

ferences of opinion on such fundamental matters as the relative importance of abrasion and plucking in erosion and the role of subglacial streams. Thus, although Boulton and Hallet have made theoretical analyses of abrasion, a comprehensive theory of erosion seems unlikely to emerge in the near future.

On the practical side, the symposium showed the variety of methods available for tackling the many unsolved problems. Though mathematical analyses and laboratory simulations will continue to be useful, the main need is for more detailed observations in tunnels and boreholes and also on surfaces exposed by retreating glaciers. For example, much can be learned about subglacial processes by mapping features and examining carbonate deposits on such surfaces (Walder and Hallet).

Many textbooks present a tidy picture of their subject by glossing over those awkward observations that do not fit current theories. A symposium volume such as this, on the other hand, emphasizes the areas of ignorance and disagreement. This is the first step to progress, however, and the book should guide the direction of research in the years ahead.

W. S. B. PATERSON

Post Office Box 303, Heriot Bay,
British Columbia, V0P 1H0
Canada

Biological Membranes

Liposomes in Biological Systems. GREGORY GREGORIADIS and ANTHONY C. ALLISON, Eds. Wiley-Interscience, New York, 1980. xii, 412 pp., illus. \$57.

Artificial lipid membrane vesicles, commonly known as liposomes, have been widely used both as experimental models in membrane research and as carrier systems for cellular delivery of drugs and other macromolecules in vitro and in vivo. The use of liposomes as model membranes has resulted in a significant increase in our understanding of molecular dynamics at the cellular level. Though the possible medical application that first attracted attention, enzyme replacement therapy, is still underdeveloped, there are promising new leads with respect to the use of liposomes in the treatment of parasitic diseases, metal poisoning, metal storage diseases, tumors, and rheumatoid arthritis. Genetic manipulation of cells in vitro and in vivo and targeting of liposomes to specific tissues are possibilities now under active development.

It is tempting to say that liposomes started as a cure in search of a disease. With the benefit of hindsight, and in spite of present successes, it seems to me that the problems associated with their eventual utilization in biology and medicine have only recently come into proper focus. It is quite possible that the early enthusiasm may have tempted researchers to downplay the complexities of the biological milieu in which such a simple carrier system was expected to operate. At this stage there is an increasing prospect for numerous useful applications of liposomes, although it has become clear that liposome properties have to be modified significantly to produce optimal results of practical significance. In view of the versatility of the liposome system and the number of investigators now involved in this field, the future looks promising.

This book is devoted exclusively to various biological applications of liposomes. Although the subject is timely, the book itself seems to be about two years out of date. Most of the chapters cover the literature only up to 1977, with some including a few references from 1978 and others missing most references from 1977. The last chapter (by G. Gregoriadis), however, is a brief but reasonably well organized summary of recent progress in various avenues of research.

The book begins with a chapter by A. D. Bangham, who gives a personal account of the early days of the liposome field, followed by a dense compendium of references on liposomes as model membranes, circa 1975-76. In the chapter by Gregoriadis, an account of the author's earlier work on various aspects of liposomes, such as their disposition in tissue, their role as carriers of lysosomal enzymes and drugs, and their adjuvant effects and oral delivery, is followed by a generous sprinkling of recent unpublished results. J. H. Fendler analyzes drug entrapment in liposomes and its possible enhancement by the formation of various complexes. G. Poste reviews the interaction of liposomes with cells in vitro, with an analysis of possible mechanisms of interaction and a discussion of the difficulties of interpreting the data. G. Weissmann and M. Finkelstein review their work with liposomes as enzyme carriers. G. Scherphof *et al.* discuss the interaction of liposomes with plasma components and liver cells. There are papers on liposomes as carriers of methotrexate (H. K. Kimelberg), chelating agents (Y. E. Rahman), and steroids (I. H. Shaw and J. T. Dingle). G. M. K. Humphries discusses the use of

liposomes in immunological studies, with a review of the work from the groups of Kinsky and McConnell. Other chapters are authored by T. DeBarys and F. Van Hoof, W. E. Magee, and I. R. McDougall.

Because of the delay in publication, the book is not likely to enhance the reader's appreciation of the current state of the art. However, by providing an overview of the earlier work of several leading groups, it is likely to be helpful to people just starting in the field. In this respect, it is a useful addition to several other books and reviews on the subject that have appeared during the last few years.

D. PAPAHDJOPOULOS

Cancer Research Institute and
Department of Pharmacology,
University of California,
San Francisco 94143

Books Received

Advances in Agronomy. Vol. 31. N. C. Brady, Ed. Academic Press, New York, 1980. xii, 316 pp. \$32.50.

Advances in Environmental Science and Technology. Vol. 10. James N. Pitts, Robert L. Metcalf, and Daniel Grosjean, Eds. Wiley-Interscience, New York, 1980. xviii, 522 pp., illus. \$42.50.

Advances in Lipid Research. Vol. 17. Rodolfo Paoletti and David Kritchevsky, Eds. Academic Press, New York, 1980. xii, 308 pp., illus. \$31.

Advances in Prostaglandin and Thromboxane Research. Vols. 6-8. Proceedings of a conference, Washington, D.C., May 1979. Bengt Samuelsson, Peter W. Ramwell, and Rodolfo Paoletti, Eds. Raven, New York, 1980. cxxxviii, 1856 pp., illus. Each volume, \$55; the three volumes, \$160.

Basic Chemical Kinetics. H. Eyring, S. H. Lin, and S. M. Lin. Wiley-Interscience, New York, 1980. x, 494 pp., illus. \$35.

Bifurcation and Nonlinear Eigenvalue Problems. Proceedings of a meeting, Villetaneuse, France, Oct. 1978. C. Bardos, J. M. Lasry, and M. Schatzman, Eds. Springer-Verlag, New York, 1980. viii, 296 pp., illus. Paper, \$19.50. Lecture Notes in Mathematics, vol. 782.

Cereals for Food and Beverages. Recent Progress in Cereal Chemistry and Technology. Proceedings of a conference, Copenhagen, Aug. 1979. George E. Inglett and Lars Munck, Eds. Academic Press, New York, 1980. xiv, 558 pp., illus. \$39.50.

Chemical Experimentation under Extreme Conditions. Bryant W. Rossiter, Ed. Wiley-Interscience, New York, 1980. xiv, 370 pp., illus. \$24.95. Techniques of Chemistry, vol. 9.

Dynamics of Mechanical Systems. J. M. Prentis. Horwood, Chichester, England, and Halsted (Wiley), New York, ed. 2, 1980. x, 486 pp., illus. \$57.95. Ellis Horwood Series in Engineering Science.

EDP Costs and Charges. Finance, Budgets, and Cost Control in Data Processing. James W. Cortada. Prentice-Hall, Englewood Cliffs,

(Continued on page 1379)

JAT**NEW IN 1981**

Journal of APPLIED TOXICOLOGY

THE NEW INTERNATIONAL JOURNAL DEVOTED TO
RESEARCH AND METHODS EMPHASIZING DIRECT
CLINICAL AND INDUSTRIAL APPLICATIONS

EDITORIAL BOARD

Editor-in-Chief:

Dr. Michael R. Greenwood,
Xerox Corporation,
Xerox Square W147,
Rochester,
NY 14644,
U.S.A.

U.S. Editor:

Dr. Rudy Von Burg,
Chevron Environmental
Health Center,
Standard Oil of California,
P.O. Box 1272,
Richmond, CA 94802,
U.S.A.

European Editor:

Dr. Laszlo Magos,
Medical Research Council,
Toxicology Unit,
Woodmansterne Road,
Carshalton,
Surrey SM5 4EF,
U.K.

THE EDITORIAL ADVISORY BOARD

Professor K. Kostial, Dr. A. A. Seawright, Dr. J.C. Smith, Dr. R.A. Parent, Dr. Y. Sugata, Dr. M.E.J. Curzon, Dr. G.J. Stopps, Professor A. Cavallari, Dr. T. Giovanoli, Dr. T. Connors, Dr. D.C. Jessup, Dr. S. Halbach, Dr. J.M. Cholakos, Dr. E. Reiner, Professor J. Indulski, Dr. C.J. Terhaar, Dr. T. Norseth, Dr. T.W. Clarkson, Dr. E.A. Lock, Dr. M.J. McKenna, Dr. A.M. Tometsko, Dr. R.J. Sram, Dr. R.W. Naismith.

Due to the inability of existing publications to provide an appropriate forum for the applied toxicologist, a large group of researchers concluded that a new dedicated journal is required to cover research and methods emphasizing direct clinical and industrial applications of toxicology and to stimulate developments in this important and expanding area of research. JAT is the fulfillment of these aims and is devoted to the publication of papers for which there are practical uses, rather than work solely of academic interest.

Papers will be of the highest scientific standard and presentation, encompassing toxic effects of chemicals and materials in the fields of teratology, reproduction, mutagenesis, carcinogenesis, health, the environment, pathology, pharmacokinetics and biological mechanisms. To ensure this, editorial policy will strictly require two independent referees for all material submitted.

Key features of JAT include a communications section on the most significant advances which justify swift publication, and a letters section for short notes and correspondence. There is also a 'toxicology update' section which contains articles that concentrate on new results rather than historical information and includes reviews of a particular substance, reviews of a particular chemical management topic or reviews of analytical techniques.

JAT - Journal of Applied Toxicology is therefore an essential new medium of communication for industrial, environmental and applied clinical toxicologists, together with university and industrial research departments in biochemical, pharmaceutical, forensic, medical and analytical fields.

Submission of Papers - If you wish to submit a paper please contact one of the Editors above.

PLACE YOUR ORDER NOW

JAT is published bi-monthly, commencing with Volume 1 in February 1981. Annual subscription is \$143
A limited number of sample copies for evaluation are available on request.

HEYDEN

Heyden & Son Inc., 247 South 41st Street,
Philadelphia, PA 19104, USA.
Tel: (215) 382 6673 Telex: 4761047

Circle No. 376 on Readers' Service Card

R&D Money Doesn't Grow on Trees

So, whether you're working in the public or private sectors, for a university or national laboratory, in government or business, it's up to you to find out where the R&D dollars are hiding and how to go about getting them after you've found them.

The books in the Research and Development: AAAS Report Series can help you do this in two ways.

1. Annual R&D Reports — written by experts in the field — explore federal policies, budgetary concerns, the economy, and international and domestic developments as they relate to R&D policy making for the coming fiscal year.
2. Subsequent R&D Colloquium Proceedings — featuring leaders from government, industry, universities, and other parts of the scientific community — give you the texts of presentations, question-and-answer periods, and discussions from annual AAAS Colloquia on R&D Policy.

Order the Research and Development: AAAS Report Series today. In these money-hard times, it's an investment you can't afford to miss out on.

