

leocene species of *Cytherella* from two boreholes in western Nigeria is analyzed by means of quantitative genetic formulas. The methodology will probably serve as a model for future studies of this type.

At least eight papers dealing with taxa ranging from the Upper Cambrian to the Recent are of value to the traditional systematist, but the spectacular SEM micrographs of the appendages and body of the Upper Cambrian *Hesslandona unisulcata* by K. J. Müller should be of interest to all zoologists. Although Müller has previously published SEM micrographs of appendages of Cambrian ostracods, none have shown the detail visible in the present specimens.

It is fitting that in the Postscript, entitled "From conversations with Peter: Reminiscences of the philosophy of P. C. Sylvester-Bradley," R. H. Benson provides an insight into the philosophy of this inspiring teacher, a theme that is included less particularly in some of the preceding chapters.

LOUIS S. KORNIKER

Department of Invertebrate Zoology,
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A Biochemical Pioneer

Experiences in Biochemical Perception. L. NICHOLAS ORNSTON and STEPHEN G. SLIGAR, Eds. Academic Press, New York, 1982. xx, 382 pp., illus. \$47.

This book is meant to teach us something about the perception and style of I. C. Gunsalus. Gunsalus was one of a rather small, remarkably talented group of young scientists who collectively shaped biochemistry as a discipline in the 1940's. Their fundamental discoveries and ability to pass on their enthusiasm for the still fledgling field to their students launched the explosive advance that continues unabated today. Gunsalus's interactions with colleagues are always extreme and decidedly nonuniform. This kind of behavior, which is at the root of his success, makes it difficult for one or two of his colleagues to capture the spirit of the man and his research. Wisely, the editors of *Experiences in Biochemical Perception* decided to solicit papers from a broad cross section of Gunsalus's colleagues and former students. The only charge to them was to recount the history of a line of research that can be traced to an insight gained through interactions with Gunsalus. The

resulting decidedly nonuniform but candid and skillfully prepared collection of 27 papers was presented to Gunsalus at a symposium held in honor of his 70th birthday this year.

The papers included in the volume range from histories of life in the Gunsalus laboratory during the times of discovery to primary research reports presenting new data that had their roots in interactions with Gunsalus. The histories, especially those by W. W. Umbreit and D. J. O'Kane describing the discovery of the coenzyme forms of pyridoxal and lipoate, are particularly informative. They convey the sense of excitement and urgency that accompanied the discoveries as well as the retrospective despair at missed opportunities. They also give the reader a sense of the "total abandon" with which Gunsalus attacked problems while at the same time retaining perspective and waiting, almost patiently, for the true answer to emerge in response to a well-mounted experiment. A remarkable paper by R. Y. Stanier detailing a collaboration with Gunsalus in the early 1950's contains a collection of letters written by Gunsalus about the ongoing research as well as about the state of science at the time. The letters are at one level undecipherable and at a second level eminently clear, a quality Gunsalus would later bring to perfection.

Histories of later discoveries reveal Gunsalus as a mature scientist with broad influence, expanding his research interests in many directions. In order to answer the questions that interested him, he simultaneously established groups in genetics, chemistry, and physics, each dominated by his demand for quality and his remarkable hunches. One such hunch, that bacteria gain their enormous nutritional diversity through transfer of plasmid DNA, is documented by A. M. Chakrabarty. In another paper S. G. Sligar shows how a second hunch, that bacterial metabolism of camphor might hold some interesting stories, led to the first homogeneous preparation of cytochrome P-450 and subsequently to the revelation of many details of the chemistry and physics of its mechanism.

Clearly this collection of papers will be most meaningful to the numerous students and colleagues of Gunsalus who can call upon their own impressions and experiences to complete the glimpse of the man presented in the contributions of others. Nevertheless there are important lessons here, particularly about the intensity required to promote discovery, the importance of learning how to listen to what nature returns in response to

meaningful experiments, and the rewards for enthusiastic pursuit of what one enjoys doing. Young scientists embarking on a career in research will find it particularly valuable. The entire volume is written for the nonspecialist and should have wide appeal.

JOHN D. LIPSCOMB

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Books Received

Andesites. Orogenic Andesites and Related Rocks. R. S. Thorpe, Ed. Wiley-Interscience, New York, 1982. xiv, 724 pp., illus. \$83.95.

Annual Review of Biophysics and Bioengineering. Vol. 11. L. J. Mullins, William A. Hagins, Carol Newton, and Gregorio Weber, Eds. Annual Reviews, Palo Alto, Calif., 1982. x, 494 pp., illus. \$22.

Annual Review of Earth and Planetary Sciences. Vol. 10. George W. Wetherill, Arden L. Albee, and Francis G. Stehli, Eds. Annual Reviews, Palo Alto, Calif., 1982. x, 544 pp., illus. \$22.

Current Topics in Membranes and Transport. Felix Bronner and Arnost Kleineller, Eds. Vol. 17. Membrane Lipids of Prokaryotes. Shmuel Razin and Shlomo Rottem, Eds. Academic Press, New York, 1982. xxviii, 384 pp., illus. \$45.

Darwinism and Human Affairs. Richard D. Alexander. University of Washington Press, Seattle, 1982. xxiv, 318 pp., illus. Paper, \$9.95. The Jessie and John Danz Lectures. Reprint of the 1980 edition.

Data for Decisions. Information Strategies for Policymakers. David C. Hoaglin, Richard J. Light, Bucknam McPeck, Frederick Mosteller, and Michael A. Stoto. Abt Books, Cambridge, Mass., 1982. xxii, 318 pp., illus. \$28.

Explorations in Natural Resource Economics. V. Kerry Smith and John V. Krutilla, Eds. Published for Resources for the Future by Johns Hopkins University Press, Baltimore, 1982. xiv, 352 pp. Cloth.

Factorization of Matrix Functions and Singular Integral Operators. K. Clancey and I. Gohberg. Birkhäuser, Boston, 1981. x, 234 pp. \$17.55. Operator Theory, vol. 3.

Fiction Stranger than Truth. In the Metaphysical Labyrinth of Relativity. N. Rudakov. Published by the author, P.O. Box 723, Geelong, Victoria, Australia, 1981. iv, 176 pp. Paper, A\$10.

Howell-Fulton Physiology and Biophysics. Excitable Tissues and Reflex Control of Muscle. Theodore Ruch and Harry D. Patton, Eds. Saunders, Philadelphia, ed. 20, 1982. xii, 382 pp., illus.

The Human Brain and Its Universe. Hartwig Kuhlenbeck. Joachim Gerlach, Ed. Karger, Basel, 1982. Vol. 1, The World of Natural Sciences and Its Phenomenology. xiv, 282 pp., illus. \$99. Vol. 2, The Brain and Its Mind. xiv, 374 pp., illus. \$139. Revision of *Brain and Consciousness* (1957).

The Information Professional. Survey of an Emerging Field. Anthony Debons, Donald W. King, Una Mansfield, and Donald L. Shirey, Dekker, New York, 1981. xx, 272 pp. \$35. Books in Library and Information Science, vol. 38.

Microprocessors. Your Questions Answered. Alec Wood. Newnes (Butterworths), Boston, 1982. iv, 156 pp., illus. Paper, \$13.50.

Military Service in the United States. Papers from a meeting, Mt. Kisco, N.Y., Sept. 1981. Brent Scowcroft, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1982. viii, 232 pp. Paper, \$7.95.

Neuroimmunology. Jeremy Brookes, Ed. Plenum, New York, 1982. xvi, 256 pp., illus. \$29.50. Current Topics in Neurobiology.

Psychosocial Family Interventions in Chronic Pediatric Illness. Proceedings of a symposium, Brooklyn, N.Y., Dec. 1980. Adolph E. Christ and Kalman Flomenhaft, Eds. Plenum, New York, 1982. xii, 212 pp. \$32.50. The Downstate Series of Research in Psychiatry and Psychology, vol. 4.

Short Fibre Reinforced Thermoplastics. M. J. Folkes. Research Studies Press (Wiley), New York, 1982. x, 176 pp., illus. \$32.95. Polymer Engineering Research Studies Series, 1.

Visual Information Processing. Kathryn T. Spoehr and Stephen W. Lehmkuhle. Freeman, San Francisco, 1982. xii, 298 pp., illus. Cloth, \$22.50; paper, \$14. A Series of Books in Psychology.

