

the expert may reduce its impact on scientists outside of the field.

It is natural to compare this book with two others, Mackintosh's own *The Psychology of Animal Learning* (1974) and Dickinson's *Contemporary Animal Learning Theory* (1980). Mackintosh's earlier book has been for 10 years the standard summary of the field. The present volume is less encyclopedic, is less historical, and concentrates more on theories as distinct from data summaries. In that sense it is much more accessible. Dickinson's book is more frankly an attempt to make available to a broad audience essentially the same material as that covered in the present volume. For most readers, I recommend initially reading Dickinson's book and then the present volume. The truly dedicated should then read Mackintosh's 1974 book.

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Developmental Neuroscience

Development of Auditory and Vestibular Systems. R. ROMAND, Ed. Academic Press, New York, 1983. xvi, 576 pp., illus. \$59.50.

The study of the anatomy and physiology of the acoustico-vestibular systems has long been popular. In contrast, the particular aspect of development of the auditory and vestibular systems has largely been ignored until recently, perhaps because of the difficulties of adequately preserving embryonic nervous tissues and recording from embryonic neurons. This book is intended to provide an account of this evolving subject and directions for future work. The book is a collection of 16 well-written chapters by authors who recapitulate many of their own data in addition to providing critical reviews of their specialties. Although the book could make an excellent starting point for a student unfamiliar with most of the topics covered, some of the discussion, particularly that of the physiological aspects, seems more directed to specialists.

The book addresses both basic research and clinical advances, with an emphasis on the former. The chapters concentrate on the auditory system more than on the vestibular system, on function more than on structure, and on receptors and brainstem nuclei more than on higher brain centers. Normal development is emphasized, although

the abnormal is discussed in chapters on ototoxic drugs and noise (by Henry) and mutant mice (by Deol). Though Romand intends to limit the book to mammalian studies, with the exception of one chapter on spacecraft studies (by Vinnikov *et al.*) that deals with fish and amphibians, most contributors refer to relevant avian studies.

The overall quality of the chapters is quite high. Problems are clearly set forth. For example, Saunders, Kaltenbach, and Relkin, in their excellent review of the development of the outer and middle ear, express a concern that the timing of embryological events is not fully known for any one species because of the multiplicity of species that have been studied. In a chapter on the functional development of the cochlea, Romand states that a more quantitative investigation of all structures of the cochlea is needed in order to understand more precisely what happens at each stage of maturation. He notes that virtually nothing is established about the numbers of efferent and afferent contacts on hair cells or the numbers of efferents contacting afferents. Anniko notes that the importance of nerve-fiber contact for the development of hair cells in the vestibular sensory organs is still highly controversial. In a critical review of the ontogeny of the inferior colliculus, Moore concludes that the combined use of physiological recording and anatomical tracers has greatly enhanced our understanding of the mature central nervous system and should be applied to developing systems. It seems apparent, as is suggested by Mysliveček in a review of evoked responses in auditory cortex, that the productivity of future studies will depend on how well morphological, functional, biochemical, and behavioral indices can be combined to define intermediate stages of development. In a chapter on the development of the cochlear nuclei and the superior olivary complex, Brugge points out that the auditory system contains some of the largest synaptic endings in the vertebrate brain—namely, the end bulbs of Held in the cochlear nucleus and the calyces of Held in the trapezoid body. These endings, comprising homogenous populations of endings that contact particular neuron types, are exceptionally well designed to address basic developmental questions, such as what guides axons to grow toward their appropriate target cells and to form specific types of synaptic endings. In fact, the auditory and vestibular systems offer two of the very best model systems to exploit the relationship between peripheral develop-

ment and the ontogeny of first- and second-order sensory neurons.

In summary, this book is a readable synthesis of literature on the subject. In addition to offering substantial bibliographies, it should encourage new interest in the development of the auditory and vestibular systems.

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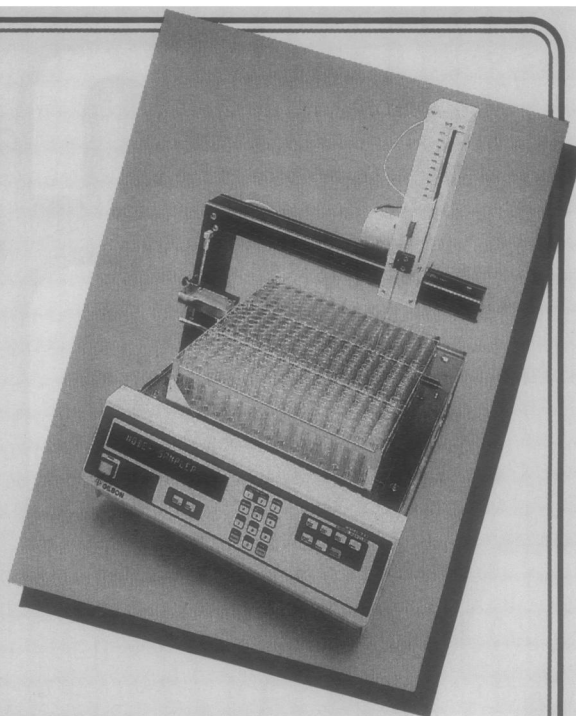
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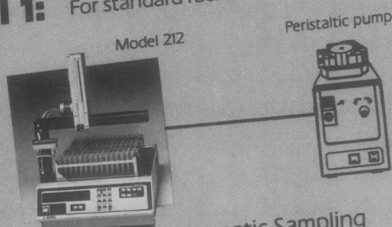


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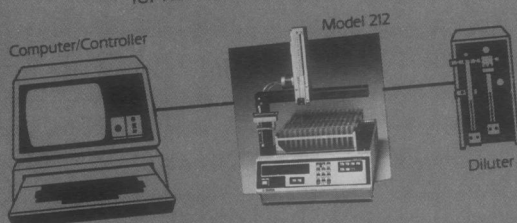


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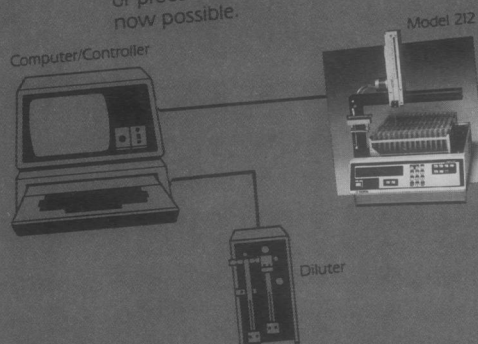
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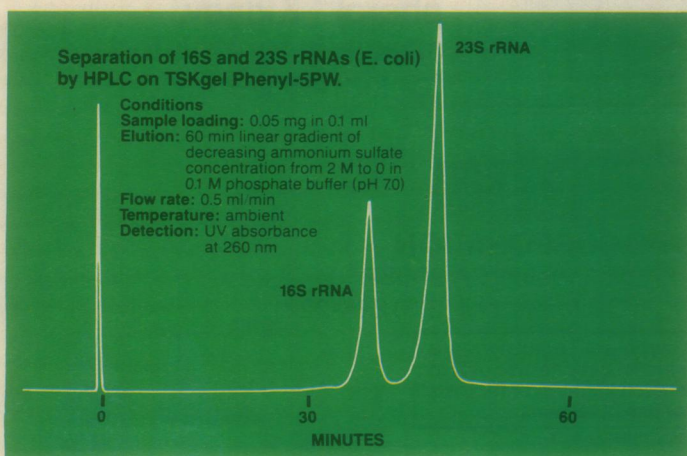
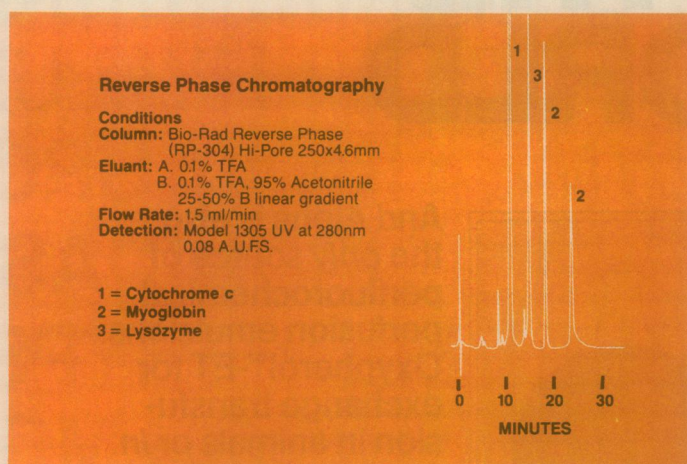
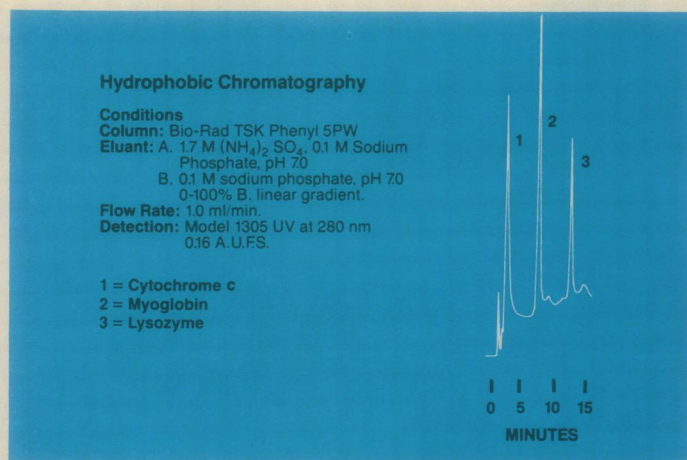
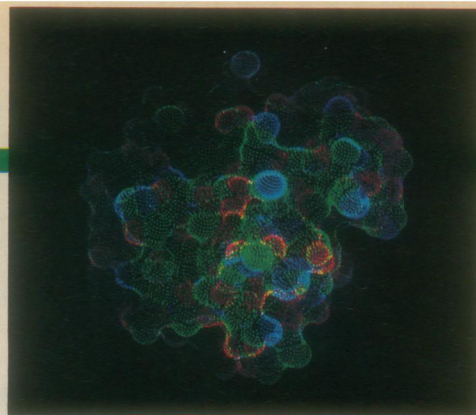
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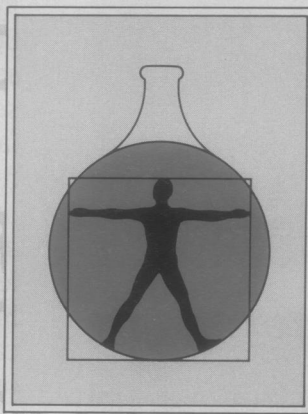
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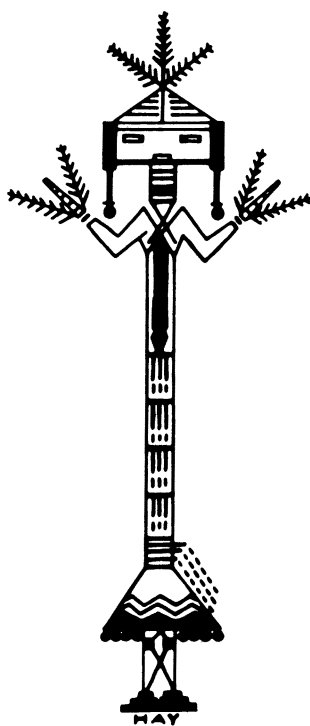
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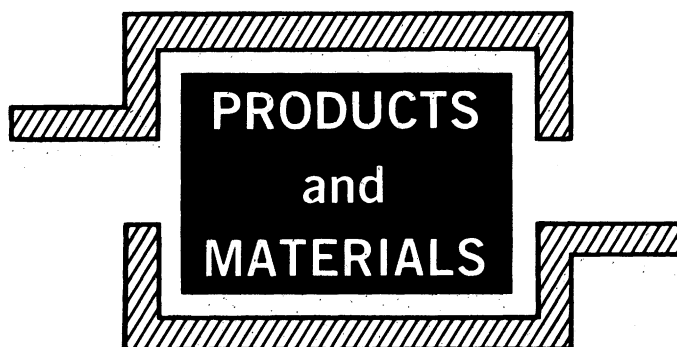
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known and sample addition/subtraction modes, five-language prompting, automatic buffer recognition, three-decimal accuracy, a digital clock and timer, and activity and memory function that will accommodate a five-electrode testing system. Corning Glass Works, Science Products Department. Circle 561.

