20 percent of the professor's time. Involves the supervision of graduate students in oceanography.

QUALIFICATIONS: Ph.D. or equivalent in marine hydraulics or physical oceanography. Ability to work in teams in the laboratory and on research vessels. The candidate will be encouraged to work in French. **SALARY:** Based on the collective agreement between the professors and INRS.

Effective: 1 June 1981. All applications will be held confidential. Applicants should send complete curriculum vitae, indicating the competition Number SP 81-03, before 9 May 1981 to:

Directeur du personnel
Institut national de la recherche scientifique
Case postale 7500, 2700, rue Einstein
Sainte-Foy, Québec, Canada G1V 4C7

UNIVERSITY OF QUEENSLAND PROFESSOR OF INORGANIC CHEMISTRY

The University of Queensland invites applications for the **Chair of Inorganic Chemistry** which became vacant in December 1980 with the retirement of Professor R. A. Plowman. Applicants should be able to present evidence of substantial research achievement in the field of inorganic chemistry. The successful applicant will be expected to demonstrate and encourage excellence in research and will be given responsibilities by the head of the Chemistry Department for undergraduate and postgraduate teaching in the Inorganic Section of the Department. Salary: A\$40,067 per annum.

Additional information and application forms are available from: **The Staff Officer, University of Queensland, St. Lucia, Queensland, 4067, Australia.** Applications, with the names of three referees, should be forwarded as soon as possible and must reach the Staff Officer by 30 April 1981. The University reserves the right to fill any chair by invitation.

RESEARCH ASSOCIATE OR SENIOR RESEARCH ASSOCIATE—A research position is available in an established research program of the Biomedical Engineering Laboratory of Rice University (in cooperation with personnel of the Texas Medical Center). Qualifications include a Ph.D. in engineering (with a biological orientation), biophysics, physiology, or equivalent training and experience. The research involves studies of the response of human blood platelets to various stimuli including shear stress applied in vitro under controlled conditions. The appointment will be for a 1-year term with the possibility of reappointment. The stipend is negotiable depending on experience and training. Send a brief résumé and three references to: **J. D. Hellums, Ph.D., Dean, George R. Brown School of Engineering, Rice University, Houston, Texas 77001. Rice University is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

The **AUSTRALIAN NATIONAL UNIVERSITY** invites applications from established medical scientists involved in any aspect of the study of human disease for appointment to the position of **PROFESSOR AND HEAD OF THE DEPARTMENT OF EXPERIMENTAL PATHOLOGY, THE JOHN CURTIN SCHOOL OF MEDICAL RESEARCH**. This position was previously held by Professor Colin Courtice, who established a world-recognized centre of excellence in the study of lymphatics. The present interests of the department are in the microcirculation, in cell movement, and in wound healing. A unique opportunity exists to develop a research department and for interacting with other departments of the school and/or with diagnostic and clinical services in the Canberra region. There are no undergraduate teaching responsibilities and the department will be expected to establish an international reputation in scientific research, graduate, and postdoctoral training. Excellent facilities exist in the school for electron microscopy and for biochemical and immunological approaches to the study of disease. Salary is not less than A\$40,067 per annum, plus a clinical loading of A\$2500 per annum for medical qualifications. A professor is appointed immediately to age 65 years. Appointment as head of department will be for a period to be determined. Superannuation, housing assistance, reasonable appointment costs. Programs of studies away from the University may be approved. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. For further information about the position and its opportunities write to: **Professor Robert Porter, Director, The John Curtin School of Medical Research, P.O. Box 334, Canberra City, ACT 2601, Australia.** Intending applicants should write for further particulars to: **The Registrar, Australian National University, P.O. Box 4, Canberra, ACT 2600, Australia,** before submitting applications which close on 30 April 1981.

