

classification of the APUD (amine precursor uptake and decarboxylation) cell series as a unique entity. One senses a struggle to hold the concept together, for with the realization, documented well in the book, of the ubiquity of potential peptide messengers in neurons (including gastrin-cholecystokinin, insulin, substance P, vasoactive intestinal peptide, and somatostatin in somatic nerves) the APUD concept may be disintegrating into generalism. Both Geoffrey Burnstock's purinergic nerve hypothesis and H. H. Dale's principle of one neuron, one transmitter come under attack in the book. The proponents of peptidergic neurotransmission propose that Burnstock's purinergic nerves are misidentified peptidergic neurons. Dale's principle is questioned on the grounds that a neuron contains more than one bioactive molecule.

The book, in general, is a timely contribution that is not too far behind the forefront of a rapidly advancing field. Students who are interested in the neuroendocrinological biology of the gastrointestinal tract and those who wish an update on the field will find it profitable reading. Established investigators will find little that is new.

JACK WOOD

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Nuclear Physics

Nuclear Structure. Proceedings of a summer school, Dronten, Netherlands, Aug. 1980. K. ABRAHAMS, K. ALLAART, and A. E. L. DIEPERINK, Eds. Plenum, New York, 1981. x, 432 pp., illus. \$49.50. NATO Advanced Study Institutes Series B, vol. 67.

Research on nuclear structure is exceptionally broad. Until rather recently, much of it centered on efforts to understand the motions of single nucleons (protons or neutrons) among the other nucleons that make up the nucleus, the correlations in these motions, and the collective modes that arise because of these many-body effects. The research dealt primarily with low-lying nuclear states and with a select group of special higher-lying ones (giant resonances, pairing vibrations, and so on). Research on this "classic" realm of nuclear structure is still active and, indeed, has recently experienced a thorough renaissance largely owing to the advent of the so-called interacting boson model (IBM). Concurrent with this, in the last decade, enormous advances in experimental

techniques and the advent of new accelerators have greatly expanded the purview of the field. Now, the availability of high-energy beams of heavy ions of innumerable nuclear species and of pionic and muonic probes, to name just a couple of examples, has allowed access to states of extremely high spin and has revealed glimpses of "microscopic" aspects of the nucleus, involving details of the nucleon-nucleon force and even the subnucleonic quark degrees of freedom.

This collection of papers from a summer school is a superb volume with a slightly optimistic title and one or two important omissions. Though the title implies a completeness of coverage impossible to attain in a single volume, a truly broad variety of topics is nevertheless considered. These range from the shell model and the effective interactions crucial to it through collective models such as the IBM and the study of giant resonances and low-energy and muon-induced fission to the use of heavy-ion reactions and inelastic scattering (including multiple Coulomb excitation), as well as electron-scattering techniques, to disclose hitherto inaccessible information and phenomena not known in quiescent nuclei.

These topics are so diverse that one cannot expect the reader to have a background in each, and thus it is desirable that each paper begin at an elementary point and build up to a rather thorough up-to-date assessment. It is remarkable that nearly every one of the papers in the book is pitched at this ideal level. Nearly all provide comprehensive yet easily understandable reviews. Particularly impressive in this regard are papers on effective interactions by Elliot, heavy ion reactions by Schiffer, and the IBM by Iachello and two papers on fission by Nifenecker and Polikanov. In the last two, for example, the relation between observed features and the shape and structure of the fission barrier is exceptionally well presented. Only a paper on pion-nuclear many-body problems starts at a specialist level and never descends from it; it will be comprehensible to only a few readers. The papers are all current up to approximately mid-1980.

My principal adverse comment about this generally excellent compendium is that there is some lack of balance in what I earlier termed the realm of "classical" nuclear structure, especially as regards the low-lying collective excitations of heavy nuclei, where a recent surge of activity has shown that our understanding has barely and almost literally merely scratched the (nuclear) surface. More-

over, topics of great current interest, for example, cluster vibrational states, the interplay of collective and single-particle degrees of freedom at both low and extremely high spins, and the concepts of coexistence and intruder states, are hardly mentioned. The paper by Iachello, of course, deals with some of these issues, and that on Coulomb excitation by Schwalm touches on them, but there is no paper discussing the broad variety of geometrical or "shape" models of these nuclei such as the model of Bohr and Mottelson that has been the staple framework in this field for so long. Given the controversy surrounding these topics, such a paper might profitably have been substituted for one of the rather extraneous "applied" papers that appear, really out of context, near the end of the book. The papers on tritium stratospheric tracers, for example, though well written, could easily have been omitted.

RICHARD E. CASTEN

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Books Received

The Antigens. Vol. 6. Michael Sela, Ed. Academic Press, New York, 1982. xiv, 454 pp., illus. \$56.

Archaeoastronomy in the Americas. Papers from a conference, Santa Fe, N.M., 1979. Ray A. Williamson, Ed. Ballena Press, Los Altos, Calif., and Center for Archaeoastronomy (University of Maryland), College Park, 1981. 406 pp., illus. Paper, \$19.95. Ballena Press Anthropological Papers no. 22.

The Architecture of Solids. George E. Bacon. Wykeham, London, and Crane, Russak, New York, 1981. viii, 142 pp., illus. Paper, \$16.50. The Wykeham Science Series, 58.

The Arms Race. The Political Economy of Military Growth. Miroslav Nincic. Praeger, New York, 1982. xiv, 210 pp., illus. \$21.95.

Biomass as Fuel. L. P. White and L. G. Plaskett. Academic Press, New York, 1981. x, 212 pp., illus. \$29.50.

Biomedical Sensors. Fundamentals and Applications. Harry N. Norton. Noyes, Park Ridge, N.J., 1982. xii, 130 pp., illus. \$20.

The Coal Era in the United States. C. B. Reed. Ann Arbor Science, Ann Arbor, Mich., 1981. xii, 92 pp. Paper, \$9.95.

Coding the Universe. A. Beller, R. Jensen, and P. Welch. Cambridge University Press, New York, 1982. viii, 354 pp. Paper, \$34.50. London Mathematical Society Lecture Note Series, 47.

The Combustion of Organic Polymers. C. F. Cullis and M. M. Hirschler. Clarendon (Oxford University Press), New York, 1981. xii, 420 pp., illus. \$59. International Series of Monographs on Chemistry.

Communications Tomorrow. The Coming of the Information Society. Selections from *The Futurist*. Edward Cornish, Ed. World Future Society, Bethesda, Md., 1982. 160 pp., illus. Paper, \$6.95.

Dark Paradise. Opiate Addiction in America before 1940. David T. Courtwright. Harvard University Press, Cambridge, Mass., 1982. x, 270 pp. \$20.

Defects and Fracture. Proceedings of a symposium, Tuczno, Poland, Oct. 1980. G. C. Sih and H. Zorski, Eds. Nijhoff, The Hague, 1982 (U.S. distributor, Kluwer Boston, Hingham, Mass.). xiv, 276 pp., illus. \$42.90.

Economic Aspects of Natural Hazards. Alan L. Sorkin. Lexington (Heath), Lexington, Mass., 1982. xii, 180 pp. \$23.95.

The Edge of Infinity. Where the Universe Came From and How It Will End. Paul Davies. Simon and Schuster, New York, 1982. x, 196 pp., illus. \$13.50.

Effects of Disease on the Physiology of the Growing
(Continued on page 1144)

BOOKS RECEIVED

(Continued from page 1104)

Plant. Papers from a seminar, London, Mar. 1980. P. G. Ayres, Ed. Cambridge University Press, New York, 1982. x, 228 pp., illus. Cloth, \$47.50; paper, \$18.95. Society for Experimental Biology Seminar Series, 11.

Functional Analysis and Approximation. Proceedings of a conference, Oberwolfach, Germany, Aug. 1980. P. L. Butzer, B. Sz. Nagy, and E. Görlich, Eds. Birkhäuser, Boston, 1981. 482 pp. \$47.95. International Series of Numerical Mathematics, vol. 60.

Geological and Ecological Studies of Qinghai-Xizang Plateau. Proceedings of a symposium, Beijing, May 1980. Science Press, Beijing, and Gordon and Breach, New York, 1981. Two volumes. Vol. 1, Geology, Geological History and Origin of Qinghai-Xizang Plateau. xxx pp., 974 pp., illus. \$150. Vol. 2, Environment and Ecology of Qinghai-Xizang Plateau. xiv + pp. 975-2138, illus. \$175. The two-volume set, \$290.