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Separate Student Contest

Student entries are encouraged and will be judged separately (group or class entries are acceptable). Winners will receive certificates and a \$100 prize. Mark the student box on the entry form.

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Eligibility. The contest is open to everyone except employees of AAAS and their relatives. **Entries.** You may submit up to

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must be previously unpublished in any medium intended for the general public. Entries may be black and white or color, unmounted prints (no larger than 8 by 10 inches) or transparencies; they must not be mounted in glass. Duplicates may be entered, but originals must be available for publication. Entries must be accompanied by explicit caption information that identifies the content of each photograph and any special technique involved in its creation. Each photograph entered must bear photographer's name and address. There is a \$5 entry fee (one fee per contestant; make check payable to AAAS Science Photography Contest). Please enclose the official entry form or a photocopy.

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BOOKS RECEIVED

(Continued from page 390)

1983. xxvi, 478 pp., illus. \$54. Current Topics in Membranes and Transport, vol. 18.

Mental Health Care and National Health Insurance. A Philosophy of and an Approach to Mental Health Care for the Future. David Upton with commentaries by 13 others. Plenum, New York, 1983. xxii, 312 pp. \$27.50.

The Method of Differential Approximation. Yu. I. Shokin. Springer-Verlag, New York, 1983. xiv, 296 pp., illus. \$40. Springer Series in Computational Physics. Translated from the Russian edition by K. G. Roesner.

Mobilization of Reserves in Germination. Constance Nozzolillo, Peter J. Lea, and Frank A. Loewus, Eds. Plenum, New York, 1983. x, 312 pp., illus. \$42.50. Recent Advances in Phytochemistry, vol. 17. From a symposium, Ottawa, Canada, Aug. 1982.

Modelling and Control of Biotechnical Processes. A. Halme, Ed. Published for the International Federation of Automatic Control by Pergamon, New York, 1983. x, 316 pp., illus. \$75. IFAC Proceedings Series. From a workshop, Helsinki, Aug. 1982.

Models of Achievement. Reflections of Eminent Women in Psychology. Agnes N. O'Connell and Nancy Felipe Russo, Eds. Columbia University Press, New York, 1983. xiv, 338 pp. \$25; paper, \$12.50.

Natural Resources. Bureaucratic Myths and Environmental Management. Richard L. Stroup and John A. Baden, with David T. Fractor. Pacific Institute for Public Policy Research, San Francisco, and Ballinger (Harper and Row), Cambridge, Mass., 1983. xvi, 148 pp. \$20; paper, \$9.95.

Nervous System Regeneration. Bernard Haber et al., Eds. Liss, New York, 1983. xxvi, 560 pp., illus. \$98. Birth Defects: Original Article Series, vol. 19, No. 4. From a symposium, Catania, Italy, Sept. 1981.

The Neurobiology of the Nucleus Accumbens. R. B. Chronister and J. F. DeFrance, Eds. Haer Institute for Electrophysiological Research, Brunswick, Me., 1981. xii, 388 pp., illus. Paper, \$39.95. From a symposium, Sebasco Estates, Me., Sept. 1980.

Neuropsychology of Human Emotion. Kenneth M. Heilman and Paul Satz, Eds. Guilford, New York, 1983. xiv, 237 pp. \$24.50. Advances in Neuropsychology and Behavioral Neurology, vol. 1.

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Numerical Properties and Methodologies in Heat Transfer. T. M. Shih, Ed. Hemisphere, Washington, D.C., 1983. x, 554 pp., illus. \$69.50. Series in Computational Methods in Mechanics and Thermal Sciences. From a symposium, College Park, Md., Sept. 1981.

Nutrition in the Young and the Elderly. Edwin W. Haller and Gerald E. Cotton, Eds. Collamore (Heath), Lexington, Mass., 1983. xii, 248 pp. \$29.50. From a symposium, Duluth, Minn., June 1982.

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Paternalism, Conflict, and Coproduction. Learning from Citizen Action and Citizen Participation in Western Europe. Lawrence Susskind and Michael Elliott et al. Plenum, New York, 1983. xiv, 359 pp., illus. \$32.50. Environment, Development, and Public Policy.

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Personality, Motivation, and Action. Selected Papers. John W. Atkinson, Praeger, New York, 1983. xvi, 432 pp., illus. \$32.95.

Perspectives in Creep Fracture. M. F. Ashby and L. M. Brown, Eds. Pergamon, New York, 1983. viii, 171 pp., illus. \$35. Reprinted from *Acta Metallurgica*, 1979-1982.

Pharmacology. Drug Actions and Reactions. Ruth R. Levine. 3rd ed. Little, Brown, Boston, 1983. xviii, 526 pp., illus. Paper, \$19.95.

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Pitch Determination of Speech Signals. Algorithms and Devices. Wolfgang Hess. Springer-Verlag, New York, 1983. xiv, 698 pp., illus. \$37. Springer Series in Information Sciences, vol. 3.

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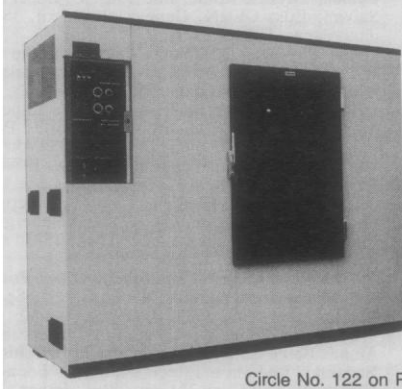
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A Revised Handbook to the Flora of Ceylon. Vol. 4. M. D. Dassanayake, Ed. Published for the Smithsonian Institution and the National Science Foundation by Amerind Publishing Co., New Delhi, 1983 (U.S. distributor, Smithsonian Department of Botany, Washington, D.C.) xii, 532 pp. Cloth.

The Role of Animals in Biomedical Research. Jeri A. Sechzer, Ed. New York Academy of Sciences, New York, 1983. x, 229 pp. Cloth or paper, \$40. Annals of the New York Academy of Sciences, vol. 406. From a workshop, April 1982.

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Sexuality in the Later Years. Roles and Behavior. Ruth B. Weg, Ed. Academic Press, New York, 1983. xvi, 300 pp. \$29.50.

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Statics, Formfinding and Dynamics of Air-Supported Membrane Structures. Vladimir Fift. Nijhoff, The Hague, 1983 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xviii, 449 pp., illus. \$83. Mechanics of Surface Structures, vol. 5. Translated from the Czech.

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Surface Mobilities on Solid Materials. Fundamental Concepts and Applications. Vu Thien Binh, Ed. Plenum, New York, 1983. xii, 585 pp., illus. \$82.50. NATO Advanced Science Institutes Series B, vol. 86. From an institute, Les Arcs, France, Sept. 1981.

Surface Modification and Alloying by Laser, Ion, and Electron Beams. J. M. Poate, G. Foti, and D. C. Jacobson, Eds. Plenum, New York, 1983. x, 414 pp., illus. \$57.50. NATO Conference Series VI, vol. 8. From an institute, Trevi, Italy, Aug. 1981.

A Survey of United States and Total World Production, Proved Reserves, and Remaining Recoverable Resources of Fossil Fuels and Uranium as of December 31, 1981. Joseph D. Parent. Institute of Gas Technology, Chicago, 1983. xiv, 200 pp., illus. Paper, \$20.

Taming the Tiger. The Struggle to Control Technology. Witold Rybczynski. Viking, New York, 1983. xii, 247 pp. \$15.95.

Taro. A Review of *Colocasia esculenta* and Its Potentials. Jaw-Kai Wang, Ed. University of Hawaii Press, Honolulu, 1983. xx, 400 pp., illus. \$35.

Technology Advances in Engineering and Their Impact on Detection, Diagnosis and Prognosis Meth-

ods. G. Allan Whittaker, T. Robert Shives, and Gerald J. Phillips, Eds. Cambridge University Press, New York, 1983. x, 319 pp., illus. \$42.50. From a meeting, Scottsdale, Ariz., Dec. 1982.

Technology and Social Change in Rural Areas. A Festschrift for Eugene A. Wilkening. Gene F. Summers, Ed. Westview, Boulder, Colo., 1983. xxx, 266 pp. Paper, \$25. Rural Studies Series.

Texas Weather. George W. Bomar. University of Texas Press, Austin, 1983. xii, 266 pp., illus. \$22.50; paper, \$9.95.

Theorie der Geowissenschaft. Wolf von Engelhardt and Jörg Zimmermann. Schöningh, Paderborn, Germany, 1982. 382 pp., illus. Paper, DM 94.

Theories of Developmental Psychology. Patricia H. Miller. Freeman, San Francisco, 1983. xii, 436 pp., illus. Paper, \$14. A Series of Books in Psychology.

Theory of Shell Structures. C. R. Calladine. Cambridge University Press, New York, 1983. xxiv, 763 pp., illus. \$135.

Thermal Conductivity 17. J. G. Hust, Ed. Plenum, New York, 1983. xviii, 793 pp., illus. \$110. From a conference, Gaithersburg, Md., June 1981.

Thinking. The Expanding Frontier. William Maxwell, Ed. Franklin Institute Press, Philadelphia, 1983. xvi, 304 pp. \$24.95. From a conference, Suva, Fiji, Jan. 1982.

Third Topical Workshop on Proton-Antiproton Collider Physics. Rome, Jan. 1983. C. Bacci and G. Salvini, Eds. CERN, Geneva, 1983. xii, 584 pp., illus. Paper. CERN 83-04.

The Throwing Madonna. Essays on the Brain. William M. Calvin. McGraw-Hill, New York, 1983. xxii, 253 pp. \$13.95; paper, \$7.95.

Traces of Bygone Biospheres. A. V. Lapo. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). 222 pp., illus. Paper, \$5.45. Translated from the Russian edition (Moscow, 1979) by V. Purto.

Understanding Education. Toward a Reconstruction of Educational Inquiry. Walter Feinberg. Cambridge University Press, New York, 1983. xii, 270 pp. \$37.50; paper, \$12.95.

Urologic Cancer. Chemotherapeutic Principles and Management. Frank M. Torti, Ed. Springer-Verlag, New York, 1983. x, 154 pp. \$42.50.

US-Japan Joint Workshop for Reassessment of Atomic Bomb Radiation Dosimetry in Hiroshima and Nagasaki. Radiation Effects Research Foundation, Hiroshima, 1983. x, 224 pp., illus. Paper, ¥4000. From a workshop, Nagasaki, Feb. 1983.

Variable Plants and Herbivores in Natural and Managed Systems. Robert F. Denno and Mark S. McClure, Eds. Academic Press, New York, 1983. xvi, 717 pp., illus. \$64.

Le Visage et l'Expression Faciale. Approche Neuropsychologique. Raymond Bruyer. Mardaga, Brussels, 1983. 218 pp., Paper, 850 BF. Psychologie et Sciences Humaines, 118.

Vladimir Vernadsky. R. K. Balandin. Mir, Moscow, 1982 (U.S. distributor, Imported Publications, Chicago). 208 pp. + plates. Paper, \$4.95. Outstanding Soviet Scientists. Translated from the Russian edition (Moscow, 1979) by Alexander Repyev.

Volcanoes in the Sea. The Geology of Hawaii. Gordon A. Macdonald, Agatin T. Abbott, and Frank L. Peterson. 2nd ed. University of Hawaii Press, Honolulu, 1983. x, 517 pp., illus., + plates. \$29.95.

Walker's Mammals of the World. Ronald M. Nowak and John L. Paradiso. 4th ed. Johns Hopkins University Press, Baltimore, 1983. Two volumes. 1xxxii, 1362 pp., illus. \$65.

Water Resources Research. Problems and Potentials for Agriculture and Rural Communities. Ted L. Napier et al., Eds. Published for North Central Committee 111, Natural Resource Use and Environmental Policy, by the Soil Conservation Society of America, Ankeny, Iowa, 1983. xii, 247 pp., illus. \$6. From a symposium.

Wave Propagation and Remote Sensing. Propagation des Ondes et Télédétection. European Space Agency, Paris, 1983 (distributor, ESTEC, Noordwijk, Netherlands). 1, 493 pp., illus. Paper, 175 F. ESA SP-194. From a symposium, Louvain-la-Neuve, Belgium, June 1983.

What Can Be Automated? The Computer Science and Engineering Research Study (COSERS). Bruce W. Arden, Ed. MIT Press, Cambridge, Mass., 1983. xxii, 934 pp., illus. Paper, \$15. The MIT Press Series in Computer Science, 3. Reprint, 1980 edition.