RESEARCH ASSISTANT PROFESSOR, 50 percent, Ph.D.-level engineer who will conduct applied research in the applications of ultrasound for clinical and physiologic cardiovascular measurement. Basic research responsibilities include investigations into new noninvasive ultrasonic instrument techniques for tissue visualization and blood flow studies on the cardiovascular system. In addition to a Ph.D. in electrical engineering or bioengineering, a strong background in ultrasonic instrumentation research and development is required. Demonstrated collaborative experience with physiologic or clinical investigators is also required. Applicants must submit complete curriculum vitae, including bibliography and documentation of facility with the English language. Please address all inquiries concerning this position to: **Eugene Strandness, Jr., M.D., Department of Surgery, School of Medicine, University of Washington, Seattle, Wash. 98195. The University is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSISTANT PROFESSOR, GENETICIST, BIOCHEMIST. To study the replication and genetic potential of nairoviruses (*Bunyaviridae*). Applicants must have Ph.D. or equivalent and minimum of 2 years of postdoctoral experience in genetics and studying viral replication techniques of tick-borne viruses by biochemical techniques. Salary commensurate with experience. Send curriculum vitae and names of three references to: **Dr. D. H. L. Bishop, Department of Microbiology, The Medical Center, University of Alabama in Birmingham, Birmingham, Alabama 35294. An Affirmative Action/Equal Opportunity Employer.**

RESEARCH DIRECTOR SHRINERS HOSPITAL FOR CRIPPLED CHILDREN PORTLAND, OREGON

The Shriners Hospital is seeking M.D. or Ph.D. candidates with a strong academic background in basic science aspects of the musculoskeletal system to help establish and lead a research unit in our new hospital now under construction adjacent to the University of Oregon Health Sciences Center. Candidates should have an excellent research record, administrative experience, and be qualified for a joint appointment in an appropriate department at the University. The appointee will be involved in planning the unit pending its opening during or soon after January 1983. Applicants should submit curriculum vitae, list of publications, and the names and addresses of three references to: **Dr. Paul Campbell, Chief of Staff, Shriners Hospital for Crippled Children, 8200 Northeast Sandy Boulevard, Portland, Oregon 97220, within 1 month.**

POSITIONS OPEN

RESEARCH ASSOCIATE AND FACULTY POSITIONS (postdoctoral, instructor, assistant professor). Three full-time research positions are open: (i) somatic cell genetics, (ii) molecular biology, and (iii) experimental cancer chemotherapy. Salary and appointment commensurate with research experience and productivity. Applicants with Ph.D. in biochemistry, pharmacology, or chemistry who have demonstrated productivity, should send curriculum vitae and names of three references by 10 April 1981 to: **Dr. George Weber, Professor and Director, Laboratory for Experimental Oncology, Indiana University School of Medicine, Indianapolis, Ind. 46223. An Equal Opportunity/Affirmative Action Employer**

RESEARCH ASSOCIATE POSITION available April 1981, to study adrenergic receptors in relation to control of metabolic processes in developing mammalian liver. Salary to \$15,000. Applications, including résumé and names of three references, to be sent to: **Dr. Ifeanyi J. Arinze, Department of Biochemistry, Meharry Medical College, Nashville, Tennessee 37208.**

RESEARCH ASSOCIATE with Ph.D. in biochemistry or related field and with immunological training and/or experience. The work involves a study of functional and anatomical relationships between blood, cerebrospinal fluid, and brain, in which radioimmune and cytoimmunological techniques will be employed. Salary commensurate with experience and qualifications. Position available immediately. Send curriculum vitae and the names of three references to:

Dr. William F. Agnew
734 Fairmount Avenue
Pasadena, Calif. 91105

RESEARCH ASSOCIATE sought to study regulation of protein turnover in cultured cells [see *J. Biol. Chem.* 255, 6322 (1980)]. Other interests in the laboratory include search for mutants with defective protein degradation, studies of peptide intermediates in the breakdown of cellular proteins, and regulation of protein turnover in live mice. Recent Ph.D. with strong background in biochemistry, cell, or molecular biology desired. Specific expertise less important than ability, enthusiasm, and potential for development. Minimum salary: \$12,000. Send curriculum vitae and names of three references to: **Dr. Oscar A. Scornik, Department of Biochemistry, Dartmouth Medical School, Hanover, N.H. 03755.**