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ASSOCIATE IN PHYSIOLOGY. Department of Physiology, College of Medicine, University of Florida, is seeking applicants for an associate in physiology and/or cardiovascular pharmacology desirable to do research on NIH grant. Position available 20 September 1982. Forward curriculum vitae and three letters of reference to: **Dr. S. Cassin, Department of Physiology, Box J-274, J. Hillis Miller Health Center, University of Florida, Gainesville, Fla. 32610, by 3 September 1982.**

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Applications should include a letter of interest, curriculum vitae, and the names, addresses, and current telephone numbers of four references. Applications received by 15 October 1982 will receive full consideration.

Applications and nominations should be sent to:



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BIOCHEMISTRY RESEARCH POSITION

To participate in research at VA Medical Center, North Chicago, on the role of protein phosphorylation in the mechanism of cholera toxin action. Applicant should have a Ph.D. in biochemistry or pharmacology and should be knowledgeable about current research in cyclic nucleotide regulation, protein kinase enzymes, and membrane proteins; should be able to operate equipment such as spectrophotometer, ultracentrifuge, liquid scintillation counter, and scanning microdensitometer; and should be familiar with radioisotope usage, gel electrophoresis, chromatographic and autoradiographic techniques. Forty hours per week. Excellent working conditions. Salary in the range of \$15,000 to \$21,000, depending on applicant's qualifications. Applicants must be U.S. citizens. Send curriculum vitae and names and addresses of three references to: **Dr. Harvey S. Kantor, Chief, Infections Disease Section, VA Medical Center, North Chicago, Ill. 60064. An Equal Opportunity Employer.**

The University of Illinois, College of Medicine at Peoria, is searching for a **CHAIRMAN** of the Department of Basic Science. This currently is an active multidisciplinary basic science research unit extensively involved in undergraduate medical education. The successful candidate should have a Ph.D. and/or M.D. degree with a record of sustained scholarly activity and interest in undergraduate medical education and be qualified for appointment as a professor in the University of Illinois. The position will be open until filled. Send first letter and curriculum vitae to: **Patrick W. Elwood, M.D., Chairman, Search Committee for Basic Science, 530 N.E. Glen Oak Avenue, Peoria, Illinois 61637. The University of Illinois is an Affirmative Action/Equal Opportunity Employer.**

THE UNIVERSITY OF SHEFFIELD CHAIR OF ANATOMY AND CELL BIOLOGY

Applications are invited for the Arthur Jackson Chair of Anatomy and Cell Biology, which will fall vacant on the retirement of Professor R. Barer on 30 September 1982. The University is seeking a trained and competent scientific anatomist in the widest sense and has a strong preference for a person with a medical qualification. Salary in the range for professorial appointments. Particulars from: **Registrar and Secretary (Staffing), The University, Sheffield S10 2TN, England**, to whom applications (one copy) should be sent by **18 October 1982. Quote reference: R725/HP.**

POSITIONS OPEN

BIOCHEMIST—MOLECULAR ENDOCRINOLOGIST. (i) Research assistant professor, 3-year appointment for research related to biochemistry of reproduction with emphasis on mechanism of hormone action, receptor purification, membrane biochemistry, glycoprotein hormone chemistry, inhibitors of hormone action, and associated problem areas. At least 2 years of postdoctoral experience required. Opportunity for development of independent research program and eventual entry into tenure-track program. Ph.D. in biochemistry preferred. (ii) **Research associate and postdoctoral positions** in above areas also available. Please forward curriculum vitae and names of three references to: **Dr. Leo E. Reichert, Jr., Professor and Chairman, Department of Biochemistry, Albany Medical College, Albany, New York 12208.**

Albany Medical College is an Equal Opportunity Employer.

CHAIRPERSON DEPARTMENT OF PATHOLOGY

Applications are solicited for the position of chairperson of the Department of Pathology of the Medical College of Wisconsin in Milwaukee, Wisconsin. We seek a candidate with the highest academic credentials and with demonstrated skills of excellence and leadership in the administration, teaching, and research efforts for a vigorous multifaceted Department of Pathology. The department is responsible for undergraduate and graduate medical education and the provision of services in four major affiliate hospitals. *The Medical College of Wisconsin is an Equal Opportunity/Affirmative Action Employer; women and minorities are encouraged to apply.* This position is now available. Submit inquiries and curriculum vitae by 30 September 1982 to: **Thad C. Hagen, M.D., Chairman, Pathology Search Committee, Professor and Co-Chairman, Department of Medicine, c/o J. Robert Koewing, Special Assistant to the Dean, Medical College of Wisconsin, 8701 Watertown Plank Road, Milwaukee, Wisconsin 53226.**

UNIVERSITY OF OTAGO Dunedin, New Zealand FACULTY OF MEDICINE CHAIR OF ANATOMY

The University Council invites applications for appointment to the **chair of anatomy.**

Professorial salaries, which are regularly reviewed, provide for a salary to be determined at an appropriate point within one of the following ranges:

Medically qualified professors: N.Z.\$53,951 to N.Z.\$59,509 per annum.
Nonmedically qualified professors:
N.Z.\$41,937 to N.Z.\$52,482 per annum.

Further particulars are available from: **The Secretary General, Association of Commonwealth Universities (Appointments), 36 Gordon Square, London WC1H 0PF, England**, or from: **D. W. Girvan, Registrar, P.O. Box 56, Dunedin, New Zealand.**

Applications, quoting reference A82/18, close in New Zealand and London on 30 September 1982.

DIRECTOR OF RESEARCH

The Shriners Hospitals for Crippled Children, Chicago Unit, now occupies a new structure in which excellent research facilities are available for studies in the area of orthopedic and neuromuscular disorders, neuromuscular physiology, biochemistry, molecular biology, and/or genetics. The appointee will be expected to supervise an ongoing research program and collaborate with an active clinical staff oriented to pediatric neuromuscular and orthopedic problems. Send curriculum vitae, the names of three references, and a brief statement of research interests to: **Lewis Molnar, Executive Vice President, Shriners Hospitals for Crippled Children, P.O. Box 25356, Tampa, Florida 33623.**

EM LABORATORY TECHNICIAN position available immediately for person experienced in conventional TEM and/or SEM techniques. Salary: \$14,838. 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.

POSITIONS OPEN

DIRECTOR COMPREHENSIVE CANCER CENTER UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE UNIVERSITY OF ALABAMA IN BIRMINGHAM

Qualified applicants for the position of director, Comprehensive Cancer Center, are being sought. This Center, the largest in the southeast, is currently funded by \$6.7 million in grants and contracts and a sizable amount of unrestricted resources. Outstanding faculty members in the basic and clinical sciences comprise the membership of the Center.

Successful candidates will be nationally and internationally recognized in cancer research, treatment, and education, and will have demonstrated experience in managing a complex multidisciplinary program.

Address applications and inquiries to:

**James A. Pittman, Jr., M.D., Dean
University of Alabama School of Medicine
University of Alabama in Birmingham
University Station
Birmingham, Alabama 35294**

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

ELECTRON MICROSCOPIST or MEMBRANE BIOCHEMIST. Immediate opening for **faculty position** (assistant research scientist) for individual with Ph.D. or equivalent. Postdoctoral experience preferred but not necessary. Must be competent in freeze-fracturing of membranes; knowledge in immunoelectron microscopy desirable. Should be willing to collaborate with immunologists/membrane biologists. Opportunity for independent research and teaching if desired. Salary: \$17,000 to \$22,000, depending on experience. Apply with résumé and statement of research interest, and also have three letters of recommendation sent to: **Dr. Alfred F. Esser, Laboratory for Structural Biology, Department of Comparative and Experimental Pathology, Box J145-JHMC, University of Florida, Gainesville, Fla. 32610, before 18 September 1982. An Equal Opportunity/Affirmative Action Employer.**

Section of Physiological Chemistry FACULTY POSITION IN BIOCHEMISTRY

A position for a tenure-track **biochemist** at the assistant professor level is open. Candidates must have a Ph.D. or M.D. and a minimum of 2 years of postdoctoral training.

Preference will be given to individuals working in areas related to molecular mechanisms of metabolic regulation in eukaryotic cells, especially phospholipid turnover, intracellular mediators of hormone action, or membrane-bound enzymes.