New Titles

R&D, AAAS Report V, 1981

by Willis H. Shapley, Albert H. Teich, Gail J. Breslow, and Charles V. Kidd paper, \$7.00

Colloquium Proceedings, 1980: R&D in an Inflationary Environment, paper, \$7.00 (available Sept. 1980)

Also Available

R&D: AAAS Report IV, 1980

R&D: AAAS Report III, 1979

R&D: AAAS Report II, 1978

R&D: AAAS Report I, 1977

R&D Colloquium Proceedings, 1979

R&D Colloquium Proceedings, 1978

R&D Colloquium Proceedings, 1977

R&D Colloquium Proceedings, 1976

paper, \$5.00 each

Special Offer

5-volume set of either the Reports or Colloquium Proceedings, \$25.00 Entire 10-volume series, \$45.00
AAAS Sales Dept., L-2-80 1515 Massachusetts Ave., NW, Washington, DC 20005. Orders under \$10.00 must be prepaid. No further discount to AAAS members with Special Offer prices.

BOOKS RECEIVED

(Continued from page 1342)

N.J., 1980. xiv, 288 pp., illus. \$24.95. Prentice-Hall Series in Data Processing Management.

Einstein's Universe. Nigel Calder. Penguin, New York, 1980. 256 pp. + plates. Paper, \$2.95. Reprint of the 1979 edition.

Electrophoresis in the Separation of Biological Macromolecules. Ö. Gaál, G. A. Medgyesi, and L. Vereczkey. Wiley-Interscience, New York, 1980. 422 pp., illus. \$57.75.

Form and Function in Birds. Vol. 1. A. S. King and J. McLelland, Eds. Academic Press, New York, 1979. xii, 460 pp., illus. \$64.50.

Foundations of Animal Development. Arthur F. Hopper and Nathan H. Hart. Oxford University Press, New York, 1980. xii, 626 pp., illus. \$19.95.

Foundations of Radiation Theory and Quantum Electrodynamics. Papers from a symposium, Boulder, Colo. A. O. Barut, Ed. Plenum, New York, 1980. x, 220 pp. \$27.50.

Glossary of Geology. Robert L. Bates and Julia A. Jackson, Eds. American Geological Institute, Falls Church, Va., ed. 2, 1980. xii, 750 pp. \$60.

The Governance of Energy. Problems, Prospects and Underlying Issues. Dudley J. Burton. Praeger, New York, and Cambria Press, Palo Alto, Calif., 1980. xxx, 396 pp., illus. Cloth (available from Praeger), \$19.95; paper (available from Cambria Press), \$8.95.

Growth Points in Nuclear Physics. P. E. Hodgson. Pergamon, New York, 1980. Two

volumes. xii, 220 pp., illus. and x, 208 pp., illus. Each volume: cloth, \$30; paper, \$15.

An Introduction to Theories of Personality. B. R. Hergenhahn. Prentice-Hall, Englewood Cliffs, N.J., 1980. xvi, 382 pp., illus. \$15.95.

An Introduction to Variational Inequalities and Their Applications. David Kinderlehrer and Guido Stampacchia. Academic Press, New York, 1980. xiv, 314 pp. \$35.

Introductory Problems in Spectroscopy. Richard C. Banks, Edward R. Matjeka, and Gary Mercer. Benjamin/Cummings, Menlo Park, Calif., 1980. viii, 328 pp., illus. Spiral bound, \$11.95.

The Laboratory Rat. Vol. 2, Research Applications. Henry J. Baker, J. Russell Lindsey, and Steven H. Weisbroth. Academic Press, New York, 1980. xiv, 276 pp., illus. \$52.50. American College of Laboratory Animal Medicine Series.

Nutrition. Principles and Clinical Practice. Sara M. Hunt, James L. Groff, and John M. Holbrook. Wiley, New York, 1980. xii, 506 pp., illus. \$18.95.

Nutrition and the Adult: Macronutrients. Roslyn B. Alfin-Slater and David Kritchevsky, Eds. Plenum, New York, 1980. xviii, 290 pp., illus. \$25. Human Nutrition, vol. 3A.

Optical and Infrared Telescopes for the 1990s. Proceedings of a conference, Tucson, Ariz., Jan. 1980. Adelaide Hewitt, Ed. Kitt Peak National Observatory, Tucson, 1980. Two volumes. xxxiii, 1194 pp., illus. + appendix. \$35.

Organic Chemistry. Daniel S. Kemp and Frank Vellaccio. Worth, New York, 1980. xiv, 1422 pp., illus. \$25.95.

Solution Equilibria. F. R. Hartley, C. Burgess, and R. M. Alcock. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 362 pp., illus. \$79.95.

Solving Problems in Analytical Chemistry. Stephen Brewer. Wiley, New York, 1980. xviii, 538 pp., illus. Paper, \$11.95.

Somatic Selection and Adaptive Evolution. On the Inheritance of Acquired Characters. E. J. Steele. Williams and Wallace, Toronto, 1980. xii, 92 pp. \$14.95.

Sourcebook on Asbestos Diseases. Medical, Legal, and Engineering Aspects. George A. Peters and Barbara J. Peters. Garland STPM Press, New York, 1980. Various pages. \$46. Garland Safety Management Series.

Statistical Theory and Methodology of Trace Analysis. C. Liteanu and I. Rică. R. A. Chalmers, Transl. Ed. Horwood, Chichester, England, and Halsted (Wiley), New York, 1980. 446 pp., illus. \$9.25. Ellis Horwood Series in Analytical Chemistry.

Treatise on Analytical Chemistry. Part 2, Analytical Chemistry of Inorganic and Organic Compounds. Vol. 16, Functional Groups. I. M. Kolthoff and Philip J. Elving, Eds. Interscience (Wiley), New York, 1980. xxii, 560 pp., illus. \$42.50.

The Use of Nonhuman Primates in Cardiovascular Diseases. Papers from a symposium. S. S. Kalter, Ed. University of Texas Press, Austin, 1980. xxii, 474 pp., illus. \$35.

Viral Oncology. George Klein, Ed. Raven, New York, 1980. xviii, 842 pp., illus. \$85.

Zinsser Microbiology. Wolfgang K. Joklik, Hilda P. Willett, and D. Bernard Amos, Eds. Appleton-Century-Crofts, New York, ed. 17, 1980. xxii, 1540 pp., illus. \$39.50.

Can't See? Can't Study!

One camera used a Javelin Night Viewing Device

Javelin, with the widest range of Night Viewing Devices (NVDs) and accessories in the world makes your study easier to perform and your results more complete.

Whether you're studying the effects of pollution on hermit crabs or the social habits of insects or mammals, or working in the laboratory, it's a 24-hour a day endeavor. Javelin's NVDs will help you observe all facets of their activity without exposing them to any unnatural light, not even infrared, thus eliminating an extra variable in your study.

With a Javelin NVD you can study and photograph subjects in almost total darkness because the NVD provides a light gain greater than 50,000 times.

Two of Javelin's NVDs are particularly well adapted to scientific projects because they use a variety of lenses easily interchanged, connect and disconnect from various cameras quickly and are simpler to operate than your 35 mm camera. Using an NVD

and Photo Adaptor you can shoot in almost total darkness with a lens setting of f/4 using ASA400 film and view or shoot objects as close as ten inches or as far as 2,000 meters.

Our Javelin 221 is the most popular device for relatively short distances. Lightweight, it adds less than two pounds to your camera. The focal plane iris of this model allows you to reduce the field of view to concentrate on the particular portion of the screen of the greatest importance. For convenience, this model also mounts on a light tripod.

The Javelin 226 is a larger unit especially designed for long distance viewing. It features a biocular viewer, allowing you to stand twelve inches back of the NVD and look with both eyes, like watching TV. This viewer is on a swinging door mount with an optional adjacent swinging door to attach a television or photographic or movie camera. During field research you can view the scene by using the biocular view-

er and, within seconds, "change doors" to position a camera to photograph the scene. The model 226 weighs 13.5 pounds, heavy enough to support large telephoto lenses, but light enough to be easily transported.

Both models use an Automatic Brightness Control to eliminate adjustments when scanning from dark to illuminated areas. Gain is adjusted automatically.

Whether your project takes you underwater or above, whether it involves tagging prairie dogs or hospital research and evaluation, Javelin has done it all. Call us concerning your project. We may be able to get you out of the dark.

JAVELIN ELECTRONICS

Subsidiary of Kide, Inc.
KIDDE

19831 Magellan Drive,
Torrance, CA 90502 • (213) 327-7440
Telex: 19-4860 JAVELIN TRNC

Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising closing for a particular Friday issue is Wednesday, 3 1/2 weeks before. Advertising is accepted only in writing; no abbreviations. Also, personnel advertising is accepted only with the understanding that the advertiser does not discriminate among applicants on the basis of race, sex, religion, age, color, national origin, or handicap.

POSITIONS WANTED: 40¢ per word, plus \$4 for use of box number, per insertion. \$10 minimum, per insertion. Prepayment required. This rate is available only to individuals seeking jobs.

DISPLAY (POSITIONS OPEN, COURSES, FELLOWSHIPS, MARKETPLACE, and so forth): \$7.20 per millimeter; \$180 minimum, per insertion (minimum charge covers 25 millimeters on a single column; 25 millimeters equals 10 lines of 50 spaces per line). No charge for use of box number. No agency commission for ads less than 103 millimeters (4 inches). No cash discount. Prepayment required for all foreign ads. Purchase orders and billing information required for all other advertising.

Send copy for all **Positions Wanted** ads and **Display** ads less than 1/6 page in size (125 millimeters) to:

SCIENCE, Room 207
1515 Massachusetts Ave., NW
Washington, D.C. 20005
Telephone: 202-467-4456

Send copy for **Display** ads 1/6 page and larger to:

Scherago Associates, Inc.
1515 Broadway
New York, N.Y. 10036
Telephone: 212-730-1050

Blind ad replies should be addressed as follows:

Box (give number)
SCIENCE
1515 Massachusetts Ave., NW
Washington, D.C. 20005

The display rate for advertising in SCIENCE will be \$200 minimum as of 1 January 1981.

