

known despite more than a century of research" (Hughes *et al.*, chapter 6). Because of strongly differing interpretations in the literature, the authors present both maximum and minimum ice sheet reconstructions, and, despite their own clearly stated preferences, they treat both fairly in the glacial-geological discussions.

A major contribution of the book is its attempt to apply modern glaciological knowledge to glacial-geological interpretation. That the glaciological analyses are far from objective is not necessarily a disadvantage—indeed, given our lack of a definitive understanding of ice sheet dynamics, any other approach might be virtually empty. Serious difficulties arise, however, from failure to distinguish between well-supported statements and those that are speculative. In striking contrast to the well-documented presentations of glacial-geological data, the glaciological discussions contain long sequences of dogmatic statements with few supporting references or other evidence. Some of the statements are truisms, some are widely accepted glaciological principles, and some are pure speculation, but such distinctions are rarely expressed. Examples of such statements are: "An extensive ice shelf fringe cannot form unless it . . . lies in confined embayments"; "Atomic forces [in ice crystals] are substantially weakened during a glacial surge because extensive crevassing breaks many atomic bonds"; and "A uniformly thick shear layer presumably exists above a frozen bed." Strange physical and geophysical ideas are stated as facts. Examples of such ideas are that heat required for melting at the surface of a glacier is partly conducted upward from its frozen bed (that is, against the thermal gradient) and that radioactive heating in the continental crust could cause isostatic response to the continental ice sheet to occur by flow within the crust rather than within the mantle. (The latter idea fortunately has little direct effect in terms of the implied ice thickness at glacial maximum, but it does appear to have been used in an argument against the occurrence of bedrock depression beyond the margins of the ice sheet and thus in favor of a maximum, rather than a minimum, mode of ice sheet extent.)

All this makes it impossible for the reader to have confidence in the conclusions drawn. Valuable as it is to "apply the insights that are now emerging from study of the present-day Antarctic ice sheet" to examining the historical ice sheets of the Northern Hemisphere, such application is misleading if a critical

attitude toward the insights is not maintained.

Once it is recognized that the book marries a comprehensive and even-handed review of the evidence for glacial extent to an unbalanced and speculative glaciological interpretation thereof it can be embraced as an important and fascinating contribution to the literature. It presents analyses, by Denton and Hughes, of the unstable (?) marine ice sheet of West Antarctica and of extensive Pleistocene ice shelves in the Arctic Ocean, whose appearance in print both glacial geologists and glaciologists have long awaited. It is unfortunate that the book is not more up to date; judging from the references, it was written principally in 1978, a serious time lag in a field as active as paleoglaciology. Nevertheless, and despite its high cost, the book should be on the shelf of every active glacial geologist, glaciologist, and paleoclimatologist. It is handsomely presented and accompanied by a large number of well-drawn maps, 25 of which are included with the volume in a slipcase.

CHARLES R. BENTLEY

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Books Received

- Anatomy.** A Regional Atlas of the Human Body. Carmine D. Clemente. Urban & Schwarzenberg, Baltimore, ed. 2, 1981. Unpagged, \$32.50.
- Annual Review of Medicine.** Selected Topics in the Clinical Sciences. Vol. 32. William P. Creger, C. H. Coggins, and E. W. Hancock, Eds. Annual Reviews, Palo Alto, Calif., 1981. x, 624 pp. \$20.
- Aquatic Microbiology.** G. Rheinheimer. Translated from the German edition (Jena, 1980). Wiley-Interscience, New York, 1981. 236 pp., illus. \$28.
- Aquatic Pollution.** Edward A. Laws. Wiley-Interscience, New York, 1981. xiv, 482 pp., illus. \$29.95.
- Environmental Science and Technology.**
- Archaeology of the Rivas Region, Nicaragua.** Paul F. Healy. Wilfrid Laurier University Press, Waterloo, Ontario, Canada, 1981. xxx, 382 pp., illus. \$13.50.
- Chromosomal Variation in Man.** A Catalog of Chromosomal Variants and Anomalies. Digamber S. Borgeonkar. Liss, New York, ed. 3, 1981. xxxiv, 714 pp., illus. \$58.
- City behind a Fence.** Oak Ridge, Tennessee, 1942–1946. Charles W. Johnson and Charles O. Jackson. University of Tennessee Press, Knoxville, 1981. xxiv, 248 pp., illus. Cloth, \$18.50; paper, \$9.50.
- Clinical Aspects of Alzheimer's Disease and Senile Dementia.** Papers from a conference, Bethesda, Md. Nancy E. Miller and Gene D. Cohen, Eds. Raven, New York, 1981. xiv, 358 pp., illus. \$39. Aging, vol. 15.
- Clinical Chemistry.** Theory, Practice, and Interpretation. R. Richterich and J. P. Colombo with contributions from C. Bachmann and five others. Translated from the German edition (Basel, 1978). Wiley, New York, 1981. xxiv, 766 pp., illus. \$94.50.
- Clinical Immunobiology.** Vol. 4. Fritz H. Bach and Robert A. Good, Eds. Academic Press, New York, 1980. xxiv, 198 pp., illus. \$19.50.
- Clinical Procedures for Behavior Therapy.** C. Eugene Walker, Allan Hedberg, Paul W. Clement, and Logan Wright. Prentice-Hall, Englewood Cliffs, N.J., 1981. xvi, 400 pp. \$19.95.
- Coherent Nonlinear Optics.** Recent Advances. M. S. Feld and V. S. Letokhov, Eds. Springer-Verlag, New York, 1980. xviii, 378 pp. \$44.50.
- Essays in Biochemistry.** Vol. 16. P. N. Campbell

and R. D. Marshall, Eds. Published for the Biochemical Society by Academic Press, New York, 1980. xii, 184 pp., illus. Paper, \$15.50.

Essays in General Relativity. A Festschrift for Abraham Taub. Frank J. Tipler, Ed. Academic Press, New York, 1980. xviii, 236 pp. \$30.

Essays on the History of the Microscope. G. L'E. Turner. Senecio, Oxford, England, 1980. vii, 246 pp., illus. £14.95.

Experiments with Mixtures. Designs, Models, and the Analysis of Mixture Data. John A. Cornell. Wiley, New York, 1981. xx, 306 pp., illus. \$30.95.

Wiley Series in Probability and Mathematical Statistics.

Exploring Biology. Pamela S. Camp and Karen Arms. Saunders, Philadelphia, 1981. xii, 484 pp., illus. \$21.95.

Faunal Exploitation and Resource Selection. Early Late Woodland Subsistence in the Lower Illinois Valley. Bonnie Whatley Styles. Northwestern University Archeological Program, Evanston, Ill., 1980. xx, 312 pp., illus. Paper, \$12. Northwestern University Archeological Program Scientific Papers, No. 3.

Harper and Row's Complete Field Guide to North American Wildlife. Harper and Row, New York, 1981. Eastern Edition. Assembled by Henry Hill Collins, Jr. xii, 714 pp., illus. + plates. Cloth, \$17.50; vinyl, \$12.95. Western Edition. Assembled by Jay Ellis Ransom. xii, 810 pp., illus. + plates. Cloth, \$17.50; vinyl, \$12.95.

The Harvard Medical School Health Letter Book. G. Timothy Johnson and Stephen E. Goldfinger, Eds. Harvard University Press, Cambridge, Mass., 1981. xvi, 444 pp., illus. \$15.95.

Health Sciences Information Sources. Ching-chih Chen. MIT Press, Cambridge, Mass., 1981. xl, 768 pp. \$50.

Introduction to Engineering Design. With Graphics and Design Projects. Terry E. Shoup, Leroy S. Fletcher, and Edward V. Mochel. Prentice-Hall, Englewood Cliffs, N.J., 1981. xvi, 392 pp., illus. Paper, \$17.95.

An Introduction to General Relativity. S. K. Bose. Halsted (Wiley), New York, 1981. xii, 120 pp. Paper, \$9.95.

Introduction to Human Physiology. Mary Griffiths. Drawings by Iris J. Nichols. Macmillan, New York, and Collier Macmillan, London, ed. 2, 1981. xvi, 524 pp. \$19.95.