Candidates must be able to establish an independent research program with external funding and to participate in the teaching of lipid and carbohydrate metabolism to medical, graduate, and undergraduate students. Please send curriculum vitae, copies of the three most significant publications, bibliography, a brief description of research interests and career objectives, and three letters of recommendation by 1 December 1982 to: **Dr. John N. Fain, c/o Gerlinde Celona, Secretary, Search Committee, Section of Physiological Chemistry, Division of Biology and Medicine, Brown University, Providence, R.I. 02912.**

Brown University is a nondiscrimination, Affirmative Action Employer and welcomes applications from all qualified individuals, in particular, from women and members of minority groups.

HEAD, DEPARTMENT OF BIOCHEMISTRY, Clemson University, effective as soon as possible but no later than 15 August 1983. The applicant should have a Ph.D. or equivalent terminal degree with acknowledged experience and competence in biochemistry. The individual should meet the qualifications for full professor in the Department of Biochemistry at Clemson University. Candidates must have strong commitment to research and to both graduate and undergraduate education. Candidates should have experience in administering funded projects and/or academic units. Clemson University is the land-grant university for the state of South Carolina. The Department of Biochemistry is a unit of the College of Sciences and offers B.S., M.S., and Ph.D. degrees in biochemistry. Interested candidates should submit a letter of application and curriculum vitae, and have three letters of recommendation sent by 1 October 1982 to: **Dr. Richard H. Hilderman, Chairman, Biochemistry Search Committee, 132 Long Hall, Clemson University, Clemson, S.C. 29631. The University encourages applications from minorities and females. Clemson University is an Equal Opportunity/Affirmative Action Employer.**

The Gastrointestinal Research Group and Department of Physiology at the University of Calgary are recruiting individuals with expertise in Immunology and Neurophysiology.

Applicants must have demonstrated ability to do productive independent research. Funding will be provided on a competitive basis from the Alberta Heritage Foundation for Medical Research, a newly established Foundation for the support of medical research in the Province of Alberta. Candidates will be appointed at the assistant/associate professor level depending upon their background and experience. Remuneration will be based upon salary scales at the University of Calgary. In accordance with Canadian immigration requirements, priority will be given to Canadian citizens and permanent residents of Canada. Deadline for receipt of applications is November 1, 1982. Interested candidates please send a curriculum vitae, a brief description of field of interest, and three names of reference to:

Dr. Eldon A. Shaffer, Chairman,
GI Research Group
Health Sciences Centre
Faculty of Medicine
University of Calgary
3330 Hospital Drive N.W.
Calgary, Alberta, Canada T2N 4N1

Assistant Commissioner for the STATE MUSEUM, SCIENCE SERVICE & HISTORICAL SERVICES

LOCATION: Albany, N.Y.

SALARY: Mid \$50's

DUTIES: Directs the programs of the State Museum, including the Division of Museum Services, the State Science Service, and the Division of Historical and Anthropological Services, under policy guidelines set by the Board of Regents, the Commissioner of Education, and the Deputy Commissioner for Cultural Education.

QUALIFICATIONS INCLUDE: Advanced degree, demonstrated administrative capabilities, and extensive experience in developing and supervising a museum exhibit program in history, art and natural science.

Qualified candidates should send detailed resume by
SEPTEMBER 1 to:
Division of Personnel, Box 47

New York State Education Dept
Washington Avenue Albany, NY 12234

an affirmative action/equal opportunity employer m/f

BIOLOGICAL DEVELOPMENT BRANCH

The Division of Cancer Treatment, National Cancer Institute, National Institutes of Health, Public Health Service is seeking applicants to serve as a Section Head in the Biological Development Branch of the Biological Response Modifiers Program.

The Biological Development Branch conducts studies in the development and characterization of selected biological response modifiers with potential for therapeutic efficacy of cancer. Detailed and basic studies on biological response modifiers and on their mechanisms of action are performed *in vitro* and their immunopharmacology and therapeutic potential are explored in clinically relevant tumor models in experimental animals. Based on such information, highly promising biological response modifiers are evaluated in cancer patients, with an emphasis on determining the optimal biological response modifying schedule of administration, toxicity and anti-tumor effects.

As Section Head, the incumbent will initiate, plan and conduct research on biologically important subpopulations of lymphokines, cytokines, monocytes and macrophages, determine their ontogeny and mechanisms for their activation, particularly for cytotoxicity against tumor cells, and develop strategies for the use of these activated cells in the therapy of patients with cancer.

Applicants should have advanced training and be highly experienced in immunobiology, immunochemistry or macrophage immunobiology. The ability to organize and manage a section devoted to characterization, and

functional analysis and dissection of molecular mechanisms of action is required. Applicants must demonstrate a record of:

- (1) independent research in lymphokine immunobiology and/or immunochemistry and,
- (2) macrophage/monocyte immunology and/or the immunochemistry of monokines.

This is a Civil Service career-conditional appointment under the Merit Pay System at the GM-14 level, \$39,689 — \$51,596, depending on the qualifications of the applicant selected. The incumbent will be covered by Civil Service Retirement and will be eligible for life insurance and health benefits. Selected candidate would work at the Frederick Cancer Research Facility in Frederick, MD. (41 miles from Bethesda)

Interested persons should respond by submitting an application (Personal Qualifications Statement SF-171) with names of three references, to Ms. Dreauna Chapman, Personnel Management Branch, National Cancer Institute, Building 31, Room 3A32, National Institutes of Health, Bethesda, Maryland, 20205. Applications must be received or postmarked by August 31, 1982. If you need additional information, please call Ms. Chapman at (301) 496-6862.

NIH is an equal opportunity employer.

POSITIONS OPEN

FACULTY POSITION IN BIOMEDICAL SCIENCES

The Division of Biomedical Sciences, Meharry Medical College, is seeking applications for faculty positions at the level of assistant and associate professor. Applicants must have a Ph.D. and postdoctoral experience. Preference will be given to applicants with expertise in recombinant DNA technology, electron microscopy, cell culture, or immunochemistry. Candidates will be expected to develop an independent research program, teach first-year graduate students, and offer an advanced graduate course in their area of expertise. Please send curriculum vitae, summary of research interests, and the names of three references to: **Fred Jones, Jr., Ph.D., Search Committee, Division of Biomedical Sciences, Meharry Medical College, 1005 18th Avenue North, Nashville, Tennessee 37208.**

FACULTY POSITION, Cornell University, to develop a research and teaching program concerned with use of recombinant DNA techniques for application in food fermentations.

Ph.D. in microbiology, food microbiology, or fermentation technology, with training in microbial genetics and experience in recombinant DNA. Send complete résumé, transcripts, a statement of research interests, and three reference letters by 30 October 1982 to:

Dr. R. A. Ledford
Department of Food Science
101 Stocking Hall
Cornell University
Ithaca, N.Y. 14853

Cornell is committed to an Affirmative Action Program to seek applications from women and members of minority groups.

MASS SPECTROSCOPIST, RICE UNIVERSITY—The Department of Biochemistry of Rice University announces the availability of a scientific staff position for an experienced bioorganic mass spectroscopist to operate the GC-MS unit and to participate in research on sterol biosynthesis and chemistry of complex lipids. Salary dependent on qualifications and experience. Position available immediately. Interested persons should send résumé and names of three references to: **G. J. Schroepfer, Jr., Department of Biochemistry, Rice University, Houston, Texas 77005. Rice University is an Equal Opportunity/Affirmative Action Employer.**

NEUROBIOLOGY POSTDOCTORAL POSITIONS (TWO)

- 1) Pre-postnatal development and plasticity of olfactory circuitry-pathway tracers, histo-immunocytochemistry, receptor binding.
- 2) Neurophysiology of insular and olfactory cortex single-unit recording; experience with minicomputer; role in setting up new, well-equipped laboratory. New, well-equipped facilities; 3-year positions; 1 September start-up.