POSITIONS WANTED

Bacteriologist/Cell Biologist. Ph.D. (1968). R. M. (AAM). Professor. Seeking academic or laboratory position; rank secondary to reciprocity in skills and ideas. Interested in ecological relationships of *Clostridium perfringens*. Teach general and pathogenic bacteriology, immunology, histology, nutrition. Skills include photomicrography, electron microscopy, writing. Publications. Available July 1981. Box 278, SCIENCE. 12/19; 1/2

Ph.D., 1979, **Biopsychology**; olfactory (vomeronasal) system, adrenal axis and gonadotropin regulation; hormones and reproductive behavior. Postdoctoral research in endocrinology, 2 years; neurotransmitters and anterior pituitary function; radioautographic and stereotaxic lesioning techniques. Several publications. Teaching experience. Desires research, academic, or government position. Box 307, SCIENCE. X

Clinical Chemist—Endocrinologist. Ph.D. New York City director's permit in all areas of clinical chemistry, endocrinology, RIA. Seeks connection with clinical laboratory. Box 308, SCIENCE. X

Microvascular Surgery. Research laboratory supervisor with 10 years of experience in organ transplantation, such as kidney, thymus, heart, spleen, pancreas, and so forth, in the rat. Seeks challenging position in industry or research. Also has developed experimental protocols on organ allograft prolongation. Box 286, SCIENCE. X

Scientific Generalist/Holistic Healer/Psychic Investigator/Master Teacher. Ph.D. Seeking opportunity to share expertise as educator/consultant in television, motion pictures, academia, or ? Box 311, SCIENCE. X

POSITIONS WANTED

Organic/Medicinal Chemist. Ph.D. Experienced in broad areas of synthesis, instrumentation, publications, teaching of pharmacology, research collaboration with pharmacologists, and writing experience. Seeking position in industry, government (GS rating acquired), or academia. Box 309, SCIENCE. X

Pharmacologist. D.V.M., Ph.D., strong background and extensive publications in the field of immediate-hypersensitivity, autonomic, autacid, smooth muscle, pulmonary, immunopharmacology. Present interest in arachidonate lipoxygenase pathway. Seeks academic or research/industrial position. Box 310, SCIENCE. X

Safety Manager with human resources degree and currently taking USC M.S.S., seeks southeastern United States opening in safety/operations management. Box 299, SCIENCE. X

Toxicologist/Analytical Chemist/Biochemist. Ph.D. 1977. Postdoctoral experience in reaction mechanisms and kinetics and in mechanisms of cytochrome P-450 mediated metabolism. Seeking challenging position in toxicology. All inquiries welcome, but prefers western United States. Box 312, SCIENCE. X

POSITIONS OPEN

ANALYTICAL CHEMIST

Position available immediately for M.S. qualified chemist. Experience in TLC, UV-VIS, HPLC, GC-MS, and IR desirable. Kentucky Equine Drug Laboratory, Department of Veterinary Science, University of Kentucky. Applicants should submit résumé and names of three references to:

Dr. J. W. Blake
Department of Veterinary Science
University of Kentucky
Lexington, Ky. 40546

The University is an Equal Opportunity/Affirmative Action Employer.

DEPARTMENT OF ANATOMY

University of Puerto Rico has openings for faculty to teach gross anatomy or histology in an AMA-accredited School of Medicine. Rank is open and applicants should have strong records in research. The University operates the Caribbean Primate Research Center which has three facilities including Cayo Santiago. However, applicants' research interests need not necessarily be in primatology. Send curriculum vitae and names of three references to: Dr. Miguel Schön, Director, Department of Anatomy, University of Puerto Rico Medical Sciences Campus, Box 5067, San Juan, Puerto Rico 00936.

New Division of Gerontology invites applications for tenure-track research position **ASSISTANT PROFESSOR** in cell and molecular biology for studies on cellular aging. Ph.D. or M.D. with several years of postdoctoral experience is required. Preference may be given to those with background in membrane-molecular interactions and/or hybridoma techniques. Apply with curriculum vitae and names and addresses of three references to: Dr. Sam Goldstein, Division of Gerontology, Department of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72205.

University of Wisconsin-Madison

The Department of Biochemistry invites applications at the rank of **ASSISTANT PROFESSOR** (a tenure-track position) in the field of eukaryotic molecular biology. Research areas in which the department is particularly interested include, but are not limited to, developmental biochemistry of animals and animal cell biology. Responsibilities will include teaching in the Biochemistry Department's curriculum, supervision of graduate students, and development of an independent research program. Salary will be on a 12-month basis; it will be commensurate with the experience of the candidate and compatible with the salary structure of the University of Wisconsin System. Send detailed curriculum vitae and statement of research interests to: H. F. DeLuca, Chairman, Department of Biochemistry, University of Wisconsin, Madison, Wis. 53706. These applications must be received before 28 February 1981. Applicants should have three letters of recommendation submitted to the same address. *The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ANATOMY: ASSISTANT PROFESSOR

The Department of Anatomy, Tufts University Schools of Medicine, Dental Medicine and Veterinary Medicine, invites applications for a tenure-track position at the assistant professor level beginning July 1981. Applicants should hold the Ph.D. in anatomy and/or the M.D., D.M.D., or D.V.M. Applicants should be qualified to teach either gross anatomy or microscopic anatomy to medical, dental, and graduate students. Applicants should have at least one or two years of postdoctoral experience and show promise of developing an active and independent research program. Current research areas in the department include: pulmonary cell biology and metabolism, reproductive biology and neuroendocrinology, neurobiology, mechanisms of hormone action, comparative immunology and the effects of stress on immunosuppression, and cell biology including membrane structure, secretory mechanisms, cell-to-cell recognition, cell motility and developmental mechanisms. Salary is dependent upon qualifications and experience. Applicants are invited to submit curriculum vitae, names of three references, and a letter describing research and teaching interests to: Dr. Karen Hitchcock, Chairman, Department of Anatomy, Tufts University Schools of Medicine, Dental Medicine and Veterinary Medicine, 136 Harrison Avenue, Boston, Massachusetts 02111. Deadline for receipt of application is 1 March 1981.

Tufts University is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR POSITION

Department of Geological Sciences
The University of Texas at Austin

A tenure-track assistant professor position is now open in the field of structural geology. This position is effective January 1981 or September 1981, depending on availability of successful applicant. Teaching responsibilities include undergraduate and graduate courses in structural geology, participation in departmental field courses, and supervision of graduate research in the areas of the person's special interest. Competence in the related areas of engineering geology, rock mechanics theory, or regional tectonics will be especially welcome.

Applicants for this position must have completed all requirements for the Ph.D. degree at the time of employment. Qualified persons should send a complete résumé, including names of three references, an abstract of their dissertation, statement of research interest, and planned research projects to:

Dr. Earle F. McBride
Department of Geological Sciences
The University of Texas at Austin
P.O. Box 7909
Austin, Texas 78712

An Affirmative Action/Equal Opportunity Employer

ASSISTANT PROFESSOR OF ANATOMY. Applications are invited for an assistant professorship in anatomy at the Dartmouth Medical School. Applicants should have the M.D. or Ph.D. degree with postdoctoral experience, the ability and experience to teach one of the anatomical disciplines (neural, microscopic, or developmental anatomy), and a willingness to participate in the teaching of gross anatomy. Applicants should have an active research program with publications and be able to compete favorably for extramural research support. Interested individuals should send a letter with a statement of research interests, curriculum vitae, and names of three references to: Dr. Vergil H. Ferm, Chairman, Department of Anatomy, Dartmouth Medical School, Hanover, N.H. 03755. *An Affirmative Action/Equal Opportunity Employer, M/F.*

The University of Michigan Medical School, Department of Otorhinolaryngology, has an immediate opening for a **RESEARCH ASSOCIATE** available for interdisciplinary work on molecular mechanisms in hearing and deafness. Applicants should have Ph.D., M.D., or equivalent degree and postdoctoral experience. Researcher is expected to collaborate on ongoing biochemical research on the inner ear and to develop own research program. Background in biochemistry/neurochemistry would be helpful but applicants specializing in anatomy, physiology, or related science with interest in basic hearing research will be equally considered. Joint appointment in the appropriate basic science department will be encouraged. Send curriculum vitae, description of research interests, and names of three or more referees to: Dr. Jochen Schacht, Kresge Hearing Research Institute, University of Michigan Medical School, Ann Arbor, Mich. 48109. *A nondiscriminatory, Affirmative Action Employer.*

POSITIONS OPEN

AQUATIC BIOLOGIST—LIMNOLOGIST

The Department of Zoology (University of Wisconsin-Madison) invites applications for the position of program associate-Lake Biology Program. Employee will assume responsibilities as associate director of the University of Wisconsin's Trout Lake Biological Station. This year-round, field and laboratory research facility is located on Trout Lake in northern Wisconsin (Vilas County). Responsibilities include supervision of station employees, deployment of station resources, housing arrangements, and day-to-day station operation. While permanent residence near the station is required, close interaction with the Madison Campus is expected, including possible teaching opportunities in limnology. The employee is expected to develop active research centered on northern lakes.

Required qualifications include a Ph.D. in limnology or aquatic ecology with demonstrated research, management, and leadership abilities. Starting salary is \$18,700 for 12 months. Please send application, including curriculum vitae and three letters of recommendation, to: **Dr. John J. Magnuson, Laboratory of Limnology, University of Wisconsin, Madison, Wisconsin 53706**, by 28 February 1981. An Equal Opportunity/Affirmative Action Employer.

BIOLOGICAL OR CHEMICAL LIMNOLOGIST

The University of Wisconsin-Madison invites applications for the position of project associate to function as site manager for research on aquatic ecosystems in northern Wisconsin.

This interdisciplinary study, supported by the National Science Foundation, involves long-term ecological research on a suite of lake ecosystems. Research will be at the Trout Lake Station, Vilas County, Wis., and on Lake Mendota in Madison.

Site manager will have responsibility for on-site data collection, processing, and management. Includes supervision of technicians, involvement in the field and laboratory research, and synthesis of results. Active participation in all phases of the research process is expected, as is close interaction with investigators, graduate students, and station personnel.

Applicant should have a Ph.D. in limnology or a related aquatic science. Demonstrated research, research management abilities, and computer experience are desirable. Residency in the Boulder Junction area is required. Salary range is \$14,500 to \$16,000. Application, with curriculum vitae and three letters of recommendation, should be made to: **Dr. John J. Magnuson, Laboratory of Limnology, University of Wisconsin, Madison, Wisconsin 53706**. An Equal Opportunity/Affirmative Action Employer.

The University of Michigan Medical School, Department of Anatomy, has a position available at the ASSISTANT PROFESSOR level. Applicants should have a strong research program in neurobiology. Preference will be shown to those with 2 to 3 years of postdoctoral experience in a good laboratory. The department has excellent facilities for electron microscopy, biochemistry, and other current methods. The teaching responsibility will be in neuroanatomy. We anticipate filling this position by September 1981. Interested individuals should send curriculum vitae, a paragraph describing their current research interests, and three letters of reference to: **Dr. A. Kent Christensen, Department of Anatomy, Medical Science II Building, University of Michigan Medical School, Ann Arbor, Mich. 48109**. A nondiscriminatory, Affirmative Action Employer. Code 32FO.