Introduction to Metallurgical Thermodynamics. David R. Gaskell. Hemisphere, Washington, D.C., and McGraw-Hill, New York, ed. 2, 1981. xxiv, 612 pp., illus. \$29.95. McGraw-Hill Series in Materials Science and Engineering.

Introduction to Social Science. Ernest Schusky. Prentice-Hall, Englewood Cliffs, N.J., 1981. xiv, 512 pp., illus. Paper, \$15.95.

Introduction to System Design Using Integrated Circuits. B. S. Sonde. Halsted (Wiley), New York, 1981. xii, 262 pp., illus. \$24.95.

Introduction to the Computer. The Tool of Business. William M. Fuori. Prentice-Hall, Englewood Cliffs, N.J., ed. 3, 1981. xviii, 622 pp., illus. \$18.95.

Introductory Statistics. A New Approach for the Behavioral Sciences. Louis S. Berger. International Universities Press, New York, 1981. xviii, 408 pp., illus. \$24.95.

Inverse Scattering Problems in Optics. H. P. Baltes, Ed. Springer-Verlag, New York, 1980. xiv, 314 pp., illus. \$42. Topics in Current Physics, 20.

Invertebrate Zoology. Joseph G. Engemann and Robert W. Hegner. Macmillan, New York, and Collier Macmillan, London, ed. 3, 1981. xxii, 746 pp., illus. \$20.95.

Monoamine Oxidase Inhibitors. The State of the Art. Papers from a symposium, Gothenberg, Germany, June 1980. M. B. H. Youdim and E. S. Paykel, Eds. Wiley-Interscience, New York, 1981. xviii, 214 pp., illus. \$39.

Motion of Charged Particles in Electric and Magnetic Fields. L. A. Artsimovich and S. Yu. Lukyanov. Translated from the Russian edition (Moscow, 1978) by Oleg Glebov. Mir, Moscow, 1980 (U.S. distributor, Imported Publications, Chicago). 224 pp., illus. \$8.

The MSH Peptides. A. J. Thody. Academic Press, New York, 1980. viii, 162 pp., illus. \$38.50.

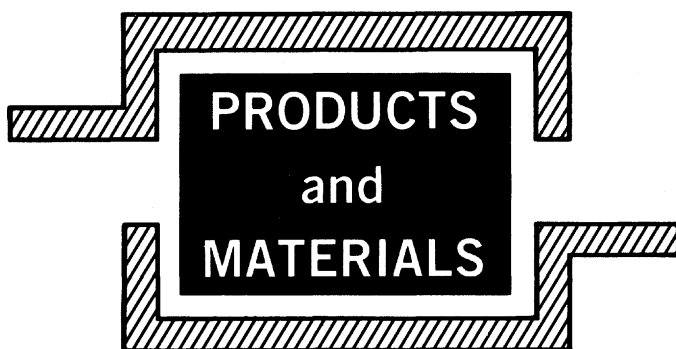
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Pediatric Clinical Chemistry. A Survey of Reference (Normal) Values, Methods, and Instrumentation, with Commentary. Samuel Meites, Ed. American Association for Clinical Chemistry, Washington, D.C., ed. 2, 1981. xxii, 514 pp. \$35.

Perspectives on Deviance. Allen E. Liska. Prentice-Hall, Englewood Cliffs, N.J., 1981. xii, 228 pp., illus. \$16.95.

Pharmaceuticals and Health Policy. International

(Continued on page 795)



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Apnea Detector

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Literature

Incubators. The *Q Quarterly* lists a line of controlled environment chambers from benchtop to walk-in models. Queue Systems. Circle 758.

Microcomputer Troubleshooter describes the 9010A, which checks the entire "kernel" (power supply, clock, bus, RAM, ROM, and I/O) of a microsystem automatically and rapidly. John Fluke Mfg. Circle 759.

Bacterial Cultures is a catalog of standard and special order items for laboratory use. University Micro Reference Laboratory. Circle 760.

Telescopes, Telephoto Lenses, and Binoculars is devoted to a line of precision optical devices for professional and serious amateur astronomers, photographers, and outdoor scientists. Celestron International. Circle 761.

Restriction Endonucleases, Enzymes, Nucleic Acids, and DNA Sequencing System extensively catalogs research products for genetic engineering and biochemistry. New England BioLabs. Circle 762.

Vacuum Pumps includes design specifications and descriptions of a line of corrosion-resistant models and their accessories. Edwards High Vacuum. Circle 778.

Microbiology Products lists a full line including dehydrated and prepared media, antimicrobial and antibiotic susceptibility disks, diagnostic reagents and more. BBL Microbiology Systems. Circle 779.

Comparison of Platelet-Counting Capability of automated and semiautomated instruments lists methods of counting and directly compares accuracy of four counters. Ortho Diagnostic Systems. Circle 782.

Troubleshooting the Liquid Chromatograph is a three-part audiovisual presentation to teach operators, researchers, and technicians how to maintain their equipment. F. I. Scott and Associates. Circle 784.

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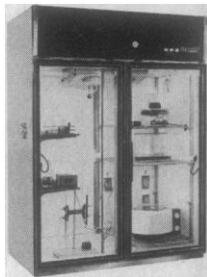
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*Messing, J. et al., *Nuc. Acids Res.* 9,309 (1981).

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BOOKS RECEIVED

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Perspectives on Provision and Control of Medicines. Richard Blum, Andrew Herxheimer, Catherine Stenzl, and Jasper Woodcock, Eds. Holmes and Meier, New York, 1981. 272 pp. \$37.50.

Photodegradation and Photostabilization of Coatings. Papers from a symposium, Houston, Mar. 1980. S. Peter Pappas and F. H. Winslow, Eds. American Chemical Society, Washington, D.C., 1981. x, 308 pp., illus. \$35. ACS Symposium Series, 151.

The Promise of Cognitive Psychology. Richard E. Mayer. Freeman, San Francisco, 1981. xvi, 120 pp., illus. Cloth, \$11.95; paper, \$5.95. A Series of Books in Psychology.

Prostaglandins and Cardiovascular Disease. Papers from a symposium, Houston, Nov. 1979. Ruth Johnson Hegyeli, Ed. Raven, New York, 1981. xiv, 204 pp., illus. \$25. *Atherosclerosis Reviews*, vol. 8.

Protein Functionality in Foods. Papers from a symposium, Houston, Mar. 1980. John P. Cherry, Ed. American Chemical Society, Washington, D.C., 1981. xii, 332 pp., illus. \$36.75. ACS Symposium Series, 147.

Psychiatric Research in Practice. Biobehavioral Themes. E. A. Serafetinides, Ed. Grune and Stratton, New York, 1981. xii, 244 pp. \$24.50. Seminars in Psychiatry.

Psychobiology of Aggression and Violence. Luigi Valzelli. Raven, New York, 1981. xiv, 248 pp., illus. \$26.

Reading Research. Advances in Theory and Practice. Vol. 2. G. E. Mackinnon and T. Gary Waller. Academic Press, New York, 1981. xii, 234 pp. \$22.

Real-Time/Parallel Computing. Image Analysis. Papers from a seminar, Tokyo, Oct. 1978. Morio Onoe, Kendall Preston, Jr., and Azriel Rosenfeld, Eds. Plenum, New York, 1981. xviii, 398 pp., illus. \$45.

Spectral Theory of Ordinary Differential Operations. Erich Müller-Pfeiffer. Translated from the German. M. S. P. Eastham, Transl. Ed. Horwood, Chichester, England, and Halsted (Wiley), New York, 1981. 248 pp. \$56.96. Ellis Horwood Series in Mathematics and Its Applications.

Spline Functions. Basic Theory. Larry L. Schumaker. Wiley-Interscience, New York, 1981. xvi, 554 pp. \$42.50.

Structural Failure in Residential Buildings. Vol. 3, Basements and Adjoining Land Drainage. Erich Schild, Rainer Oswald, Dietmar Rogier, and Hans Schweikert. Illustrations by Volker Schnapauff. Translated from the German edition (Wiesbaden, 1978). Halsted (Wiley), New York, 1980. 154 pp. \$29.95.