Géométrie Analytique Rigide et Applications. Jean Fresnel and Marius van der Put. Birkhäuser, Boston, 1981. xii, 216 pp., illus. \$10. Progress in Mathematics, vol. 18.

Introduction to Quartz Crystal Unit Design. Virgil E. Bottom. Van Nostrand Reinhold, New York, 1982. xx, 266 pp., illus. \$26.50. Van Nostrand Reinhold Electrical/Computer Science and Engineering Series.

Introduction to Soil Physics. Daniel Hillel. Academic Press, New York, 1982. xiv, 366 pp., illus. Paper, \$22.50.

Lie Algebras in Particle Physics. From Isospin to Unified Theories. Howard Georgi. Benjamin/Cummings Advanced Book Program, Reading, Mass., 1982. xxiv, 256 pp. \$14.50. Frontiers in Physics, 54.

Lifestyle and Social Structure. Concepts, Definitions, Analyses. Michael E. Sobel. Academic Press, New York, 1981. xii, 228 pp. \$26.50. Quantitative Studies in Social Relations.

Monitoring of Vital Parameters during Extracorporeal Circulation. Papers from a conference, Nijmegen, Netherlands, Mar. 1980. H. P. Kimmich, Ed. Karger, Basel, 1981. x, 332 pp., illus. \$113.15.

Monoamine Oxidase. Basic and Clinical Frontiers. Proceedings of a symposium, Hakone, Japan, July 1981. K. Kamijo, E. Usdin, and T. Nagatsu, Eds. Excerpta Medica, Amsterdam, 1982 (U.S. distributor, Elsevier North-Holland, New York). xii, 378 pp., illus. \$100. International Congress Series 564.

Neurosis and the Social Environment. Scott Henderson with D. G. Byrne and Paul Duncan-Jones. Academic Press, New York, 1982. xiv, 282 pp., illus. \$32.50. Personality and Psychopathology.

Order without Government. The Society of the Pemón Indians of Venezuela. David John Thomas. University of Illinois Press, Urbana, 1982. xiv, 266 pp., illus. Paper, \$17.50. Illinois Studies in Anthropology, No. 13.

Physical Geology. L. Don Leet, Sheldon Judson, and Marvin E. Kauffman. Prentice-Hall, Englewood Cliffs, N.J., ed. 6, 1982. xviii, 488 pp., illus. \$25.95.

Physics and Human Affairs. Art Hobson. Wiley, New York, 1982. xiv, 418 pp., illus. \$19.95.

Physics as Metaphor. Roger S. Jones. Drawings by Mike Norman. University of Minnesota Press, Minnesota, 1982. xiv, 256 pp. \$15.95.

Risk/Benefit Analysis in Water Resources Planning and Management. Papers from a conference, Pacific Grove, Calif., Sept. 1980. Yacov Y. Haimes, Ed. Plenum, New York, 1981. xii, 292 pp., illus. \$35.

The Role of Endorphins in Neuropsychiatry. H. M. Emrich, Ed. Karger, Basel, 1981. viii, 290 pp. \$79.75. Modern Problems of Pharmacopsychiatry, vol. 17.

Savoirs et Savoir-faire Psychologiques chez l'Enfant. Pierre Oléron and six others. Mardaga, Brussels, 1981. 286 pp. Paper. 760 BF. Psychologie et Sciences Humaines.

Science and Hypothesis. Historical Essays on Scientific Methodology. Larry Laudan. Reidel, Boston, 1981 (distributor, Kluwer Boston, Hingham, Mass.). xii, 260 pp. Cloth, \$34.95; paper, \$14.95. The University of Western Ontario Series in Philosophy of Science, vol. 19.

Transport Systems in Plants. Jeffrey Moorby. Longman, New York, 1981. vi, 170 pp., illus. Paper, \$14.95. Integrated Themes in Biology.

Vanuatu. Politics, Economics and Ritual in Island Melanesia. Michael Allen, Ed. Academic Press, New York, 1981. xviii, 428 pp., illus. \$39.50. Studies in Anthropology.

Venomous Animals and Their Toxins. Gerhard G. Habermehl. Translated from the 2nd German edition (1977). Springer-Verlag, New York, 1981. x, 196 pp., illus. Paper, \$15.50.

Vertebrate Biology. Robert T. Orr. Saunders, Philadelphia, ed. 5, 1982. viii, 568 pp., illus. \$26.95.

Personnel Placement

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1515 Massachusetts Avenue, NW
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POSITIONS WANTED

Animal Behaviorist. Ph.D. 1981, wildlife science. M.S. in experimental psychology (operant conditioning). Expertise in animal learning. Seeking research position or zoo work. Box 159, SCIENCE. X

Biochemist/Physiologist. Ph.D. Several years of experience in research and teaching; 30 publications; scientific reviewer. Interests in metabolic regulation (cyclic nucleotides) and environmental toxicology. Seeks academic position. Box 154, SCIENCE. X

Biologist—Ph.D. Zoology major; botany minor. Several years of experience in college teaching/research. Publications. Specialty in vertebrate taxonomy/ecology. Desires position in research and/or administration at industry, government, or university level. Box 147, SCIENCE. X

Botanist/Plant Pathologist. Ph.D. (1982). Experience in histology, anatomy, plant physiology, mycology, microscopy. Fifteen publications, broad background; seeks academic research/teaching position or research position in industry. Box 160, SCIENCE. X

Invertebrate Pharmacologist/Endocrinologist/Toxicologist. Ph.D. 1976, with unique publication record and research accomplishments in monoaminergic neurotransmission, proven grantsmanship, and excellent communication skills. Seeks challenging but rewarding faculty or research position in a scientific organization in North or South America. Box 158, SCIENCE. X

Limnology/Aquatic Ecology. M.S. Highly motivated individual seeks challenging position with government or industry. Skills include statistical analysis utilizing SAS and SPSS programming, SEM, photomicrography, underwater photography, and aerial photography (private pilot). Box 141, SCIENCE. 6/4, 18; 7/2

POSITIONS WANTED

Electron Microscopist/Plant Virologist. Ph.D. plant virology (1970), West Germany; M.S. plant protection (1962), Teheran; 20 years of research experience in tropical and subtropical plant diseases. Diagnoses of viral diseases in both basic and applied research laboratories. Supervising histochemistry of induced resistance on rust of bean and soybean, microbial culture on barley, and ultrastructural studies on mildew of barley. Well trained and research background in TEM and SEM techniques. Experienced in laboratory organization and supervision. More than 19 publications. Seeking research position in industry or academic/research institution. Box 157, SCIENCE. X

M.D. August 1982, M.Sc. (biological inorganic chemistry). Thesis in porphyrin chemistry. Seeking position in medical research in the Boston area. Experience in GC, HPLC, IR, UV, tissue culture, and wet methods. Also some teaching experience. D. Oluoha, 3400 Red Lion Road, Philadelphia, Pa. 19114. Telephone: 215-824-4347. X

Molecular Biologist. Ph.D., 4 years of postdoctoral training in world renowned laboratory; 5 years of independent research at world renowned institute. Experience in all areas of recombinant DNA research. Seeks position to direct and coordinate a group (or groups) involved in industrial recombinant DNA projects. Résumé detailing qualifications and publications will be forwarded on request. Box 153, SCIENCE. 6/4, 11, 18

Pharmacologist. Ph.D. 1973. University research experience; 10 years; medical school teaching; 2 years. Many publications. Seeks teaching or senior research position. Box 156, SCIENCE. X

Quantitative Ecologist/Fisheries Biologist. Ph.D. Seeks challenging position concerned with renewable natural resources evaluation, management, and utilization. Strong quantitative skills and communicative abilities; knowledge of applied economics, resource development, and federal regulatory agencies; excellent references. Research experience in fish population dynamics, mathematical modeling, and aquatic toxicology. Box 148, SCIENCE. X

Scientific Programmer/Molecular Biophysicist. Yale Ph.D. 1982. Especially familiar with Vax and PDP computers and x-ray scattering techniques. Publications. Writer. Box 162, SCIENCE. X

Toxicologist (occupational/environmental/regulatory), Ph.D., Board-certified. Nine years of chemical industry and government agencies experience. Familiar with regulatory processes (EPA, OSHA). Development of voluntary test programs under TSCA and occupational exposure standards under OSH Act. Multimillion-dollar toxicology research administration and multidisciplinary project management experience. Box 161, SCIENCE. X

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ASSISTANT PROFESSOR, IMMUNOLOGY/PATHOLOGY. A tenure-track position is available immediately for a **CELLULAR IMMUNOLOGIST** with established credentials of excellence in research to work as part of a group investigating mucosal immunity. Salary commensurate with qualifications and experience. Send curriculum vitae, selected reprints, a brief statement of research accomplishments, and the names and addresses of three references to: **Dr. Michael E. Lamm, Director, Institute of Pathology, Case Western Reserve University, 2085 Adelbert Road, Cleveland, Ohio 44106. An Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR, PARASITOLOGY/MICROBIOLOGY. Applications are invited for position at the assistant or associate professor level (tenure track) in the Division of Parasitology, Department of Microbiology, New York University School of Medicine.