Work and Personality. An Inquiry into the Impact of Social Stratification. Melvin L. Kohn and Carmi Schooler, with the collaboration of Joanne Miller et al. Ablex, Norwood, N.J., 1983. xviii, 389 pp. \$38.50; paper, \$17.95. Modern Sociology.

Workbook for Life-Span Psychology. Mimi LaVerne LaDriere and Justin Pikunas. 2nd ed. University Press of America, Lanham, Md., 1983. vi, 172 pp. Paper, \$12.75.

Writing Pascal Programs. J. S. Rohl. Cambridge University Press, New York, 1983. viii, 226 pp. \$24.95; paper, \$11.95. Cambridge Computer Science Texts, 16.

Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising is accepted only in writing; no abbreviations. Any deadline in ad must be at least 2 weeks after date of issue in which ad appears. Also, weeks after date of issue in which ad appears. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, handicap, or sexual preference.

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Box (give number)
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POSITIONS WANTED

Biochemist, Ph.D. Extensive research experience. Current investigations include cell surface/membrane glycoproteins, tumor markers, mucins, and plant lectins. Excellent publications and references. Mature and dedicated researcher seeks position in industry or government. Box 24, SCIENCE. X

Bio/Analytical Chemist, Ph.D. 1980. Extensive experience developing materials and methods for protein HPLC. Publications, two patents. Seeks responsible industrial or academic position; will relocate. Andrew Alpert, 4417 Darsey, Bellaire, Texas 77401. Telephone: 713-799-4525. X

Immunologist. Ph.D. 1970. University researcher with extensive background in cellular immunity, lymphocyte cell biology, and lymphokines. Current investigation of interferons in lymphocyte-mediated target cell killing. Excellent publications and references. Mature, dedicated individual seeking position in academia or industry. Box 16, SCIENCE. X

Physiologist/Neurophysiology Ph.D.; 20 years of experience in teaching physiology, pathophysiology, and pharmacology. Extensive research experience in neuropharmacology. Prefers teaching position in a smaller institution. Box 23, SCIENCE. X

As your **President/CEO** I will help form or **increase profits/sales** of your existing biotechnology/life science/health care company. Box 343, SCIENCE, or telephone: 617-965-6340. 1/27; 2/10; 2/10; 3/9, 23

Executive Toxicologist—Pharmacologist. Ph.D., D.V.M. Board-certified. Broad managerial and research and development experience in drug and cosmetic industry and contract laboratories. Federal regulations, IND-NDA, GLP, and so forth. Seeking challenging position, domestic or abroad. Excellent references. Available February 1984. Box 22, SCIENCE. X

POSITIONS OPEN

ANIMAL ECOLOGIST

Instructor or assistant professor of biology, Colby College. A temporary 1-year appointment, starting 1 September 1984. Applicants should be broadly educated in the biological sciences and experienced in the ecology of animals. Familiarity with communities typical of north temperate parts of the United States is important. Preference may be given to those whose papers are received by 15 March 1984. Send curriculum vitae and three letters of recommendation to: **Dr. Miriam F. Bennett, Department of Biology, Colby College, Waterville, Maine 04901. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSORS: Biochemist/molecular biologist, population biologist/terrestrial ecologist, for the academic year 1984-1985. Principal responsibilities for the biochemist will include introductory cell and molecular biology and biochemistry courses. Major responsibilities for the ecologist will include plant or general ecology course, participation in an introductory evolutionary biology course and a population biology or similar offering. Botanical background preferred for the ecologist. Both positions require a strong commitment to quality undergraduate teaching and scholarship. Completed Ph.D. and some teaching experience are preferred. Salary: \$20,000 or above depending on qualifications. Closing date for applications: 25 February 1984. Send letter of application, résumé, and three letters of reference to: **Dr. David H. Benzing, Chairman, Department of Biology, Oberlin College, Oberlin, Ohio 44074. Oberlin College is an Equal Opportunity Employer.**

The University of Manitoba, Faculty of Medicine, has positions available as **ASSISTANT PROFESSOR**. These positions are available in response to the development of a multidisciplinary program in the area of recombinant DNA technology as applied to neurosciences or endocrinology. The successful applicant(s) will be expected to develop an independent research program utilizing recombinant DNA techniques. Send curriculum vitae, including a brief outline of future research interest, to: **Dr. Henry G. Friesen, Professor and Head, Department of Physiology, University of Manitoba, 770 Bannatyne Avenue, Winnipeg, Manitoba, Canada R3E 0W3.**

ASSISTANT PROFESSOR—Department of Botany and Plant Pathology, Michigan State University, East Lansing, Michigan, invites applications for an academic year (10-month), tenure-track appointment. Responsibilities of the position will include developing an active research program in developmental plant biology exploring structure-function relationships in plants at any level of organization, including molecular, and teaching plant morphology and plant anatomy. Applicants must hold the Ph.D. degree with postdoctoral experience preferred. Applicants should submit a statement of research interests, résumé, transcripts of academic records, and three letters of reference by 1 March 1984 to: **Dr. Peter G. Murphy, Chairman of Search Committee, Department of Botany and Plant Pathology, Michigan State University, East Lansing, Mich. 48824-1312. Michigan State University is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR—GENETICS

Applications are solicited for an assistant professorship at Rockefeller University. Candidate must have a Ph.D. degree, postdoctoral experience, and a publication record concerning the investigation of genetic factors in the expression of human disease using DNA polymorphisms. Research emphasis will be on the study of human atherosclerosis susceptibility. Please send curriculum vitae and the names of three references to:

**Dr. Jan L. Breslow
Laboratory of Biochemical Genetics and Metabolism
The Rockefeller University
1230 York Avenue
New York, N.Y. 10021**

ASSISTANT PROFESSOR OF MICROBIOLOGY. Applications are invited for a tenure-track position in the Department of Microbiology, effective September 1984. The department is interested in individuals with postdoctoral experience in the area of molecular immunology or molecular virology. Submit curriculum vitae, a résumé of past and present research, and four letters of reference to: **Chairman, Search Committee, Department of Microbiology, University of Georgia, Athens, Ga. 30602, by 20 March 1984.**

The University of Georgia is an Equal Opportunity/Affirmative Action Institution.

POSITIONS OPEN

ASSISTANT PROFESSOR/MANAGER OF THE IMAGING PROCESSING LABORATORY (IPL)

This junior faculty position is available within the Division of Medical Physics of the University of Cincinnati Department of Radiology. The candidate should have a Ph.D. in medical physics, physics, or an advanced degree associated with the computer sciences. Desirable areas of expertise and experience include: familiarity with DEC VAX 11/750 (VMS O.S.) and PDP 11/34 (RSX-11M O.S.) computer systems; comprehensive programming skills; general image-processing theory and application techniques; demonstrated teaching credentials and communicative capabilities; interest in participation in research projects involving instrumentation within diagnostic radiology and nuclear medicine (XCT, NMR, digital fluoroscopy, ultrasound, ECT, and so forth). Submit curriculum vitae and three letters of reference to: **Stephen R. Thomas, Ph.D., University of Cincinnati, E465 Medical Science Building (ML 579), Cincinnati, Ohio 45267. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR OF ORGAN TRANSPLANTATION SURGERY

Applicants must be Board-certified in general surgery and have completed a transplantation surgery fellowship. A strong research experience is also required. This position requires participation in clinical and laboratory efforts as well as the education of medical students and postgraduate house staff.

A special interest is required in hepatobiliary and pancreatic surgery as part of an active clinical and investigative program in hepatic and pancreatic transplantation. This is in addition to a strong background in renal transplantation, immunosuppressive therapy, and immunological monitoring.

Submit complete curriculum vitae and letters of recommendation to: **M. Wayne Flye, M.D., Ph.D., Director of Organ Transplantation and Immunology, Department of Surgery, Yale University School of Medicine, P.O. Box 3333, New Haven, Conn. 06510. Yale University is an Equal Opportunity/Affirmative Action Employer. Application deadline: 15 March 1984.**

ASSISTANT PROFESSOR OF PHYSICS The University of Akron

Applications are invited for a physics faculty position at the level of assistant professor, to begin fall 1984 or, optionally, spring 1985. The Ph.D. is required; salary is commensurate with background and experience. All qualified theorists and experimentalists will be considered, but there is particular interest in persons with the following areas of experience and inclination: Research involving polymers, NMR, or inelastic electron tunneling spectroscopy; interest in the application of computers to physics instruction or research; or interest in instruction in electronics and instrumentation. A second physics faculty position, with part-time teaching duties in computer science, may also become available; preferred physics teaching and research interests would again be as indicated above. Please send a letter of application and a current résumé, plus names and addresses of four references, by 1 March to: **Dr. Ernst von Meerwall, Chairman of Search Committee, Department of Physics, The University of Akron, Akron, Ohio 44325. The University of Akron is an Equal Education and Employment Institution.**

BIOCHEMIST. Senior faculty, long-term contract position. Responsibilities include teaching medical school biochemistry and RESEARCH. Interested candidates please send curriculum vitae to: **Dr. A. L. Nagler, Associate Dean, Preclinical Medical Education, Chairman, Search Committee, New York College of Osteopathic Medicine, Old Westbury, New York 11568.**

BIOLOGIST—ONE YEAR. We seek either a senior person on sabbatical or a new Ph.D. for a sabbatical replacement. Position is subject to final approval. Send curriculum vitae and have three recommendations sent to:

**Dr. Daniel Guthrie, Joint Science Department
Claremont Colleges, Claremont, Calif. 91711
An Equal Opportunity/Affirmative Action Employer**

MICROBIOLOGIST. Senior faculty, long-term contract position. Responsibilities include teaching medical school microbiology and RESEARCH. Interested candidates please send curriculum vitae to: **Dr. A. L. Nagler, Associate Dean, Preclinical Medical Education, Chairman, Search Committee, New York College of Osteopathic Medicine, Old Westbury, New York 11568.**

AGRICULTURE RESEARCH



The Northern Regional Research Center, U.S. Department of Agriculture (USDA), is seeking skilled and imaginative scientists for the programs listed below.

1) **Genetic engineering of rumen microorganisms.** This research will focus on understanding and using the fermentative and biosynthetic properties of genetically modified obligate anaerobes for improved energy and protein metabolism and fermentation technology. Positions are open for a **geneticist**, a **biochemist**, and a **microbiologist**.

2) **Control of Fusaria growth and mycotoxin production.** The main emphasis will be on Fusaria and their trichothecene toxins employing genetic and biochemical techniques to define the primary metabolic events that trigger toxin production. Positions are open for **biochemists**, a **plant pathologist**, and a **geneticist**.

3) **Biochemistry of seed development and maturation in corn.** The research will focus on the dynamics and mechanism of partitioning carbon and nitrogen into the biosynthetic pathways that result in protein, lipid, and polysaccharide. Positions are open for **plant physiologists** and **plant biochemists**.

This Center employs about 150 scientists engaged in diverse programs of basic and applied research. Benefits include a stimulating professional environment and relocation expense assistance. Salary is based on qualifications and experience. GS-11/12, \$25,366 to \$30,402. U.S. citizenship is required. Send curriculum vitae for position in: (1) to: **Dr. R. J. Bothast**; (2) to: **Dr. R. W. Detroy**; and (3) to: **Dr. C. G. Crawford, Northern Regional Research Center, USDA, ARS, 1815 North University Street, Peoria, Ill. 61604. Telephone: 309-685-4011. The USDA is an Equal Opportunity/Affirmative Action Employer.**

Cardiovascular Research

The Schering-Plough Corporation currently has three openings at the BS/MS level.

Cardiovascular Pharmacologist I

Research position for a Cardiovascular Pharmacologist with at least 1 year of training or experience in neurophysiology or neuropharmacology. Preferred candidate will have experience with stereotaxic and electrophysiological recording techniques.

Cardiovascular Pharmacologist II

B.S./M.S. with at least 2 years experience in cardiovascular pharmacology or physiology including surgical techniques and operation of electronic equipment.

Biochemist

B.S. degree with 1 year or M.S. degree with 0 years experience in biochemistry or biochemical pharmacology. Candidate should be familiar with and have interest in protein isolation and purification.