RESEARCH ASSOCIATE

The **ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA** has a position open for a person interested in researching literature on environmental issues and discussing issues with knowledgeable people. Qualifications: Ph.D. or equivalent through experience. Must have basic training in biology and chemistry. Training is desirable in general technology as related to hydrology. Salary depends on qualifications. Submit inquiries and curriculum vitae to: **Ruth Patrick, Ph.D., Senior Curator of Limnology, Academy of Natural Sciences, 19th and Parkway, Philadelphia, Pa. 19103. An Equal Opportunity Employer.**

RESEARCH ASSOCIATE. Position available to participate in the development of a research program related to oviduct physiology, together with clinical semenology. Successful candidate should possess an advanced degree in biology or zoology and a sound background of tissue culture preparations, organ preservation, and perfusion. Experience related to cytology, hematology, and simple enzyme chemistry would be major asset. Salary commensurate with education and experience in the field. Reply with curriculum vitae and brief statement of research interests and plans to: **Dr. B. M. Cohen, Department of Obstetrics/Gynecology, The Mt. Sinai Hospital of Cleveland, University Circle, Cleveland, Ohio 44106. Equal Opportunity Employer, M/F/H.**

The Cleveland Clinic Foundation has a position available for a **RESEARCH FELLOW** who will be engaged in biomedical statistics and data management and records analysis of patients involved in a radiological research program. Comprehension of medical procedures, including various treatment modalities and radiologic and pathologic findings required. The fellow will be required to operate computerized data systems and associated office equipment. Normal working hours: 8:30 a.m. to 5 p.m. weekdays, in research laboratories and medical offices. Master's degree in statistics and/or biological sciences required. Stipend: \$17,000 per year. Contact: **David Krol, Ohio Bureau of Employment Services, 9216 Superior, Cleveland, Ohio 44106. Telephone: 216-795-1660.**

BIOCHEMIST/ IMMUNOCHEMIST

We are a leading international manufacturer of health care and life support devices and are in the process of recruiting for our new Research and Development Center in Elkton, Maryland.

M.S. or Ph.D.; biochemist with a strong research background in enzymology, protein chemistry, immunochemistry and microbiology required.

2 to 5 years industrial or post-graduate degree experience in protein purification and characterization, enzyme-protein conjugation, animal immunization and immunoassay development techniques. Tissue culture experience will be considered as an important asset.

In addition to competitive salaries and liberal fringe benefits, we offer the opportunity for growth with a rapidly expanding company. Please send resume including salary history in confidence to:



TERUMO MEDICAL CORPORATION
Stephen Zalik
Director of Personnel
70 S. Chapel Street
Newark, DE 19711

Equal Opportunity Employer M/F

Sr Research Pathologist

Challenging position available with NORTHERN, NJ pharmaceutical company. We require DVM or MD with advanced degree and board certification in pathology. Candidate should have 3-4 years relevant experience in clinical and microscopic pathology.

If interested, please send resume including salary requirements, in confidence, to: Ms. Irene Breneman, Schering-Plough Corporation, 60 Orange Street, Bloomfield, New Jersey 07003.



Schering-Plough

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WEBSTER COLLEGE

POSITION:

Instructor or Assistant Professor

QUALIFICATIONS:

M.A. or Ph.D. with teaching experience in a small liberal arts college. The candidate should have a broad background in biochemistry and cell biology.

SALARY:

The base salary for Assistant Professor is \$15,000. The salary is negotiable depending on qualifications.

DUTIES:

The science department is looking for a biochemist with undergraduate teaching experience to teach the following courses on a two year rotating basis: General Chemistry (some sections for nursing students), organic chemistry, biochemistry and cell biology for liberal arts biology majors. This is a small department with 3 full time faculty. Each faculty member is expected to teach 9-12 hours per semester.

WEBSTER COLLEGE:

Webster College is a private, coeducational liberal arts college in Metropolitan Saint Louis. The College is accredited by the North Central Association of Colleges and Secondary Schools. Webster offers students a great measure of freedom and flexibility; it has a reputation for innovation. The College makes every effort to consider alternative methods of teaching and learning. In keeping with this, the major consideration for the College is teaching and not research.