Applicants must be strongly motivated toward research. Preference will be given to those interested in areas of molecular biology concerned with nucleic acids, gene expression, and genetic recombination as applied to problems of parasitology, especially malaria and trypanosomes.

In applying, please send curriculum vitae, a brief statement of research interests (one to two pages only), and names of four referees to: **Professor R. S. Nussenzweig, Head, Division of Parasitology, Department of Microbiology, New York University Medical Center, 341 East 25 Street, New York, N.Y. 10010. Deadline: 1 September 1982. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

University of Michigan Medical School, Department of Surgery, is seeking candidates for two open positions in **ACADEMIC GENERAL SURGERY**. The candidates should have demonstrated competence in clinical general surgery, teaching, and investigation. Candidates should also have completed their residency in general surgery at a university hospital in the United States or Canada and be eligible or certified by the American Board of Surgery. Send replies along with curriculum vitae to: **J. G. Turcotte, M.D., Professor and Chairman, Department of Surgery, University of Michigan Medical School, B-3912 C.F.O.B., Ann Arbor, Michigan 48109. A non-discriminatory, Affirmative Action Employer. Codes 139HO, 41HO.**

VISITING ASSISTANT PROFESSOR OF BIOLOGY. One-year sabbatical replacement position begins 1 September 1982. The successful candidate will be expected to teach upper-level genetics, microbiology, and beginning biology. A Ph.D. is required as well as a commitment to undergraduate education within the liberal arts. Limited research participation is available within a seven-member department. Send résumé and three letters of reference to: **W. Laughner, Chairman, Biology Department, Hiram College, Hiram, Ohio 44234.** Application deadline is June 1982. *Hiram College is an Equal Opportunity/Affirmative Action Employer.*

THE UNIVERSITY OF TEXAS HEALTH CENTER AT TYLER is seeking an individual of proven excellence to fill the post of **ASSOCIATE DIRECTOR FOR CLINICAL AFFAIRS**. The Health Center at Tyler is a health component of The University of Texas System reporting to the chancellor and the Board of Regents. This young institution has a commitment to excel in patient care, teaching, and research in chest diseases. The associate director for clinical affairs will be responsible for supervision and strengthening of all clinical services, will assist in further development of the teaching program in a postgraduate level, and will provide guidance in the expansion of a clinical research program. This position requires a doctor of medicine degree and Board-certification in an appropriate specialty. The candidate must have a record of leadership in clinical care, administration, and teaching. Familiarity with clinical research is highly desirable. The position should provide a rewarding challenge with salary and benefits commensurate with the outlined responsibilities. Send curriculum vitae and letter of interest to:

Search Committee, c/o Director of Personnel
The University of Texas Health Center at Tyler
Box 2003
Tyler, Texas 75710
Equal Opportunity Employer

University of Michigan Medical School, Department of Surgery, has a position available at the rank of **INSTRUCTOR THROUGH ASSOCIATE PROFESSOR**. Individual will work approximately half-time in patient care, teaching, and research related to burn surgery and half-time in general or plastic surgery patient care, teaching, and research. Applicants should be graduates of an American or Canadian medical school, Board-certified by the American Board of Surgery or equivalent board, have training and experience in the management of burn patients and in biomedical research related to burn surgery, and have documented records of contributing to scholarly activity in burn surgery. We are desirous of an individual who has been director of an investigative laboratory with a record of attracting external peer-reviewed funding and who has at least 20 publications in peer-reviewed literature. Reply to: **Dr. Irving Feller, 200 North Ingalls, Ann Arbor, Michigan 48104. A nondiscriminatory, Affirmative Action Employer. Code 169HO.**

MEMBRANE BIOCHEMISTRY—RESEARCH ASSISTANT OR ASSOCIATE PROFESSOR IN MEMBRANE BIOCHEMISTRY. Individual with Ph.D. and training adequate to carry out a study on phospholipid and protein organization in the isolated single electroplax preparation from the electric eel and the effects of anticholinesterase agents on membrane organization. Experience with chromatographic, electrophoretic, and subcellular fractionation techniques required. Minimum of 30-month position. Salary: \$19,000 per year. Forward curriculum vitae and arrange for three letters of recommendation to be sent to: **Dr. Phillip Rosenberg, Chairman, Section of Pharmacology and Toxicology, UNIVERSITY OF CONNECTICUT SCHOOL OF PHARMACY, Storrs, Conn. 06268, or telephone: 203-486-2213 or 203-486-2129. An Affirmative Action/Equal Opportunity Employer. (Search number S-156.)**

Head-National Center for Analysis of Energy Systems

Brookhaven National Laboratory

Brookhaven National Laboratory is seeking a Head for the National Center for Analysis of Energy Systems. The staff of the Center includes approximately fifty professionals in systems analysis, engineering, economics, and environmental sciences.

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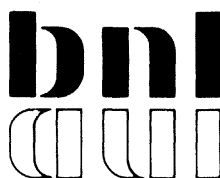
Applicants should have experience in systems analysis, strong leadership, and a record of successful marketing. An advanced degree in an energy-related field is desirable.

Brookhaven National Laboratory is located on eastern Long Island in an area known for its recreational attractions; the institutional environment favors intellectual freedom and creativity.

Applicants should reply to:

Mr. Jerome Lamontagne
Chairman, Search Committee
Department of Energy &
Environment, Building 475
Brookhaven National Laboratory
Associated Universities, Inc.
Upton, L.I., N.Y. 11973

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ASSISTANT PROFESSOR, BIODENTAL SCIENCES. Applications are invited from persons with Ph.D. or D.D.S. degrees or equivalent for the above position which will be available on 1 July 1982. Responsibilities include undergraduate, graduate, and postgraduate teaching and establishment of active research. Primary teaching responsibility will be in biodental sciences. The applicant should have expertise in teaching in one of the following areas: oral microanatomy and embryology or oral microbiology and immunology. Copy of curriculum vitae and three references should be sent directly to: **Dr. B. Macedo, Acting Chairperson, Department of Biodental Sciences, New Jersey Dental School, University of Medicine and Dentistry of New Jersey, 100 Bergen Street, Newark, N.J. 07103. An Equal Opportunity/Affirmative Action Employer, M/F.**

ASSISTANT PROFESSOR OF OPHTHALMOLOGY. Applicants should have a strong commitment to research and education in the subspecialty of pediatric ophthalmology with special emphasis on strabismus and genetics. This academic position requires completion of an approved 1-year fellowship in pediatric ophthalmology with additional training and experience in genetics, as well as research experience, teaching ability, and administrative ability. Preference given to applicant who has published on pediatric ophthalmology and who has concrete plans for clinical and basic research sufficiently developed to compete successfully for extramural funding. Send inquiries and curriculum vitae to: **Stephen J. Ryan, M.D., Chairman, Department of Ophthalmology, University of Southern California School of Medicine, Doheny Eye Foundation, 1355 San Pablo Street, Los Angeles, Calif. 90033. Affirmative Action/Equal Opportunity Employer.**

BIOLOGY FACULTY

The Department of Biology at the University of South Florida has openings for two faculty members for 9-month appointments commencing 30 August 1982. Preferred areas of specialization are (i) animal physiology and (ii) vertebrate ecology. A Ph.D. degree is required. Applicants should submit curriculum vitae, three letters of recommendation, and graduate transcript to: **Chairman, Search Committee, Department of Biology, University of South Florida, Tampa, Fla. 33620, not later than 1 July. The University of South Florida is an Affirmative Action/Equal Opportunity Employer.**

BIOLOGY/BOTANY (Position Reopened)

Specialty in plant physiology with background in molecular biology. Need in fall 1982. Earned doctorate required. Teaching responsibilities may also include plant morphology, general botany, and introductory biology. Demonstrated teaching/research ability, publications, and/or evidence of other scholarly contributions are expected. One-year appointment with possibility for renewal. Application, résumé, four letters of recommendation, and transcripts must be postmarked by 1 July 1982. Send to: **Dr. George W. Welker, Chairman, Department of Biology, Ball State University, Muncie, Ind. 47306. Ball State University practices Equal Opportunity in Education and Employment.**