Structure of Metals. Crystallographic Methods, Principles and Data. C. S. Barrett and T. B. Massalski. Pergamon, New York, ed. 3, 1980. xvi, 654 pp., illus. Paper, \$65.

Study Topics in Physics. W. Bolton. Butterworths, Boston, 1980. Book 5, Fields. 96 pp., illus. Book 6, Rays, Waves and Oscillations. 96 pp., illus. Book 7, Atoms and Quanta. 96 pp. Book 8, Electronic Systems. 96 pp. Each volume paper, \$4.50.

Succession. Papers from a symposium, Nijmegen, The Netherlands. May 1979. Eddy van der Maarel, Ed. Junk, The Hague, 1980 (U.S. distributor, Kluwer Boston, Hingham, Mass.). viii, 152 pp., illus. \$47. Advances in Vegetation Science, 3.

Supervisory Management for the Human Services. Michael J. Austin. Prentice-Hall, Englewood Cliffs, N.J., 1981. x, 358 pp. \$17.95.

Taddeo Alderotti and His Pupils. Two Generations of Italian Medical Learning. Nancy G. Siraisi. Princeton University Press, Princeton, N.J., 1981. xxiv, 462 pp. \$32.

Undersea Work Systems. Howard R. Talkington. Dekker, New York, 1981. xii, 166 pp., illus. \$27.50. Ocean Engineering, 1.

Understanding Evolution. E. Peter Volpe. Brown, Dubuque, Iowa, ed. 4, 1981. xii, 242 pp., illus. Paper, \$8.95.

Vibrational Spectroscopy of Adsorbates. Papers from a meeting, Cambridge, England, Dec. 1979. R. F. Willis, Ed. Springer-Verlag, New York, 1980. xii, 184 pp., illus. \$29.50. Springer Series in Chemical Physics, vol. 15.

Water in Desert Ecosystems. Daniel D. Evans and John L. Thames, Eds. Dowden, Hutchinson and Ross, Stroudsburg, Pa., 1981 (distributor, Academic Press, New York). xvi, 280 pp., illus. \$35. US/TBP Synthesis Series, vol. 11.

When People Use Computers. An Approach to Developing an Interface. Marilyn Mehlmann. Prentice-Hall, Englewood Cliffs, N.J., 1981. xviii, 142 pp., illus. \$15.

The World Energy Triangle. A Strategy for Cooperation. Thomas Hoffmann and Brian Johnson. Balinger (Harper and Row), Cambridge, Mass., 1981. xvi, 220 pp. \$22.50.

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ASSISTANT DEAN/DIRECTOR OF MEDICAL EDUCATION

The Quillen-Dishner College of Medicine is seeking applicants for the position of Assistant Dean/Director of Medical Education for Johnson City Medical Center Hospital. The assistant dean/director of medical education is the representative of the office of the dean for the College of Medicine at the hospital and is responsible for coordination and participation in the activities of the undergraduate, graduate, and postgraduate education within Johnson City Medical Center Hospital, one of the four hospitals affiliated with the College of Medicine. The director of medical education reports directly to the dean of the College of Medicine, but consults regularly with the hospital administration and medical staff of the hospital. The candidates should be medical doctors, preferably with experience in medical education and medical staff governance.

The Quillen-Dishner College of Medicine is a community-based, Veterans Administration-affiliated school scheduled to graduate its first class of students in May 1982. The College is located in the Southern Appalachian Mountain area in an attractive, growing, economically sound community with ready access to multiple outdoor recreational facilities.

Interested applicants should contact: **Dr. Herschel Douglas, Dean, Quillen-Dishner College of Medicine, P.O. Box 23, 320A, East Tennessee State University, Johnson City, Tennessee 37614; telephone: 615-928-6426, extension 315. East Tennessee State University offers Equal Opportunity in its employment, admissions, and educational activities and is an Affirmative Action Employer.**

ASSISTANT PROFESSOR OF BIOCHEMISTRY

The Biochemistry Department of the George Washington University School of Medicine and Health Sciences, Washington, D.C., is seeking a Ph.D. graduate for appointment at the assistant professor level. This is a fully funded research-track position tenable for up to 5 years during which time the successful applicant will be given the opportunity to apply for independent funding. Participation in the graduate teaching program of the department is expected and preference will be given to applicants with background and training in the areas of cell culture and cellular immunology. The salary will be commensurate with experience. Applications, with names and telephone numbers of three referees, should be sent to:

Director of Postgraduate Appointments
Department of Biochemistry
George Washington University
School of Medicine and Health Sciences
2300 Eye Street, NW
Washington, D.C. 20037
Equal Opportunity Employer

ASSISTANT RESEARCH SCIENTIST position open immediately in the Cardiovascular Division, Department of Medicine, University of Iowa. Applicant should be able to identify important problems and perform experiments in reflex control of circulation in hypertension. Requirements include:

- 1) Doctorate in physiology (cardiovascular) with at least 2 years of postdoctoral training;
- 2) Expertise in many widely used research techniques (for example, neural recording, pressure/flow measurements, organ perfusions, and so forth); and
- 3) Published evidence of ability to function as an independent investigator.

Salary: \$17,000. Send résumé to: **Tom Cannon, Iowa Department of Job Service, 1810 Lower Muscatine Road, P.O. Box 2477, Iowa City, Iowa 52244. An Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGICAL SCIENCES—A position offering an outstanding opportunity for independent research in developmental genetics with teaching responsibilities in developmental biology or genetics. Appointment renewable through 1986. Curriculum vitae and three letters of reference should be sent to: **Dr. W. R. Fleming, Director, Division of Biological Sciences, Tucker Hall, University of Missouri, Columbia, Mo. 65211. Equal Opportunity/Affirmative Action Employer.**

Medical Physiology and Pharmacology, Southern Illinois University School of Medicine at Carbondale, seeks highly qualified candidates for **CHAIRPERSON** effective July 1982. This person must have an earned doctorate and the rank of associate or full professor. This is a tenure-track faculty position in a fully accredited medical school. Applicants should demonstrate interest in innovative medical education as well as graduate training. Candidates should have a strong record of academic excellence, a sustained record of scholarly publications, and a successful record of external research funding. Administrative ability and leadership should be demonstrated. Interested candidates should submit letters of application, curriculum vitae, and the names of at least three references by 15 October 1981 to: **L. G. Nequin, Ph.D., School of Medicine, Southern Illinois University, Carbondale, Ill. 62901. Southern Illinois University is an Equal Opportunity/Affirmative Action Employer.**

PLEASE NOTE

The University of California, Irvine, College of Medicine, is seeking a **CHAIR** for the Department of Biological Chemistry. Candidates will have demonstrated excellence in research and teaching and will have administrative experience. Candidates should be able to provide academic leadership for the department. *Applications from all qualified candidates are welcome; the University of California is an Affirmative Action Employer.* Send curriculum vitae before 1 September 1981 to: **Dennis D. Cunningham, Chair of Biological Chemistry Search Committee, Department of Microbiology, College of Medicine, University of California, Irvine, Calif. 92717.**

POSITIONS OPEN

STANFORD UNIVERSITY California

Applications are invited for an opening at the **ASSISTANT PROFESSOR** level in the newly formed Program in the History of Science. Candidates should have demonstrated ability in the area of 19th- and 20th-century physical science.

Curriculum vitae and the names of at least two referees should be sent before 15 November 1981 to: **Professor Eric Hutchinson, Academic Secretary, Stanford University, Stanford, Calif. 94305.**

Stanford University is an Equal Opportunity Employer.