Résumé should be sent to: **Manager Research Personnel, P.O. Box DD83-26, Schering-Plough Corporation, 60 Orange Street, Bloomfield, New Jersey 07003.**

Schering-Plough

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INHALATION TOXICOLOGIST

Bio-Research Laboratories is an internationally recognized biological contract research laboratory, involved in safety evaluation of new drugs and chemicals. Our staff of 275 are housed in a modern, fully equipped, 85,000 sq. ft. laboratory, situated in pleasant countryside 12 miles west of Montréal, Québec.

We seek an experienced Toxicologist to head a department engaged in the organization, conduct and reporting of short- and long-term inhalation toxicity studies. The work also involves frequent interaction with sponsors from North America, Europe, and Japan.

Candidates should possess a degree in biological or related science (preferably to the Ph.D. level) and have several years industrial experience in general and/or inhalation toxicology.

Salary and conditions are competitive with industry and dependent upon experience and qualifications. Relocation assistance will be provided.

Applications with C.V. should be sent to:

Dr. B. E. Osborne
Director, Division of Toxicology Operations
Bio-Research Laboratories Limited
87 Sennerville Road
Sennerville, Québec
Canada
H9X 3R3

ASSISTANT OR ASSOCIATE PROFESSOR

DEPT. OF HUMAN ANATOMY

The Dental School

Lecture and laboratory instruction to first year dental students in histology, neuroanatomy, gross anatomy and embryology. Cooperation with departmental instructional and research activities for graduate and undergraduate students.

Qualifications: PhD in human anatomy (DDS, DMD, MD) from an accredited medical or dental school; 2-5 years of teaching experience in gross anatomy, neuroanatomy, histology and embryology.

Salary is commensurate with experience and consistent with University structure. Appointment to commence no later than 9/1/84.

Applicants must submit letter of application, vitae and 3 references no later than April 1, 1984 to: Campus Personnel Services Manager,

FAIRLEIGH DICKINSON UNIVERSITY

1000 River Rd., Teaneck, NJ 07666

Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

UNIVERSITY OF RHODE ISLAND DEPARTMENT OF ZOOLOGY

Applications are invited for two tenure-track **ASSISTANT PROFESSORSHIPS** in the Department of zoology to start fall semester 1984. Candidates should have demonstrated potential for initiating and sustaining an excellent, externally fundable research program; Ph.D. required. We are especially interested in scientists with research interests or programs centered in physiological ecology, evolutionary biology at the molecular level, or biology of membranes and complementing present faculty. One of the appointees will have a primary interest in mammals as a research model. It is important that the candidate be a capable teacher at both the undergraduate and graduate levels. Teaching responsibilities will include one semester of service in human physiology or human anatomy and an advanced specialty course, one of which will be vertebrate biology. Candidates should submit curriculum vitae and arrange for three letters of recommendation to be sent to: **Dr. Nelson G. Hairston, Jr., Department of Zoology, University of Rhode Island, Kingston, Rhode Island 02881-0816.** Applications will be considered beginning on 15 February 1984. *An Affirmative Action/Equal Opportunity Employer, M/F.*

ASSISTANT RESEARCH BIOPHYSICIST, University of California, San Francisco. Full-time, funded position requires Ph.D. in biophysics or related subject and 2 to 4 years of postdoctoral experience. Preference will be given to candidates having in depth experience in membranes structure, hemoglobin properties, and analytical instrumentation. Send curriculum vitae and three letters of reference by 15 March 1984 to: **Dr. C. Anthony Hunt, Search Committee Chairman, School of Pharmacy, University of California, San Francisco, Calif. 94143.** *An Affirmative Action/Equal Opportunity Employer.*

ASSOCIATE EDITOR

For staff of multidisciplinary bimonthly scientific journal. Candidates should have a M.S. degree or equivalent; Ph.D. preferred in some field of physical or biological science, and at least 2 years of independent research experience. Excellent command of English essential. Some editorial experience desirable. Please submit résumé, with cover letter indicating salary requirements, to: **Managing Editor, Proceedings Office, National Academy of Sciences, 2101 Constitution Avenue, NW, Washington, D.C. 20541.** *An Equal Opportunity Employer.*

BIOLOGY TEACHING OVERSEAS—The Department of Biology of the American University of Beirut invites applications for four tenure-track positions at assistant professor level in plant anatomy, plant taxonomy, plant physiology, plant or animal biochemistry, plant or animal cell biology, developmental biology, or vertebrate zoology. Appointments are normally for a 3-year period. Faculty members are expected to teach undergraduate and graduate courses and conduct a research program. Send curriculum vitae and three letters of recommendation to: **Dr. Michael J. Arslanian, Chairman, Biology Department, American University of Beirut, Beirut, Lebanon.** *An Affirmative Action/Equal Opportunity Employer.*

CELL BIOLOGIST DEPARTMENT OF ANATOMY UNIVERSITY OF MINNESOTA

The Department of Anatomy at the University of Minnesota Medical School in Minneapolis announces a cell biologist position to begin as early as 1 September 1984. Appointment may be either at the **assistant professor** (tenure track) or **associate professor** (tenured) level, depending on the qualifications of the successful candidate. Applicants must have postdoctoral or equivalent research experience and must have demonstrated the ability to pursue an active, productive research program in an area of cell biology. A multidisciplinary approach with a morphological component is much desired. Teaching responsibilities will include joint participation in histology and graduate teaching in an area of specialty. Curriculum vitae, brief statement of research interests and goals, reprints of publications, and names of three references must be received by 1 March 1984, addressed to: **Search Committee, Department of Anatomy, University of Minnesota, 4-135 Jackson Hall, 321 Church Street, SE, Minneapolis, Minn. 55455.** *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.*

POSITIONS OPEN

CHAIRPERSON OF DEPARTMENT OF PHYSICS THE UNIVERSITY OF VERMONT

The University of Vermont invites applications and nominations for the position of chairperson, Department of Physics. The department has ten full-time faculty with theoretical and experimental research activities in the fields of astrophysics, biological physics, solid-state and surface physics, and physics of materials. It offers bachelor's and master's degrees in physics and engineering physics, and participates in interdisciplinary Ph.D. programs in materials science and cell biology. Candidates should have a record of ongoing high-quality research which complements one or more of the present research areas. Administrative ability and interest in working with related disciplines and industry is considered important. A chairperson is sought who will aggressively support excellence in teaching and research and provide innovative leadership for these purposes. Appointment is anticipated to begin fall 1984. Send curriculum vitae, list of publications, reprints of representative papers, and the names of at least three references to: **Dr. C. Hackett Bushweller, Physics Chairperson Search Committee, Department of Chemistry, University of Vermont, Burlington, Vermont 05405.** *Women and minority candidates are urged to apply. The University of Vermont is an Affirmative Action/Equal Opportunity Employer.* Deadline for receipt of applications is 15 March 1984.

THE UNIVERSITY OF WESTERN AUSTRALIA Perth CHAIR IN PHYSIOLOGY

Applications are invited for appointment to the chair in physiology to be vacated on the retirement of Professor W. J. Simmonds. There is one other chair in the department, a personal chair held by Professor E. H. Morgan.

Applicants must hold appropriate higher qualifications and must be able to demonstrate a substantial research background in human or mammalian physiology. The department is strongly represented in cellular and neurophysiology and is therefore seeking applicants from other areas of physiology. However, applicants from all areas will be considered. Whilst preference will be given to medically qualified candidates, applications from persons with other appropriate qualifications will be welcome. Previous experience in the teaching of physiology to medical and science students at both undergraduate and graduate levels is essential.

The current salary for the appointment is A\$48,997 per annum, plus a preclinical loading for medical graduates of A\$4386 per annum. Benefits include superannuation, fares to Perth for appointee and dependent family, removal allowance, study leave and long service leave, eligibility for interstate travel grants, and housing loan scheme. Further information, including conditions of appointment, may be obtained from the Staffing Officer.

Applications in duplicate, stating full personal particulars, recent photograph, qualifications, experience, and the names and addresses of three referees should reach: **The Staffing Officer, University of Western Australia, Nedlands, Western Australia, 6009, Australia,** by 3 March 1984.

CYTOGENETICIST. Position available in large clinical laboratory for cytogeneticist, Ph.D. level or certified, master's level to direct section. Send curriculum vitae, references, and other supporting information to: **Personnel Manager, Molecular Medicine, Inc., 5606 Shields Drive, Bethesda, Md. 20817.**

DIRECTOR, INSTITUTE FOR ENVIRONMENTAL STUDIES

The University of Illinois at Urbana-Champaign is seeking a Director of Environmental Studies. The director's main responsibility is to provide scholarly and professional leadership for a diverse and interdisciplinary program. Qualifications consistent with those of senior faculty in a discipline related to environmental studies. Available 21 August 1984. Send nominations/applications (with curriculum vitae) by 15 February 1984 to: **Earl Swanson, Chair, Search Committee, c/o Office of the Chancellor, 601 East John Street, Champaign, Ill. 61820, attention: Andreen Butler.** *Affirmative Action/Equal Opportunity Employer.*

SCIENCE, ENGINEERING AND DIPLOMACY FELLOWSHIP

Applications Invited

The American Association for the Advancement of Science (AAAS), in cooperation with the Agency for International Development (AID) and the Department of State (STATE) is seeking applicants for two or more Science, Engineering and Diplomacy Fellowships. Fellows will spend 1 year, beginning 1 September 1984, working either in the Bureau of Oceans and International Environmental and Scientific Affairs of the Department of State or in one of the Bureaus of the Agency for International Development. Other assignments may also be possible.

Prospective fellows must demonstrate exceptional competence in some area of science or engineering, be flexible, have some experience and/or a strong interest in applying knowledge toward the solution of problems in the area of foreign affairs, and have a Ph.D. or equivalent in years of experience. Awardees will work on scientific and technical subjects in international affairs: foreign policy for STATE and international development policy for AID. In general, individuals are urged to apply from any area of physical, biological, behavioral, and social science and engineering and whose experience and training is applicable to any one of the following areas: food and agriculture; health and population; nuclear nonproliferation; scientific exchange; forestry, natural resources and ecology; oceans and fisheries; communications; national security; and nutrition among others.

The fellows will serve a one-year appointment at a salary consistent with education level and experience, if possible, but not exceeding, in the case of STATE, the GS-12 level (beginning at \$30,000). A security clearance process will be initiated after selection. The clearance must be obtained before a selectee can begin work in the State Department or AID.

Deadline for receipt of application is 15 February 1984. For more information and application details, write:

**Science, Engineering and Diplomacy
Fellows Program
American Association for the Advancement
of Science
1776 Massachusetts Avenue, NW
Washington, D.C. 20036**

STATE OF KUWAIT

UNIVERSITY OF KUWAIT

FACULTY OF MEDICINE— HEALTH SCIENCE CENTRE

Chief Technician in the Department of Pharmacology

Applications are invited for the post of Chief Technician in the Department of Pharmacology. Candidates should have experience in modern analytical techniques, especially Gas-Chromatography and Mass-Spectrometry and hold the F.I.M.L.S., or equivalent qualification, with fifteen years' experience including training.

Salary will be in the range KD 450–512 per month (KD 1 = £1.8, US\$ 3.5, approx.). There is no income tax in Kuwait and currency is transferable without restriction. Free, furnished, air-conditioned accommodation is provided and electricity and water supplied free of charge. Sixty days paid annual leave for each completed year of employment, and annual economy class return air tickets to the country of citizenship or permanent residence are provided for the appointee, spouse and three dependent children. Free medical treatment is available under the State Health Service.

Application should be submitted to:
The Dean, Faculty of Medicine, University of Kuwait Health Science Centre, P.O. Box 24923, Safat, Kuwait, with detailed curriculum vitae in duplicate and the names of three referees.

New England Biolabs, Inc. will be expanding its Parasitology Research Staff during 1983-1984 with positions available at the following levels:

POSTDOCTORAL POSITIONS

Available immediately to individuals experienced in Malaria biology, immunology or eukaryotic cloning.

B.S. or M.S. LEVEL POSITIONS

Available immediately to individuals experienced in Malaria biology, immunology or molecular biology.

Applicant should send curriculum vitae to: Personnel Director, New England Biolabs, Inc., 32 Tozer Rd., Beverly, MA 01915, USA



Research Assistant (2)

Cetus Corporation is currently seeking candidates for positions involving recombinant DNA manipulation and gene expression. These positions require a min. of a B.S. degree or its equivalent and aggregate min. of 5 years' demonstrated skill, training, education and/or experience in the following areas:

Nucleic acid enzymology including process fermentation, purification, assay and use of nucleic acid enzymes; isolation and purification of chromosomal DNA, plasmid DNA and DNA fragments; plasmid transformation; methods of analysis of nucleic acid and protein products including radio labelling, "Elisa" assays, "Western" analysis preparation and use of various antisera and antibody fragments and 1 and 2 dim. gel electrophoresis.