The University of Michigan Medical School is seeking a dynamic leader and experienced manager to DIRECT THE OFFICE OF CONTINUING MEDICAL EDUCATION (CME) in the Department of Postgraduate Medicine and Health Professions Education. Candidates must have a doctoral degree, preferably the M.D., possess interest and experience in conducting educational programs for physicians and other health professionals, and must demonstrate potential for directing and managing an extensive schedule of innovative programs in CME. State and national leadership in the field is expected. Ability to plan, conduct, and report meritorious educational research is required. Faculty rank and salary commensurate with credentials and experience. Qualified physicians would have the opportunity to obtain joint appointment for patient care and teaching in the appropriate department. Send inquiries and curriculum vitae to: **William R. Harlan, M.D., Department of Postgraduate Medicine and Health Professions Education, University of Michigan Medical School, Ann Arbor, Mich. 48109**. A nondiscriminatory, Affirmative Action Employer. Code 04FO.

POSITIONS OPEN

ASSISTANT PROFESSOR available September 1981. Ph.D. in microbiology, postdoctoral experience desirable. Research interest in an area of prokaryotic or eukaryotic soil microbiology which could have applications to food or fiber production. The successful applicant will show ability to develop a strong research program and attract external funding, and will have high teaching ability. Curriculum vitae, reprints, a statement of research goals, and names of three references should be sent to: **Dr. Clarence L. Baugh, Chairman of Search Committee, Department of Biological Sciences, Texas Tech University, Lubbock, Texas 79409**, by 15 February 1981. An Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR

Applications are invited for a position at the level of assistant professor in the Department of Pharmacology of the Yale University School of Medicine. Applicants must have the Ph.D. degree, postdoctoral experience, and a strong commitment to develop antineoplastic agents. The position is for a medicinal chemist with interest and experience in the design and synthesis of cancer chemotherapeutic agents and in elucidation of the molecular mechanisms by which they express their cytotoxic actions. Interested candidates should send curriculum vitae, transcripts, reprints, description of areas of research interests, and the names of three individuals who are familiar with candidates' abilities by 31 January 1981 to: **Dr. Alan C. Sartorelli, Department of Pharmacology, Yale University School of Medicine, New Haven, Conn. 06510**. An Equal Opportunity/Affirmative Action Employer.

ASSISTANT PROFESSOR—BIOCHEMISTRY

The Biochemistry Department is soliciting applications for an anticipated position at the assistant professor level (tenure track) for September 1981. In addition, contingent upon funding, a second position may become available. The applicants must have postdoctoral training. The successful candidate will be expected to initiate a high quality research program which will complement our present research programs and to participate in undergraduate and graduate teaching programs. We are interested in research areas in the biochemistry of eukaryotic cells, for example, metabolism, energy transduction, or gene structure and function. Send curriculum vitae, names of three references, and a statement of research interests to: **Dr. James A. Stewart, Chairman, Biochemistry Department, University of New Hampshire, Durham, N.H. 03824**. Application deadline: 15 January 1981.

Affirmative Action/Equal Opportunity Employer

ASSISTANT PROFESSOR OF BIOLOGY at University of Redlands, a small, private, residential institution in the liberal arts tradition, located in Southern California. Effective teaching stressed, with encouragement for research and publication. Individualized instruction and advising expected. A 2-year, temporary appointment, with possible continuation and possible tenure-track position later. Begins 1 September 1981. Courses in general biology for science and nonscience majors, organismic zoology, vertebrate biology, and field biology, and possibly a research course for senior majors. Ph.D. required, some teaching experience preferred. Send letter of application, resumé, and three letters of recommendation by 15 February 1981 to: **Dr. G. O. Gates, Vice President for Academic Affairs, University of Redlands, Redlands, Calif. 92373**. An Affirmative Action/Equal Opportunity Employer. Applications from minorities and women encouraged.

Johns Hopkins University: The Department of Geography and Environmental Engineering invites applications at the ASSISTANT PROFESSOR level for a tenure-track position in the area of flow in permeable media. Potential areas of interest include behavior of soil moisture and groundwater, and related aspects of environmental engineering involving hydrology and surficial earth processes. Candidate's background should include familiarity with modeling techniques as well as appropriate natural sciences. The individual and his/her interests rather than field of specialization are of primary importance. The department is an interdisciplinary one including environmental engineering, earth sciences, and the social sciences related to resource management. It is anticipated that this opening will be filled by 1 July 1981. Applications and names of three references should be sent to: **Dr. M. Gordon Wolman, Chairman, Department of Geography and Environmental Engineering, The Johns Hopkins University, Baltimore, Maryland 21218** (Telephone: 301-338-7090). An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGY. The Department of Biology at West Chester State College is seeking an individual to teach and do research in the area of immunology/virology. Minimum qualifications for this tenure-track position include a Ph.D. in immunology or virology plus 1 year of college teaching experience. Expected availability of position: fall 1981. Salary is negotiable. Candidates should submit curriculum vitae, a complete set of transcripts, and three letters of recommendation by 1 March 1981 to: **Dr. Jack Weber, Chairman, Department of Biology, West Chester State College, West Chester, Pa. 19380**. An Equal Opportunity/Affirmative Action Employer.

ASSISTANT/ASSOCIATE PROFESSOR CELLULAR ENDOCRINOLOGY

The Department of Physiology and Biophysics at The University of Iowa College of Medicine invites applications for tenure-track appointments at the assistant or associate professor level. We seek individuals committed to investigation of endocrine mechanisms at the cellular or molecular level, preferably with interests in regulation of gene activity, receptor function, cell cycle events, or cellular differentiation. Applicants should have the Ph.D. and/or M.D. degree and 2 or more years of postdoctoral or faculty experience, with an excellent record of productivity in original research. Candidates should be prepared to conduct a strong independent research program and take an active role in the medical and graduate teaching activities of the department. Please send curriculum vitae, a brief description of research interests, teaching experience and career objectives, an indication of rank desired, and names of at least three references to: **Dr. Richard Maurer, Department of Physiology and Biophysics, The University of Iowa College of Medicine, Iowa City, Iowa 52242**.

The University of Iowa is an Equal Opportunity/Affirmative Action Employer. We welcome applications from qualified female and minority candidates.

The GEOPHYSICS PROGRAM at the University of Washington seeks applicants for a tenure-track, ASSISTANT PROFESSOR position, beginning September 1981. Candidates specializing in the areas of space physics or applied geophysics are of particular, but not exclusive, interest. All applicants should be heavily committed to high quality teaching at the graduate level, to advising graduate students on important and advanced research projects, and to carrying out innovative, independent research. A Ph.D. is required. Interested persons should send a resumé and four letters of recommendation to: **Dr. Ronald T. Merrill, Geophysics Program AK-50, University of Washington, Seattle, Washington 98195**. Deadline for applications is 28 February 1981.

An Equal Opportunity/Affirmative Action Employer

The GEOPHYSICS PROGRAM of the University of Washington seeks applicants for a non-tenure-track, RESEARCH ASSISTANT PROFESSOR position in applied geophysics, beginning September 1981. The position will be primarily supported by research grants and contracts. The successful candidate must be strongly committed to research and teaching, and be able to teach courses and supervise graduate student research in reflection seismology-seismic stratigraphy, geophysical well logging, and rock mechanics. Research interests should emphasize laboratory and field investigations of seismic wave interaction with fractured rock, with special attention to the borehole environment. Ph.D. is required. Interested persons should send resumé and four letters of recommendation to: **Dr. Ronald T. Merrill, Geophysics Program AK-50, University of Washington, Seattle, Washington 98195**. Deadline for applications is 28 February 1981.

An Equal Opportunity/Affirmative Action Employer

ASSISTANT PROFESSOR OF OPHTHALMOLOGY. Applicants should have a strong commitment to research and education in the subspecialty of retinal-vitreous diseases, with expertise in electrophysiology, diabetic retinopathy, ultrasound. This academic position requires completion of an approved 3-year residency program in ophthalmology, fellowship in retinal-vitreous diseases, teaching experience, research experience, and administrative abilities. Please send inquiries and curriculum vitae to: **Stephen J. Ryan, M.D., Chairman, Department of Ophthalmology, University of Southern California School of Medicine, Doheny Eye Foundation Building, 1355 San Pablo Street, Los Angeles, Calif. 90033**. The University of Southern California is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

ASSISTANT PROFESSOR OF MARINE SCIENCE

We seek a faculty member whose primary activity will be to perform independent and team research in the area of biological and chemical cycles and processes in marine environments. While we are especially interested in individuals who approach research from a microbiological or molecular point of view, the primary qualification is potential for sustained research excellence in the general area of marine processes. This is a regular tenure-track position. Graduate student supervision and teaching are expected. Applications, including curriculum vitae and names of at least three referees, should be sent by 2 February 1981 to: **Dr. C. P. McRoy, Search Committee, Institute of Marine Science, University of Alaska, Fairbanks, Alaska 99701. The University of Alaska is an Affirmative Action/Equal Opportunity Employer and Educational Institution.**

ASSISTANT PROFESSOR OF ZOOLOGY

The University of Florida announces a tenure-track position, starting September 1981, at the rank of assistant professor in zoology. Responsibilities include a productive research program in comparative, ecological, or evolutionary zoology, and undergraduate teaching of functional chordate morphology and general biology. The successful candidate will be encouraged to develop a graduate course in her/his specialty. Submit curriculum vitae, a statement of research interests, and three letters of recommendation to:

**Dr. John H. Kaufmann, Chairman
Search Committee
Department of Zoology
University of Florida
Gainesville, Fla. 32611
Telephone: 904-392-1194**

The deadline for applications is 25 January 1981. *An Equal Opportunity/Affirmative Action Employer.*

NATIONAL SCIENCE FOUNDATION DIVISION OF EARTH SCIENCES

The National Science Foundation (NSF), Division of Earth Science, is seeking qualified applicants for **ASSOCIATE PROGRAM DIRECTOR**, Geophysics Program. This position is excepted from the competitive civil service, EC-13/14 (equivalent to GS-13/14, \$32,048 to \$49,229 per annum), and will be filled on permanent or 2-year rotational basis. A Ph.D. in geophysics is desirable. Equivalent research and experience in the administration of large, multidisciplinary research programs may be substituted for a degree. A broad general knowledge of geologic research and familiarity with the U.S. scientific community are also required. Applicants should submit a statement of interest and résumé or SF-171, Personal Qualifications Statement, to: **The National Science Foundation, Personnel Administration Branch, Announcement Number EX 80-21, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglie. Telephone: 202-357-7841. NSF is an Equal Opportunity Employer.**

The **DEPARTMENT OF BIOCHEMISTRY** invites applications from candidates with Ph.D. and postdoctoral experience in membrane biochemistry and/or molecular biology to teach undergraduate and graduate students and to develop an independent research programme. Salary in accordance with experience. Applications, together with the names of three referees, should be sent to:

**Dr. D. R. McCalla
Department of Biochemistry
McMaster University
Health Sciences Centre
1200 Main Street West
Hamilton, Ontario, Canada L8N 3Z5**

NATIONAL SCIENCE FOUNDATION

The Division of Physiology, Cellular and Molecular Biology is seeking a qualified applicant to fill a 1- or 2-year term as **PROGRAM DIRECTOR** for the Biological Instrumentation Program. Applicants should have a Ph.D., significant research and administrative experience, and a broad understanding of instrumentation and its application in the biological sciences. The position is excepted from the competitive civil service. Salary, based on professional qualifications and experience, ranges from \$37,871 to \$50,112.50. Interested candidates should send résumés to: **National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglie. For further information, telephone: 202-357-7841. National Science Foundation is an Equal Opportunity Employer.**

POSITIONS OPEN

DEPAUW UNIVERSITY DEPARTMENT OF PHYSICS

ASSISTANT PROFESSOR, tenure-track appointment, beginning fall semester 1981. Ph.D. in physics is required. A broad knowledge of the basic topics in a strong undergraduate physics curriculum is essential. Must be strongly motivated toward teaching at a liberal arts institution; some previous teaching experience desirable. Ability to teach introductory astronomy is a plus but not required. Applications received by 15 February will receive fullest consideration. Send résumés to: **Office of the Provost, DePauw University, Greencastle, Indiana 46135. DePauw is an Equal Opportunity/Affirmative Action Employer.**

DEPAUW UNIVERSITY DEPARTMENT OF PHYSICS

ASSISTANT PROFESSOR, one-year, temporary, full-time appointment; possibility of renewal. Beginning fall semester 1981. At least an M.S. in physics is required. Responsibilities will involve undergraduate physics courses. Some teaching experience highly desirable. Applications received by 15 February will receive fullest consideration. Send résumés to: **Office of the Provost, DePauw University, Greencastle, Indiana 46135. DePauw is an Equal Opportunity/Affirmative Action Employer.**

ASSISTANT PROFESSOR OF PHYSIOLOGY, tenure-track position for teaching and research in neurophysiology. Applicants should possess a Ph.D. in physiology with postdoctoral experience in research. Position will require participation with other faculty members in teaching neuroscience to medical and graduate students for approximately 1 of 4 quarters per year. The remainder of the time will be spent in maintaining an active research program. Submit résumé, research plans, and names of three references to: **Dr. Vincent V. Glaviano, Chairman, Department of Physiology and Biophysics, University of Health Sciences/The Chicago Medical School, 3333 Green Bay Road, North Chicago, Illinois 60064. An Equal Opportunity/Affirmative Action Employer.**

CELL MEMBRANES/CELL SURFACE

The Department of Developmental and Cell Biology, University of California, Irvine, is looking for a cell biologist who studies cell membranes in relation to one or more of the following areas: cell movement and migration, cyto-skeleton and cell shape, cell surface interactions with substrates, cell-cell interactions. We are looking for a person whose research program could closely relate to some of the 21 other faculty whose emphasis is in developmental biology and cell physiology. Though we are looking primarily for a senior person the position can be filled at either the senior or junior level. For the former we want an individual who has a well-established research program, and for the latter at least 2 years of postdoctoral experience is desired.

Please submit curriculum vitae plus the names of three references to:

**Michael W. Berns, Chairman
Developmental and Cell Biology
University of California
Irvine, Calif. 92717**

An Equal Opportunity/Affirmative Action Employer

NATIONAL SCIENCE FOUNDATION

The Division of Science Education Development and Research, Research in Science Education (RISE) program, is seeking qualified candidates for the position of **PROGRAM MANAGER**. Salary ranges from \$32,048 to \$49,229 per annum. Appointment will be for 1- to 2-year term, beginning August 1981. The RISE program supports research projects dealing with teaching and learning in science and mathematics. Program manager has responsibility for managing the review of proposals, recommending awards, monitoring projects, and representing the program at professional meetings. Applicants should have a Ph.D. or equivalent experience in a field of science (including behavioral and social sciences) or science education, and should have recent academic experience of at least 3 years in research related to a field of science education or mathematics education. Experience related to organizational sociology of schools and evaluation is desirable. Interested candidates should submit résumés to: **National Science Foundation, Personnel Administration Branch, Room 212, 1800 G Street, NW, Washington, D.C. 20550, attention: E. Paul Broglie. For further information, telephone: 202-357-7841. National Science Foundation is an Equal Opportunity Employer.**

POSITIONS OPEN

BIOCHEMISTRY POSTDOCTORAL POSITION available immediately for a membrane and/or protein biochemist interested in the structural and functional importance of protein-phospholipid, protein-detergent, and protein-protein interactions within mitochondrial membrane electron transport complexes. Salary: \$14,000 per year, plus fringe benefits. Send curriculum vitae and two letters of recommendation to: **Dr. Neal C. Robinson, Department of Biochemistry, The University of Texas Health Science Center at San Antonio, 7703 Floyd Curl Drive, San Antonio, Texas 78284.**

NATIONAL SCIENCE FOUNDATION DIVISION OF OCEAN SCIENCES BIOLOGICAL OCEANOGRAPHER

National Science Foundation (NSF), Division of Ocean Sciences, is seeking qualified applicants for a 1- to 2-year rotational or permanent appointment as **PROGRAM DIRECTOR FOR THE BIOLOGICAL OCEANOGRAPHY PROGRAM**. This position has a salary range of \$37,871 to \$50,112.50 per annum. The program provides support for scientists primarily from academic institutions to pursue fundamental research in biological oceanography. The selected candidate will carry out program planning, proposal evaluation, administration of research grants, and liaison with other federal agencies. Applicants should have a Ph.D. in biological oceanography or a related biological science, or the equivalent in experience, plus at least 3 years of specialized experience in biological oceanography. Field experience in an academic institutional program is highly desirable. Applicants should send letters of interest and SF-171 or current résumé by 31 January 1981 to: **National Science Foundation, Division of Personnel and Management, Personnel Administration Branch, 1800 G Street, NW, Washington, D.C. 20550; attention: E. Paul Broglie, Announcement Number EX-81-1. For further information, telephone: 202-357-7841. NSF is an Equal Opportunity Employer.**

CELLULAR IMMUNOLOGIST: assistant or associate professor. Ph.D., D.V.M., or M.D. and postdoctoral training. To maintain excellent research program and participate in teaching at professional and graduate level. Preference to those with research interests in regulation of cellular interactions in the immune response. Available March 1981. Curriculum vitae and three letters of reference to: **Dr. A. Kaplan, Chairman, Search Committee (c/o M. C. Goodwin, F5093), Department of Microbiology, Virginia Commonwealth University, Box 678-MCV Station, Richmond, Va. 23298. Equal Opportunity/Affirmative Action Employer.**

CORE LABORATORY DIRECTOR CLINICAL RESEARCH CENTER

Ph.D. degree in biochemistry and at least 2 years of relevant training in clinical chemistry or clinical pathology. Evidence of supervisory experience and research productivity (publications) are essential. The individual must be able to evaluate research type laboratory procedures and interact with clinical investigators in a clinical research setting. Should be able to modify, upgrade, and devise newer laboratory methods in biochemical endocrinology. Must have or be qualified to have state director's licensure. Experience with radioimmunoassay of various hormones is essential and working knowledge with advanced chromatographic equipment (HPLC, isoelectric focusing, and so forth) is highly desirable. Send résumé and letters of recommendation to: **Director, Clinical Research Center, University of Tennessee, 951 Court Avenue, Room 327B, Memphis, Tenn. 38163.**

An Equal Opportunity/Affirmative Action Employer

DEAN SCHOOL OF URBAN AND PUBLIC AFFAIRS Carnegie-Mellon University

Nominations and applications are invited until 1 February 1981 for the position of dean, School of Urban and Public Affairs (SUPA), Carnegie-Mellon University. The school has professional M.S. and academic Ph.D. programs enrolling 137 students overall and has 23 faculty from diverse disciplines. The successful candidate will have a strong academic record, experience with the public or private sector, administrative experience, and a commitment to leading a school with strong research and teaching programs. Applications with résumés should be sent to: **Professor Robert Strauss, Chairman, Search Committee, SUPA, Carnegie-Mellon University, Pittsburgh, Pa. 15213. An Equal Opportunity Employer.**

POSITIONS OPEN

CELLULAR NEUROPHYSIOLOGIST

The College of Physicians and Surgeons of Columbia University has an opening at the **assistant professor** level in the Department of Neurology and the Division of Neurobiology and Behavior. Applicants must have a Ph.D., at least 2 years of postdoctoral work, and demonstrated capability for research grant support in cellular neurophysiology and biophysics. Preference will be given to individuals with experience using mammalian neocortical or hippocampal slices. Interested persons should send curriculum vitae and the names of three references to: **Dr. Eli S. Goldensohn, Chairman, Committee on Appointments and Promotions, The Neurological Institute, 710 West 168 Street, New York, N.Y. 10032.**

CHAIRPERSON

The Indiana University School of Medicine invites applications for the position of **professor and chairperson**, Department of Microbiology and Immunology. The candidate should have a vital commitment to academic excellence, national recognition for research accomplishments, and strong experience in medical education and administration. The department is multidisciplinary with active research programs and with teaching responsibilities in the School of Medicine as well as Dentistry, Nursing, and the Graduate School. Interested parties should send their curriculum vitae and the names of four references by 15 January 1981 to: **C. D. Nordschow, M.D., Chairman, Search and Screen Committee, Department of Pathology, Indiana University School of Medicine, 1100 West Michigan Street, Indianapolis, Indiana 46223.**

Indiana University is an Affirmative Action/Equal Opportunity Employer, M/F.

SEARCH FOR CHAIRPERSON DEPARTMENT OF PHYSICS UNIVERSITY OF DELAWARE

The University is a small (12,000 undergraduates and 3,000 graduate students), state-supported institution located in a town on the eastern seaboard close to Philadelphia, Washington, and New York. The department (18 faculty) is an expanding unit working in close cooperation with Bartol Research Foundation of the Franklin Institute (13 members), with which it shares laboratories, shops, offices, and classrooms on the campus. The appointment will begin 1 September 1981; 1 February 1981 is the terminal date for completion of applications. Please send letters of inquiry, nomination, or application to:

**Professor Richard J. Libera
Department of Mathematical Sciences
University of Delaware
Newark, Delaware 19711**

The University is an Equal Opportunity/Affirmative Action Employer.