APPLICATIONS:

Applications must be received no later than April 3, 1981. Send resume, credentials and other supportive materials to:

Deborah Dey
Chairperson, Science Department
Webster College
470 East Lockwood
Saint Louis, Missouri 63119

Webster College operates under a policy of equal employment opportunity and Affirmative Action. The recruiting, hiring, promotion, and other employment practices for all personnel shall be without regard to race, sex, creed, age, or national origin. The College encourages persons of either sex or of any minority group to apply.

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- ☐ **Membership rates** (individual only)
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 - ☐ \$93 air-surface delivery via Holland
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 - ☐ \$76 USA ☐ \$100 Canada, PUAS ☐ \$103 Foreign
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POSITIONS OPEN

RESEARCH POSITION, CARDIAC SURGICAL RESEARCH LABORATORY, RESEARCH ASSOCIATE OR ASSISTANT PROFESSOR, DEPARTMENT OF SURGERY, UNIVERSITY OF CONNECTICUT HEALTH CENTER

Applicant must have M.S. or Ph.D. with biochemical and/or bioengineering capability with background in cardiac pharmacology or physiology. Demonstration of productivity with references are essential. Primary effort of the laboratory is myocardial preservation during open heart surgery. Candidates are invited to submit up-to-date curriculum vitae and a bibliography to: **Dr. Richard M. Engelman, University of Connecticut Health Center, Route Number 4, Farmington, Conn. 06032. An Equal Opportunity/Affirmative Action Employer.**

SCIENCE AND TECHNOLOGY POSITION

Assistant or associate professor/research associate. A record of research experience in organization and management of science and technology. Ph.D. in an appropriate area required. Teaching experience highly desirable.

Position includes teaching a maximum of two graduate-level courses on management of science and technology and technology diffusion; research on related topics; and administrative responsibilities for developing new research and educational programs.

Starting September 1981. Possible joint appointment with academic departments. Send résumés to:

Science Recruitment Committee
Center for Applied Social Science
Boston University
197 Bay State Road
Boston, Mass. 02215

SEISMOLOGIST—UNIVERSITY OF UTAH

The University of Utah is expanding its geophysics program in the Department of Geology and Geophysics by adding a tenure-track faculty member in seismology at the assistant to associate professor level. Applicants with backgrounds and specialties in seismic imaging and theoretical seismology will be given preference. The closing date for applications is 1 May 1981 and the appointment date is September 1981. However, the search may be extended if a suitable candidate is not selected, in which case applicants for a 1-year visiting position for the academic year 1981-1982 will also be considered. A Ph.D. is required for this position. Applicants should submit curriculum vitae, transcripts, a letter describing research and teaching goals, and names of five persons for reference. Qualified persons should send their applications to: **William P. Nash, Chairman, Department of Geology and Geophysics, University of Utah, Salt Lake City, Utah 84112. University of Utah is an Equal Opportunity/Affirmative Action Employer.**

SENIOR RESEARCH ASSOCIATE position available 1 July 1981 for recent Ph.D. with 2 or 3 years of postdoctoral experience and training in protein biochemistry, to collaborate in interdisciplinary studies on antimicrobial and inflammatory actions of phagocytic cells in host defense. Stipend is in accordance with experience. Individuals willing to assume a supervisory role in the laboratory are encouraged to apply. Please submit, no later than 30 April 1981, curriculum vitae and names and addresses for three references to: **Dr. John K. Spitznagel, Professor and Chairman, Department of Microbiology, Emory University, Atlanta, Georgia 30322.**

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SPECIAL IMMUNOBIOLOGY LABORATORY COORDINATOR

Children's Hospital of Buffalo, N.Y., affiliated with the State University of New York at Buffalo, has a position with responsibility for implementation of the Nitroblue Tetrazolium (NBT) Test and investigation of biochemical mechanism of NBT Test. General duties are coordination of activities and research efforts within Immunobiology Laboratory and in relation to laboratories at Children's and other hospitals in the community. Requirements are doctorate degree, 3 to 5 years of experience performing NBT Test, clinical research in NBT Test with published scientific papers, and laboratory experience with infectious disease and diagnostic microbiology. Salary: \$16,000. Interested candidates forward résumé to: **M. Olszowska, Children's Hospital, 219 Bryant Street, Buffalo, N.Y. 14222. An Equal Opportunity Employer.**