Salary range is \$25 to 30K depending on experience. Please send resume in confidence to:

Cetus Corporation
Box SCI 000
1400 Fifty-third Street
Emeryville, CA 94608

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POSITIONS OPEN

DIRECTOR, CENTER FOR ENVIRONMENTAL MANAGEMENT

Tufts University is developing a National Center for Environmental Technology, Health & Policy Research, focusing on issues of hazardous waste. The Director will be responsible for all aspects of the planning and management of the Center. Initial tasks include articulation of the scientific program with Tufts faculty, the sponsoring agency and other public and private sector groups; recruitment, with Tufts faculty, of key scientific personnel; facility planning; and development of the scientific and administrative procedures of the Center. The successful candidate will be an accomplished researcher and administrator, with an advanced degree (e.g., Ph.D., J.D., M.D.) in an appropriate discipline; skill in management of a complex organization; and significant experience in hazardous waste management/research/regulation. The Director will be eligible for professorial appointment in the appropriate Tufts department. Inquiries or resumes (deadline April 1, 1984) should be directed to: Dr. Sol Gittleman, Provost, Chairman, Search Committee, Tufts University, Medford, MA 02155. An Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

CLINICAL PHARMACOKINETICS

The School of Pharmacy, University of Wisconsin-Madison, is creating a new tenure-track faculty position in the field of clinical pharmacokinetics. Duties will include teaching at the undergraduate and graduate level and the development of an independent research program in biopharmaceutics/pharmacokinetics with emphasis on clinical problems in drug therapy. Collaboration with clinical pharmacy faculty in the conduct of clinical research is expected. A Ph.D. in pharmaceuticals or pharmacokinetics, or an earned doctorate with equivalent research training, and research experience in clinical pharmacokinetics are required. Clinical pharmacy practice experience is desirable. The rank of the position is open.

Individuals should send curriculum vitae and a list of three references to:

Curtis A. Johnson, Pharm. D.
School of Pharmacy
University of Wisconsin-Madison
425 North Charter Street
Madison, Wis. 53706
An Equal Opportunity Employer

DRUG DISPOSITION/DRUG DELIVERY

The School of Pharmacy, University of Wisconsin-Madison, has an opening on the tenure-track faculty at the assistant professor level in the broad area of drug delivery or drug disposition. The successful applicant will be expected to initiate an independent research program. The research may be concerned with biological transport and binding mechanisms, chemical transformations, or other basic topics related to the physiological and biochemical phenomena involved in the delivery of drugs to their sites of action; and it may make use of physicochemical, biophysical, pharmacokinetic, biochemical, immunological, or other types of quantitative investigational approaches. An emphasis on the molecular or cellular level approaches is essential. Responsibilities also include participation in pharmaceuticals teaching at the undergraduate and graduate levels. A Ph.D. in an appropriate field is required. Please submit curriculum vitae, including names of at least three references, to: Dr. Kenneth A. Connors, School of Pharmacy, University of Wisconsin, 425 North Charter Street, Madison, Wisconsin 53706.

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

DIRECTOR, LIVER RESEARCH CENTER, ALBERT EINSTEIN COLLEGE OF MEDICINE. The Albert Einstein College of Medicine invites applications and nominations for the directorship of the Liver Research Center. The director must provide strong intellectual leadership to a group of 45 independent investigators who comprise the Center, coordinate their training and teaching activities, and help shape both the clinical and laboratory research programs by example and planning. Responsibilities include the preparation of appropriate grant applications and progress reports to granting agencies, as well as the administration of a Liver Center grant which provides programmatic support and supporting scientific services for the members of the Center. The director must be an M.D., and the faculty appointment will be as a professor in the Department of Medicine. Send letter of application, résumé, curriculum vitae, and a listing of research publications to: Harry Eagle, M.D., Search Committee Chairman, Room 330, Channing Institute for Cancer Research, ALBERT EINSTEIN COLLEGE OF MEDICINE, 1300 Morris Park Avenue, Bronx, New York 10461. *An Equal Opportunity Employer.*

FACULTY POSITION IN MOLECULAR IMMUNOLOGY

The Department of Biology and the Rosenstiel Center of Brandeis University invite applications for a position at the assistant to full professor level for an immunologist, preferably with a strong background in molecular genetics. The level of the appointment will depend on the background and experience of the candidate and excellence of research, both accomplished and planned. Excellence in teaching is also expected. Send curriculum vitae and a short description of accomplished and planned research and names of three references to: Dr. Alfred Nisonoff, Rosenstiel Center, Brandeis University, Waltham, Mass. 02254. Deadline for application is 1 March 1984. *We are an Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITIONS—FULL OR PART-TIME, AVAILABLE IMMEDIATELY. Ph.D.'s or M.D.'s to teach anatomy, physiology, pathology, biochemistry, and/or microbiology. Call: The University of St. Lucia extension office at 212-490-0130, attention: Murray Jonas, M.D.

MICROBIOLOGIST/PROTEIN CHEMIST WITH AN INTEREST IN MARINE BIOLOGY—Entrepreneurial position with new pharmaceutical venture. Responsible for research, oversight of LAL production, FDA compliance, marketing input. Compensation/equity incentives commensurate with experience. Ph.D. applicants should send curriculum vitae, three references, and salary history to: Wilson Laboratories, Inc., attention: Richard B. Wilson, 222 Third Street, Cambridge, Massachusetts 02142.

MOLECULAR BIOLOGIST/IMMUNOPATHOLOGIST

A molecular biologist with experience in recombinant DNA technology and an immunopathologist with experience in immunocytochemistry and monoclonal antibody production are invited to join a group studying the biology of papillomaviruses. Two positions are available at the research associate and/or assistant levels.

Applicants must have a Ph.D. Postdoctoral experience is desired. Interested applicants should send curriculum vitae and three letters of reference by 1 March 1984 to:

Wayne D. Lancaster, Ph.D.
Departments of Obstetrics/Gynecology and Pathology
Georgetown University Medical Center
3800 Reservoir Road, NW
Washington, D.C. 20007

Georgetown University is an Equal Opportunity/Affirmative Action Employer.

MYCOGEN

Mycogen Corporation is a rapidly growing firm that specializes in the production of pesticides and plant protection products based on microorganisms. New products are being developed through the application of state-of-the-art technologies in microbiology and molecular genetics. We are presently expanding our facilities and have positions available in the following disciplines:

- Biochemistry* — protein, peptide purification; protein sequencing
- Chemistry* — nucleic acid chemistry, gene sequencing, gene synthesis
- Entomology* — insect pathology, insect rearing
- Immunology* — antibody production, immunoassay
- Microbiology* — fermentation, microbial ecology, mycology
- Plant Pathology* — weed pathogens

These positions are available at both the Ph.D. and technical levels. Mycogen offers competitive salaries and benefits, excellent working conditions and the pleasure of living in the San Diego metropolitan area.

Applications can be made by sending a resume complete with the names of three references to:



Dr. David L. Edwards
Director of Research
Mycogen Corporation
5451 Oberlin Drive
San Diego, CA 92121

RESEARCH SCIENTIST/PRINCIPAL INVESTIGATOR

Biomedical Application of NMR and Stable Isotopes Los Alamos National Laboratory

Applications are being accepted for an established research scientist to lead an active biochemistry/NMR program in the Isotope and Nuclear Chemistry Division. This position requires serving as the Principal Investigator for two component programs: "A National Stable Isotope Resource at Los Alamos," supported by the Division of Research Resources of the National Institutes of Health (NIH), and a related Department of Energy (DOE) sponsored program, "Carbon-13 NMR and Metabolism." Direction of the Stable Isotopes Resource will include the supervision of a basic research program to develop new biosynthetic approaches for the synthesis of compounds selectively labeled with stable isotopes of carbon, nitrogen, and oxygen. The DOE program activities include the design and execution of *in vivo* NMR studies of the metabolism of isotopically labeled compounds. The latter program will be carried out in collaboration with the University of New Mexico/Los Alamos Center for Non-Invasive Diagnosis by NMR spectroscopy.

A demonstrated record of accomplishment in the area of high resolution NMR spectroscopy is required. Additional experience in the areas of microbiology, biosynthesis, and analysis of metabolism by NMR techniques is also highly desirable. U.S. citizenship is required. This position provides a unique opportunity for the development of biomedical applications of the stable carbon, nitrogen, and oxygen isotopes produced at Los Alamos.

The Laboratory is operated by the University of California for the Department of Energy. We offer competitive salaries and a full range of employee benefits. Our beautiful mountain location in northern New Mexico has exceptional recreational activities. The school system is excellent and the community provides a casual, relaxed lifestyle.

For further information call Basil I. Swanson, Chairman, Search Committee, Isotope and Structural Chemistry Group, at 505-667-6045.

To apply, please submit resume and letters of recommendation in confidence to:

Madeline Lucas, DIV-84-N
 Personnel Services
 Los Alamos National Laboratory
 Los Alamos, NM 87545

University of California

Los Alamos

Los Alamos National Laboratory
 Los Alamos, New Mexico 87545

An Affirmative Action/Equal Opportunity Employer

DIVISION OF RESEARCH RESOURCES NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

The National Institutes of Health (NIH), Division of Research Resources (DRR) invites nominations and applications for the position of Chief, General Clinical Research Centers Program Branch (GCRCBP).

The position is a Civil Service position established as Medical Officer, GM-602-15 with a salary range from \$53,407 to \$67,969 (currently limited to \$66,000 per annum. Physicians may also be eligible for Physicians' Comparability Pay up to \$10,000 per year.)

The GCRCBP Branch is responsible for administration of a grant-in-aid program currently supporting 74 clinical research centers with 600 research beds, which serve as institutional research resources for inquiry, examination, evaluation, and training in an effort to define the basic processes of human disease and its treatment. The Chief, General Clinical Research Centers Program Branch, is responsible for the program planning, development, evaluation, and management of the GCRCBP which utilizes resource grants and contracts to provide high quality clinical research environments throughout the nation.

Candidates must meet the minimum educational requirements for Medical Officer, GM-602-15 (or equivalent combination of experience and training as defined

by the U.S. Office of Personnel Management Handbook X-118 Qualification Standards for Positions under the General Schedule), plus at least five years of professional experience in research program administration in which professional judgements were exercised through the application of scientific knowledge of health and clinical research. In addition, the incumbent must have managerial experience, and knowledge of research programs in one or more areas related to clinical research.

Further information about the position and qualification requirements may be obtained by contacting Ms. Pathenia A. Wiggins at (301) 496-1524. Applications (Personal Qualifications Statement, SF-171) accompanied by current curriculum vitae and bibliography should be submitted to Ms. Wiggins at the DRR Personnel Office, National Institutes of Health, Building 31, Room 5B06, 9000 Rockville Pike, Bethesda, Maryland 20205. Applications should be postmarked no later than February 29, 1984.

Applications from women and minority group members are especially solicited.

THE NATIONAL INSTITUTES OF HEALTH IS AN EQUAL OPPORTUNITY EMPLOYER.

GEORGIA — Augusta — Section Chief and Coordinator of Clinical Psychiatric Research. This position will be a joint appointment at the Augusta Veterans Administration Center and the Department of Psychiatry, Medical College of Georgia. The position requires supervision of an appropriate clinical section, along with the overall development, organization, and administration of clinical research services for the Psychiatric Service, Augusta VAMC. The position will require interdigitation of basic and clinical research to improve patient care capability and improve clinical procedures. Applicants should be board-certified in Psychiatry, eligible for medical license in Georgia, have demonstrated excellence in clinical patient care and research productivity, and academic qualifications for a senior level faculty appointment. Contact: **E. Mansell Pattison, M.D., Professor and Chairman, Department of Psychiatry and Health Behavior, Medical College of Georgia, Augusta, GA 30912, (404) 828-3284.** The Veterans Administration and the Medical College of Georgia are EOE employers.