CHAIRPERSON, DEPARTMENT OF BIOLOGY UNIVERSITY OF HOUSTON

Nominations and applications are invited for the position of chairperson, Department of Biology, University of Houston. We seek a candidate with a distinguished record of teaching and research who is qualified for tenure-appointment as professor of biology. Preference will be given to individuals demonstrating excellence in providing leadership necessary for the development of both teaching and research programs. Curriculum vitae and the names of at least three references should be sent to:

**R. Hugh Walker, Dean,
Biology Chair Search Committee
College of Natural Sciences and Mathematics
214 Science and Research I
University of Houston
Houston, Texas 77004**

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

FACULTY POSITION. Applications are invited for a tenure-track position in molecular genetics, at the assistant or associate professor level. Candidate will be expected to contribute to the undergraduate and graduate program in genetics and molecular biology and maintain a vigorous research program. Submit a résumé, a brief summary of future research plans, and the names of at least three referees by 15 January 1981 to:

**Chair, Search Committee
Program in Genetics and Molecular Biology
Department of Biology
University of Houston
Houston, Texas 77004**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

DEVELOPMENTAL BIOLOGIST. North Central College seeks a biologist to teach embryology and comparative anatomy and other biology courses. Applicants must be familiar with the atmosphere of a small college and oriented to a liberal arts perspective. Tenure-track position. A Ph.D. is preferred; full-time teaching experience is highly desirable. Contact: **Dr. Wesley Stieg, North Central College, Naperville, Ill. 60566**, by 15 January 1981. *An Equal Opportunity Employer.*

UNIVERSITY OF QUEENSLAND DIRECTOR—HERON ISLAND RESEARCH STATION

SENIOR SCIENTIFIC ADMINISTRATIVE OFFICER required, with higher degree, experience in management, research, entrepreneurial and public relations skills for direction of coral reef research/teaching facilities. **DEVELOPMENT OF INTERNATIONAL CENTRE OF EXCELLENCE IN CORAL REEF STUDIES**, and control of staff of six. Heron Island is a coral cay at the southern end of the Great Barrier Reef, 70 kilometers offshore. Besides the research station, there is a tourist resort.

Salary/tenure: upper scientific/academic range, negotiable depending on experience/qualifications.

Benefits: rent-free housing, travelling, and removal expenses. Superannuation if tenured.

Dates: to commence 1 April 1981, or soonest thereafter.

Additional information and application forms are available from: **The Staff Officer, University of Queensland, St. Lucia, 4067, Australia**, with whom applications close on 2 January 1981. Quote reference no. 43780. Telephone: 07-377 2055. Telex: UNIQLD AA 40315.

LINCOLN COLLEGE (University College of Agriculture) Canterbury, New Zealand DIRECTOR

Applications are invited for the position of director of the Tussock Grasslands and Mountain Lands Institute of Lincoln College. The College Council and the Management Committee of the Institute hope to have the director take up duties in the first half of 1981. The vacancy results from the relinquishment of the directorship by Professor K. F. O'Connor, who has held this position jointly with the chair of range management in the College, which he will retain.

Applicants should preferably hold a university degree in agriculture, science, or other fields related to the work of the institute. Considerable experience in research, teaching, or extension, and abilities in research administration will be expected. While a background in the New Zealand mountain and tussock grasslands would be an obvious advantage, experience in similar environments elsewhere will be fully considered.

Commencing salary according to qualifications and experience within the range of NZ\$23,254 to NZ\$31,612 per annum. The point of entry in the scale will be determined by the College Council at the time of appointment. Expenses of appointment reimbursed up to specified limits. New Zealand Government Superannuation is available.

Further details and general Conditions of Appointment are obtainable from: **The Secretary-General, The Association of Commonwealth Universities, 36 Gordon Square, London, WC1H 0PF, England**, or from: **G. A. Hay, Registrar, Lincoln College, Canterbury, New Zealand**, with whom applications close on 13 February 1981.

DIRECTOR OF CONTINUING MEDICAL EDUCATION

The Johns Hopkins University School of Medicine is seeking a Board-certified physician with appropriate background to direct one of the nation's leading programs in Continuing Medical Education. The position is a part-time appointment requiring approximately 30 percent of time.

The successful candidate will:

- Have an interest in continuing education, and
- Be able to devote sufficient time to managing the activity either as his/her only employment, or in conjunction with other activities.

Apply with curriculum vitae to:

**Paul D. Johnson, Ph.D.
Manager, Human Resources Planning and
Development
Johns Hopkins Medical Institutions
624 North Broadway
Baltimore, Maryland 21205**

POSITIONS OPEN

University of California, Los Angeles (UCLA), Neuropsychiatric Institute, seeks **CHIEF NEUROPSYCHOLOGIST** to develop and direct major new training program in neuropsychology. **Qualifications:** clinical and research experience with neurological, neurosurgical, and psychiatric patients, both adults and children, including mental retardation, learning disabilities, and substance abuse; substantial experience in training neuropsychologists; and academic achievements, including publications, sufficient to qualify for senior faculty appointment. Contact: **Peter Tanguay, M.D., Chairman, Neuropsychology Search Committee, 760 Westwood Plaza, Los Angeles, Calif. 90024.** *Equal Opportunity/Affirmative Action Employer.*

The University of Michigan Medical School, Department of Radiology, has a position available immediately for a **DIRECTOR OF RADIOLOGIC PHYSICS**, with possible rank of instructor through professor. Must have a Ph.D. or equivalent experience in physics. In addition, prior experience in developing clinical, teaching, and research efforts in radiologic physics is desired. He or she will supervise the activities of the Radiologic Physics Division of the Department of Radiology. Entering level commensurate with qualifications and experience. Reply to: **Box 302, SCIENCE. Code 57HO.** *A nondiscriminatory, Affirmative Action Employer.*

EVOLUTIONARY BIOLOGIST, Texas Tech University. Tenure-track, assistant professor position to strengthen mammalogy program. Preference will be given to persons working with mammalian systems. Specific area of interest (such as population genetics, systematics, behavior, ecology, and so forth) open but applicant must have a strong interest in the organismal level. Teaching responsibility will be in the area of vertebrate biology. Curriculum vitae, statement of research goals, reprints, and names and telephone numbers of references should be sent to: **Robert J. Baker, Department of Biological Sciences, Texas Tech University, Lubbock, Texas 79409; telephone: 806-742-2485.** Closing date for applications: 15 February 1981. *Texas Tech University is an Equal Opportunity Employer.*

FACULTY APPOINTMENTS IN CELL BIOLOGY/BIOCHEMISTRY

The Departments of Biology and Chemistry at the University of Oregon intend, pending final budgetary approval, to appoint two new faculty members working on the molecular basis of cellular regulation. Applicants should send curriculum vitae, names of three references, and a brief description of research goals and accomplishments by 15 January 1981 to: **Cell Search, Department of Biology, University of Oregon, Eugene, Oregon 97403.** *Equal Opportunity/Affirmative Action Employer.*

The Department of Electrical Engineering of Stanford University invites applications for a **FACULTY POSITION** for research and teaching in the combined area of radioscience and either information systems or computer systems. Research in radioscience currently includes ionospheric and magnetospheric radio, radio and radar astronomy, planetary radioscience, radar oceanography, communication satellite systems, tropospheric propagation, and solar-terrestrial relationships. Applicants should have background in radio and space science and also in one or more other areas such as signal processing, communication systems, computer systems, analog and digital instrumentation, and analytical and computational techniques. All faculty levels will be considered for a position beginning with the fall quarter 1981.

Stanford University is an Affirmative Action/Equal Opportunity Employer, and welcomes applications from women and minority groups.

Please submit as soon as possible detailed résumés, including names of references to: **Professor Robert A. Helliwell, Department of Electrical Engineering, Stanford University, Stanford, Calif. 94305.**

The University of Michigan Medical School, Department of Radiology, has a position available immediately at the rank of **INSTRUCTOR THROUGH PROFESSOR**. This physician will take part in the program of patient care, teaching, and research carried on in the Department of Radiology at Veterans Administration Hospital. He or she will supervise the activities of the residents and aid in teaching residents and medical students at the VA. Applicant must be a Board-eligible or Board-certified radiologist. Entering level commensurate with qualifications and experience. Reply to: **Box 303, SCIENCE. Code 44HO.** *A nondiscriminatory, Affirmative Action Employer.*

POSITIONS OPEN

DEVELOPMENTAL BOTANIST. Teaching includes undergraduate and graduate courses in vascular plants and graduate student supervision. Research emphasizing anatomical or morphological and physiological aspects of tissue and/or organ development. Evidence of research accomplishments essential. Send letter and curriculum vitae by 15 February to: **B. Palser, Botany Department, Rutgers University, P.O. Box 1059, Piscataway, N.J. 08854.** Rutgers is an Equal Opportunity/Affirmative Action Employer.

DIRECTOR THE SOUTHERN CALIFORNIA OCEAN STUDIES CONSORTIUM (SCOSC)

The SCOSC is a consortium of six California State University and Colleges' (CSUC) campuses located in the Greater Los Angeles area which seeks to support, expand, and develop educational and research programs in marine sciences. The director reports to a Board of Governors and within procedures established by the CSUC is responsible to the vice president for academic affairs at California State University, Long Beach (CSULB). Responsibilities include coordination of programs among the member campuses, administration of SCOSC equipment and facilities, including operation of the 52-foot *Nautilus*, and solicitation and administration of grants/contracts. Ph.D. required in marine science or related field; candidates should possess college teaching experience, a program of scholarly and creative activity, and record of university/community service; administrative experience and strong interest in management of marine science grants preferred. Appointment effective 1 September 1981 (in accord with CSULB procedures). Twelve-month salary commensurate with experience and qualifications (\$20,616 to \$39,732). Application deadline: 1 March 1981. Send applications, résumés, and three letters of recommendation to: **Roger Bauer, Dean of School of Natural Sciences, California State University, Long Beach, 1250 Bellflower Boulevard, Long Beach, Calif. 90840.**

An Equal Opportunity/Affirmative Action/Title IX Employer

ECOLOGIST, assistant professor. Fall 1981. Teach undergraduate and master's courses and guide thesis research. Ph.D. or postdoctoral research should be in area of toxic uptake in food chains. A strong statistical and experimental design background and experience with environmental impact assessment desirable. Salary commensurate with experience and background. Send curriculum vitae, a statement of research interests, and three names of referees by 15 February 1981 to: **Dr. H. John Clitheroe, Chairperson, Department of Biological Sciences, The College of Staten Island/City University of New York, 715 Ocean Terrace, Staten Island, N.Y. 10301.** Equal Opportunity/Affirmative Action Employer.