Send résumé of experience and skills, curriculum vitae, and three letters of recommendation to:



Michael T. Shipley
Department of Anatomy
and Cell Biology
University of Cincinnati
College of Medicine, ML 521
Cincinnati, Ohio 45267

An Equal Opportunity Employer

PATHOLOGIST—CELL BIOLOGIST: Established investigator for faculty position. Special areas of interest include basic cell structure/function relations, animal genetics, neurobiology, and animal virology. *Women and members of minority groups are encouraged to apply.* Please forward curriculum vitae to: **John E. Craighead, M.D., Chairman, Department of Pathology, University of Vermont, Burlington, Vermont 05405.**

The Department of Biochemistry, Rice University, announces the availability of **RESEARCH POSITIONS** for programs of research in the areas of cholesterol biosynthesis and sphingolipid chemistry and metabolism. Experience in cell culture techniques and/or bioorganic chemistry of concerned compounds highly desirable. Positions available immediately. Interested candidates should send résumé and names of three references to: **G. J. Schroepfer, Jr., Department of Biochemistry, Rice University, Houston, Texas 77005. Rice University is an Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

TWO VISITING FACULTY POSITIONS (ranks are open). Applications are invited for an evolutionary biologist to teach comparative vertebrate anatomy and a geneticist to teach general genetics. Both will also participate in the general course for majors. A Ph.D. is required. These are non-tenure-track, 1- to 2-year appointments that begin January 1983. Research facilities are available. Send curriculum vitae and three letters of reference to: **Dr. V. F. Allison, Chairman, Biology Department, Southern Methodist University, Dallas, Texas 75275. An Affirmative Action/Equal Opportunity Employer.**

INDOOR AIR QUALITY

A **RESEARCH SCIENTIST** is needed for GEOMET's established Indoor Environment Program. Requires at least an M.S. in chemistry, engineering, physics, or related fields; doctoral degree preferred. Research experience in conducting indoor air quality and/or air infiltration measurements is highly desirable. Must have proven writing skills. Salary commensurate with qualifications. Send résumé and salary history to:

K. Stradling, Personnel Department
GEOMET Technologies, Inc.
1801 Research Boulevard
Rockville, Maryland 20850

POSTDOCTORAL FELLOW RESEARCH ASSOCIATE

Cell biology/biochemistry background, to study structure and function of wild-type or mutant excitable membranes, molecular events in sensory transduction and adaptation. Unicell system, multidisciplinary environment. Available immediately. Send curriculum vitae and three letters of reference to: **Dr. Ching Kung, Laboratory of Molecular Biology, University of Wisconsin, Madison, Wis. 53706.**

POSTDOCTORAL FELLOW to study arachidonic acid metabolites in hemostasis. Should be experienced in lipid biochemistry (HPLC especially desirable) and/or membrane biochemistry. Salary from \$15,000, commensurate with experience. Send résumé with names and telephone numbers of three references by 15 September 1982 to: **Dr. Ronald W. Walenga, Pediatrics, State University of New York—Upstate Medical Center, 750 Irving Avenue, Syracuse, N.Y. 13210. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available immediately for research on antitumor drug effects on human cancer cells. Specific studies will be conducted on the mechanism of cisplatin-associated cross-linking of DNA, synergistic activity with nucleosides, and development of flow cytometric techniques for measuring nucleic acid cross-linking. Previous experience in tissue culture methods, molecular biology techniques, and/or flow cytometry technology is highly desirable. Starting salary for this 2-year position is \$16,000 plus generous benefits. Send curriculum vitae, a description of research interests and career goals, and names and addresses of three references to: **Dr. Benjamin Drewinko, Department of Laboratory Medicine, M.D. Anderson Hospital and Tumor Institute, Houston, Texas 77030.**

POSTDOCTORAL POSITION available immediately. Research on activity and mechanisms of antitumor drugs on human tumors xenografted into nude rats. Techniques involve animal breeding, cell kinetics methods (autoradiography and flow cytometry), pharmacokinetics, and colony-formation assays of bone marrow and tumor cells. Previous experience with animal experimentation, especially nude mice, is highly desirable. Starting salary for this 2-year position is \$16,000 plus generous fringe benefits. Send curriculum vitae, a description of research interests and career goals, and names and addresses of three references to: **Dr. Benjamin Drewinko, Department of Laboratory Medicine, M.D. Anderson Hospital and Tumor Institute, 6723 Bertner, Houston, Texas 77030.**

POSTDOCTORAL POSITION available for the study of light-dependent transport of ions in halobacterial membranes. The aim of the research is to describe the structural and functional features of halorhodopsin, a retinyl protein involved in chloride translocation. Experience with isolation and reconstitution of membrane proteins, use of nonpermeable reagents and covalently bound inhibitors, protein chemistry helpful. Send curriculum vitae and names of three references to: **Dr. Janos K. Lanyi, Department of Physiology and Biophysics, University of California, Irvine, California 92717. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

THE AUSTRALIAN NATIONAL UNIVERSITY invites applications for **POSTDOCTORAL FELLOW/RESEARCH FELLOW in CHEMICAL OR OPTICAL PHYSICS**. Department of Applied Mathematics, Research School of Physical Sciences. The Department of Applied Mathematics (head: Professor A. W. Snyder) has both theoretical and experimental groups working on aspects of five main areas of research: chemical physics, colloid and surface science, membrane biophysics/biochemistry, optical physics, and vision. Preference will be given to applications from theoreticians with interests in chemical or optical physics. Salary in accordance with qualifications and experience within the ranges: research fellow, A\$20,963 to A\$27,539 per annum; postdoctoral fellow, A\$18,068 to A\$20,699 per annum. Current exchange rates: A\$1 = U.S.\$1.02 = U.K.£58P. Appointment will be: research fellow up to 3 years with the possibility of extension to 5 years; postdoctoral fellow up to 2 years with the possibility of extension to 3 years. Reasonable appointment expenses are paid; superannuation; assistance with housing. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants may obtain further particulars from: **The Registrar, The Australian National University, P.O. Box 4, Canberra, ACT, Australia**, with whom applications close on 31 October 1982.

POSTDOCTORAL POSITION IN NEUROPHYSIOLOGY

Position available commencing May to June 1983 for a recent Ph.D. with training in motor systems neurophysiology. Experience with single neuron recording techniques in alert, behaving animals is particularly desirable. Please send curriculum vitae and names of three references to: **Dr. Donald Humphrey, Laboratory of Neurophysiology, Emory University School of Medicine, Atlanta, Ga. 30322. An Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITION available immediately to study neuronal organization of amygdala. Background in neurobiology/neuroanatomy preferred. Send curriculum vitae and two letters of reference to: **Dr. O. E. Millhouse, Department of Neurology, School of Medicine, University of Utah, Salt Lake City, Utah 84132.**

POSTDOCTORAL POSITION available for graduating Ph.D. in molecular biology or cell proliferation in laboratory. Experience in viruses, recombinant DNA, and gene transfer. Send inquiries to: **Dr. Renato Baserga, Temple University School of Medicine, 3400 North Broad Street, Philadelphia, Pa. 19140. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL POSITIONS—Two available immediately (or as desired) at the level of \$16,000 per year for 2 to 3 years, each employing recombinant DNA and hybridoma technologies to study the genetics, pathogenesis, and immunology of *Treponema pallidum*. Candidates should have a strong background in either (i) nucleic acids, cloning, and gene expression, or (ii) tissue culture and the production and use of monoclonal antibodies. Emphasis shall be on using molecular biological approaches for the identification, isolation, and characterization of *T. pallidum* immunogens that may be responsible for the apparent protective immunity observed in acquired or experimental syphilis. Please send curriculum vitae and the names of three references to: **Dr. Michael V. Norgard, Department of Microbiology, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity University.**

POSTDOCTORAL POSITION: Ph.D. in biochemistry/nutrition with experience in analytical techniques (GC, GC-MS, HPLC, RIA) and lipid chemistry. October 1982. To study interactions of polyunsaturated fatty acids and prostaglandins.

Send résumé and three references to: **J. E. Kinsella, Institute of Food Science, 114 Stocking Hall, Cornell University, Ithaca, N.Y. 14853.**

Cornell is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL POSITION for January 1983 on membrane epidermal glycoproteins. Strong background in biochemistry. Résumé to: **Dr. Miriam M. Brysk, Department of Dermatology, University of Texas Medical Branch (UTMB), Galveston, Texas 77550.**

UTMB is an Affirmative Action/Equal Opportunity Employer.

ASTROPHYSICIST/ SOLAR PHYSICIST

Lockheed Missiles and Space Company has an immediate opening for a Career Opportunity as an Astrophysicist/Solar Physicist to join the Space Astronomy Group at our Palo Alto Research Laboratory. The chosen candidate will participate in SMM flare and active region studies, with the opportunity to take part in planning a new solar observing program in the event of a successful NASA SMM repair mission.

Responsibilities also include the taking of a leading role in conceptualization of EUV and soft X-ray telescopes and spectrographs using multilayer reflectors as imaging optics and as spectroscopic dispersion elements. Initiation of proposals (with Principal Investigator status) for instrument development, for scientific research programs and for NASA/ESA Guest Investigations are strongly encouraged, with special emphasis in solar-stellar research.