TENURE-TRACK FACULTY POSITION in seaweed aquaculture at assistant professor level available September 1982 for specialist in seaweed aquaculture to direct biological portion of marine mariculture project. Candidates should have demonstrated effectiveness in designing and directing substantial sponsored research projects combining laboratory and field studies. Initial appointment for 3 years. Modest teaching load. Closing date: 15 July 1982. Candidates should send résumé and have three letters of reference sent directly to: **Dr. D. W. Pritchard, Associate Director for Research, Marine Sciences Research Center, State University of New York (SUNY), Stony Brook, Stony Brook, N.Y. 11794. SUNY, Stony Brook, is an Equal Opportunity/Affirmative Action Employer. AK number 367.**

PARASITOLOGIST. Staff position, Department of Tropical Medicine, for project coordinator/laboratorian for clinical trials of antiparasitic drugs in tropical country. Need master's degree in parasitology and field experience; Spanish or French desired. (Louisiana Department of Labor Job Order Number 509006.) Write by 1 July 1982 to:

Barnett L. Cline, M.D.
Department of Tropical Medicine
Tulane University School of Public
Health and Tropical Medicine
1430 Tulane Avenue
New Orleans, Louisiana 70112

POSITIONS OPEN

ASSISTANT PROFESSOR, tenure track. This position requires a Ph.D., postdoctoral experience, and proven productivity in a basic science related to ophthalmology. Salary dependent on qualifications. Interested doctors please send curriculum vitae to: **Albert M. Potts, Ph.D., M.D., Professor and Chairman, University of Louisville, Department of Ophthalmology, 301 East Muhammad Ali Boulevard, Louisville, Ky. 40292. The University of Louisville is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR

University of California, Irvine, Department of Pathology, is recruiting for a faculty position in surgical pathology at the assistant professor level. Required: M.D., must be Board-certified in anatomic pathology and eligible for licensure in California. Subspecialty experience highly desirable. Demonstrated interests in clinical service functions, teaching, and research. Duties: assist the division chief in such administrative activities as the functioning of the histology laboratory, maintenance of clerical support, and the Residency Teaching Program; instructing medical students and residents in pathology; and presenting conferences for the clinical staff and the community. *An Equal Opportunity/Affirmative Action Employer.* Send curriculum vitae and references to: **Stephen G. Romansky, M.D., Department of Pathology, University of California, Irvine, 101 City Drive South, Orange, California 92668, by 5 July 1982.**

ASSOCIATE DIRECTOR UNIVERSITY OF NEW HAMPSHIRE (UNH) MARINE AND SEA GRANT PROGRAMS

Under administrative review of the director, to administer academic and research programs and activities administered by UNH, and to advise the director on matters concerning the UNH Marine Program. The distribution of effort shall be split approximately equally between Marine Program and the Sea Grant College Program. Ph.D. in a marine or related discipline with strong academically related background in marine research. With 5 years of academic/research experience with demonstrated administrative and supervisory skill. Salary range: \$25,460 to \$39,770, depending on experience. Application deadline is 1 July 1982. Submit applications and references to: **Robert W. Corell, Director, UNH Marine and Sea Grant Programs, Marine Program Building, University of New Hampshire, Durham, N.H. 03824. Affirmative Action/Equal Opportunity Employer.**

CHEMIST, ORGANIC (RESEARCH ASSOCIATE IN ORGANIC CHEMISTRY). Ph.D. in synthetic organic photochemistry with 3 years of graduate training. Will carry out synthetic and mechanistic photochemistry and the total synthesis of tetrahydrocannabinol and related compound/product separation using HPLC and other chromatographic techniques; requires experience in modern instruments; \$12,090 per year. Contact: **Troy Job Service Office, attention: George Dick, 1801 6th Avenue, Troy, N.Y. 12180; refer to job offer number 4808366, D.O.T. code 022.061-010.**

Expected available position for

EM LABORATORY TECHNICIAN

Fully trained and experienced in basic techniques of tissue preparation for TEM. Salary: \$13,372. Write: **Dr. Greta E. Tyson, Head, Electron Microscope Center, Drawer EM, Mississippi State University, Mississippi State, Miss. 39762.**

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

FACULTY POSITION

Anesthesiology Department is seeking a Ph.D. with background in pharmacology, physiology, or biochemistry for tenure-track position as **Director of Research Laboratories** in Sunbelt region at a major health sciences center with excellent laboratory facilities and equipment. A record of excellence in scientific achievement demonstrated by publications, grants, independent research, and attainment of senior faculty level in an academic or research-oriented institution is required. Candidate must have ability to work effectively with clinical faculty, to help design and carry out research, obtain funding, and participate in resident physician teaching. Applicants should send curriculum vitae, selected reprints, and three letters of reference to: **Noel W. Lawson, M.D., Chairman, Search Committee, Department of Anesthesiology, Texas Tech University Health Sciences Center, 3601 4th Street, Lubbock, Texas 79430. An Equal Opportunity Employer.**

POSITIONS OPEN

Applications are invited for the position of **DEAN** of the West Virginia University School of Medicine. The position involves the duties of the chief executive and academic officer of the school.

Candidates must have academic administrative experience, preferably in a medical school. Candidates should have a career showing scientific and scholarly activity, and an M.D. degree is preferable.

Letter of application and curriculum vitae, including the names and addresses of at least three professional references, should be forwarded to:

Alvin L. Watne, M.D.
Chairman, Dean's Search Committee
West Virginia University Medical Center
Morgantown, W. Va. 26506

The deadline for receipt of applications is 1 July 1982. *West Virginia is an Equal Opportunity/Affirmative Action Employer.*

DIABETES RESEARCH POSITION, Sansum Medical Research Foundation. Available 15 October 1982 as head of diabetes research in charitably funded foundation. Requires M.D. degree and several years of research experience and ability to create and pursue own program. Salary commensurate with qualifications. Foundation is closely affiliated with 60-physician multispecialty clinic and adjacent to 400-bed hospital. University affiliation possible. Send curriculum vitae and names of three references to:

C. A. Domz, M.D.
Sansum Medical Research Foundation
P.O. Box 11
Santa Barbara, California 93105

DIRECTOR, CLINICAL PHARMACOLOGY

The University of Alabama in Birmingham is seeking qualified candidates for the directorship of a newly created program in clinical pharmacology. Substantial space and state support are available. Appointments in an appropriate clinical department and pharmacology are available. Applicants should apply to: **John R. Durant, M.D., Chairman, Search Committee, Clinical Pharmacology, University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294. An Equal Opportunity/Affirmative Action Employer.**

ENTOMOLOGY ASSISTANT PROFESSOR—The Department of Entomology and Applied Ecology, University of Delaware, is recruiting a 12-month, tenure-track assistant professor. Qualifications include Ph.D. in entomology or a related field with demonstrated potential for quality research and teaching. Responsibilities: teach an undergraduate course in insect form and function and one or two graduate-level courses in specialty. Research specialization in insect physiology, pathology, or genetics, especially as related to applied ecology and/or biological control. Salary competitive, commensurate with training and experience. Applications received until 31 July 1982. Submit letter of application, curriculum vitae, reprints, and three letters of reference to:

Search Committee
University of Delaware
Entomology and Applied Ecology
Newark, Del. 19711

The University of Delaware is an Equal Opportunity Employer which encourages applications from qualified minority groups and women.

INSTRUCTOR/ASSISTANT PROFESSOR OF ANATOMY

M.S./Ph.D. required. One-year temporary appointment with possibility of renewal. Candidate should have commitment to teaching excellence and professional growth. Send curriculum vitae and names of three references to: **Chairman, Anatomy Department, University of New England, College of Osteopathic Medicine, 11 Hills Beach Road, Biddeford, Maine 04005. An Equal Opportunity/Affirmative Action Employer.**

MOLECULAR VIROLOGIST: POSTDOCTORAL ASSOCIATE. Full-time research position. Research and training in genetics and replication of invertebrate viruses. Experience in contemporary nucleic acid and/or protein synthesis techniques required and experience in tissue culture preferred. Application deadline: 31 August 1982. Qualified applicants send curriculum vitae and names of three references to: **Dr. H. Alan Wood, Boyce Thompson Institute at Cornell University, Tower Road, Ithaca, N.Y. 14853. An Affirmative Action/Equal Opportunity Employer.**

Taste The High Country Come Up To Coors

BREWING BIOCHEMIST III

The Adolph Coors Company announces the opening of an upper level research position in brewing technology. This highly visible position requires a solid background in biological processes, with demonstrated expertise and experience in enzymology, enzyme kinetics, intermediate metabolism and assay methodology. Additionally, the successful candidate must be a self-starter who will solve complex technical problems. Excellent writing and verbal communication ability necessary as frequent presentations of results along with implementation suggestion will be given to upper management. A Ph.D. degree in Biochemistry or related area is desired.