GEORGIA—Augusta—Chief of Psychiatry, Augusta Veterans Administration Medical Center. This is a joint appointment with the Department of Psychiatry, Medical College of Georgia. The position requires overall administration of two divisions, including 500 psychiatric beds, outpatient and community services. Specialized clinical units include: geropsychiatry, behavioral medicine, milieu therapy, neuropsychopharmacology, medicine/psychiatry, substance abuse, psychiatric ICU, transitional hospital care, and ambulatory care. All clinical programs are fully integrated components of the teaching and research programs of MCG. Applicants should be board-certified in Psychiatry, eligible for medical license in Georgia, have demonstrated excellence in clinical administration, and have academic qualifications for a senior level faculty appointment. Contact: **E. Mansell Pattison, M.D., Professor and Chairman, Department of Psychiatry, Medical College of Georgia, Augusta, GA 30912.** The Veterans Administration and the Medical College of Georgia are EOE employers.

POSITIONS OPEN

FACULTY POSITIONS. WILLIAMS COLLEGE has two openings (3-year and 1-year appointments) for assistant professor positions for fall 1984 in physical or inorganic chemistry (Ph.D. required; postdoctoral experience preferred). Applicants should have a strong commitment to both teaching and research. Teaching duties each semester normally include complete responsibility for one course with laboratory and supervision of senior research projects. Williams College is a highly selective, coeducational, liberal arts institution of approximately 155 faculty, 1900 undergraduates, and 30 to 40 chemistry majors each year, located in northwestern Massachusetts. The Chemistry Department is accredited by the ACS and has excellent facilities for teaching and research. Send résumé, undergraduate and graduate transcripts, description of research interests for undergraduates, and names of three references to: **Dr. James F. Skinner, Chairman, Department of Chemistry, Williams College, Williamstown, Mass. 01267, by 20 February 1984.** *Affirmative Action/Equal Opportunity Employer. We are especially interested in identifying minority and women candidates.*

FACULTY POSITIONS

THE UNIVERSITY OF TENNESSEE MEMORIAL RESEARCH CENTER (UTMRC) invites applications for two tenure-track positions at the assistant or associate professor level. The UTMRC, a fully equipped biomedical research institute with excellent small and large animal facilities, is staffed by basic and clinical scientists with established programs in molecular and cellular immunology, oncology, experimental hematology, and pathology, including neuroscience. Preference will be given to M.D. or Ph.D. candidates who are capable of developing independent research programs that interface with those of other UTMRC senior investigators and complement those of the academic clinical departments of the University of Tennessee Memorial Hospital. The successful applicants will be provided core support including salary and necessary laboratory start-up funds; it is expected that additional research support will be derived from grants or other funding mechanisms. Involvement in educational activities is possible through participation in pre- and postdoctoral programs of the University of Tennessee, the Oak Ridge National Laboratory, and in the undergraduate and graduate medical education programs of the University of Tennessee. Rank and salary are negotiable. Interested parties are invited to furnish their curriculum vitae and the names and addresses of three references to: **Emilio A. Machado, M.D., Chairman, Search Committee, University of Tennessee Memorial Research Center, 1924 Alcoa Highway, Knoxville, Tenn. 37920.**

An Affirmative Action/Title IX/Section 504 Employer

MATHEMATICS EDUCATION, SCIENCE EDUCATION, TECHNOLOGY EDUCATION

Graduate School of Education
University of California, Berkeley

The University of California, Graduate School of Education, Berkeley, seeks applicants for three tenure-track positions to begin August 1984. Both experienced and beginning faculty (assistant, associate, or full professor) are sought in mathematics, science, or technology education, or in closely related sciences applied to these fields. A doctoral degree, evidence of outstanding academic achievement, and demonstrated potential for excellence in research and teaching are required.

Interested persons should send résumés, names of three references, and a brief statement of research and teaching interests to: **Faculty Search Committee, Office of the Dean, Graduate School of Education, University of California, Berkeley, California 94720, by 15 February 1984.** No telephone inquiries, please.

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

MICROBIOLOGIST/IMMUNOLOGIST

Applications are invited for a faculty position at the assistant professor level. Candidates must hold a Ph.D. in microbiology and/or immunology. Position will involve teaching microbiology, an introductory course in immunology, and developing an active research program. Curriculum vitae and names of three references must be received by 1 March 1984. Send to: **Dr. J. Donald LaCroix, Chairman, Search Committee, Department of Biology and Health Sciences, University of Detroit, 4001 West McNichols Road, Detroit, Mich. 48221.** *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

NUCLEAR MAGNETIC RESONANCE IN BIOMEDICAL RESEARCH—Associate professor or professor, Department of Physiological Chemistry. Candidates should have demonstrated state-of-the-art expertise in NMR imaging or high field analysis of metabolic states in living tissues. The person hired will conduct research and participate in departmental graduate and teaching programs. Applicants should send a résumé with research interests plus three letters of reference to: **Dr. James E. Dahlberg, Search Committee Chairperson, 587 Medical Science Building, University of Wisconsin-Madison, Madison, Wis. 53706.** *An Equal Opportunity/Affirmative Action Employer.*

NUTRITIONIST. Ph.D. or master's with clinical research experience. Coordinates nutrition component and supervises the research kitchen of a ten-bed Clinical Research Center; independent research experience required. Obesity research experience preferred but not essential. Assistant professorship, Department of Nutrition, Case Western Reserve University, School of Medicine. Send résumé to: **Harvey M. Rodman, M.D., Director, Clinical Research Center, University Hospitals of Cleveland, 2074 Abington Road, Cleveland, Ohio 44106.** *Equal Opportunity/Affirmative Action Employer.*

PHARMACOLOGY

A tenure-track position at the assistant or associate professor level in the Department of Pharmacology is available. Areas of interest include cell biology, molecular pharmacology, immunopharmacology, and pharmacogenetics, but all candidates whose work is relevant to pharmacology will be considered. Please send curriculum vitae, a résumé of current and proposed research, and names of three references to:

**Dr. Norman Kirshner
Department of Pharmacology
Box 3813
Duke University Medical Center
Durham, N.C. 27710**

Duke University is an Affirmative Action/Equal Opportunity Employer.

The Department of Botany at **RUTGERS UNIVERSITY** in Newark invites applications from candidates with postdoctoral experience and strong research interests in **PLANT MOLECULAR BIOLOGY** for a tenure-track (assistant professor) position available September 1984. Duties will include development of an independent, innovative research program in basic plant molecular biology, preferably with application to horticulture. Participation in the undergraduate and graduate teaching program will also be required. Curriculum vitae, summary of research interests, and at least three letters from qualified individuals should be sent before 15 March 1984 to: **Dr. Robert F. Davis, Chairperson, Department of Botany, Rutgers University, Newark, N.J. 07102.** *Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION IN THE BIOCHEMISTRY AND BIOPHYSICS OF VISUAL TRANSDUCTION AVAILABLE IMMEDIATELY. Research in this laboratory is aimed at (i) elucidating the factors controlling membrane protein conformation changes, and (ii) the functional expression of these changes as they are manifested in visual transduction. The former studies involve measurements of the rates of light-induced conformational changes in rhodopsin in characterized lipid systems, while the latter involves studies of the light-induced interaction of peripheral membrane enzymes with rhodopsin. Experimental techniques employed include flash photolysis, circular dichroism, fluorescence depolarization and lifetime determinations, NMR, membrane reconstitution, and measurements of light-activated enzyme processes. Send curriculum vitae and three letters of recommendation to: **Dr. Burton J. Litman, Department of Biochemistry, University of Virginia Medical School, Charlottesville, Virginia 22908.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available to study the immunochemistry of nucleic acids and the mechanism of interferon action. Experience in immunochemistry, hybridoma technology, and/or virology preferred but not required. Send curriculum vitae, statement of research interests, and names of three references to: **Personnel/Manpower, Dr. Margaret Johnston, Department of Biochemistry, Uniformed Services University of the Health Sciences, Bethesda, Maryland 20814.**

ACCELERATOR PHYSICIST OR ENGINEER

The Physics Division of the Oak Ridge National Laboratory is seeking a physicist or engineer to join the staff of the Holifield Heavy Ion Research Facility as accelerator physicist for the Oak Ridge Isochronous Cyclotron. Primary initial responsibilities of this position include routine and long-range beam development, analysis of ion motion in the cyclotron, development of improved components, long-range facility development, and operator training and certification. The position requires the ability to work on a wide variety of problems and skill in interpersonal relations. Opportunities exist for assumption of management responsibilities.

Applicants with a Ph.D. degree or equivalent experience in physics or engineering will be considered. Although experience in accelerator design and operation is desirable, applications are also solicited from individuals with experience in experimental nuclear physics, large magnet technology (conventional and/or cryogenic), and computer based computational techniques.

ORNL offers an excellent salary and benefits package and a generous relocation program, plus stimulating working environment and superb facilities of a National Laboratory. U.S. citizenship required. Please submit resume, including salary requirement to:

Mr. James T. Atherton
Ph.D. Employment
Building 4500N
Oak Ridge National Laboratory
P.O. Box X
Oak Ridge, Tennessee 37830

AN EQUAL OPPORTUNITY EMPLOYER

BIOMEDICAL RESEARCH OPPORTUNITIES

NATIONAL INSTITUTES OF HEALTH NATIONAL INSTITUTE OF ARTHRITIS, DIABETES, AND DIGESTIVE AND KIDNEY DISEASES

The Intramural Research Division of the National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases (NIADDK) has openings for highly qualified applicants in biomedical research. The NIADDK, one of the 11 Institutes comprising the National Institutes of Health (NIH), offers a unique research opportunity for scientists from both the U.S. and abroad.

The majority of the research positions are filled by post-doctoral and sabbatical-leave scientists for periods of up to several years. For further information about specific research in the areas listed below, send inquiries to:

Recruitment Program, Dr. Jesse Roth
Director of Intramural Research
NIADDK

National Institutes of Health, 9000 Rockville Pike
Bldg. 10, Rm. 9N222/Bethesda, MD 20205

Chemistry	Enzymology
Biochemistry	Pharmacology
Molecular biology	Genetics
Mathematical biology	In-born areas of metabolism
Physical biology	Cell structure and differentiation
Neurobiology	Chemical physics
Immunology	

NIH is an Equal Employment Opportunity Employer

NATIONAL INSTITUTE OF ARTHRITIS, DIABETES, AND DIGESTIVE AND KIDNEY DISEASES OFFICE OF THE DIRECTOR

ASSOCIATE DIRECTOR FOR NUTRITION

Incumbent must be a recognized and respected leader in the field who plans, develops, and implements a high quality research program in nutrition. This involves identifying research needs and opportunities; working with other leaders in individual/specialized fields of nutrition; reviewing existing training programs to evaluate their effectiveness and identifies new training that might advance the field; and plans and develops conferences, workshops, and/or seminars in those areas that might be most productive.

Salary Range — \$56,945 to \$63,800 per annum

Position information and qualifications requirements may be obtained by contacting:

Mr. Clifford Moss, Executive Secretary,
Search Committee for Associate Director for Nutrition
Building 31, Room 9A34, National Institutes of Health
Bethesda, Maryland 20205 (301) 496-4231

Applications (SF-171, CV and Bibliography) must be submitted to above address and postmarked not later than January 31, 1984.

AN EQUAL OPPORTUNITY EMPLOYER

SENIOR RESEARCH BIOLOGIST Immunoassay

Sterling-Winthrop Research Institute announces the opening for a Senior Research Biologist to work in the Immunoassay Group of its Dept. of Drug Metabolism and Disposition. The position involves the development of quantitative immunoassays for novel drug substances and natural products in biological media.

The successful candidate should have a PhD in Biochemistry, Pharmacology or the equivalent theoretical depth with 1-3 years of related experience. A background in RIA, ELISA, monoclonal antibodies and related techniques is required. Training and/or experience in pharmacokinetics and computer programming is desirable.