A competitive salary and an attractive work environment in Palo Alto, close to Stanford University on the San Francisco Peninsula are offered. Interested candidates should send their resume, bibliography and references to LMSC Professional Employment, Dept. 584-0820, ATTN: Dr. Bernhard M. Haisch, P.O. Box 504, Sunnyvale, CA 94086. Lockheed is an equal opportunity, affirmative action employer. U.S. citizenship is required.



TAXONOMIST

Kelco, a leading manufacturer of specialty chemicals, is seeking a PhD microbial ecologist with a solid working knowledge in bacterial taxonomy. A strong background in numerical taxonomy and antimicrobial assays with computer experience is desirable. In addition to the identification of bacterial strains, this person will also be in charge of the culture collection and its maintenance and is expected to assist in other research activities involving product development. We offer an excellent salary and benefits package with opportunities for personal and professional growth. Please send resume and salary requirements in confidence to:

RUTH MARQUIS
Personnel Dept.

8355 Aero Drive
San Diego, CA 92123

*An Equal Opportunity
Employer (Male/Female)*

Kelco
DIVISION OF MERCK & CO. INC.

NATIONAL INSTITUTES OF HEALTH PUBLIC HEALTH SERVICE DEPARTMENT OF HEALTH AND HUMAN SERVICES

Closing Date: September 19, 1982

(All applications must be postmarked before closing date)

*Associate Director for Clinical Care,
NIH and Director, Clinical Center*

The National Institutes of Health invites nominations and applications for the dual position of Associate Director for Clinical Care, NIH, and the Director, Clinical Center. The Associate Director for Clinical Care is the principal advisor to the Director, NIH on matters and policies pertaining to clinical research conducted or supported by NIH. The Director, Clinical Center has staff responsibility for monitoring and supporting the clinical research activities of the NIH categorical institutes. The Clinical Center is a 540-bed research hospital that provides patient care in support of the clinical investigations conducted by the NIH institutes, plus a new Ambulatory Care Research Facility for clinical research on outpatients. The departments of the Clinical Center are responsible for the hospital and clinical services, except for direct physician care, and conduct research and training in their own specialties.

This is a Civil Service position in the Senior Executive Service (SES), with an authorized salary range from \$54,755 to \$61,300 per annum (payment currently limited to \$58,500) depending on qualifications. Candidates may be eligible for Physicians Comparability Allowance up to \$10,000 per year. Alternately, candidates may be eligible for appointment in the Commissioned Corps of the U.S. Public Health Service. The SES individual selected, if not presently in the SES, must serve a one-year probationary period.

The mandatory professional qualifications are: (1) meet the minimum educational requirements for Medical Officer, GS-602, as defined in the U.S. Office of Personnel Handbook X-118, Qualification Standards for positions under the

General Schedule, which is available in Federal Job Information Centers and Federal Personnel Offices; and (2) have experience at a senior level in providing patient care services or in clinical investigation programs (e.g., chief, hospital medical department, clinical director, senior clinical investigator). In addition, candidates must meet the following managerial/executive qualifications. Demonstrated competence to assume leadership responsibilities in: (1) assuring that national and agency goals, priorities, and values are considered in making program decisions; (2) assuring that the highest quality of patient care is maintained within the Clinical Center; (3) assuring that the Clinical Center is managed efficiently and in a sound fiscal manner; (4) establishing effective external communications by being a representative spokesperson for the organization, and maintaining working relationships within the organization and with outside key individuals and groups; (5) developing policy and directing programs, dealing with competing demands and limited resources to set goals and priorities, and establishing the structure and processes necessary to carry them out; (6) allocating the limited fiscal and material resources in a fair and objective manner in the face of competing demands, requiring the exercise of sound judgment and a thorough knowledge of competing programs; (7) developing processes and overseeing activities to assure that people are appropriately employed, effectively and efficiently utilized, and dealt with in a fair and equitable manner; and (8) developing evaluation activities and procedures to assure that program and policy are being executed, adjusted as necessary, and that the appropriate results are being achieved.

Candidates who meet the mandatory requirements will be further evaluated by the Search Committee on the following desirable factors: scientific recognition/peer recognition; communications and interpersonal skills; training and education; and honors and awards. Information on any of the above requirements may be obtained by calling Mrs. Helen Stafford at (301) 496-4197.

Applications (Personnel Qualifications Statement, SF-171) are to be sent to Helen C. Stafford, Executive Secretary, Search Committee for Associate Director for Clinical Care, NIH and Director, Clinical Center, National Institutes of Health, Building 1, Room 19, Bethesda, Maryland 20205. A current curriculum vitae and bibliography must accompany all applications. Applications of women and/or minority groups members are especially solicited.

The National Institutes of Health is an Equal Opportunity Employer

POSITIONS OPEN

POSTDOCTORAL POSITION to study the genetics of the outer membrane proteins of *Haemophilus influenzae* type b. Project involves the use of mutant analysis and recombinant DNA techniques together with monoclonal antibody technology to characterize these proteins and to elucidate their role in the pathogenesis of *Haemophilus* disease. Background in microbial genetics and/or recombinant DNA technology required. Position available fall 1982; later starting dates possible. Send curriculum vitae and the names, addresses, and telephone numbers of three references to: **Dr. Eric J. Hansen, Department of Microbiology, University of Texas Health Science Center at Dallas, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity University.**

POSTDOCTORAL POSITION to study biosynthesis, structure, and function of new cartilage collagens. Prefer experience in protein chemistry of immunological techniques, including monoclonal antibodies. Salary negotiable. Send résumé to: **Dr. Richard Mayne, Department of Anatomy, University of Alabama in Birmingham, University Station, Birmingham, Ala. 35294. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL POSITION available immediately to study the mechanism of secretion and physiology of the newly recognized pancreatic hormone, pancreatic polypeptide. Experience in protein purification techniques and monoclonal antibody production desirable. Minimum salary is \$16,000 with fringe benefits. Send curriculum vitae and the names of two references to: **Dr. Ronald Gingerich, P.O. Box 14871, St. Louis, Mo. 63178.**

POSTDOCTORAL POSITION available immediately to investigate the mechanisms of pituitary hormone biosynthesis. Study involves the regulation of gonadotropin production and its relationship to the reproductive cycle, using mRNA isolation, cell-free translations, recombinant DNA, and cloning techniques. Persons with experience in endocrinology, biochemistry, molecular biology, or recombinant DNA, with an interest in reproduction, will be given preference. Send curriculum vitae and a list of three references by 15 October 1982 to: **Thomas Landefeld, Pharmacology Department, University of Michigan, Ann Arbor, Mich. 48109; telephone: 313-764-9110. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH ASSOCIATE position available for electron microscopist/molecular biologist for studies with high-resolution scanning transmission electron microscope (Crewe type). Available immediately. Send curriculum vitae and names of three references to: **Professor Michael Beer, Department of Biophysics, Johns Hopkins University, Baltimore, Md. 21218.**

ERINDALE CAMPUS University of Toronto

POSTDOCTORAL RESEARCH ASSOCIATE

We are seeking a research associate to participate in a team research effort that involves investigations on the biochemistry of nucleic acids in the edible mushroom, *Agaricus bisporus*, and mycoviruses that infect this agriculturally important mushroom. The successful candidate should have a strong background in the biochemistry of nucleic acids and genetics. Preference will be given to individuals with recombinant DNA experience or experience with monoclonal antibodies. Salary: \$18,000 to \$20,000 per annum. Appointment date: 15 October 1982. Closing date for receipt of applications: 1 October 1982. Send curriculum vitae and two letters of reference to: **Dr. P. A. Horgen, Biology Group, University of Toronto, Erindale Campus, Mississauga, Ontario, Canada L5L 1C6.**

In accordance with Canadian immigration requirements, this advertisement is directed toward Canadian citizens and permanent residents.