We offer an excellent salary and benefit package, including relocation. If interested send resume, including salary history to:



COORS INDUSTRIES Employment Center

Dept. ER
1221 Ford Street
Golden, Colorado 80401



An Equal Opportunity Employer M/F.

CSIRO

PLANT BREEDER

A\$21,810 to A\$32,070

DIVISION OF PLANT INDUSTRY
COTTON RESEARCH INSTITUTE
NARRABRI, N.S.W., AUSTRALIA

The Division of Plant Industry, whose headquarters is in Canberra, carries out research in the plant sciences relevant to agricultural production. Members of its Cotton Research Unit at Narrabri maintain close scientific contact with headquarters research staff conducting pure and applied research in genetics, plant breeding, biochemistry, physiology, microbiology, plant nutrition, ecology, agronomy, soil fertility, and plant introduction. The unit at Narrabri consists of two plant breeders, two agronomists, and three entomologists with adequate support staff. It operates from the field Laboratory of the N.S.W. Department of Agriculture where good facilities exist for all aspects of cotton research and the development of computer-based integrated pest management systems for on-farm management of commercial cotton crops. Narrabri is an attractive town of approximately 8000 population, located on the Namoi River in northwest N.S.W. and in Australia's major cotton-growing region. It has good amenities including a secondary school and a hospital and is well serviced by air, road, and rail transport.

DUTIES: The overall aim of the research at the Cotton Research Unit is to develop stable cotton production systems suitable for the Australian environment. The appointee will carry out research investigations in collaboration with other staff in the plant-breeding program. This program is concerned with the development of disease and pest-resistant, high-yielding cultivars.

QUALIFICATIONS: A Ph.D. degree or equivalent qualifications. Previous research experience in plant breeding desirable.

TENURE: Three years. Superannuation benefits available.

APPLICATIONS: Quoting reference number A4841, giving full personal and professional details, and the names of at least two referees should reach:

The Chief
Division of Plant Industry
CSIRO

P.O. Box 1600
Canberra City, A.C.T. 2601, Australia

By 2 July 1982.

U.S. PUBLIC HEALTH SERVICE EPIDEMIOLOGY TRAINING PROGRAM—1983

The U.S. Public Health Service (USPHS) invites applications for a proposed extension of a training program in medical epidemiology. Up to twelve (12) persons per year, who already have an M.D., a doctorate in an allied health profession, or Ph.D. in a biomedical or behavioral science (e.g., biochemistry, psychology, etc.), or equivalent, may be accepted as staff fellows of the USPHS (a non-tenured, junior professional classification under Civil Service) for up to a three-year period of duty. Applications received by **SEPTEMBER 10, 1982** may be considered for service to begin between July 1, and September 1, 1983. During the first year, each successful applicant will attend a university at government expense to study epidemiology, biostatistics, and related subjects. This course work should be creditable toward, but will not necessarily complete requirements for, a degree in Public Health. During the subsequent two years, individuals will work in association with senior epidemiologists in the participating USPHS agencies (Alcohol, Drug Abuse, and Mental Health Administration; Centers for Disease Control; Food and Drug Administration; and the National Institutes of Health), primarily in research studies. A matching procedure akin to the national internship matching will be employed to assure that each individual is assigned to a preceptor whose area of expertise is of interest to the trainee, and consistent with his/her career plans.

Salaries will be provided according to the scale in effect for staff fellows in intramural research at the NIH. At this time (1982), remuneration for a physician is \$30,000/for a non-physician, \$21,000, per annum for the first year, with a \$2,000 increase annually for the second and third years. Educational costs for the first year and relocation expenses are provided in addition.

Basic requirements for application to the program are:

- 1) M.D., doctorate in an allied health profession, or Ph.D. in a biomedical or behavioral science, or equivalent, *AND* one year of post-doctoral training or experience (by July 1, 1983).
- 2) *U.S. Citizenship* at time of application.
- 3) Acceptability to an accredited university offering an M.P.H., equivalent, or more advanced public health degree.

Further details of the program, and application forms, may be obtained by sending a **POSTCARD ONLY**, with your *printed* name and address to:

Robert S. Gordon, Jr., M.D., M.H.S.

Chairman, Steering Committee

National Institutes of Health

Building 1, Room 238, Bethesda, Maryland 20205

PLEASE DO NOT SEND letters, curriculum vitae, resumes, transcripts, reprints, etc. until you have reviewed the application packet and instructions for submission.

(THE USPHS IS AN EQUAL OPPORTUNITY EMPLOYER)

POSITIONS OPEN

FACULTY POSITIONS. Full-time faculty positions available fall 1982. Adult and child psychiatry inpatient and outpatient services; 454-bed university hospital; serving also as consultants for eastern Kentucky region. Medical students and resident teaching responsibilities. Submit curriculum vitae and inquiries to: **Chairman, Department of Psychiatry, University of Kentucky College of Medicine, Lexington, Kentucky 40536.** *The University of Kentucky is an Equal Opportunity Employer.*

University of Michigan Medical School, **Departments of Radiology**, has on occasion open **FACULTY POSITIONS** within the department and at its affiliated hospitals. Physicians filling these positions will take part in the programs of patient care, teaching, and research of the Departments of Radiology. They will supervise the activities of house officers and aid in the teaching of house officers and medical students. Qualified applicants must be American Board of Radiology-certified or Board-eligible. Previous training or work experience in an academic institution as well as demonstration of previous academic research and teaching experience are desirable. Academic rank will depend on qualifications and experience.

Interested applicants should contact: **William Martel, M.D., Acting Chairman, Department of Radiology, University of Michigan Medical School, Ann Arbor, Michigan 48109.** *A nondiscriminatory, Affirmative Action Employer.*

DEPARTMENT HEAD AND PROFESSOR, CHEMISTRY

Position offers the opportunity to provide leadership in the selection of several new junior faculty and to guide the continued growth and development of the department. Currently, specialized research programs include NMR of biological macromolecules, polymer science, nuclear, and theoretical chemistry. The candidate is expected to maintain an active research program. Starting date and research field open. Applicants should send curriculum vitae, names of five references, and a statement of personal research interests and perceptions of overall research opportunities in chemistry to:

**Professor Guy C. Berry
Chairman, Search Committee
Carnegie-Mellon University
4400 Fifth Avenue
Pittsburgh, Pa. 15213**

Carnegie-Mellon University is an Equal Opportunity/Affirmative Action Employer.

MOLECULAR BIOLOGY/CARCINOGENESIS: ASSISTANT PROFESSOR. The Center for the Environmental Health Sciences of Case Western Reserve University (CWRU) School of Medicine invites affiliation from highly motivated individuals with research commitments in the area of chemical and/or viral carcinogenesis. Candidates with postdoctoral experience (minimum of 2 years), exceptional ability, and a desire to teach medical and graduate students should send their curriculum vitae, a brief statement of research goals, and the names and addresses of three references to: **Search Committee, Center for the Environmental Health Sciences, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106.** *CWRU is an Equal Opportunity Employer.*

MOLECULAR BIOLOGY/CARCINOGENESIS: RESEARCH ASSOCIATE. Positions are available in the Center for the Environmental Health Sciences of Case Western Reserve University (CWRU) to participate in studies of the metabolism and DNA adduct formation of chemical carcinogens. Applicants must have a Ph.D. or M.D. degree and a broad background in tissue culture, DNA chemistry, and metabolism. Salary is commensurate with training and experience. Please send curriculum vitae and the names and addresses of three references to: **Search Committee, Center for the Environmental Health Sciences, School of Medicine, Case Western Reserve University, Cleveland, Ohio 44106.** *CWRU is an Equal Opportunity Employer.*

MOLECULAR VIROLOGIST

Position available for scientist to work on purification and characterization of cytomegalovirus and varicella glycoproteins. Opportunity to do research on other problems in medical virology that require molecular approaches. Academic appointment possible. Interaction with many interested collaborators at University of Pennsylvania. Send curriculum vitae and two references to: **Stanley A. Plotkin, M.D., Division of Infectious Diseases, Children's Hospital of Philadelphia, Philadelphia, Pa. 19104.**

POSITIONS OPEN

GENETICIST—PLANT TISSUE CULTURE. Assistant scientist, 1 July 1982. Full-time research on production and analysis of plant cell mutants and regenerated plants to obtain superior photosynthesis. Ph.D. in plant genetics. Send biography and names of three references to: **Dr. I. Zelitch, Head, Department of Biochemistry and Genetics, Connecticut Agricultural Experiment Station, P.O. Box 1106, New Haven, Conn. 06504.** *Equal Opportunity/Affirmative Action Employer.*

IMAGE SCIENTIST

The Federal Bureau of Investigation has several long-range research projects which involve digital image processing. In support of these research projects, two image scientists are being sought. The positions require a knowledge of image analysis and spatial and frequency digital filtering techniques. Applicants should have a background in mathematics or computer science and significant experience in the field. A Ph.D. or equivalent experience is desired.