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GRADUATE STUDY

GRADUATE STUDIES. The Department of Physiology and Biophysics, University of Kentucky Medical Center, seeks applicants for its Ph.D. program beginning fall semester 1981. Graduate assistantships (\$5200 per year) are available on a competitive basis. Current research projects of the faculty include but are not limited to circulatory dynamics, cardiovascular regulation, pulmonary function and regulation, neurobiology, and endocrine and renal physiology.

Write: **Director of Graduate Studies, Department of Physiology and Biophysics, University of Kentucky College of Medicine, Lexington, Ky. 40536.**

PROGRAMS

PREDOCTORAL AND POSTDOCTORAL TRAINING IN NEUROBIOLOGY AND MEMBRANE BIOPHYSICS UNIVERSITY OF MIAMI SCHOOL OF MEDICINE

The Department of Physiology and Biophysics emphasizes cellular and molecular approaches to biological problems and offers training in neurobiology, membrane biophysics, and muscle contraction. Traineeships and assistantships are available. Postdoctoral stipend: \$7500 plus tuition. For details, write: **Dr. S. J. Socolar, Department of Physiology and Biophysics, R430 University of Miami School of Medicine, Box 016430, Miami, Fla. 33101. An Equal Opportunity/Affirmative Action Employer.**

FELLOWSHIPS

PREDOCTORAL AND POSTDOCTORAL FELLOWSHIPS IN BIOCHEMISTRY. The Department of Biochemistry, University of Texas Health Science Center at Dallas, invites applications from qualified individuals who wish to pursue pregraduate or postgraduate studies in biochemistry. Major areas of emphasis include cell and developmental biology, endocrinology, enzymology, immunology, molecular genetics, pharmacology, and toxicology. Appointees will be supported by state and federal funds or Robert A. Welch Foundation Fellowships. Application forms and further information may be obtained from: **Chairman, Graduate Studies Committee in Biochemistry, The University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL FELLOWSHIP available for study of ion fluxes across cardiac subcellular membranes. A background in enzyme kinetics and/or basic immunological techniques is desirable. Recent Ph.D. in biochemistry preferred. Send résumé and names of three references to: **Dr. M. Kirchberger, Department of Physiology and Biophysics, THE MOUNT SINAI SCHOOL OF MEDICINE, One Gustave L. Levy Place, New York, N.Y. 10029. An Equal Opportunity Employer.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP IN TERATOLOGY-DEVELOPMENTAL TOXICOLOGY at the Dartmouth Medical School. Research on environmental teratogens, fetal toxicology. Stipend of \$13,300 for first year. Submit curriculum vitae and three letters of reference to: **Dr. Vergil H. Ferm, Department of Anatomy, Dartmouth Medical School, Hanover, N.H. 03755, prior to 30 April 1981.**

LA TROBE UNIVERSITY MELBOURNE, AUSTRALIA

LA TROBE RESEARCH FELLOWSHIPS 1982

Applications for research fellowships are invited from persons who have gained doctoral or equivalent qualifications within the last 5 years or so, or who anticipate gaining such qualifications by 30 June 1982.

Applicants may propose independent research projects or projects involving collaboration with La Trobe University research workers or teams.

Two fellowships are available for offer in 1982. Each fellowship will be awarded for an initial period of 12 months with the possibility of renewal for a further maximum period of 12 months.

Salary offered is at the rate of A\$19,132 per annum.