Located near Albany, New York, we offer excellent salary and benefits program in an exciting environment based on a team approach to research and development. Send resume and salary requirements in confidence to:

Mr. William F. Sheldon
Employee Relations Administrator



**STERLING-WINTHROP
RESEARCH INSTITUTE**

A Division of Sterling Drug, Inc.
Columbia Turnpike, Rennselear, NY 12144
Equal Opportunity Employer M/F/H

ENGINEER/CHEMICAL OR MECHANICAL

Chemical Research and Development Center

An employment opportunity exists for a Chemical or Mechanical Engineer. Major duties include the following: Initiation, planning and directing the exploratory, advanced, and engineering development programs dealing with the development and evaluation of collective protection and air filtration equipment (for military use) to maintain life cycle responsibility for all aforementioned equipment being developed. Required to supervise (30) thirty or more technical subordinate professional and semiprofessional personnel having multidisciplinary backgrounds. Details on position can be obtained from Mr. Harold L. Gotoff (301) 671-4203. Chemical Research and Development Center is located at Aberdeen Proving Ground, Maryland on the Western shore of the beautiful Chesapeake Bay within easy driving distance of Baltimore, Washington, and Philadelphia. For application materials and a descriptive brochure write:

Commander
Chemical Research and Development
Center
ATTN: DRSMC-CLW (A)
Aberdeen Proving Ground, MD 21010

Chemical Research & Development Center is
an equal opportunity employer.

DEPARTMENT HEAD DEPARTMENT OF BIOLOGICAL SCIENCES DREXEL UNIVERSITY

Applications and nominations are invited for the position of Head of the Department of Biological Sciences beginning September 1, 1984. Drexel University, which emphasizes programs in science and technology and has been a leader in cooperative education for more than sixty years, has approximately 12,000 students in seven colleges. It is situated in the center of Philadelphia not far from a variety of medical schools and other universities. The Biological Sciences Department, one of four departments offering B.S., M.S., and Ph.D. degrees in the College of Science, is to be expanded considerably in the direction of molecular biology, biochemistry, cell biology, immunology, and other aspects of modern biology. The new Department Head will have the responsibility for recruiting a senior faculty member to fill an endowed Chair and to recruit a number of other persons to fill tenure track positions within the next few years.

The successful candidate is expected to (a) have an earned doctorate in the biological sciences or in a related field; (b) be qualified for tenure as a full professor; (c) have had significant scientific accomplishments; (d) be actively engaged in funded research; (e) have knowledge of funding sources generally in the biological sciences; (f) be experienced in directing graduate research in a Ph.D.-granting department; and (g) show evidence of leadership and of a commitment to a strong graduate and undergraduate program in modern biological science.

Applications and correspondence should be addressed to Dr. William R. Nes, Chairperson, Department Head Search Committee, Department of Biological Sciences, Drexel University, Philadelphia, Pennsylvania, 19104. Applicants should include the names and addresses of three to five persons from whom they will request letters of recommendation. Drexel University is an Affirmative Action/Equal Opportunity Employer.

POSITIONS OPEN

POSTDOCTORAL POSITIONS immediately available for studies in two areas: (i) *Biological and molecular analysis of differentiation in keratinocytes transformed by SV40* and (ii) *research on human papilloma viruses*. Applicants should be recent Ph.D. or M.D. graduates with strong background in cellular/molecular biology or virology. Send letter describing present research, curriculum vitae, and names of three referees to: Dr. Vittorio Defendi, Department of Pathology, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016. An Affirmative Action/Equal Opportunity Employer, M/F.

TWO POSTDOCTORAL POSITIONS available immediately to study the molecular association between viral sequences, histocompatibility genes, and disease susceptibility. Experience in immunology, recombinant DNA technology, transfection, and virology would be helpful, but not required. Recent graduates desired. Please send curriculum vitae and three letters of reference to: Dr. Daniel Meruelo, Department of Pathology, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016. An Affirmative Action/Equal Opportunity Employer, M/F.

POSTDOCTORAL POSITION available immediately to study the mechanism of action of natural killer cells. Candidates should have a strong background in biochemistry or immunology. Send résumé and names of three references to: Dr. Tom Oeltmann, Division of Oncology, A2125 Medical Center North, Vanderbilt University, Nashville, Tenn. 37232. Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available for 1 to 3 years starting 1 July 1984. Areas of research include high altitude physiology, control of respiration (neurophysiology and sleep), vascular smooth muscle physiology and pharmacology, microcirculation, collateral ventilation, and control of the pulmonary circulation. Send curriculum vitae to: Dr. Wiltz W. Wagner, Jr., Cardiovascular Pulmonary Laboratory, Box B-133, University of Colorado Health Sciences Center, 4200 East Ninth Avenue, Denver, Colo. 80262. An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION RICE UNIVERSITY

The Department of Biochemistry, Rice University, announces the availability of a postdoctoral position in the area of protein crystallography. Prior experience in x-ray structure determination of proteins is highly desirable. All information should be sent to: F. A. Quiocho, Biochemistry Department, Rice University, P.O. Box 1892, Houston, Texas 77251. Rice University is an Equal Opportunity/Affirmative Action Employer.

Two to four **POSTDOCTORAL POSITIONS IN DRUG DELIVERY RESEARCH** are available immediately to qualified applicants with expertise in physical chemistry, biochemistry, or pharmaceutical chemistry. The research involves mechanistic studies of cell uptake and bioconversion of prodrugs or drug transport through biomembranes (for example, stratum corneum). Send curriculum vitae and three letters of reference to: B. D. Anderson, Ph.D., College of Pharmacy, University of Utah, Salt Lake City, Utah 84112. Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION available for research in enzymatic lipid peroxidation. Background in biochemistry and experience with GC/MS preferred. Send curriculum vitae and three letters of reference to: Dr. John B. Schenkman, Department of Pharmacology, University of Connecticut Health Center, Farmington, Conn. 06032. An Affirmative Action/Equal Opportunity Employer, M/W/H.

POSTDOCTORAL POSITION (two) in CELLULAR IMMUNOLOGY immediately available. One is for study of the migration and regulation of IgA B cells in the mouse mucosal immune system; the other for study of the genetic control of hybrid resistance to murine plasmacytomas. Opportunity to learn T cell cloning and/or hybridoma technology. Applicants should be recent Ph.D.'s with prior training experience and publication records in cellular immunology. Send letter describing present research, curriculum vitae, bibliography, and names of three references to: Dr. Julia M. Phillips-Quagliata, Department of Pathology, New York University Medical Center, 550 First Avenue, New York, N.Y. 10016. An Affirmative Action/Equal Opportunity Employer, M/F.

POSITIONS OPEN

POSTDOCTORAL POSITIONS in Duke University's Integrated Toxicology Training program will be available July 1984 and January 1985 in general toxicology, ecotoxicology, and specialized toxicology (for example, pulmonary toxicology, neurotoxicology). NIEHS-funded fellowships are for 2 years, renewable at the end of the first year. Send curriculum vitae and three letters of reference to: Dr. Philip Pratt, Department of Pathology, Duke University Medical Center, Durham, N.C. 27710; or telephone: 919-286-0411, extension 6272, for information. Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL RESEARCH POSITIONS. Associate positions are available to work on various aspects of the biochemistry and molecular biology of dopamine and adrenergic receptors, their mechanisms of action, and regulation. Candidates with a strong background in biochemistry, molecular biology, or biochemical pharmacology are preferred. Send résumé and three letters of recommendation to:

Dr. Marc G. Caron and
Dr. Robert J. Lefkowitz
Box 3287, Department of Medicine
Duke University Medical Center
Durham, N.C. 27710

RESEARCH IN AGING MCGILL UNIVERSITY LADY DAVIS INSTITUTE FOR MEDICAL RESEARCH

A new unit for research in aging is being established at the Lady Davis Institute. Three positions are available immediately. These will carry appointments in the Faculty of Medicine, McGill University. One post is tenure-track, at the associate professor level; two are at the assistant professor level and may become tenure-track. It is anticipated that three more positions will be available over the next 2 to 3 years. Areas of major interest in relation to the aging process are molecular genetics, immunology and hormonal/neuropeptide changes of higher brain centers; however, other areas of research are not excluded.

Applications are invited from all; in accordance with Canadian immigration regulations applications from Canadian citizens and landed immigrants will be considered first. Review of applications will begin 1 March and will continue until suitable candidates are selected.

Send curriculum vitae, brief description of present and proposed research, and names of three referees to: Dr. Norman Kalant, Director, Lady Davis Institute for Medical Research, 3755 Cote St. Catherine Road, Montreal, Quebec, Canada H3T 1E2.

RESEARCH ASSOCIATE, \$30,000 per year; 40 hours per week, M.D. gastroenterology, or Ph.D./immunology; 2 years of laboratory or university teaching experience. Prefer research and experience related to gastrointestinal effects of diseases, and allergies affecting G.I. tract for medical practice specializing in ENT and food allergies condition. Experience on tissue samples, analysis, monometric, and esophagoscopy results. Prepare reports for physician, review and prepare memos on correlation between food allergies and gastrointestinal diseases. Review medical literature and advise physician. Send this ad and your résumé to: Job Number 5950, P.O. Box 865, Sacramento, Calif. 95804, not later than 11 February 1984. Location: Burbank, California.

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We are an upper Midwest-based company, a market leader in the development of in vitro diagnostic products. Due to our rapid growth and expansion, we are seeking a research scientist to join our R & D staff.

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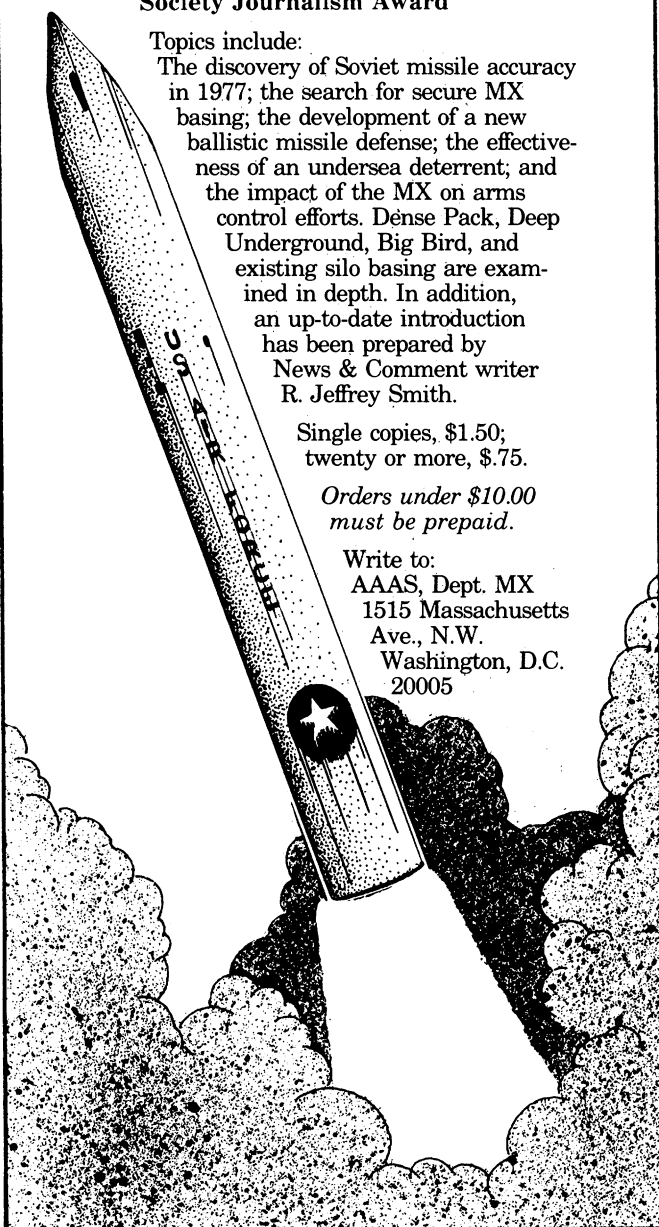
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POSTDOCTORAL RESEARCH ASSOCIATE POSITIONS available to work on phospholipid/ Ca^{2+} -dependent protein phosphorylation system in cardiovascular tissue, brain and human leukemias covering the areas of enzymology, substrates, regulation, immunocytochemistry, and pathophysiology. Interested and qualified persons please contact: Dr. J. F. Kuo, Department of Pharmacology, Emory University School of Medicine, Atlanta, Ga. 30322. An Affirmative Action/Equal Opportunity Employer.

PROJECT COORDINATOR

The Institute for the Study of Developmental Disabilities (ISDD), University of Illinois at Chicago, has an immediate opening for a new/recent Ph.D. Responsibilities include implementing a research project on event-related potentials during perceptual development of infants. Good opportunity for research and publications. Minimum requirements: Ph.D. (ABD), experience with ERP methodology, computer skills, and/or infancy research. Prefer also experience in supervising team of assistants and ability to interact well with parents and clinical staff. Closing date is 1 March. Position available 1 April. Funded by federal grant for up to 3 years. Send curriculum vitae to: Rathe Karrer, Ph.D., ISDD, 1640 Roosevelt Road, Chicago, Ill. 60608. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.