RESEARCH ENTOMOLOGIST. Career Federal Service. Project leader, responsible for research on physiology of parasites and predators of insect pests. Will conduct studies on in vitro rearing and immunity of beneficial organisms. Position located with the Biological Control of Insects Research Laboratory, Columbia, Missouri. GS-11/12, GM-13 position; salary based on qualifications and experience. Candidates must be U.S. citizens. For applications: **J. Brooks, USDA-ARS-B37, 2000 West Pioneer Parkway, Peoria, Ill. 61615. Telephone: 309-671-7813. An Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION. Peptide and protein chemistry, enzymology—cholinesterases, phosphatases, angiotensin system, and so forth. Write: **I. B. Wilson, Department of Chemistry, University of Colorado, Boulder, Colorado 80309. Affirmative Action/Equal Opportunity Employer.**

POSTDOCTORAL RESEARCHER
VASCULAR SMOOTH MUSCLE PHYSIOLOGY
Immediate opening for a biophysically oriented Ph.D. to join a multidisciplinary group studying the myogenic, mechanical, and other properties of small arteries. A challenging opportunity for candidate interested in the areas of hypertension and stroke. Stipend dependent on qualifications. Send résumé and names of three references to: **Dr. W. Halpern, University of Vermont, College of Medicine, Department of Physiology and Biophysics, Burlington, Vt. 05405. An Affirmative Action Employer.**

POSTGRADUATE RESEARCH GENETICIST

The Department of Pomology, University of California at Davis, invites applications for a postdoctoral position for research involving recombinant DNA technology. This 12-month position is available 1 October 1982. Applicants must have a Ph.D. degree. Training in molecular biology, genetics, biochemistry, and prior experience in recombinant DNA technology are required. The salary is consistent with level of experience and current University rates for the postgraduate research geneticist series. Submit curriculum vitae, official undergraduate and graduate transcripts, list of publications, and names of three references to:

**Andrew H. Kuniyuki
Department of Pomology
University of California
Davis, California 95616**

Competition will cease 15 September 1982.

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

RESEARCH ASSISTANT

Institute of Sports Medicine and Athletic Trauma (ISMAT) at Lenox Hill Hospital is pleased to announce an available position for a research assistant. The ideal candidate must have an M.S. or equivalent in a basic medical science and be interested in a broad spectrum of research in sports medicine. Applicants should have knowledge or practice in the areas of exercise physiology, HPLC, muscle biopsy analysis, and biomechanics and have good communication skills. Please send curriculum vitae to: **P. Rosenthal, ISMAT, LENOX HILL HOSPITAL, 130 East 77 Street, New York, N.Y. 10021. An Equal Opportunity Employer.**

RESEARCH ASSOCIATE position in population genetics. Individual with a strong background in genetics and computer programming to participate in ongoing biomedical research on genetic control of fertility and of disease susceptibility. A master's degree or equivalent experience is required. Preference will be given to candidates with some background in statistics and experience in computer simulation. Please send résumé and names of three references by 10 September 1982 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.

RESEARCH ASSOCIATE: POSTDOCTORAL POSITION for 2 years to study the response of stream, soil, and soil solutions to whole tree harvest practices. Strong chemistry and statistics background and demonstrated ability to conduct independent research required. Submit curriculum vitae and three letters of reference by 13 September to: **Dr. C. T. Driscoll, Department of Civil Engineering, 150 Hinds Hall, Syracuse University, Syracuse, N.Y. 13210. Syracuse University is an Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE/POSTDOCTORAL FELLOW. Position available 1 October 1982 for biochemist to participate in research studies involving enzymic control of steroid metabolism during growth and development. Applicant should have experience in enzyme purification and characterization. Salary: \$13,500 to \$17,000, depending on qualifications and experience. Send curriculum vitae and names of three references to: **Dr. Carl Monder, Population Council, 1230 York Avenue, New York, N.Y. 10021.**

POSITIONS OPEN

PROFESSOR AND CHAIRMAN DEPARTMENT OF BIOCHEMISTRY

The University of Tennessee Center for the Health Sciences (UTCHS) seeks to recruit an outstanding scientist to chair its Department of Biochemistry. The individual we seek should have a distinguished record of accomplishment in scientific research, and should have demonstrated an interest and talent in administration and teaching. The incumbent will have the opportunity to recruit a substantial number of new faculty. UTCHS is a large, comprehensive medical center having active research programs in many areas of biomedical sciences, and is affiliated with other research programs at St. Jude Children's Research Hospital and the Veterans Administration Hospital. The department has the responsibility for teaching in the Colleges of Medicine, Dentistry, Pharmacy, Nursing, and the Graduate School. The incoming chairman will be expected to foster and develop the research potential of the department, as well as to continue his/her own research program. Qualified candidates are invited to submit their curriculum vitae to: **Dr. Murray Heimberg, Department of Pharmacology, The University of Tennessee Center for the Health Sciences, 874 Union Avenue, Memphis, Tenn. 38163. UTCHS is an Equal Opportunity/Affirmative Action Employer. Applications from minorities and women are encouraged.**

PROFESSOR AND HEAD DEPARTMENT OF PHARMACOLOGY AND THERAPEUTICS

Applications are invited for the position of professor and head of the Department of Pharmacology and Therapeutics at the Faculty of Medicine, University of Manitoba.

Candidates should have a substantial record and academic achievement in pharmacology and extensive experience in teaching and research. The department is responsible for programs of education at the undergraduate and graduate levels in medicine and offers programs leading to the M.Sc. and Ph.D. degrees. The department also cooperates with other clinical departments in the teaching of clinical pharmacology. *Both men and women are encouraged to apply.* In accordance with Canadian immigration requirements, this advertisement is directed to Canadian citizens and permanent residents of Canada.

Applications and nominations should be accompanied by curriculum vitae and submitted to:

**Dr. T. W. Fyles, Chairman,
Pharmacology Search Committee,
753 McDermot Avenue,
Winnipeg, Manitoba, Canada R3E 0W3**

CULLEN PROFESSORSHIP IN BIOCHEMICAL AND BIOPHYSICAL SCIENCES

The Department of Biochemical and Biophysical Sciences at the University of Houston invites applications and seeks nominations for the Hugh Roy and Lillie Cranz Cullen Professorship in Biochemical and Biophysical Sciences. The establishment of the professorship is intended to attract to the University an outstanding scientist who will enhance the research and teaching activities of the department and contribute significantly to the academic community. The person should have a documented record of excellence in biochemistry or cellular or molecular biology and enjoy a distinguished reputation in research. Candidates in areas such as regulation of gene expression, mechanisms of enzyme action, and structure and function of cell membranes will be of particular but not exclusive interest. The individual chosen will be one who is committed to continue research at the forefront of a field and who will contribute to teaching at the undergraduate and graduate levels.

The University of Houston is a state-supported multicampus institution with an enrollment on the central campus of 30,000 students, of whom 20 percent are pursuing graduate studies. The Department of Biochemical and Biophysical Sciences offers the B.S. in biochemical and biophysical sciences and the M.S. and Ph.D. in biochemical sciences. The department has 10 research-oriented faculty members and 30 graduate students.

Applications should include curriculum vitae, bibliography, and the names and addresses of three references. Nominations and applications should be sent to: **Dr. Joseph Eichberg, Chairman, Cullen Professorship Search Committee, Department of Biochemical and Biophysical Sciences, University of Houston, Houston, Texas 77004. The University is an Equal Opportunity/Affirmative Action Employer.**

CALIFORNIA BIOTECHNOLOGY INC.

Cal Biotech invites applications from molecular biologists at all levels of experience with a Ph.D., M.S., or B.S. degree. We seek highly motivated individuals with training and experience in recombinant DNA technology including gene isolation, sequencing, and expression, in protein chemistry, or in other related fields.

Cal Biotech is a recently established company created to apply techniques of molecular genetics to several areas of commercial importance.

We offer a highly stimulating research environment, competitive salaries and fringe benefits, and the possibility of equity participation for the most highly qualified personnel.

Applicants should send a curriculum vitae and names of three references in strict confidence to:

Dr. Brian J. McCarthy
Director of Research
California Biotechnology Inc.
2450 Bayshore Frontage Road
Mountain View, California 94043

MAX-PLANCK-GESELLSCHAFT zur Förderung der Wissenschaften e.V.

offers in the **FRIEDRICH-MIESCHER-LABORATORIUM** für biologische Arbeitsgruppen in Tübingen

A SCIENTIST

the opportunity to set up independently one out of four research groups and to carry out his/her own research program.

Applicants should already have done some internationally recognized research in their own particular field, preferably in the areas of

cell biology, development biology, or neurobiology

Appointments will be limited to 5 years. Salaries will fall within the range C 3 of the Bundes-Besoldungsgesetz (about 50–55.000 DM p.a.).

The research group will have available approximately 150 square meters of floor space, plus adequate means for scientific co-workers and technical supporting staff, basic equipment and operating expenses.