These positions are in an excepted agency at the GS-11 to -13 level with a salary of \$23,566 to \$43,666, depending on experience. Résumé should be submitted to: **Michael G. Noblett, Federal Bureau of Investigation, Laboratory Division, Washington, D.C. 20535.**

The Federal Bureau of Investigation is an Equal Opportunity Employer.

IMMUNOPHARMACOLOGIST. Full-time research position in a growing institute specializing in arthritis and related inflammatory diseases. Background in immunopharmacology and pharmacology of inflammation. Position requires experience with animal and in vitro models. Qualified applicants should send curriculum vitae to: **Box 163, SCIENCE.** *Equal Opportunity Employer.*

MEDICAL PHYSICIST/BIOMEDICAL ENGINEER for research in dosimetry for photoradiation therapy of cancer. Send curriculum vitae, including references, to: **Professor A. E. Profio, Department of Chemical and Nuclear Engineering, University of California, Santa Barbara, Calif. 93106.** *An Equal Opportunity/Affirmative Action Employer. Deadline for applications: 15 July 1982.*

PHYSICAL CHEMIST. Seek recent Ph.D. in chemistry with background in gas-phase chemical kinetics. Experience in shock-tube methods, fast-flow reactors, flash photolysis techniques, and/or vacuum ultraviolet spectroscopy will be helpful. The position involves the study of gas-phase atom- and radical-molecule reactions, with emphasis on combustion chemistry. Techniques utilized in this program include flash photolysis and discharge flow, both of which employ resonance fluorescence detection of atomic species. Related research is being initiated in (i) shock-tube studies of atom-molecule reactions using ARAS, (ii) laser-induced fluorescence detection of radicals, and (iii) a photo-ionization mass spectrometric study of elementary reaction products. The third experiment is associated with the National Synchrotron Light Source which is nearly operational. Apply to: **Dr. R. Bruce Klemm or Dr. Joe V. Michael, Department of Energy and Environment, Building 527, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long Island, N.Y. 11973.**

An Equal Opportunity Employer, M/F

POSTDOCTORAL FELLOW: LUNG BIOCHEMISTRY. Research position open fall 1982 to study physiological control of turnover of lung proteins in intact perfused tissue and in cultured cells. Emphasis on cell type-specific proteins. Experience in immunological and/or tissue culture techniques desirable. Send curriculum vitae and three letters of reference to: **D. Eugene Rannels, Ph.D., Department of Physiology, M. S. Hershey Medical Center, Pennsylvania State University, Hershey, Pa. 17033.**

POSTDOCTORAL POSITION in genetics for research in one or more of the following areas: (i) expression of lysosomal hydrolases in mammals, (ii) physiological effects of genetic variation in mouse sperm enzymes, and (iii) development of immunological contraceptives based on sperm enzymes. Applicants should have experience with electrophoresis and spectrophotometry. Laboratory directed by **Dr. John L. VandeBerg.** Send curriculum vitae, university transcripts, statements of current research interests and career goals, and the names and addresses of three referees to: **Personnel Manager, Southwest Foundation for Research and Education, P.O. Box 28147, San Antonio, Texas 78284.** *We are an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

NEUROSCIENCE POSTDOCTORAL POSITIONS available in the following areas: cellular neurophysiology (with **W. H. Calvin, Ph.D.**, or **P. A. Schwartzkroin, Ph.D.**), epileptic neuron physiology and motor control (**A. R. Wyler, M.D.**, **A. A. Ward, Jr., M.D.**), neuroanatomical mechanisms of epilepsy and deafferentation (**A. B. Harris, M.D.**, **L. E. Westrum, M.D., Ph.D.**), physiology of human language and memory (**G. A. Ojemann, M.D.**), behavioral effects and mechanisms of action of antiepileptic drugs (**J. S. Lockard, Ph.D.**), and neurophysiology of peripheral nerve disorders (**J. D. Loeser, M.D.**, and **W. H. Calvin, Ph.D.**). **NRSA stipends with payback agreement for U.S. citizens or permanent residents with Ph.D. or M.D. and relevant research experience.** Write individual faculty or:

**Dr. William H. Calvin
Chairman, Selection Committee
Neurological Sciences Training Program
Department of Neurological Surgery (RI-20)
University of Washington
Seattle, Washington 98195**

PHYSICAL ANTHROPOLOGIST

**U.S. ARMY
NATICK RESEARCH AND
DEVELOPMENT LABORATORIES
NATICK, MASSACHUSETTS 01760**

This is a career position in the Federal Service. Salary range: \$28,245 to \$36,723, commensurate with education and experience. Ph.D. or master's preferred.

Responsibilities include conducting of research programs in physical anthropology, anthropometry, and human engineering; maintenance of data base on anthropological characteristics of Army personnel; and development of sizing systems for military clothing.

The Natick Laboratories are located 20 miles west of Boston. This position is in the competitive service and is limited to citizens of the United States.

Send résumé and salary history to:

**U.S. Army Natick
R & D Laboratories
Attention: DRDNA-BCR
(Edward Hays)
Natick, Mass. 01760**

The Federal Government is an Equal Opportunity Employer.

POSTDOCTORAL POSITION available from September 1982 for a neurochemist experienced in immunological or cell culture techniques to study neurotransmitter localization in mammalian retina. Send curriculum vitae to: **Dr. P. V. Sarthy, Department of Ophthalmology, HSB RJ-10, University of Washington, Seattle, Wash. 98195.** *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL RESEARCH ASSOCIATE. A position is available to study DNA-binding proteins in *N. gonorrhoeae* as related to genetic transformation. Position available fall 1982. Experience in biochemistry or microbial genetics an asset. Send curriculum vitae and three letters of reference to: **Dr. John Socca, Department of Biochemistry, The Johns Hopkins University, School of Hygiene and Public Health, 615 North Wolfe Street, Baltimore, Maryland 21205.**

TWO POSTDOCTORAL RESEARCH ASSOCIATES IN BACTERIAL IMMUNOCHEMISTRY. Channing Laboratory, Harvard Medical School. Projects involve study of the pathogenesis of: (i) immunity towards and infection with *Bacteroides fragilis*, and (ii) the role of *Staphylococcus aureus* and other organisms in the etiology of toxic shock syndrome. Focus is on the isolation of antigens, immunochemical and biochemical characterizations of these products, and study of their role in pathogenesis as well as their vaccine potential. Ph.D. in biochemistry, immunology, microbial genetics, or microbiology. Contact: **G. B. Pier, Ph.D.**, or **D. L. Kasper, M.D.**, Channing Laboratory, 180 Longwood Avenue, Boston, Mass. 02115.

DIRECTOR RESEARCH & DEVELOPMENT

NML (Nuclear-Medical Laboratories, Inc.), a Division of Warner-Lambert Company, is currently seeking a Ph.D. in Immunology or Immunochemistry or Biochemistry with 5-7 years experience in radioimmunoassay development to direct immunoassay research in the Dallas/Fort Worth Metroplex. Functional knowledge of ELISA technology and tissue culture development preferred, but not required.

The successful candidate will not only possess the above, but will also have demonstrated:

- effective administrative and managerial ability
- outstanding oral and written communication skills
- a documented record of scientific accomplishments.

Reporting directly to the Vice-President of Research for the General Diagnostics Research Group, you will interface directly with Marketing and Manufacturing in the development of significant products that will affect the future growth of NML.