TENURE-TRACK FACULTY POSITION IN NUTRITIONAL BIOCHEMISTRY available at any rank. The successful applicant will be expected to develop a vigorous research program in nutritional biochemistry or human nutrition and to cooperate effectively with faculty in the Colleges of Agriculture, Medicine, and Liberal Arts. Position is approximately 80 percent research, 20 percent instruction with option to teach in area of choice. Send applications, including curriculum vitae, complete list of publications, and the names of three references, to: **Dr. Darrel E. Goll, Nutrition and Food Science, University of Arizona, Tucson, Arizona 85721.** Applications accepted until position is filled. *Equal Opportunity/Affirmative Action Employer.*

FACULTY POSITION at any academic rank. The department is interested in applicants with ability to apply expertise in basic science to problems in food science and food production. Basic science areas such as ultrastructural analysis, recombinant DNA, cell culture, or physical chemistry are of particular interest, but all areas will be considered. The successful candidate will be expected to develop a vigorous independent research program. Twelve-month position; 90 percent research, 10 percent instruction. To apply, send complete curriculum vitae, including all publications and the names of three people who may be contacted as references, to: **Dr. Darrel E. Goll, Nutrition and Food Science, University of Arizona, Tucson, Arizona 85721. Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

CARDIOVASCULAR SCIENTIST. The Division of Cardiothoracic Surgery at Northwestern University Medical School is seeking to appoint a cardiovascular scientist with training and interest in whole-animal studies dealing with hemodynamics and myocardial ischemia. Faculty rank and salary are negotiable. Applicants should possess the Ph.D. and/or M.D. degree with appropriate postdoctoral experience; ability to conduct and maintain a high quality, independent research program as well as a willingness to participate in ongoing research within the Division are prerequisites. Applicants should send letter of inquiry and curriculum vitae to:

Lawrence L. Michaelis, M.D.
Chief, Division of Cardiothoracic Surgery
Northwestern University Medical School
303 East Chicago Avenue, Ward 9-105
Chicago, Illinois 60611

An Equal Opportunity/Affirmative Action Employer

Boston University Medical Center, University Hospital, is seeking an M.D. or Ph.D. to **DIRECT THE CLINICAL CHEMISTRY LABORATORY.** Should have experience in all phases of chemistry plus leadership and administration. Opportunities for research and teaching. Send curriculum vitae and references to: **Dr. Bernard Statland, M.D., Ph.D., University Hospital, Department of Laboratory Medicine, 75 East Newton Street, Boston, Mass. 02118.** We are an Equal Opportunity Employer.

The Departments of Biochemistry and Pharmacology at The University of Virginia invite applications from qualified persons for a joint tenure-track appointment at the assistant professor level. The individual is expected to sustain a strong and creative research program, preferably in the area of **EUKARYOTIC MOLECULAR BIOLOGY**, and will be required to teach some aspect of biochemistry and/or pharmacology in the Medical School. Please send curriculum vitae, bibliography, and the names of three references to: **Dr. Burton Litman, Department of Biochemistry, School of Medicine, University of Virginia, Charlottesville, Va. 22908.** Deadline for receipt of applications is 1 October 1981. *The University of Virginia is an Equal Opportunity/Affirmative Action Employer.*

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GOOD YEAR CELL BIOLOGIST

The Goodyear Tire & Rubber Company has an immediate opening for a Cell Biologist with experience in genetic toxicology.

Primary responsibilities will be to develop, perform, and evaluate microbial and mammalian cell culture assays for genetic toxicity, assist members of the section involving toxicological problems, and report results for regulatory purposes. Qualified candidates must have experience in tissue culture. A PhD is required.

Please send your resume in confidence to:

D. N. Faircloth
Salaried Personnel
**THE GOODYEAR TIRE &
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Akron, Ohio 44316

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RESEARCH & DEVELOPMENT PROFESSIONALS

Dallas, Texas

Frito-Lay is a recognized leader in the \$12 billion snack food industry with annual revenues exceeding \$1.5 billion. We are the only national manufacturer and distributor of a full line of snack food products and a dynamic division of PepsiCo, Inc.

One key reason for our success is our strong commitment to state-of-the-art Research and Development. The practical application of scientific approach and findings has made Frito-Lay a significant contributor to the advancements made in the field of food and food-allied production.

Due to growth and internal expansion, we currently have several professional positions available in our centralized Research and Development Department in Dallas, Texas.

PLANT PHYSIOLOGIST

We need an individual capable of researching the physiology/biochemistry of potatoes and corn with emphasis on improving the quality and reliability of these raw materials used for Frito-Lay products. We require a Ph.D. in Plant Physiology or Biochemistry, as well as the ability to research independently as a part of a group effort.

FOOD PRODUCT DEVELOPMENT SCIENTIST

This position involves both laboratory and pilot plant investigative work in the development, improvement and line extension of new and existing products. As part of a research group, you will plan and execute the programs necessary to advance the projects. Ph.D. in Food Science or a related field is required, as well as good mechanical aptitude. A background in consumer food product development is desirable, but not necessary.

AGRONOMIC SCIENTIST

The primary function of this position is potato variety evaluation. You will be involved in scheduling, planting and evaluating potato variety test plots in a nationwide variety evaluation program. We require a Masters Degree in Agronomic Sciences and the ability to make accurate observations and data collections. Some travel is required.

PACKAGING DEVELOPMENT SCIENTIST

Responsibilities for this position include designing new packaging concepts and establishing shelf life criteria for new and existing products, as well as conducting basic packaging tests. Direct involvement with Product Development, Marketing and Purchasing Departments is necessary. We are seeking an individual with a scientific degree; Ph.D. in Food Science or Polymer Chemistry is desirable. Experience with packaging materials and test methods is preferable, but not necessary. A basic knowledge of math, statistics, physics and organic chemistry is essential.

RESEARCH SCIENTIST - GENETICS/CYSTOLOGY

This position involves the research of development/application of tissue culture techniques for pathogen elimination, nucleus stock preservation and potato variety improvement. Ph.D. in Genetics/Cystology, in addition to experience with tissue cell culture systems is required.

Frito-Lay offers an excellent salary, a comprehensive benefits package and a results-oriented environment where personal and professional growth is encouraged. To investigate these opportunities in our Research and Development, please send your resume, along with salary history in confidence to:



FRITO-LAY, INC.

Professional Placement-TL

P.O. Box 35034

Dallas, Texas 75235

An Equal Opportunity Employer M/F

POSITIONS OPEN

CARDIOVASCULAR PHYSIOLOGIST

A tenure-track position at the rank of assistant professor or associate professor is available in the Department of Physiology and Biophysics of the University of Tennessee Center for the Health Sciences. Candidates should have a Ph.D. or M.D. degree, a minimum of 2 years of postdoctoral training and a strong research background in cardiovascular physiology. Demonstrated ability to initiate a strong, independent research program and to engage in the teaching activities of the department are expected. Send curriculum vitae, a brief statement of research interests, and the names of three references to: **Dr. Leonard Share, Chairman, Department of Physiology and Biophysics, University of Tennessee Center for the Health Sciences, Memphis, Tennessee 38163.** An Equal Opportunity/Affirmative Action Employer.

Harvard University. The Department of Psychology and Social Relations is searching for **JUNIOR AP-POINTEES** (initially for a 5-year term, beginning 1 July 1982) in the areas of social, personality/psychopathology, and social/developmental psychology. In each case a secondary competence in multivariate analysis of data is welcome but not essential. Applications should include current curriculum vitae and applicants should ask at least three individuals familiar with their work to write directly to: **R. Duncan Luce, Chairman, Department of Psychology and Social Relations, Harvard University, 33 Kirkland Street, Cambridge, Mass. 02138.** Applications received after 1 November 1981 may not be considered. *Harvard University is an Equal Opportunity/Affirmative Action Employer.*

JUNIOR RESEARCHER (postdoctoral; starting approximately 1 September 1981). Ph.D. in plant pathology with training and experience in physiology-genetics of plant-bacterial interactions. Person will investigate molecular basis of hypersensitive reaction in plants induced by phytophthora. Salary: \$1296 per month; application deadline: 28 August 1981. Send résumé and three letters of recommendation to: **Dr. S. S. Patil, Plant Pathology, University of Hawaii, Honolulu, Hawaii 96822.** Subject to position clearance. *An Equal Opportunity Employer.*

POSITIONS OPEN

TUFTS UNIVERSITY SCHOOLS OF MEDICINE Department of Physiology

Tufts University has instituted a search for **CHAIRPERSON**, Department of Physiology. The Department of Physiology is expected to be a center of research and scholarly excellence, as well as providing leadership in physiology instruction for the School of Medicine, School of Dentistry, School of Veterinary Medicine, and the Sackler School of Graduate Medical Science. Individuals interested in being considered for this position should direct their letters to: **Dr. Seymour Reichlin, Chairman, Physiology Search Committee, Box 275, New England Medical Center Hospital, 171 Harrison Avenue, Boston, Mass. 02111.** Tufts has an Affirmative Action Program, and encourages applications from women and members of minority groups.