Applications should contain a tabular curriculum vitae, a list of publications and a short description of scientific work both achieved and intended and should be submitted before **September 30, 1982**

to the Max-Planck-Gesellschaft
zur Förderung der Wissenschaften e.V.
—Generalverwaltung—
Postfach 647
D-8000 München 1.

DIRECTOR—MINORITY TEACHING AND RESEARCH CAREER DEVELOPMENT PROGRAM RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY

Rutgers, The State University of New Jersey, seeks a Director for this program which aims to prepare minority students through Ph.D training to assume faculty positions at New Jersey Colleges and Universities. Responsibilities of this position include budget management, recruitment of students, liaison with academic institutions within New Jersey and elsewhere, counseling of students funded by the program, as well as other minority students in the various graduate and graduate professional schools of the University, and placement of graduates.

Interested applicants should have an advanced degree in the physical or biological sciences, engineering, mathematics, management, computer science, environmental or agricultural sciences, or statistics (Ph.D preferred), and one or more years of teaching, research, and/or administrative experience at a College or University. Position requires outstanding interpersonal skills, demonstrated administrative ability, and a sensitivity to the needs and problems of minority students at the graduate level. Salary is negotiable.

Applications or nominations should include the names and addresses of three references, be accompanied by a resume, and be sent to:

**Dean, Graduate School—New Brunswick
Rutgers**

The State University of New Jersey
25 Bishop Place
New Brunswick, New Jersey 08903

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BIOMEDICAL SCIENCES SENIOR INFORMATION SCIENTIST

This is a challenging opportunity for a successful biomedical scientist to become involved in science administration. You will coordinate the efforts from a broad range of scientific disciplines in preparing documents for submission to the Food and Drug Administration. You will also take responsibility for preparing technical reports on scientific issues pertinent to the company's ongoing and future projects. If you have a PhD in a biomedical discipline, a solid record in research, are articulate and able to pull data from various sources into a comprehensive report, this could be the opportunity for you. College level teaching experience is a definite asset.

We're one of the nation's leading pharmaceutical manufacturers, a Johnson & Johnson Company, with our ultramodern headquarters facility conveniently located in a beautiful rural setting just outside Philadelphia, Pa. We provide an excellent starting salary commensurate with your experience and ability, a superior company paid benefits package and opportunity for career growth. For immediate consideration forward your resume including a brief statement of career goals, without delay, to our Employment Manager. Resumes without a salary requirement will not be considered.

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POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE position available 1 October 1982 for a project investigating normal and malignant cell growth regulation and cancer chemotherapy. Applicants preferred with Ph.D. in tumor cell biology, pharmacology, or biochemistry. Experience with tissue culture techniques, including the human tumor stem assay, is desirable though not essential. Salary range: \$18,000 to \$20,000 per year, depending on experience. Send complete résumé, transcripts, and three letters of reference to: **Dr. Robert A. Hickie, Department of Pharmacology, College of Medicine, Health Sciences Building, University of Saskatchewan, Saskatoon, Saskatchewan, Canada S7N 0W0.**

RESEARCH ASSOCIATE IN IMMUNOLOGY—To supervise clinical laboratory in Department of Pediatrics and Human Development involved in research in cellular immunology and investigation of immunodeficiency and autoimmune diseases. Primary responsibility in ongoing research on soluble factors. Opportunity to initiate new areas of research and develop technical expertise. Training and experience in clinical immunology required. Contact: **Dr. D. B. Kaufman, Pediatrics/Human Development, B240 Life Sciences, Michigan State University (MSU), East Lansing, Michigan 48824-1317.** MSU is an Affirmative Action/Equal Opportunity Institution.

RESEARCH ASSOCIATE (research/teaching specialist II) **BIOCHEMISTRY.** Two-year appointment. Challenging opportunity to work with energetic team of biochemists to do research on new recombinant DNA techniques for prenatal diagnosis of genetic diseases. Successful candidate should have Ph.D. degree in biochemistry or chemistry with strong background in analytical or quantitative chemistry. Applicants with M.Sc. degree in a relevant science must have an additional 2 years of relevant experience. Background in DNA not essential, but project offers opportunity to develop career in recombinant DNA technologies. Excellent salary and benefits. Please send curriculum vitae and names of three individuals who may be contacted for references to: **Gwen Doyle, Personnel Department (P-154), 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.

RESEARCH ASSOCIATES (three): Ecosystem research in tallgrass prairie (Konza Prairie Research Natural Area). Positions open for fall or winter 1982. Master's degree or equivalent experience is the minimum requirement. Areas of technical competence sought include: plant ecology and systematics; entomology and insect ecology; and nutrient or soil chemistry. Candidates with competence in electronic data handling (Basic, SAS, microcomputers) will have an advantage. Send résumé and names of references by 15 October 1982 to: **G. R. Marzolf, Division of Biology, Kansas State University, Manhattan, Kansas 66506.**

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

SENIOR RESEARCH SCIENTIST

The University of Georgia invites applications for the position of associate or full professor in the School of Pharmacy in the Department of Medicinal Chemistry and Pharmacognosy and/or the Department of Pharmaceutics.

The individual who fills this position will have an international reputation in basic physicochemical sciences.

The successful candidate will:

- Evidence a strong research commitment in the physicochemical sciences which relates to the pharmaceutical/medicinal sciences,
- Have successful experience in attracting research funding and in developing new funding opportunities in collaboration with other faculty,
- Be strongly committed to graduate education, and
- Demonstrate skills in administering research and budgetary resources.

Deadline for receipt of applications is 1 December 1982.

J. P. LaRocca, Chairman
Search Committee
School of Pharmacy
University of Georgia
Athens, Ga. 30602

The University of Georgia is an Equal Opportunity Employer.

POSITIONS OPEN

POSTDOCTORAL OR RESEARCH ASSOCIATE POSITION available 1 September 1982 for plant ecologist with strong systems-modeling background to implement process, community, and ecosystem-level models of plant-soil-environmental interactions as part of an ongoing term research project which emphasizes arctic and chaparral ecosystems. Salary from \$15,000, depending on experience. Send curriculum vitae and references to: **Dr. Walter Oechel, Systems Ecology Research Group, San Diego State University, San Diego, Calif. 92182.**

Exciting **RESEARCH OPPORTUNITY** in West Germany; partake in studies on the differentiation of epithelial cells. Ideal candidate must have an M.D. and/or Ph.D. (postdoctorate or junior faculty) and should have experience in cell isolation, cell culture, and monoclonal antibody techniques. In addition to the researcher's salary, this federally funded position includes salary for one technician, start-up funds, and an appropriate supply budget. The research laboratories are part of the Max-Planck-Institut fuer Systemphysiologie in Dortmund, West Germany. Starting date: September 1983. Please send curriculum vitae and references to: **Dr. Rolf Kinne, Director-Elect, Max-Planck-Instituts fuer Systemphysiologie, c/o Albert Einstein College of Medicine, Department of Physiology and Biophysics, Room 303U, 1300 Morris Park Avenue, Bronx, N.Y. 10461.** Deadline for application: 3 September 1982.

Exciting **RESEARCH OPPORTUNITY** in West Germany; partake in studies on intracellular metabolism and ion movements in organelles and intact cells. Ideal candidate must have a Ph.D. (junior faculty) and should have experience in high resolution NMR technology (^{31}P , ^{23}Na) and its application to complex biological systems. The scientist will have the opportunity to actively participate in the planning of the new NMR laboratory. In addition to the researcher's salary, this federally funded position includes salary for one technician, start-up funds, and an appropriate supply budget. The research laboratories are part of the Max-Planck-Institut fuer Systemphysiologie in Dortmund, West Germany. Starting date: September 1983. Please send curriculum vitae and references to: **Dr. Rolf Kinne, Director-Elect, Max-Planck-Instituts fuer Systemphysiologie, c/o Albert Einstein College of Medicine, Department of Physiology and Biophysics, Room 303U, 1300 Morris Park Avenue, Bronx, N.Y. 10461.** Deadline for application: 3 September 1982.

RESEARCH PLANT GENETICIST. Career Federal Service. Incumbent will conduct research on wheat genetics directed toward development of improved disease- and insect-resistant parental lines adapted to the Hard Red Winter Wheat Region. Position located at Kansas State University campus, Manhattan. GS-11/12/13; salary based on qualifications and experience. For applications: **J. Brooks, USDA-ARS-B42, 2000 West Pioneer Parkway, Peoria, Ill. 61615.** Telephone: 309-671-7813. Candidates must be U.S. citizens. An Equal Opportunity Employer.