Enquiries should briefly indicate the research discipline of interest to them. Application quoting reference number 440/4/10 must be made on the university forms available from: **The Graduate Studies Officer, La Trobe University, Bundoora, Victoria, 3083 Australia, and completed forms must reach the University no later than 31 July 1981.**

TRAINEESHIPS


A **POSTDOCTORAL TRAINEESHIP** is immediately available for research in enzyme catalytic mechanisms or the effects of aging on membrane structure and function. Stipend: \$13,000 to \$15,000, depending on experience. The appointment is for 1 year, potentially renewable for a second year. U.S. citizenship or permanent residency is required. Please send résumé and letters of recommendation to: **Dr. Wilson P. Bullard, Department of Medicinal Chemistry, College of Pharmacy, University of Utah, Salt Lake City, Utah 84112. The University of Utah is an Affirmative Action/Equal Opportunity Employer.**

UNIVERSITY OF FLORIDA COLLEGE OF MEDICINE POSTDOCTORAL AND PREDOCTORAL TRAINING IN TUMOR IMMUNOLOGY AND TUMOR CELL BIOLOGY

NIH postdoctoral and predoctoral traineeships are available with graduate research faculty in the following areas: **T-cell, B-cell recognition of tumors: Smith, Peck, and Klein; Tumor-associated antigens and tumor cell membranes: Smith, Klein, Kimura, Roberts, Wakeland, and Peck; Cytotoxic T-cell clones and antibody producing hybridomas: Smith, Roberts, and Klein; Avian retroviruses and cell differentiation: Moscovici; analysis of antitumor effector mechanisms: Smith, Normann, Peck, and Kimura.** Applications are now being accepted for appointments beginning on 1 July 1981. A letter describing research interests, curriculum vitae, and letters of recommendation should be sent to: **Dr. Paul A. Klein, Program Coordinator, Department of Pathology, College of Medicine, University of Florida, Gainesville, Florida 32610.**

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Send your resume and salary history/requirements to: Ms. D. Love, Personnel Supervisor, **WARNER-LAMBERT/PARKE-DAVIS, PHARMACEUTICAL RESEARCH DIVISION**, 2800 Plymouth Rd., Ann Arbor, MI 48105. An Equal Opportunity Employer M/F/H.

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MANAGER SCIENTIFIC AFFAIRS

The Diagnostics Division of Abbott Laboratories seeks an individual with solid experience in clinical project management to manage the Scientific Affairs staff and all activities related to scientific affairs, sales, and marketing. Assigned responsibilities include preparation/maintenance of department budget, preparation and review of protocol/brochures, evaluation of proposed clinical trials and desired claims, and coordination of medical education programs and promotional product literature for sales and marketing functions. Position also involves the review of FDA submissions.

To qualify, you should have a Ph.D. in Physical or Biological Science coupled with at least 3 years of clinical project management experience in the diagnostics field. Ability to communicate effectively with medical professionals and strong understanding of sales/marketing aspects of diagnostics will be important. Technical proficiency in diagnostics products is a definite plus.

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MARINE GEOPHYSICIST

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Energy, Mines and Resources Canada
Geological Survey of Canada
Dartmouth, Nova Scotia

The Atlantic Geoscience Centre at the Bedford Institute has a vacancy for a scientist to conduct research programs related to geophysical studies of the earth and its tectonic processes, particularly by the development and testing of theoretical models and, where such programs have specific application, to the practical consequences of continental margin development and its resource potential. While some research programs may be totally independent, others must provide theoretical geophysical input to programs already underway at the Atlantic Geoscience Centre; these are directed toward investigation of the structure and origin of continental margins off Eastern Canada and the Arctic, basin analysis and hydrocarbon inventory of Eastern Canada and quaternary marine geological processes. Experience as related to the above is required.

Qualifications

Graduation with a Doctorate degree or a lesser degree with research experience and productivity equivalent to a Doctorate degree, from a recognized university, in geophysics, geology, physics, mathematics or a related field.

Knowledge of English is essential.