NUTRITIONIST/SOCIAL SCIENTIST

The Tufts University School of Nutrition is seeking an assistant professor at the Ph.D. level whose interests and training are in nutrition and the social sciences. The appointee would be expected to teach and conduct research primarily in areas of human nutrition related to nutritional assessment, interventions, and program evaluation in nonlaboratory settings.

Applicants should submit curriculum vitae, including a publications list and at least three letters of reference, by 1 October 1981 to: **Dean, School of Nutrition, Tufts University, Medford, Massachusetts 02155.**

Tufts University is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available immediately to study the effects of environment on adherence of oral streptococci using continuous cultures. Recent Ph.D. with strong background in biochemistry or immunology preferred. Send application to: **Dr. Burton Rosan, Department of Microbiology, University of Pennsylvania, School of Dental Medicine, 4001 Spruce Street, Philadelphia, Pa. 19104.** An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

EXECUTIVE DIRECTOR—CENTER ON AGING. The University of Massachusetts invites applications for position of Executive Director of newly established university-wide Center on Aging. Position responsible for development and coordination of gerontological research, service and training programs affecting the three campuses, including efforts to fund such activity. Evidence of excellence in teaching, research or scholarly activity, and service, sufficient to have gained national recognition and commensurate with rank of full professor, is required. Please submit résumé by 1 October 1981 to:

**Chairperson, Search Committee
c/o Rosalie S. Wolf, Ph.D.
University of Massachusetts Medical Center
55 Lake Avenue North
Worcester, Mass. 01605**

An Affirmative Action/Equal Opportunity Employer

TENURE FACULTY POSITION at the University of California, Los Angeles. Associate or full professor in the field of planetary atmospheres. A position has now become available for a joint appointment in the Department of Atmospheric Sciences and the Institute of Geophysics and Planetary Physics. Preference will be given to senior scientists with recognized accomplishments, whose interests are in global atmospheric composition and evolution of planetary atmospheres. The position will require the successful candidate to develop a strong research program. A moderate teaching load will be expected in the Department of Atmospheric Sciences. Application deadline: 30 November 1981. Please send résumé to: **Hans Pruppacher, Chairman, Department of Atmospheric Sciences, University of California, Los Angeles, California 90024.** An Equal Opportunity/Affirmative Action Employer.

NEUROPHYSIOLOGIST HARVARD MEDICAL SCHOOL

Postdoctoral position to study neural basis of circadian timekeeping in primates. Experience with lesioning, histology, and chronic implantation desirable. Send curriculum vitae and names of three referees to: **Dr. Martin C. Moore-Ede, Department of Physiology, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115.**

Senior Research Pharmacologist

We are the Research and Development Division of The Revlon Health Care Group, a worldwide group of diversified companies providing products and services in the field of human health.

Our Pharmacology Department, based at our lower Westchester County location, currently has an outstanding opportunity for a Pharmacologist/Senior Research Scientist to participate in an established cardiovascular research effort.

Responsibilities will involve directing and participating in primary and secondary evaluations of new drugs; including new methods of development. Candidates should have a PhD in pharmacology or a related field with a minimum of

2 to 5 years post-doctoral experience in cardiovascular research.

A background in classical whole animal myocardial experimentation is essential and expertise in the biochemistry of myocardial functions is desirable. Candidates must have an established research record and excellent communication skills.

We offer a competitive salary and excellent fringe benefits. Please send resume, including salary history, in complete confidence to: Manager, Selection and Placement, Research and Development Division, Dept. 6251, Revlon Health Care Group, Suite 816, 50 Rockefeller Plaza, New York, NY 10020

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REVLON Health Care Group

Molecular Biologists

The 3M Company, a world leader in scientific technology, is seeking Molecular Biologists to join a rapidly growing research effort in biotechnology.

We are particularly interested in scientists with doctoral and post-doctoral training in all phases of recombinant DNA technology and associated biochemical disciplines.

This is an exceptional opportunity to participate in the initiation of a challenging research program tied in with pharmaceuticals, diagnostics, medical, surgical, and agricultural objectives. For the talented scientist 3M offers an interactive multi-disciplinary environment with abundant opportunity for personal and professional advancement.

Interested persons should send their resumes in complete confidence to Dennis S. Nelson.

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WHY NOT JOIN US AT THE FRONTIER OF TOXICOLOGICAL RESEARCH?

The Food and Drug Administration's National Center for Toxicological Research located in Jefferson, Arkansas has two exciting and challenging positions available. Both positions are in the Senior Executive Service with maximum salaries of \$50,112.

One position, the Associate Director for Research, involves serving as key advisor to the Center Director and directing a multidisciplinary scientific and professional staff engaged in research programs in the areas of chemistry, carcinogenesis, mutagenesis, teratogenesis, microbiology, immunology and biometry. The other position, the Associate Director for Chemical Evaluation, also involves serving as key advisor to the Center Director but requires the direction of a multidisciplinary scientific and professional staff engaged in coordinating the comprehensive toxicological evaluation of chemicals and related activities in the areas of pathology, nutrition and diet preparation, and animal husbandry.

Both positions need individuals who have professional experience in directing broad scientific programs; ability to deal effectively with high level governmental officials, the scientific/academic communities, national/international medical and health-related organizations and others; and the ability to implement equal employment opportunity programs. Applicants should have a doctorate in chemistry, biochemistry, physiology or related biological sciences and an international reputation in toxicology, chemistry, comparative metabolism, biochemistry, molecular biology, or related biological/toxicological fields.

If you feel you are qualified send a curriculum vitae to Jim Keady, Division of Personnel Management (HFA-440), Food and Drug Administration, Parklawn Building, Room 9-90, 5600 Fishers Lane, Rockville, Maryland 20857. If you need more information call Mr. Keady collect, on 301-443-3634.

These positions can also be filled by current commissioned officers of the U.S. Public Health Service, or by former officers willing to rejoin the Corps.

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DIRECTOR CENTER FOR ASTROPHYSICS

The Smithsonian Institution and Harvard University invite applications or nominations for the directorship of the Center for Astrophysics, a scientific collaboration between the Smithsonian Astrophysical Observatory (SAO) and the Harvard College Observatory (HCO) in Cambridge, Massachusetts. The incumbent will serve jointly as director of SAO and director of HCO. It is expected that this person will receive a federal excepted appointment with the Smithsonian Institution, and that he or she will also be appointed to a tenured position as a professor of astronomy at Harvard University. Duties must be assumed by July 1983, and preferably sooner.

The Center for Astrophysics conducts a broad program of research, including x-ray, optical, infrared, and radio astronomy; solar physics; earth and planetary science; atomic and molecular physics; and theoretical astrophysics. A summary of this program, together with details of the observational and support facilities, may be obtained from the address given below.

Candidates will be evaluated primarily on their research achievements in astronomy or some related field; breadth of scientific understanding; intellectual leadership and vision; and talent for management and administration. Applications should contain the following: a résumé describing scientific and administrative experience, a list of publications, and names of three persons who may be contacted for references. Any supplementary statement of goals or conditions would also be welcome. Applications or nominations should be submitted by 1 October 1981 to:

Dr. Alar Toomre, Chairman
Search Committee
Center for Astrophysics
60 Garden Street
Cambridge, Mass. 02138

The Smithsonian Institution and Harvard University are Equal Opportunity/Affirmative Action Employers. Applications from women and minority groups are encouraged. All candidates will be evaluated in accordance with the established procedures of the two institutions. The person selected for this position will be required to file a confidential statement of employment and financial interests with the Smithsonian Institution.