GENETICIST. Applications invited for tenure-track position to teach undergraduate/graduate-level courses in genetics/evolution and to develop the genetics area in a biology department. Excellence in teaching essential. Individual must also pursue a productive research program in own field of specialization. Appointment level expected at assistant professor. Send curriculum vitae, three letters of recommendation, reprints, description of research program, and summary of teaching capabilities to: **John C. Downey, Ph.D., Head, Department of Biology, University of Northern Iowa, Cedar Falls, Iowa 50614.** Closing date: 1 February 1981. *The University of Northern Iowa is an Equal Opportunity/Affirmative Action Employer and welcomes nominations and applications of women and minority group members.*

MARINE BIOLOGIST—BIOCHEMIST. The Biology Department invites applications from individuals committed to undergraduate teaching for a tenure-track faculty position at the assistant professor level in the area of marine botany or zoology with emphasis in physiology and biochemistry. Candidates will teach an introductory marine biology course, an advanced course in their specialty, and take part in general biology offerings. The individual will participate in a new biochemistry major offered jointly with the Chemistry Department and develop an active research program involving undergraduate students. Submit curriculum vitae, statement of teaching and research goals, undergraduate and graduate transcripts, and three letters of recommendation by 1 February 1981 to: **M. A. Leck, Biology Department, Rider College, P.O. Box 6400, Lawrenceville, N.J. 08648.** Rider College is an Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

FACULTY POSITION IN PLANT MOLECULAR BIOLOGY

The Department of Chemistry and Biochemical Sciences, Oregon Graduate Center, invites applications for a faculty position in the area of plant molecular biology, including tissue culture and/or gene transfer technology. Candidates must have extensive research experience in their field and will be expected to develop a strong research program in addition to classroom teaching at the graduate level. Applications should include curriculum vitae, a brief description of past, ongoing, and proposed research, and the names and addresses of at least three individuals well acquainted with their research and teaching abilities. Applications should be addressed to:

**Office of the President
Oregon Graduate Center
19600 Northwest Walker Road
Beaverton, Oregon 97006**

An Equal Opportunity/Affirmative Action Employer

FACULTY POSITION—NUTRITION

Ph.D. in biochemistry or nutrition with postdoctoral experience in human nutrition to teach in the Department of Chemistry and Nutrition. Applicants should have experience appropriate to the development of educational programs in biochemistry, basic nutrition, and clinical nutrition. Appointee will have the opportunity to utilize training and experience in a practical clinical setting. Rank and salary open. Interested persons should send curriculum vitae and have official transcripts and at least three letters of recommendation forwarded directly to:

**Dr. Steven L. Blankenship
Department of Chemistry and Nutrition
National College of Chiropractic
200 East Roosevelt Road
Lombard, Ill. 60148**

An Equal Opportunity Employer

FACULTY POSITION IN CELL BIOLOGY CORNELL UNIVERSITY

A tenure-track faculty position in cell biology is open in the Section of Biochemistry, Molecular and Cell Biology. Applicants are being sought with demonstrated research excellence in animal cell biology in the areas of immunology, cytoskeleton, or cell-cell interactions. Participation in the cell biology teaching program is also important. Rank and salary to be determined by experience. Applicants should send curriculum vitae and a statement of future research plans and arrange for three letters of recommendation to be sent to:

**Richard E. McCarty, Chairman
Section of Biochemistry, Molecular and Cell Biology
Cornell University
Ithaca, New York 14853**

The deadline for receipt of application materials and letters is 15 February 1981.

Cornell University is an Equal Opportunity/Affirmative Action Employer.

UNIVERSITY OF MISSOURI ST. LOUIS FACULTY POSITION SCHOOL OF OPTOMETRY



The University of Missouri-St. Louis, School of Optometry, is seeking a faculty member with a Ph.D. working in the area of vision, particularly in human psychophysics or retinal neurophysiology.

Specific responsibilities will include teaching courses in visual science and perception to optometry students and conducting vision research.

Evidence of scholarly research activities, in the form of published articles in refereed journals and papers presented at professional meetings, will be heavily weighted, as will evidence of teaching ability. Postdoctoral research experience is desirable.

The appointment will be at the assistant or associate professor level and the salary will be commensurate with experience. The date of appointment is negotiable. Letters of application with current résumés, including names of three references, should be submitted no later than 31 January 1981 to:

**Dr. Jerry L. Christensen
Dean, School of Optometry
University of Missouri-St. Louis
8001 Natural Bridge Road
St. Louis, Missouri 63017**

The University of Missouri is an Equal Employment and Education Opportunity Institution.

POSITIONS OPEN

FACULTY POSITIONS IN BIOORGANIC CHEMISTRY AND EUCARYOTIC MOLECULAR BIOLOGY

The Departments of Biological Sciences and of Chemistry, University of Maryland Baltimore County (UMBC), anticipate appointing two tenure-track, assistant professors for September 1981, concurrent with the initiation of an interdepartmental program in applied molecular biology. Appointees will be expected to establish productive research programs and to interact with a large and active group of biochemists and molecular biologists at UMBC. Postdoctoral experience is required. Candidates for assistant professor of chemistry should be able to teach undergraduate organic chemistry and more specialized courses; research interests in synthesis of DNA/RNA are strongly preferred, but other areas of synthetic, organic chemistry will be considered. Candidates for assistant professor of biological sciences should be broadly trained in molecular biology, with research interests in a eucaryotic system; teaching duties include an advanced laboratory course in molecular biology (heavy emphasis on recombinant DNA techniques) and a graduate seminar. The Applied Molecular Biology Program, developed in conjunction with biotechnology companies in the Baltimore-Washington-Frederick area, will train students at the B.S./M.S. level to fill research positions in molecular biology at university, government, and industry laboratories, and complement existing M.S. and Ph.D. programs in the respective departments. Curriculum vitae, description of research interests, and three letters of reference should go to the respective search committee chairman: **Dr. Nessly Craig, Department of Biological Sciences, or Dr. Donald Creighton, Department of Chemistry, University of Maryland Baltimore County, Catonsville, Md. 21228.**

UMBC is an Equal Opportunity/Affirmative Action Employer.

HEAD, DEPARTMENT OF PATHOLOGY, College of Veterinary Medicine and Biomedical Sciences, Colorado State University. Applications and nominations are invited for a scientist to serve as administrative leader of a progressive and diversified department. Qualifications required are an earned doctoral degree (D.V.M., M.D., Ph.D., or equivalent), distinguished achievement in teaching and research in a subject area pertinent to the interdisciplinary activities of the department, and a demonstrated capacity for administrative leadership. Salary is negotiable. Closing date for applications is 1 February 1981; deadline may be extended. Candidates should send a statement of interest, curriculum vitae, and names of three professional references to: **F. A. Murphy, Chairman, Search Committee, Office of the Dean, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, Colorado 80523; telephone: 303-491-7051.** Colorado State University is an Equal Opportunity/Affirmative Action Employer. *Equal Opportunity Office: 314 Student Services Building.*

INSTRUCTOR-ASSISTANT PROFESSOR OF PHARMACOLOGY available 1 July 1981. Starting rank and salary dependent on qualifications. Candidates must have Ph.D. in pharmacology or toxicology, or an M.D. degree, and minimum of 1 year of postdoctoral experience. Duties include development of independent, funded research program, and teaching pharmacology to medical, nursing, and graduate students. All areas of research interest will be considered. Applications, including résumé and three references, must be received by 31 January 1981, and sent to: **Dr. Hall Downes, Chairman, Search Committee, Department of Pharmacology, School of Medicine, University of Oregon Health Sciences Center, 3181 Southwest Sam Jackson Park Road, Portland, Oregon 97201.** The University of Oregon Health Sciences Center is an Equal Opportunity/Affirmative Action Employer.

MASS SPECTROSCOPIST RICE UNIVERSITY

The Department of Biochemistry of Rice University announces the availability of a staff position for an experienced bioorganic mass spectroscopist to operate GC-MS unit and to participate in research on sterol biosynthesis and chemistry of complex lipids. Additional experience in IR and NMR desired but not essential. Salary dependent on qualifications and experience. Position available immediately. Interested persons should send résumé and the names of three references to: **G. J. Schroepfer, Jr., Biochemistry Department, Rice University, Houston, Texas 77001.** An Equal Opportunity/Affirmative Action Employer.

CELLULAR PHYSIOLOGIST

Assistant Professor, tenure-track position available September 1981. Teaching at undergraduate and graduate levels. Active research program in cellular physiology in the areas of mechanism of action of drugs, hormones, toxins, or transmitters in cells. Post doctoral experience desirable.

Send curriculum vitae, statement of research interests and names of at least 3 references to Dr. John Freeberg, Chair, Search Committee, Biology Department.



University of
Massachusetts
at Boston

Harbor Campus, Boston,
MA 02125

An equal opportunity/affirmative action/Title IX employer

THE CHARLES BABBAGE INSTITUTE UNIVERSITY OF MINNESOTA, TWIN CITIES

The Charles Babbage Institute for the History of Information Processing (CBI) is devoted to study of the technical and socioeconomic aspects of the computing and information revolution, and to promotion of increased awareness of the impact of that revolution on society. Applications are invited for the following positions:

DIRECTOR. Qualifications: established historian of science and technology (emphasis in the history of computing or related field preferred), or scientist/engineer with demonstrated abilities and achievements in history of computing. Ph.D. or equivalent record of scholarly accomplishment in above field(s); publications. Administrative skills required; familiarity with oral history techniques desired. Primary duties: curriculum development, teaching, research, chief executive responsibility for CBI. Tenure or tenure-track position; 12-month appointment. Rank and salary open, depending on qualifications and experience.

ASSOCIATE DIRECTOR. Qualifications: scientist/engineer with demonstrated abilities and achievements in history of computing, or historian of science and technology (emphasis in the history of computing or related field preferred). Ph.D. or equivalent record of scholarly accomplishment in above field(s). Administrative skills required; familiarity with oral history techniques desired. Primary duties: to assist director in all phases of CBI programs. Renewable contract (minimum: 3 years); 12-month appointment. Salary open, depending on qualifications and experience.

Applicants should submit dossier, including the names of at least three references, to: Professor Roger H. Stuewer, School of Physics and Astronomy, University of Minnesota, 116 Church Street, SE, Minneapolis, Minnesota 55455. More complete job descriptions on request. Deadline for receipt of applications is 15 February 1981.

The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

KING FAISAL UNIVERSITY COLLEGE OF MEDICINE DAMMAM, SAUDI ARABIA FACULTY POSITIONS OPEN 1981-1982

King Faisal University College of Medicine, now in its seventh year, invites applications from qualified men and women for the 1981-1982 academic year in:

CHEMISTRY	PATHOLOGY
BIOLOGY	EPIDEMIOLOGY
PHYSICS	MICROBIOLOGY
BIOCHEMISTRY	PARASITOLOGY
ANATOMY	PHARMACOLOGY
PHYSIOLOGY	COMMUNITY MEDICINE

Doctorate or equivalent degree required. Language of instruction is English. Interviews to be held in London and Houston during February and April 1981.

SALARIES are highly competitive and negotiable; comparable to other Saudi universities.