TRAINING PROGRAM

TRAINING PROGRAM

Postdoctoral traineeships are immediately available in the area of lipoprotein structure and metabolism. Research opportunities exist in the molecular aspects of lipoproteins and their subfractions, the role of enzymes in lipoprotein metabolism, and regulation of lipoprotein synthesis and catabolism by cells. A strong background in biochemistry or tissue culture techniques desirable. Limited to U.S. citizens or permanent residents. Stipends based on experience. Interested persons should send curriculum vitae and names and addresses of three references to: **Dr. Trudy Forte, Biology and Medicine Division, Lawrence Berkeley Laboratory, University of California, Berkeley, Calif. 94720.** Affirmative Action/Equal Opportunity Employer, M/F/H.

POSITIONS OPEN

RESEARCH ASSOCIATE to investigate ion exchange and fluid transport across endothelium of cornea. **POSTDOCTORAL FELLOW** for investigation of pain mechanisms and neurotrophic effects on cornea. Send curriculum vitae to: **D. Maurice, Division of Ophthalmology, Stanford University Medical Center, Stanford, Calif. 94305.** Telephone: 415-497-5844. Stanford is an Equal Opportunity/Affirmative Action Employer.

AWARD

The eighth **International St. Vincent Prize for the Biomedical Sciences**, jointly sponsored by the World Health Organization, UNESCO, and the President of the Italian Republic, will be awarded in fall 1983. The recipient of this prestigious award will be selected by a panel of 57 judges from throughout the world and will receive 50,000,000 lira. Applicants should send curriculum vitae and a letter highlighting major accomplishments by 30 September 1982 to: **Liborio Tranchida, M.D., Associate Professor, Wayne State University, Vice-Chief of Medicine, Harper Hospital, 3990 John R., Detroit, Michigan 48201.**

FELLOWSHIPS

STUDENT RESEARCH FELLOWSHIPS. The School of Forestry and Environmental Studies at Duke University invites applications from superior students for graduate research fellowships in environmental science. Potential research areas: forest and wetlands ecology, water quality modeling, population biology, forest micrometeorology, silviculture, and soil science. Strong background in quantitative methods preferred. Send curriculum vitae to: **Dr. Robert Boyd, School of Forestry and Environmental Studies, Department SA, Duke University, Durham, N.C. 27706.** Duke University is an Equal Access Institution.

MARKETPLACE

OPPORTUNITIES IN BIOTECHNOLOGY

for those with chemical, biochemical and molecular biology backgrounds

Vital information for anyone interested in biotechnology, whether BS, MS, or PhD. Genetic engineering company and career directory - a comprehensive, up-to-date summary of trends and employment opportunities in biotechnology.

The Biotechnology Directory contains detailed, multifaceted information covering over 200 US and foreign firms. It includes names and addresses of contacts, descriptions of areas of research and projected research goals, summaries of past and present hiring trends, and the qualifications required for employment by each company. The Directory also provides concise background information on every company, from the largest public corporation to the smallest privately held firm.

Organized according to fields of application, the directory is divided into five sections: agriculture/animal health, chemicals/energy, human health, hybridomas, and pharmaceuticals. \$25/section or \$100 for all five. A more detailed financial and scientific directory will also be made available. For more information write to:

Information Resources
P.O. Box 1734 GMF
Boston, MA 02205

Circle No. 198 on Readers' Service Card

SENIOR SCIENTISTS

GENETIC ENGINEERING—MICROBIOLOGY

Allelix Inc., Canada's first major biotechnology company, has been established to develop and commercialize discoveries with value to industry and agriculture on a world scale. A partnership of the Canada Development Corporation, John Labatt Limited and the Province of Ontario formed the venture in 1981, with budgeted expenditures of about \$100 million over the next ten years.

Scientific leaders sought. The company is seeking an initial team of scientific leaders up to the level of Deputy Scientific Director. Extensive experience and strong credentials in genetic engineering, microbiology and related fields are essential requirements. These lead scientists will play an active role in helping to recruit scientific staff, initiate and manage the R&D program and select laboratory equipment.

Opportunities and responsibilities. There will be an opportunity to contribute ideas and help choose projects which offer the best combination of technical feasibility, market need and financial reward. Projects now being evaluated include improved plant species, fine chemicals via fermentation, energy from biomass and wastes, hydro-carbon recovery, and minerals extraction.

Each member of the senior scientific team will manage a group of Ph.D.-level scientists conducting several applied research projects, each with major commercial potential. Within four or five years the scientific staff should number well over 100, with 50-60 Ph.Ds. The level of science required will be high and relationships with academic institutions will be encouraged. Opportunities will exist to present appropriate research results at meetings and in scientific journals.

Key qualifications. Immediate requirements are for three or four scientists with leadership experience in the following areas:

- Recombinant DNA techniques for manipulating and expressing prokaryot-

ic and eukaryotic genes in yeasts and bacteria.

- Fermentation microbiology, using normal and genetically-modified microorganisms at bench and pilot scale.
- Cell fusion techniques with plants, yeasts or bacteria.
- Synthesis of monoclonal antibodies and development of non-medical applications.

Modern research lab and pilot plant. Research will be carried out in a new custom-built laboratory near the Toronto International Airport. Total area being equipped in the first phase is 40,000 square feet, readily expandable to 75,000 square feet. A modern pilot plant will be provided for scaling up fermentation and other process steps. The laboratory is situated on four acres of land adjacent to a large park.

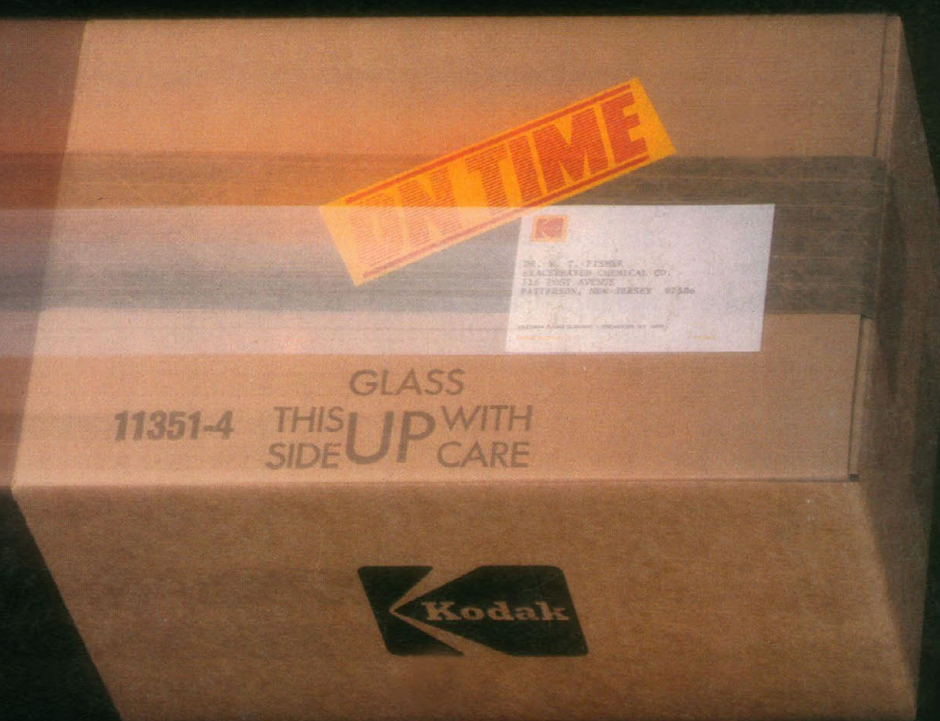
A stimulating environment. Toronto is one of the Western world's most dynamic multicultural cities, offering a full scope of metropolitan activities and interests. Four major universities are easily accessible. Nearby housing accommodations range from urban to open country.

Attractive incentives. These senior positions offer an outstanding opportunity to the scientist who wants to continue an active, research-oriented career in a setting with significant long-term commercial expectations. Salaries and benefits are at fully competitive levels. A realistic opportunity exists to share in the growth of Allelix through a form of equity participation.

If you are interested in the possibility of joining Allelix, please send your resume, together with an indication of your special area of interest, to:

Dr. Derek C. Burke, Scientific Director
Allelix Inc.
6205 Airport Road, Mississauga
Ontario, Canada L4V 1E1

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