Salary, bonus and benefits are exceptional, including a comprehensive relocation package. Qualified candidates should forward Curriculum Vitae and list of accomplishments in confidence to:



Mr. Don Barnett
Manager, Human Resources
Nuclear-Medical Laboratories, Inc.
P.O. Box 47864
Dallas, TX 75247

Equal Opportunity Employer
M/F/H

Neuropharmacologist MS LEVEL

The Warner-Lambert/Parke-Davis Pharmaceutical Research Division has an immediate opening at the Associate Scientist level for a Neuropharmacologist to join the newly created Neurology group. The successful candidate will possess:

- An M.S. or equivalent in Neuropharmacology or related discipline with emphasis on research utilizing EEG techniques and 3 to 5 years relevant experience.
- The ability to conduct the EEG experiments on laboratory animals. Required techniques include: preparation of animals for chronic recording of cortical and subcortical EEG, measurement of brain function using evoked potential techniques, power and frequency spectrum analysis. A knowledge of unit recording techniques is desirable.
- The ability to utilize computer techniques to reduce and analyze EEG data.
- Ability to carry out the surgical and stereotaxic procedures required for stimulating and recording the EEG from cortical and subcortical structures.

Located in Ann Arbor, Michigan, adjacent to the University of Michigan campus, our modern facilities are exclusively devoted to the discovery and development of new drugs. We offer outstanding compensation and environment, plus the opportunity for career development. Qualified, interested applicants should forward resume, references, and salary requirements to: Ms. D. Love, Dept. 010-82, Human Resources Supervisor, WARNER-LAMBERT/PARKE-DAVIS, PHARMACEUTICAL RESEARCH DIVISION, 2800 Plymouth Road, Ann Arbor, Michigan 48105. An Equal Opportunity Employer M/F/H.

**WARNER
LAMBERT**

RESEARCH SCIENTIST II

Medicinal Chemistry/ CNS Section

G. D. Searle Research and Development Division has a position available immediately for a Research Scientist II in the Department of Medicinal Chemistry. Qualified candidates will have a Ph.D. with 4-6 years pharmaceutical experience in central nervous system research, proven organic/medicinal chemistry skills and supervisory experience. This is a management position; the incumbent will help formulate the overall direction of CNS research, direct and coordinate activities in conjunction with the CNS Research Committee to meet department objectives, provide interdisciplinary leadership to both members of the group and other Searle scientists, and conduct a high powered personal research program.

We offer a liberal salary and benefits package as well as relocation assistance. To apply, submit resume including a summary of research experience and the name of three references to:

Sheila Copeland
8281-4310

Employment Counselor
Research & Development Division

G. D. SEARLE & CO.
Box 5110 / Chicago, IL 60680

Equal Opportunity Employer M/F/H...A Practice,
Not Just A Policy.



STAFF FELLOWSHIP POSITION

The National Institutes of Health seeks a postdoctoral fellow for a mathematical statistical position with the Laboratory of Statistical and Mathematical Methodology, Division of Computer Research and Technology. Candidates should have: 1) a Ph.D. degree (or have been certified as meeting all the requirements) in mathematical statistics, biostatistics or mathematics, 2) a strong interest in consultation and collaborative biomedical research, and 3) an equally strong commitment to original research in mathematical statistics.

Initial appointment will be for two years with potential for one year extensions to a maximum of four years. Stipend range is \$15,120-\$31,441 depending upon qualifications.

Candidates must be United States Citizens or be eligible for naturalization within four years.

Contact or send resume to:

Ms. Sally Davis, National Institutes of Health
Public Health Service Building 12A, Room 3013
9000 Rockville Pike, Bethesda, MD 20205 (301) 496-6851

AN EQUAL OPPORTUNITY EMPLOYER

POSITIONS OPEN

POSTDOCTORAL POSITION available for research on cell biology of sickled erythrocyte membranes. Expertise in membrane glycoproteins and/or endothelial cells in culture desirable. Some laboratory teaching in one of the anatomy courses will enhance future job prospects. Send curriculum vitae and names of three references by 30 June to:

Gary E. Wise, Ph.D.
Chairman, Department of Anatomy
Texas College of Osteopathic Medicine
Camp Bowie at Montgomery
Ft. Worth, Texas 76107-2690

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL POSITION available immediately for a recent Ph.D. in biochemistry or molecular biology. Experience in enzymology, protein chemistry, nucleic chemistry, or molecular genetics required. Laboratory studying the genetics, regulation, and enzymology of the complex of enzymes synthesizing deoxyribonucleotides and coupled with DNA replication in phage T4 infection. Includes membrane and recombinant DNA studies. U.S. citizenship or permanent resident visa. Send curriculum vitae, including three references and personal letter, to: Professor G. Robert Greenberg, Department of Biological Chemistry, Box 034, University of Michigan, Ann Arbor, Mich. 48109. A nondiscriminatory, Affirmative Action Employer.

POSTDOCTORAL POSITION— ANTICANCER DRUGS AND THE LIVER

Studies on transport, metabolism, and secretion of antineoplastic drugs in hepatocytes. This project is a component of a comprehensive program in biochemical pharmacology of antineoplastic agents in the cancer center. U.S. citizen or immigrant visa only. Address correspondence to: Dr. David A. Gewirtz, Department of Medicine, MCV Station Box 663, Richmond, Va. 23298.

POSTDOCTORAL POSITION is available 1 October 1982. A biochemist or electrochemist interested in spectral and electrochemical studies of electron transfer in flavoproteins is required. Experience in enzymology and enzyme purification is highly desirable. This is a 2-year appointment. Send curriculum vitae and names of references by 31 July to: Marian Stankovich, Department of Chemistry, University of Minnesota, Minneapolis, Minn. 55455. *The University of Minnesota is an Equal Opportunity/Affirmative Action Employer.*

PRE- AND POSTDOCTORAL POSITIONS. The Department of Pathology at University of Medicine and Dentistry of New Jersey-Rutgers Medical School is offering interested individuals pre- and postdoctoral training in programs addressing basic biological reactions in pathology and structural and mechanical properties of diseased tissues. Areas of study include tissue ultrastructure, biomaterials, physiochemistry, immunopathology, and tumor virology. Additional information may be obtained from: Dr. P. H. Silver, Graduate Program Committee, Department of Pathology, UNIVERSITY OF MEDICINE AND DENTISTRY OF NEW JERSEY-Rutgers Medical School, P.O. Box 101, Piscataway, New Jersey 08854. *An Equal Opportunity/Affirmative Action Employer, M/F.*

**ALICE E. DOISY PROFESSOR
AND CHAIRMAN
EDWARD A. DOISY DEPARTMENT
OF BIOCHEMISTRY
ST. LOUIS UNIVERSITY
SCHOOL OF MEDICINE**

The St. Louis University School of Medicine invites applications for the position of Alice E. Doisy Professor and Chairman of the Edward A. Doisy Department of Biochemistry. We are particularly looking for a scientist with an outstanding record of accomplishments in research and a clear commitment to both medical and graduate education. The successful candidate will be responsible for the leadership of 19 tenure-track faculty dedicated to research, teaching, and service. Interested candidates should send curriculum vitae and the names of three references to:

Dr. Thomas C. Westfall, Chairman
Biochemistry Search Committee
Department of Pharmacology
St. Louis University School of Medicine
1402 South Grand Boulevard
St. Louis, Missouri 63104

Application deadline is 1 July 1982. *St. Louis University is an Affirmative Action/Equal Opportunity Employer and will welcome applications from members of minority groups and women.*

POSITIONS OPEN

POSTDOCTORAL POSITION available immediately for research on psychobiological mechanisms of reinforcement and drug abuse. Background in behavioral pharmacology and neuropharmacology required. Experience with computers and electronic control desirable. Send curriculum vitae and names of three references to: Dr. Larry Stein, Chairman, Department of Pharmacology, College of Medicine, University of California, Irvine, Calif. 92717.

BAYLOR COLLEGE OF MEDICINE DEPARTMENTS OF CELL BIOLOGY, NEUROLOGY AND THE PROGRAM IN NEUROSCIENCE POSTDOCTORAL RESEARCH ASSOCIATES

Postdoctoral positions available immediately for studies into the molecular biology of muscle gene expression. The study will involve the analysis of specific regulatory proteins to DNA sequences of developmental interest, cloning and sequencing of structural gene domains, and related in vitro transcription experiments.

Applicants should hold a Ph.D. degree with relevant experience in molecular biology or biochemistry. Salary is competitive with fringe benefits.