Bioresearch Scientist

The Research Division of our major pharmaceutical corporation has an exceptional opportunity for a BIORESEARCH SCIENTIST.

Qualified candidate must have a Bachelor's degree in Psychology or Psychopharmacology or equivalent with minimum 5 years laboratory experience including experimental design, computer programming of operant behavioral equipment (SKED), and statistical experience with rats and monkeys preferred. Knowledge of pain Physiology, pain suppression systems and analgesics desirable.

We offer a stimulating scientific environment with opportunity for advancement. The successful candidate will receive compensation commensurate with education and experience together with a program of comprehensive company benefits including profit sharing.

Qualified candidates should forward resume with pertinent salary information to: D. J. LUM, Manager of Personnel Administration, Schering-Plough, Research Division, Box DB-81-26, 60 Orange Street, Bloomfield, New Jersey 07003.



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Research Investigator

G. D. Searle, a worldwide leader in pharmaceutical research, has an outstanding opportunity within the Research & Development Division. The Biological Research Department is currently recruiting candidates for the position of Research Investigator to plan and execute cardiovascular research aimed at the discovery and evaluation of new therapeutic agents.

The qualified candidate should possess a Ph.D. in pharmacology or related area with some post graduate experience desirable. Specialization in the cardiovascular area, specifically dealing with isolated tissue methodology is preferred.

We can offer a stimulating and rewarding environment, excellent salary and benefits and relocation assistance. Interested applicants are encouraged to send their detailed resume including three references and salary history to:

Barbara Gardner
81130-127

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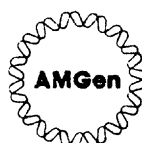
SEARLE

PHYSICAL OCEANOGRAPHER. The Great Lakes Environmental Research Laboratory of National Oceanic and Atmospheric Administration (NOAA) in Ann Arbor, Michigan, is seeking a physical oceanographer with a background in particulate matter research. The incumbent will perform research into both the role and fate of particles in transport of nutrients and pollutants and the interaction of the particles with the Great Lakes ecosystem. This position is in the competitive service and will be filled at the GS-12 level. Entrance level salary is \$26,951 per annum. **QUALIFICATIONS:** B.S. or higher degree in oceanography or closely related physical science or engineering. In addition, candidates must have 3 years of professional experience which has equipped them with the knowledge necessary to perform the above duties. One year of experience must have been comparable to the next lower grade in federal service. Graduate education may be substituted in part for the experience requirements. **SELECTIVE FACTORS:** applicants must have either demonstrated research experience in the transport, sinking, and resuspension of particulate matter, or have related radiotracing experience. Additional technical information may be obtained from: **Dr. John R. Bennett**, telephone: 313-668-2279 or FTS 378-2279. **TO APPLY:** current or former federal employees should submit SF-171, CD-332 (Employee Appraisal), and Optional OPM Form 1386 (Background Survey Questionnaire). Forms may be obtained by telephoning: 303-497-6615 or FTS 320-6615. Applicants not employed by the federal government should submit a complete application package for "Physical Science Positions CN-1300" and Optional OPM Form 1386. These forms may be obtained from the nearest Office of Personnel Management (OPM). **ALL APPLICANTS MUST SUBMIT THEIR PUBLICATIONS RECORD.** All applications should be submitted to: NOAA/NTIA, Personnel Services Division (R562), attention: M. L. Mann, Boulder, Colorado 80303. Reference Vacancy Number NOAA/ERL 81-29. Applications must be received no later than 26 September 1981 to receive consideration. *An Equal Opportunity Employer.*

RECOMBINANT DNA TECHNOLOGIST

Technicians with B.A. or M.S. with experience in:

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3. Gel electrophoresis, radioactive labelling and hybridization of nucleic acids.
4. Molecular cloning (cDNA and/or genomic DNA cloning).



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POSITIONS OPEN

FACULTY POSITION IN ATMOSPHERIC SCIENCE

The Laboratory for Planetary Atmospheres Research (LPAR), at State University of New York (SUNY), Stony Brook, seeks to add a Ph.D. atmospheric scientist at the assistant or associate professor level, beginning 1 September 1981. LPAR members are currently involved in comparative studies of planetary atmospheres, climate research, and air pollution modelling. A strong general background in atmospheric science with research experience in air pollution modelling, tropospheric chemistry, and climate change is a prerequisite. Teaching experience in these areas at both graduate and undergraduate levels is also required. Curriculum vitae, publications, summary of research interests, and three letters of recommendation should be sent by 28 August 1981 to:

Professor J. S. Hogan, LPAR
College of Engineering and Applied Science

SUNY Stony Brook

Stony Brook, N.Y. 11794
SUNY, Stony Brook, is an Equal Opportunity/Affirmative Action Employer. AK 107.

Ph.D. GENETICIST

Division of Genetics, Department of Pediatrics, University of Southern California School of Medicine, LAC/USC Medical Center, Los Angeles, Calif. Director of Cytogenetics Laboratory, academic appointment of assistant professor or higher. Ph.D. in genetics with special interest in cytogenetics. Responsibilities include direction of laboratory, teaching at postgraduate level in medical genetics, opportunity to develop research interest. Salary commensurate with academic position and experience. Submit curriculum vitae and two confidential letters of recommendation prior to 1 October 1981 to:

Miriam G. Wilson, M.D.
Chief, Genetics Division
Department of Pediatrics
LAC/USC Medical Center
1129 North State Street
Los Angeles, California 90033
Equal Opportunity Employer

IMMUNOLOGIST. Ph.D. Assistant professor level. The Renal Division of the Department of Medicine in conjunction with the Department of Medical Microbiology and Immunology of The Ohio State University has a tenure-track position available in the area of immunologic mechanism of renal disease. Main focus is immune complex mediated glomerulonephritis. The candidate is expected to have post-doctoral experience, to collaborate in the continued development of a strong research program, and to participate in the graduate and medical teaching programs of the Department of Medical Microbiology and Immunology. Well-equipped laboratories, good research support, desirable working conditions, competitive salary and fringe benefits. Please send résumé and letters of reference to: **Dr. Lee A. Hebert, Director, Division of Nephrology, The Ohio State University Hospitals, N210 Means Hall, 466 West 10 Avenue, Columbus, Ohio 43210.** *An Equal Opportunity Employer.*

The University of Texas System Cancer Center, Department of Developmental Therapeutics, Section of Transplantation Biology, is seeking a Ph.D. **FELLOW** at the faculty associate level initially, but with probable early advance to assistant professor level. Candidates should have experience in protein purification and cellular immunology. The long-term goal is the development of better human hematopoietic clonal assays and purification of factors responsible for such. Send curriculum vitae and the names of three scientists willing to write letters of recommendation to: **Dr. Gary Spitzer, Associate Professor of Developmental Therapeutics, The University of Texas System Cancer Center, M.D. Anderson Hospital and Tumor Institute, Texas Medical Center, 6723 Bertner Avenue, Houston, Texas 77030.**

POSITIONS OPEN

PHYSICIST-ELECTRONICS ASSISTANT—New NIH Biotechnology High Voltage Electron Microscope Resource. To learn operation, maintenance, and assistance of users of 1.2 MV-HVEM. Electronic and mechanisms repair skills essential. EM or biological experience not required. Laboratory engaged in many biological and element analysis projects. Immediately available. Up to \$19,503, according to experience. Send curriculum vitae to: **Box 201, SCIENCE.** *An Equal Opportunity/Affirmative Action Employer.*

POLAR OCEANOGRAPHER/ SEA ICE DYNAMICIST

A position is available under the Intergovernmental Personnel Act of 1970 for persons now employed in state/local government or in colleges and universities. This position is located within the Oceanic Processes Branch of the Environmental Observation Division of the Office of Space and Terrestrial Applications, NASA Headquarters. The position is for 1 year, with the possibility for renewal for an additional year. Pay will be at a level commensurate with experience, and will be established after a review of qualifications.