RESEARCH ASSOCIATE/FELLOW IN REPRODUCTIVE PHYSIOLOGY

Position available immediately for a Ph.D. or an M.S. with comparable qualifications. Appointment will be for 1 year with possibility of renewal for up to 3 years. Salary: \$17,000 per year. Experience in radioimmunoassays of protein and steroid hormones is essential. Preference will be given to candidates with background in pharmacokinetics and/or steroid metabolism. Applicants must arrange a minimum of two reference letters from individuals who can evaluate their work performance to be forwarded to us in order to complete the application. Please send résumé along with a description of research interests and knowledge of research techniques to:

Donna Perron, Personnel Manager
EG&G Mason Research Institute
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Two positions available immediately for persons with training in molecular biology and/or protein and nucleic acid biochemistry to work on the development of subunit vaccines for important livestock viral diseases. Projects will involve the use of recombinant DNA technology, in particular, the expression of cloned cDNA in prokaryotic and eukaryotic vectors. Salary: \$17,000 to \$25,000 depending on qualifications. Send curriculum vitae and three letters of reference to: Tilahun Yilma, Department of Veterinary Microbiology and Pathology, Washington State University, Pullman, Wash. 99164-7040; telephone: 509-335-6011. Washington State University is an Affirmative Action/Equal Opportunity Employer. Women and candidates from minority groups are encouraged to identify themselves as such.

SCIENTIFIC EDITORS-WRITERS

Free-lance scientific editors-writers needed for documents assessing effects of air pollutants. Prefer specialization in one or more of the atmospheric, health, or biological sciences. Send résumé and samples to: Dr. J. M. Davis, Maildrop 52, U.S. Environmental Protection Agency, Research Triangle Park, N.C. 27711.

SUPERVISORY PLANT PHYSIOLOGIST. Career Federal Service. Agricultural Research Service, Fort Collins, Colorado, is seeking a research leader for the cryopreservation of Plant Germplasm Research Unit. Responsible for research on cryopreservation of germplasm, genetic variability, and cell and tissue culture methodologies for preservation of germplasm. Must be U.S. citizen. Salary commensurate with experience, \$34,950 to \$48,553. Telephone: Cathy Enuton at 303-344-2765, no later than 17 February 1984, for application instructions. An Equal Opportunity Employer.

POSITIONS OPEN

TUMOR BIOLOGIST. Charles River Biotechnical Services, Inc., has a research scientist vacancy to expand an ongoing program of a predictive cancer therapy animal model system for human patients. The candidate should have a Ph.D. in the biological sciences with a strong emphasis on tumor biology. Experience in the manipulation of human tumor xenografts in athymic nude mice is important. Salary is commensurate with experience, and we offer a comprehensive benefits package. Send résumé and salary requirements to: Dr. Melvin Balk, Charles River Biotechnical Services, 251 Ballardvale Street, Wilmington, Massachusetts 01887. An Affirmative Action Employer.

PROGRAMS

CAREER CHANGE OPPORTUNITY

This unique program offers the candidate with an earned doctorate in the sciences the opportunity to obtain a doctor of optometry (O.D.) degree in two calendar years. Employment opportunities exist in private practice, industry, education, and research. Contact: The Dean of Admissions, The New England College of Optometry, Room 102, 424 Beacon Street, Boston, Mass. 02115.

PREDOCTORAL AND POSTDOCTORAL PROGRAM IN DEVELOPMENTAL BIOLOGY—TERATOLOGY

The Graduate Program in Developmental Biology at the University of Cincinnati offers predoctoral and postdoctoral training in these general areas of development: genetics, cell biology, and teratology. An NIH training grant offers traineeships for pre- and postdoctorates interested in teratology (U.S. citizenship or permanent residency necessary). In addition, various other forms of financial support are available for all trainees. Stipends for incoming predoctoral students are \$7000 per year. For further information, contact: Graduate Program in Developmental Biology, Children's Hospital Research Foundation, Elland and Bethesda Avenues, Cincinnati, Ohio 45229. Equal Opportunity/Affirmative Action Institution.

GRADUATE STUDY

PREDOCTORAL TRAINING IN PHYSIOLOGY

Fellowship available for training toward a Ph.D. in physiology with emphasis on cell biology, neurophysiology, renal, respiratory and cardiovascular physiology, or molecular endocrinology. For application forms, write: Dr. Ann E. Stuart, Department of Physiology, School of Medicine, University of North Carolina, Chapel Hill, N.C. 27514.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP IN CELL BIOLOGY

A postdoctoral fellowship at the junior or senior level will be available in this laboratory on 1 March 1984. The position offers research training on the fundamental cell biology of macrophages, with particular emphasis on receptors, antibodies, recognition of tumor cells, and the role these play in tumor biology. A background in cell biology, biochemistry, or immunology would be desirable, but other qualified individuals are encouraged to apply. Interested individuals should send their curriculum vitae and the names of three referees to:

Dolph O. Adams, M.D., Ph.D.
Professor of Pathology
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Stanford University
Center for International Security
and Arms Control

The Center announces FELLOWSHIPS for mid-career scientists (physical, biological, chemical, engineering, medical sciences) for training in international security and arms control starting in fall 1984. Application deadline is 15 March 1984. For further information, contact: The Center for International Security and Arms Control, 320 Galvez Street, Stanford, Calif. 94305.

FELLOWSHIPS

GRADUATE FELLOWSHIPS IN BIOMEDICAL AND PHYSICAL SCIENCES

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Pathology	Neurosciences	Biomedical Engineering
Virology	Immunology	Medical Psychology

Well-funded faculty with diverse interests. Good postgraduate placement record. Above average stipends include full payment of tuition. Contact: The Graduate School (A), University of Alabama in Birmingham, Birmingham, Ala. 35294; telephone: 205-934-8227. Equal Opportunity/Affirmative Action Institution.

HARVARD SCHOOL OF PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS



Interdisciplinary Programs in Health (IPH) invites applications from promising graduates of advanced degree programs in the natural or social sciences interested in turning to research in environmental health and public policy. The program focuses on the scientific and analytical foundations for environmental decisions. In addition to individual research, recent group projects include monographs on the molecular and cellular basis of toxicity, the susceptible individual and environmental regulation, and toxic wastes. Further studies will be adapted to interests of fellows. A study on ground water is considered.

Fellows will be appointed for a term of 1 year starting September 1984. Award may be renewed. Application deadline: 9 March 1984. Decisions announced in May.

For information, write to:

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

POSTDOCTORAL FELLOWSHIP available immediately to study the role of visual experience on development of connections in the visual system of amphibians. Experience in electrophysiological, anatomical (light and electron microscope), and/or tissue culture techniques is desirable but not essential. Two-year position available 1 July 1984. Send curriculum vitae and names of three references to: Dr. Susan Udin, Division of Neurobiology, Department of Physiology, State University of New York, Buffalo, N.Y. 14214. The State University of New York at Buffalo is an Affirmative Action/Equal Opportunity Employer.

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The National Research Council is establishing a new biotechnology research institute in Montreal, Canada. This new research institute will emphasize the industrial applications of biological sciences and focus on the development of new processes and products. It will foster mission-oriented research and technology transfer to industry and promote communication and collaboration amongst industrial, university, federal and provincial government laboratories.

The main areas of research will include

- **Fermentation and biochemical and process engineering**
- **Genetic engineering**
- **Cell fusion**
- **Enzyme technology.**

A major large scale fermentation facility will allow pilot scale experimentation with new fermentation methods and economic evaluation. The R & D will focus on agro-food, energy, pharmaceuticals, health care and forestry.

RESEARCH SCIENTISTS

The Biotechnology Research Institute needs researchers in the following disciplines: microbiology, biochemistry, molecular biology, enzymology, microbial physiology, genetics, cell biology, immunology, protein and nucleic acid chemistry, biochemical engineering, process and systems engineering. Applicants should have experience in the main areas of research mentioned above.

QUALIFICATIONS

Candidates should have at least 2 years relevant post-doctoral research experience. Many of the positions are at the level of section leaders and project leaders and require additional in depth knowledge of the subject area and several years of research experience.

LOCATION

The Biotechnology Research Institute will be located in downtown Montreal in a new \$60 million, 18,000 m² complex. It will employ 220 people and will host up to 80 researchers from industries, universities and other research organizations. It will have an annual budget of \$35 million.

LANGUAGES

Both English and French will be working languages at the new Institute.

BENEFITS are fully competitive and **SALARY** will be commensurate with qualifications and experience.

PLEASE SEND DETAILED CURRICULUM VITAE IN CONFIDENCE TO:

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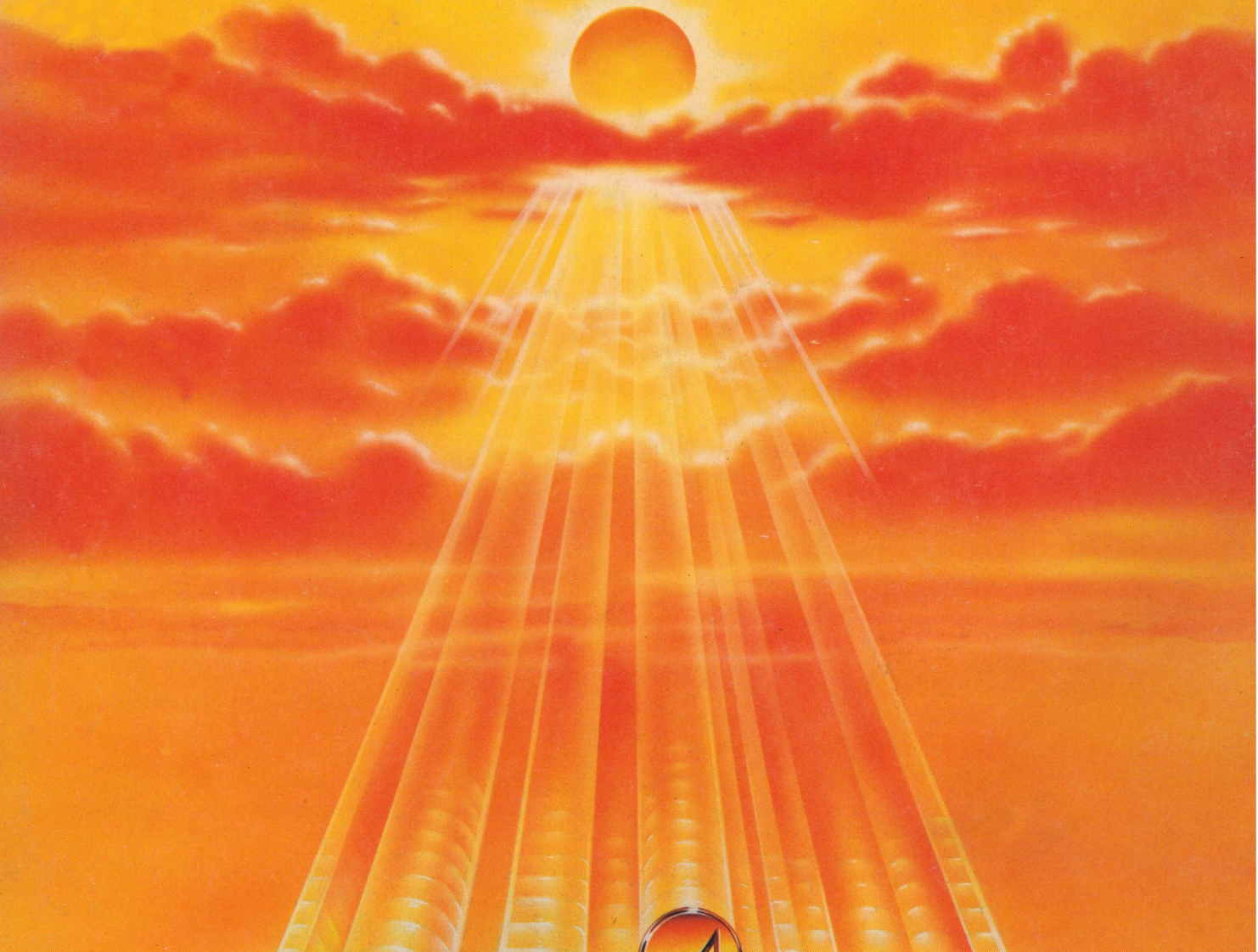
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