Send résumé and letters of recommendation to either: Dr. Henry F. Epstein, or Dr. Robert J. Schwartz, Program in Neuroscience, NB 302, The Neurosensory Center, Baylor College of Medicine, Houston, Texas 77030. *An Equal Opportunity Employer.*

RESEARCH ASSISTANT PROFESSOR OF PHYSIOLOGY. Requirements: Ph.D. in biochemistry or physiology. Experience required in assay, purification, and characterization of natriuretic factors and their relevance to human hypertension. Candidate should possess extensive knowledge of ion-transport systems involved in sodium homeostasis and have at least 3 years of relevant postdoctoral experience. Duties will also include teaching at graduate and medical student level. Salary up to \$20,000, depending upon experience. Send curriculum vitae, names of two referees, and supporting material to: Dr. M. P. Blaustein, Chairman, Department of Physiology, University of Maryland Medical School, 660 West Redwood Street, Baltimore, Maryland 21202. *Affirmative Action/Equal Opportunity Employer.*

The Departments of Biochemistry and Medicine of the University of Louisville Health Sciences Center invite applications from qualified individuals with a commitment to excellence in research and teaching in the areas of lipid and lipoprotein biochemistry. Responsibilities include participation in the medical school curriculum and in the graduate teaching program. The individual is expected to develop a vigorous, independent research area while collaborating with an established program devoted to hepatobiliary lipid metabolism. The full-time, 3-year joint appointment is at the RESEARCH ASSISTANT PROFESSOR level with the primary appointment in the Department of Biochemistry effective immediately. The possibility for later development of tenure-track status in the Department of Medicine exists. Ph.D. in biochemistry is required. Applicants should have postgraduate research experience. Please send curriculum vitae, list of publications, at least three letters of reference, and a summary of research interest to: Dr. Richard N. Redinger, Chairman of Search Committee, Department of Medicine, University of Louisville School of Medicine, 530 South Jackson Street, Louisville, Ky. 40292. Applications will be accepted until 1 July 1982. *The University of Louisville is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH INSTRUCTOR. Expertise in the field of autoimmune diseases. Doctorate degree in the area of immunology; minimum of 2 to 3 years of experience required; \$22,320 per year. Contact: University of Texas Health Science Center, Department of Medicine, Division of Clinical Immunology, San Antonio, Texas 78284. *Affirmative Action/Equal Opportunity Employer.*

TISSUE CULTURE TECHNOLOGIST—Immediate opening in a biochemical genetics laboratory for individuals with an M.Sc. degree in biochemistry, microbiology, or related fields or B.Sc. with experience in tissue culture. Responsibilities include setting up and culturing of fibroblast cell lines and performing of assays for biochemical diagnosis of genetic metabolic diseases. There is also opportunity for doing independent research. Interested individuals please send current résumé and names of references to: Dr. Wai-Yee Chan, Department of Pediatrics, Oklahoma Children's Memorial Hospital, 940 NE 13 Street, Oklahoma City, Oklahoma 73190.

POSITIONS OPEN

TRANSPLANT IMMUNOLOGIST (M.D. or Ph.D.) required to join ongoing research program in the Department of Surgery, Dalhousie University. This is a tenured position at the assistant or associate professor rank with a joint appointment in the Department of Microbiology. The salary is competitive. The candidate will be expected to pursue an independent research program within the overall framework of the investigation of mechanisms of transplantation tolerance. Association with an active clinical transplant unit is available and undergraduate and graduate teaching an option. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Apply in writing to: Professor H. Bitter-Suermann, Department of Surgery, Victoria General Hospital, Halifax, Nova Scotia, Canada B3H 2Y9.

VERTEBRATE PHYSIOLOGIST. Tenure-track position at the assistant or associate professor level for fall 1982. Ph.D., with postdoctoral or equivalent research experience and publications required. Candidates will be expected to develop a research program which will attract external funding, to direct M.S. and Ph.D. students, and offer advanced courses in area of specialization. Undergraduate teaching will be required in certain areas of physiology and human anatomy and physiology. Application deadline: 5 July 1982 to ensure consideration. Position may be filled as a temporary appointment if a qualified candidate is not identified. Submit letter of application with résumé, including reprints and transcripts, and have three letters of reference forwarded to: Dr. Harold L. Drake, Chairman, Physiology Search Committee, Department of Biology, University of Mississippi, University, Miss. 38677. *Equal Opportunity Employer.*

PROGRAM

POSTDOCTORAL TRAINING PROGRAM IN SENSORY PHYSIOLOGY AND PSYCHOPHYSICS

Applications are invited to a new program, supported by NINCDS, for advanced research training in sensory physiology and psychophysics. Candidates should be committed to a research career, be U.S. citizens or permanent residents, and hold a doctorate degree, Ph.D., M.D., D.D.S. (D.M.D.), or D.V.M.

Preceptors and their areas of research include: Dr. Randolph Blake (vision psychophysics), Dr. Peter Dallos (auditory physiology), Dr. Christina Enroth-Cugell (vision physiology), Dr. Albert Farbman (development of olfactory and taste receptors), Dr. Robert Gesteland (olfactory physiology), Dr. Barry Peterson (vestibulo-ocular interactions), Dr. Richard Rogers (osmotic receptors and taste), Dr. J. Peter Rosenfeld (pain mechanisms), Dr. Robert Sekuler (vision psychophysics and aging), and Dr. Frederic Wightman (psychoacoustics).

Appointments are available for 2 to 3 years beginning 1 July 1982, with a salary ranging from \$13,380 to \$14,040. Applicants should complete the application for an individual NRSA and send to: Dr. Albert I. Farbman, Department of Neurobiology and Physiology, Northwestern University, Evanston, Ill. 60201. *Northwestern University is an Affirmative Action/Equal Opportunity Employer.*

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CENTRE FOR CELLULAR AND MOLECULAR BIOLOGY HYDERABAD-500009 INDIA

INDEPENDENT POSTS AVAILABLE

Centre for Cellular & Molecular Biology (CCMB), a constituent national laboratory of the Council of Scientific & Industrial Research (CSIR), India, invites correspondence from outstanding Indian scientists resident abroad but interested in returning to India. The CCMB is a well-equipped, recently established institution, at present located in the buildings of the Regional Research Laboratory Hyderabad. Its own buildings are under construction next to its present location and the first phase of the construction should be over by mid-1983, providing nearly 100,000 sq. ft. of space. The Centre is designed to have, at full strength, 20 independent groups each led by an outstanding scientist. The CCMB will have, in addition, a number of technique-oriented and service groups. The total staff strength finally envisaged is 650-700.

The charter of the CCMB calls upon it to develop into an institution of a high level of excellence (from international standards) in the growing areas of modern biology. It is already well-equipped, and its facilities will be further expanded when it shifts to the new buildings. Some groups already established, are headed by Dr G N Ramachandran, F.R.S.; Dr M R Das; Prof. D Balasubramanian; and Dr P M Bhargava (Director).

Those appointed as group leaders, for which positions correspondence is invited, must have demonstrated ability to work independently and to generate new, original and worthwhile ideas; qualities of leadership; a wide-based knowledge of modern biology; the capability of interacting with at least two-thirds of the existing groups; and the ability to cope with problems that are intrinsic to the Indian set up that one may face even in the best of the research institutions in the country. Posts available for the independent positions will be in the grade of either Rs. 1500-60-1800-100-2000 (Scientist EI; total emoluments will be Rs. 2,500/- on the minimum salary in the grade and Rs. 3,015/- on the maximum salary) or Rs. 1800-100-200-125/2-2250 (Scientist EII; total emoluments will be Rs. 2,785/- on the minimum salary and Rs. 3,590/- on the maximum salary). Those appointed in the Scientist EI grade would be likely to have had, generally speaking, a minimum of five years of post-doctoral experience, and those appointed to the Scientist EII grade, a minimum of 8 years of post-doctoral experience. There is a provision for higher start in the case of exceptionally qualified and suitable persons.

Those considered suitable on a prima facie basis, will be invited to visit the CCMB as and when they happen to visit India. Their travel expenses within India and living expenses in Hyderabad will be met by the CCMB. It may be possible to offer the position immediately to those considered suitable for the above posts after such a visit.

Some posts in the grade of Deputy Director (Scientist 'F'; Rs. 2000-125/2-2500) may also be available for exceptionally qualified candidates who already have had considerable experience of leading independent groups and have an established international reputation.

Letters and enquiries may be addressed to Mr P S Venkateswaran, Administrative Officer or Dr P M Bhargava, Director at the address given above.

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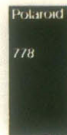
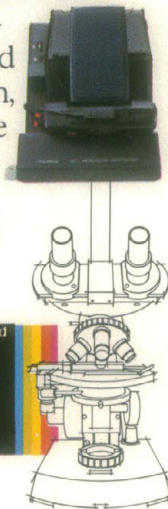
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