Candidates must have been employed by the university in a permanent position for at least 90 days or be a career employee of a state or local government. Candidates must also meet the federal qualification standards for the position. These are as follows: a degree in an appropriate field of science, plus 3 years of progressively responsible experience in duties related to the position.

This individual will be responsible for planning, developing, and implementing a scientific research program in satellite remote sensing of oceanic processes in polar regions. A background in polar oceanography, sea ice dynamics, or a closely related field is required; experience in remote sensing, although desirable, is not essential. A Ph.D. or equivalent training and experience is mandatory.

Interested parties should send a current résumé to: **NASA Headquarters, attention: Catherine Zegowitz, Code EPM-3, Washington, D.C. 20546.**

Selection for this position will be made from otherwise eligible candidates without discrimination for any nonmerit reason such as race, color, religion, sex, national origin, politics, marital status, physical handicap, age, membership or nonmembership in an employee organization, or personal favoritism.

POSTDOCTORAL IN NUTRITIONAL BIOCHEMISTRY

Performs research on the nutritional and metabolic roles of arsenic. Experience with nutritional studies, ultraclean environments, ultratrace element and enzyme analyses, and metabolite identification and quantification desired. One-year position with possibility for renewal; available 1 October 1981 at a salary range of \$15,000 to \$17,000. Send curriculum vitae, names of three references, and relevant publications to:

Ramona J. Martin
Human Nutrition Research Center
P.O. Box 7166, University Station
Grand Forks, N.D. 58202

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POSTDOCTORAL POSITIONS IN CARDIOVASCULAR PHARMACOLOGY

Position 1: Presynaptic regulation of sympathetic nerve function to the cardiovascular system utilizing in vivo and in vitro techniques. A knowledge of the radiochemical procedures for the measurement of catecholamines would be of assistance. **Position 2:** Effects of tryptophan and its kynuramine metabolites on the autonomic regulation of the cardiovascular system with emphasis on central and peripheral adrenergic control. Apply to: **Dr. M. F. Lokhandwala (Position 1) or Dr. D. E. Clarke (Position 2), Department of Pharmacology, University of Houston, Houston, Texas 77004.**

POSTDOCTORAL POSITION IN BIOCHEMISTRY. Position immediately available for a Ph.D. in biochemistry, chemistry, or related field to participate in a study of tRNA and tRNA genes in eukaryotes and eukaryotic organelles. This study includes the sequence determination of tRNA genes, their organization, flanking regions and location in the genome, their transcription, processing, and regulation. Send curriculum vitae and names of three references to: **Dr. Bernard Dudock, Department of Biochemistry, State University of New York at Stony Brook, Stony Brook, N.Y. 11794.** *SUNY, Stony Brook, is an Equal Opportunity/Affirmative Action Employer. AK number 101.*



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CHANCELLOR

UNIVERSITY OF CALIFORNIA SAN FRANCISCO

The President and The Regents of the University of California invite nominations and applications for the position of Chancellor of the San Francisco campus of the University. The appointment will be effective 1 July 1982.

The University of California, San Francisco (UCSF), is one of the nine campuses of the University of California, and the only one devoted solely to the health sciences. UCSF's mission is to train health practitioners in dentistry, medicine, nursing, pharmacy, and the allied health professions, as well as research investigators and teachers in the basic biological sciences. This is being accomplished in the context of the most advanced developments in patient care and biomedical research, and through increasing involvement in innovative community outreach and public service programs.

There are two general acute-care hospitals, an Ambulatory Care Center, and the Langley Porter Psychiatric Institute which is devoted to psychiatric patient care, teaching, and research. In addition, the campus has affiliated programs in some 150 institutions throughout California.

The chancellor is the chief executive officer of the campus and is responsible to the president. Within University policy the chancellor exercises very broad, delegated powers and is responsible for all aspects of campus administration. Candidates should have demonstrated administrative experience in the conduct of the affairs of substantial organizations and should have an appropriate scholarly record. Applications and nominations, accompanied by current résumés, may be addressed to:

The President
714 University Hall—CSF
University of California
Systemwide Administration
Berkeley, California 94720

They should be received no later than 30 September to be given full consideration.

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announces **SHORT COURSES, FALL, 1981**, including a new offering on electrophoretic techniques for the separation and detection of denatured proteins. These intensive instructional programs emphasize laboratory work and are intended primarily for scientists and physicians actively engaged in research.

LIQUID SCINTILLATION COUNTING IN BIOLOGY AND MEDICINE - October 18 - 23, 1981
Yutaka Kobayashi, New England Nuclear, Instructor in Chief, assisted principally by Gerald Litt of New England Nuclear. This course will be offered for the third time; attendance is limited to 16.

PROTEIN ANALYSIS BY POLYACRYLAMIDE GEL ELECTROPHORESIS — November 1-6, 1981
Offered for the first time, this course is limited to 16 participants. The Instructor in Chief is Raymond E. Stephens of the Marine Biological Laboratory and Boston University.

BIOLOGICAL ELECTRON MICROSCOPY FOR TECHNICIANS - November 15-20, 1981
Morton Maser, Marine Biological Laboratory, Instructor in Chief, assisted principally by D. E. Copeland of the Marine Biological Laboratory and William Sawyer of Carl Zeiss, Inc. This course will be offered for the fifth time; attendance is limited to 12.

SHORT COURSES for LATE FALL will include Quantitative Analysis of Electron Micrographs, Lee D. Peachey, University of Pennsylvania, Instructor in Chief; Small Computers in Biomedical Research, Larry Palmer, University of Pennsylvania, Instructor in Chief; and Optical Microscopy and Imaging in the Biomedical Sciences, Robert Day Allen, Dartmouth College, Instructor in Chief.

ADDITIONAL INFORMATION on course content and application materials may be obtained from the Admissions Office, Marine Biological Laboratory, Woods Hole, MA 02543; telephone 617-548-3705. MBL is an Equal Opportunity Institution.

POSITIONS OPEN

POSTDOCTORAL POSITION (2 years) available immediately to study myocardial hypertrophy. Applicants with experience in cardiovascular anatomy and physiology preferred. Send curriculum vitae and two letters of reference to:

Colin M. Bloor, M.D.
Department of Pathology, M-012
School of Medicine
University of California at San Diego
La Jolla, California 92093

POSTDOCTORAL POSITION available immediately for studies into the biochemistry of calcium transport during avian egg shell mineralization and its regulation by vitamin D. A strong background in biochemistry required; experience in membrane transport and/or subcellular fractionation preferred. Salary starting at \$15,800, plus fringe benefits. Send résumé and letters of recommendation to: Dr. William A. Coty, Department of Biological Chemistry, University of California, Los Angeles, School of Medicine, Los Angeles, Calif. 90024. *UCLA is an Equal Opportunity/Affirmative Action Employer.*

RESEARCH ASSISTANT

Molecular/cellular biologist to examine gene defects in human disease. Techniques include cell biology, nucleic acid chemistry, and recombinant DNA. Positions available at different levels, ranging from \$14,000 to \$22,500. Temporary for 3 years. Send résumé to: Personnel, Position Number 240, New York State Institute for Basic Research in Mental Retardation, 1050 Forest Hill Road, Staten Island, N.Y. 10314. *Affirmative Action/Equal Opportunity Employer, M/F.*

RESEARCH ASSOCIATE, 1 October 1981, to study biochemical mechanism of flower abortion of soybeans. Experience with identification of enzymes and plant products and with radiolabels in metabolic studies desired. Ph.D. or M.S. in biochemistry or plant science or qualified M.S. Appointment for 1 year, renewable once. Deadline: 15 September 1981, or until position is filled. Salary: \$14,000 to \$15,000. Send résumé, transcripts, and two letters of recommendation to: Dr. Christian Paech, Station Biochemistry, South Dakota State University, Brookings, S.D. 57007. *Affirmative Action/Equal Opportunity Employer.*