Clearance No.: 110-322-013

Additional job information is available by writing to the address below:

Toute information relative à ce concours est disponible en français et peut être obtenue en écrivant à l'adresse suivante:

How to apply

Send your application form and/or résumé to:

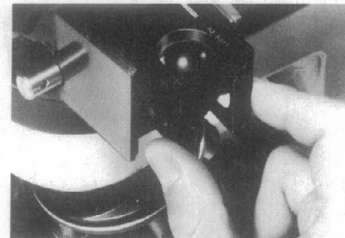
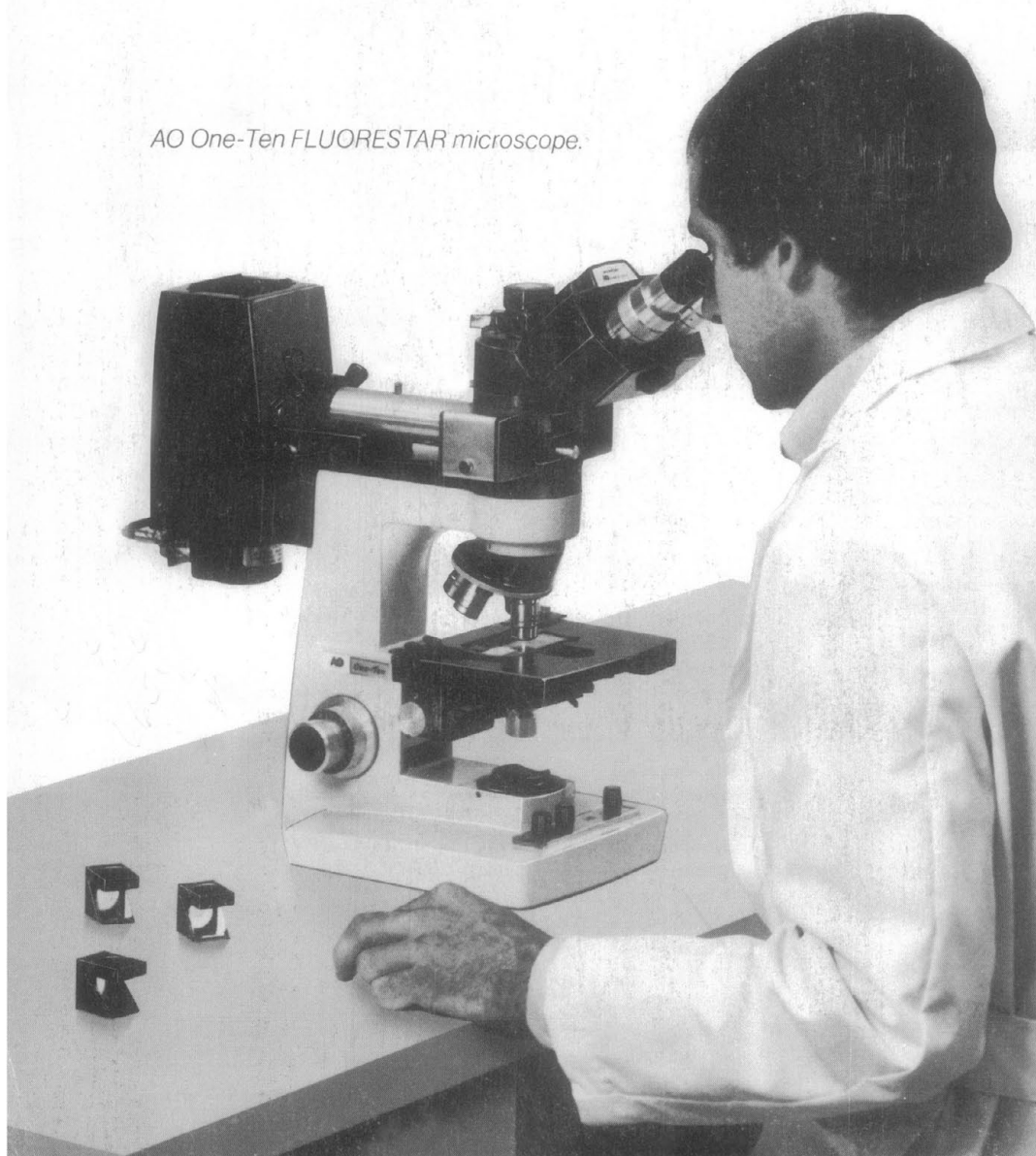
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