SURGICAL PATHOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

The Department of Pathology and Laboratory Medicine seeks to fill one tenure-track position in surgical pathology at the level of assistant professor. The individual must have demonstrated competence in general surgical pathology, as well as an area of expertise in which a significant research program can be initiated and maintained. Areas of endeavor might include pathophysiology of renal, hepatic, or endocrine disease, ultrastructure aspects of disease for the biology of neoplasia. Ability to teach at both graduate and undergraduate levels is required. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Please send curriculum vitae and three references to:

Dr. James E. Wheeler
Acting Director, Surgical Pathology Division
Department of Pathology and Laboratory Medicine
Hospital of the University of Pennsylvania
3400 Spruce Street/GI—Box 527
Philadelphia, Pa. 19104

SURGICAL PATHOLOGY UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

The Department of Pathology and Laboratory Medicine seeks to fill one tenure-track position in surgical pathology at the level of assistant professor. The individual must have demonstrated competence in general surgical pathology, with diagnostic proficiency in metabolic bone disease. The individual must be interested in participating in the development of an interdepartmental center for studies in metabolic bone disease. A research program is expected, with the ability to have or attract independent funding. Teaching at the graduate and undergraduate levels is required. *The University of Pennsylvania is an Equal Opportunity/Affirmative Action Employer.* Please send curriculum vitae and three references to:

Dr. James E. Wheeler
Acting Director, Surgical Pathology Division
Department of Pathology and Laboratory Medicine
Hospital of the University of Pennsylvania
3400 Spruce Street/GI—Box 527
Philadelphia, Pa. 19104

POSITIONS OPEN

POSTDOCTORAL POSITIONS

NIH-funded postdoctoral positions available for U.S. citizens or permanent residents for 1981-1982. Areas of study include the molecular control of expression of tumor marker genes in neoplastic and fetal cells; the molecular basis of immunodeficiency diseases; purine metabolism in human leukemic cells. Please send curriculum vitae to either: Dr. Donald M. Miller or Dr. Beverly S. Mitchell, Simpson Memorial Institute, 102 Observatory, University of Michigan, Ann Arbor, Michigan 48109.

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POSTDOCTORAL POSITION

Available immediately for a theoretically oriented population ecologist in a Scandinavian project on the population ecology of bark beetles (*Ips typographus*). Experience in developing and analyzing simple differential—and difference equation models are essential. Good training in entomology is required.

The appointment will initially be for 1 year but with the possibility of extension to a total of 3 years. The appointee will work in close cooperation with empiricists and other theoreticians working on *Ips typographus* (as well as other animal groups).

Applications, including curriculum vitae and names of two referees, should be sent as soon as possible to: Dr. Nils Chr. Stenseth, Zoological Institute, University of Oslo, P.O. Box 1050, Blindern, Oslo 3, Norway.

The University of Utah School of Medicine, Salt Lake City, Utah, invites nominations and applications for the position of **PROFESSOR AND CHAIRMAN** of the new Department of Genetics. This position requires a person with an outstanding research program in genetics, as well as administrative and leadership qualities, who will interact well with both clinical and basic science faculty. This new department will provide the opportunity and requirement to recruit strong faculty. *The University is an Equal Opportunity/Affirmative Action Employer; thus, applications from women and minorities are encouraged.* Inquiries, including curriculum vitae, should be sent to: Dr. John A. Dixon, Chairman, Genetics Search Committee, Department of Surgery, University of Utah, School of Medicine, Salt Lake City, Utah 84132. Deadline for applications: 15 September 1981.

VETERINARY VIROLOGIST/CELL BIOLOGIST

Leading animal vaccine manufacturer has an excellent opportunity for individual with Ph.D. in veterinary virology. Duties include designing, scheduling, coordinating, supervising, and direct-participating in the development of new animal viral vaccines. The candidate must have 3 to 5 years of experience in animal virology and cell-culture work; managerial and supervisory skills are required. We offer a competitive salary and comprehensive benefits package. To apply, submit résumé, including current salary, to: Personnel Office, Beecham Laboratories, Inc., East Lincoln Road, White Hall, Ill. 62092.

TRAINEESHIPS

POSTDOCTORAL TRAINEESHIPS in developmental biology. Applications are invited for postdoctoral positions in the Developmental Biology Training Program in the Zoology Department of the University of Iowa. The primary areas of research and research supervisors include: (i) protein biosynthesis (J. Menninger); (ii) gene expression in lambda (G. Gussin); (iii) DNA replication (C. Newlon); (iv) developmental biology of *Tetrahymena* (J. Frankel; N. Williams); (v) developmental biology of *Dicystelium discoideum* and *Candida albicans* (D. R. Soll); (vi) developmental genetics of *Drosophila* (D. Mohler); (vii) cartilage cell differentiation (M. Solorsh); (viii) developmental neurobiology (J. Denburg; S. Kater; J. Kollros; C. F. Wu); (ix) developmental parasitology (G. Cain); and (x) reproduction (E. Spaziani; R. Kessel, B. Stay).

U.S. citizens or permanent residents with Ph.D.'s are eligible. Financial support is primarily from NIH.

APPLICATION: send curriculum vitae, area of research interest, and names of three references to: Dr. David R. Soll or Dr. Michael Solorsh, Department of Zoology, University of Iowa, Iowa City, Iowa 52242. *The University of Iowa is an Equal Opportunity/Affirmative Action Employer.*

TRAINEESHIPS

VIROLOGY

POSTDOCTORAL TRAINEESHIPS in biochemical genetics of phage and tumor viruses at The University of Michigan Medical School are now available through an NIH-funded interdisciplinary program. Research areas include animal cell transformation, tumor virus and phage DNA replication and recombination, regulation of gene expression and virus-cell interactions. Applicants need not have previous research experience in virology. Submit curriculum vitae and a list of three references to: Virology Postdoctoral Training Program Committee (Department of Biological Chemistry), or to one of the following faculty: Dr. William R. Folk, Dr. G. R. Greenberg (Department of Biological Chemistry); Dr. William Brockman, Dr. D. I. Friedman (Microbiology); Dr. M. Levine (Human Genetics), The University of Michigan Medical School, Ann Arbor, Mich. 48109.

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TRAINING PROGRAM

POSTDOCTORAL TRAINING IN CLINICAL CHEMISTRY. Positions are available 1 July 1982, for basic scientists or physicians interested in careers as laboratory directors in academic laboratory medicine. The 2-year program provides practical experience in clinical chemistry laboratories and extends relevant basic scientific knowledge. Salaries equal NIH fellowships. Deadline: 15 November 1981. Write: Dr. Margaret Kenny, Co-director, Postdoctoral Training Program in Clinical Chemistry, Department of Laboratory Medicine, SB-10, University of Washington, Seattle, Wash. 98195. *An Equal Opportunity/Affirmative Action Employer.*

FELLOWSHIPS

FELLOWSHIP in biological psychiatry currently available at the Clinical Research Unit at Dorothea Dix Hospital, associated with the University of North Carolina (UNC) at Chapel Hill. Duration: 1 to 2 years. Major focus is the thyroid axis in mental illness, however, other neuroendocrine systems are under study. Strong basic science support complements clinical studies. Fellow must have M.D. and have completed 3 years of psychiatry residency. Contact:

Dr. Peter T. Loosen, Director
Clinical Research Unit
Dorothea Dix Hospital
Raleigh, N.C. 27611

UNC is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL FELLOWSHIP IN LEUKEMIA RESEARCH. Research fellowship with Dr. Lawrence S. Lessin, director, Division of Hematology and Oncology. Background and experience in areas of basic hematology, electron microscopy, hematopoietic cell culture, biochemistry and cellular physiology of hematopoiesis, and cell membrane and surface antigen techniques are highly desirable. Contact: Barbara Murphy, Division of Hematology and Oncology, George Washington University Medical Center, 2150 Pennsylvania Avenue, NW, Washington, D.C. 20037. Telephone: 202-676-2939.

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sizes being crosslinked with small amounts (usually 5%) of divinylbenzene. Because the particles are large and have a specific gravity of 1.05, they tend to settle in a few hours. However, they are easily resuspended by shaking and are so monodisperse that, after

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Combination pack (1 of each)		275.00	

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