BENEFITS include free, furnished housing, educational allowances, air tickets to and from Saudi Arabia once each year for a family of four, 60-day paid vacation, liberal overweight allowance. No Saudi income tax.

Send curriculum vitae with current telephone number and the names and addresses of three references to:

Dr. Tawfiq Tamimi
Dean, College of Medicine
King Faisal University
c/o Saudi Arabian
Educational Mission
2425 West Loop South
Houston, Texas 77027

OR

c/o P.O. Box 2
Sunbury-on-Thames
Middlesex TW16 5JR
England

RESEARCH SCIENTIST

The Pharmaceutical Research and Development Division of the Upjohn Company has a research position in the Hypersensitivity Diseases Research Unit.

The successful candidate should be an established scientist and will be responsible for a research program which applies animal models to the identification and development of therapeutics useful in immunoinflammatory diseases.

Candidate must have Ph.D., D.V.M. or M.D. degree and should have a minimum of two years of post-doctoral or comparable experience preferably in the area of inflammation. The incumbent should have a demonstrated ability to do independent research.

Send resume in confidence to:

William J. Hall
11908-J
The Upjohn Company
7171 Portage Road
Kalamazoo, MI.
49001

Upjohn

An Equal Opportunity Employer M/F

Australian Institute of Marine Science SENIOR PRINCIPAL RESEARCH SCIENTIST ASSISTANT DIRECTOR

The Australian Institute of Marine Science is a Commonwealth Statutory Authority engaged in research related to the marine environment and its living communities. Its activities, which involve both a comprehensive in-house research program and extensive external collaboration, are focused at present in the marine tropics, notably the Great Barrier Reef Province and the adjacent seas, as well as at the land-sea interface where mangroves are prevalent.

Enquiries are invited from highly qualified and experienced researchers of established reputation in any branch of marine science or a closely related discipline interested in being considered for a newly created senior position at a level not less than that of senior principal research scientist (A\$31,229 to A\$34,308, plus district allowance).

Duties:

The appointee will be expected to contribute on a continuing basis to the planning and implementation of the Institute's research program, and to initiate and actively participate in research.

It is expected that the appointee will also be designated assistant director initially for at least 3 years, subject to review and renegotiation at the end of this period. In this role the appointee will be expected to play a substantial part in assisting the director in the conduct of the Institute's affairs, both internally and in its external relationships.

Qualifications:

The appointee will have had at least 15 years of postdoctoral research, an acknowledged professional reputation, and relevant experience in the broader functions and interactions of research organizations.

Enquiries/Applications:

Interested persons are invited to obtain further information by addressing confidential enquiries to the director at the address given below.

Applications, including full curriculum vitae, other relevant details, and the names and addresses of not fewer than three referees should be forwarded under confidential cover to:

The Director
Australian Institute of Marine Science
P.M.B. Number 3
Townsville, M.S.O. 4810
Queensland, Australia

to reach the Institute not later than 27 February 1981.

POSITIONS OPEN

HEAD, Department of Chemistry, University of Illinois at Chicago Circle

The University of Illinois at Chicago Circle announces reopening of the search for head of the Department of Chemistry, effective 1 September 1981. A candidate must have a Ph.D. degree and should present a distinguished record of scholarly achievement in the chemical sciences which is commensurate with the rank of professor in this university. A candidate must be committed to high-quality teaching at both the undergraduate and graduate levels and should have the ability, as indicated by past achievement, to generate substantial research support. His or her principal contribution will be to lead the department, already well established, in its continuing effort to maintain and increase its excellence. The salary is negotiable. The deadline for applications, which should include curriculum vitae, is 5 January 1981. Arrangements should be made for the submission of four letters of recommendation. Address correspondence to:

Professor David G. Gorenstein
Chairman, Search Committee
Department of Chemistry
University of Illinois at Chicago Circle
Box 4348
Chicago, Illinois 60680

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

IMMUNOCHEMIST—Ph.D.—Seeking person experienced in isolation and purification of animal plasma proteins. Requires extensive experience in plasma protein isolation techniques and knowledge in affinity chromatography, gel filtration, and immunoassay procedures. Challenging, ground-floor opportunity for qualified, self-motivated individual to take important position in methodologies, product development, and production operations. Salary negotiable. West Coast location. Send résumé in complete confidence to: **Box 304, SCIENCE.**

IMMUNOCHEMIST with EXPERTISE in RIA and other endocrinological procedures. The University of Maryland at College Park, Md., and the Human Nutrition Research Center, SEA, U.S. Department of Agriculture, at Beltsville, Md., are seeking a well-qualified individual to participate in basic and applied studies in nutrition, endocrinology, and metabolism. The successful applicant will be expected to develop a research program applying expertise in endocrinology and metabolism to nutritional investigations, especially as related to the dietary intake and metabolism of essential fatty acids. Incumbent will be well grounded in endocrinology and related methodology, including RIA; and will be qualified to apply existing procedures in this area as well as to develop, test, and validate new RIA procedures. Incumbent will develop own area of research as well as participate with other scientists in ongoing investigations. Position is at the faculty research associate level (Ph.D. or equivalent required) in the Department of Chemistry, University of Maryland. Research is conducted in the facilities of the Human Nutrition Research Center at the nearby Beltsville Agricultural Research Center. Starting salary will range from \$20,000 to \$25,000, commensurate with training and experience. Send curriculum vitae and other pertinent information to: **Dr. Mark Keeney, Department of Chemistry, University of Maryland, College Park, Md. 20742.** For further information, telephone: 301-454-4568 or 301-344-2014. *The University of Maryland is an Equal Opportunity Employer.*

MOLECULAR GENETICIST DEPARTMENT OF MOLECULAR AND POPULATION GENETICS UNIVERSITY OF GEORGIA

The University of Georgia is seeking a molecular geneticist for a tenure-track position beginning fall 1981. The exact area of research and academic rank are open, but candidates are expected to maintain an active research program and to teach at the graduate and undergraduate level. The Department of Molecular and Population Genetics is a new department with 12 faculty members and strong research programs in molecular genetics and population genetics. Applicants should send curriculum vitae and names of four references to: **Dr. Gary Kochert, Chairman, Molecular Geneticist Search Committee, Department of Molecular and Population Genetics, University of Georgia, Athens, Georgia 30602.** Screening of applicants will begin immediately. The closing date for applications is 1 March 1981. *An Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

IMMUNOBIOLOGIST with postdoctoral experience and expertise in hybridoma technology. For exciting new immunotherapeutic project at Baylor College of Medicine, Houston, Texas. Please send curriculum vitae and bibliography to:

Box 306, SCIENCE

MARINE BIOLOGIST: Ph.D., preferably with postdoctoral experience; salary and rank negotiable. Expected to teach at undergraduate and graduate level, direct graduate students, and initiate nationally competitive research program. Research facilities located at the Galveston Laboratory of the National Marine Fisheries Service. Send curriculum vitae and three references to:

Marine Biology Search Committee
Department of Biology
University of Houston
Houston, Texas 77004

An Equal Opportunity/Affirmative Action Employer

MARINE SCIENTIST. The Louisiana Universities Marine Consortium (LUMCON) is seeking an accomplished research scientist to fill a permanent, state-funded position at its Marine Research and Education Center at Cocodrie, near Houma, Louisiana. Applicants should be involved in active research in one of the following fields: **sedimentation processes** (emphasis in the physical processes of modern sediment transport and deposition); **marine toxicology** (emphasis in biological mechanisms) or **plankton dynamics** (emphasis in zooplankton populations and food chains). The incumbent is expected to develop a research program relevant to Louisiana's coastal and continental shelf environments and to interact with other LUMCON staff and faculty of affiliated universities. Adjunct faculty appointment and participation in graduate programs at one or more of the affiliated universities is expected. Candidates must have a Ph.D. and postdoctoral experience. Salary will be commensurate with experience.

LUMCON is an organization of the thirteen state universities in Louisiana. Construction of major research facilities at Cocodrie and vessels is planned to commence in 1981. Applicants should send curriculum vitae, a statement of their research interests and objectives, and the names and addresses of at least three references prior to 23 January 1981 to: **Dr. Donald F. Boesch, Executive Director, Louisiana Universities Marine Consortium, Star Route Box 541, Chauvin, Louisiana 70344.**

An Equal Opportunity/Affirmative Action Employer

MEDICINAL CHEMISTRY—ASSISTANT PROFESSOR TO FULL PROFESSOR—The Department of Pharmaceutical Chemistry, University of California, has a tenure-track vacancy in the area of medicinal chemistry. Level could be from assistant professor to full professor as determined by applicant's experience. Candidates must have a solid chemistry background, postdoctoral experience, a strong commitment to research and to undergraduate and graduate education, and demonstrated excellence in their fields. Research interests may be in any aspect of medicinal chemistry or in areas of pharmacology or biochemistry relevant to modern medicinal chemistry. Interest and competence in the teaching of medicinal chemistry is essential. The salary will be in the range \$25,000 to \$51,000 consistent with the level of the 11-month appointment. Candidates should request letters from three referees and send curriculum vitae, a list of publications, a brief summary of research accomplishments, and a brief outline of proposed research to: **Professor M. E. Wolff, Chairman, Department of Pharmaceutical Chemistry, School of Pharmacy, 926-S, University of California, San Francisco, Calif. 94143.** Applications will be accepted until 1 February 1981 for a 1 July starting date. *The University of California is an Affirmative Action/Equal Opportunity Employer. Women and minorities are encouraged to apply.*

Postdoctoral clinical research position for biophysicist with interest in visual electrophysiology and psychophysics. Position involves clinical patient testing, computer programming (Fortran and Basic), and the design and construction of appropriate apparatus. Salary and faculty appointment commensurate with experience. Send curriculum vitae and names of three or more references to: **Harold W. Skalka, M.D., Combined Program in Ophthalmology, Eye Foundation Hospital—University of Alabama in Birmingham, 1720 Eighth Avenue, South, Birmingham, Alabama 35233.** *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

MICROBIOLOGIST: Ph.D. State University College, Oneonta (SUCO), N.Y., August 1981. Teaching duties: major's microbiology course, nonmajor's microbiology course, one or more courses appropriate to departmental needs as follows: parasitology, protozoology, food microbiology, soil microbiology, microbiology of freshwater habitats, fermentation. Applicant to evidence competency in one or more areas listed. Appointment made with renewal possible as lecturer, instructor, or assistant professor with salary of \$11,000 to \$14,000 per university policy in assessing applicant's training and experience. Position dependent upon budgetary approval. Send graduate and undergraduate transcripts, résumé, and three letters of recommendation to: **Dr. J. G. New, Chairman, Biology Department, SUCO, Oneonta, N.Y. 13820,** by 31 January 1981. *An Equal Opportunity Employer.*

MOLECULAR BIOLOGIST. The Department of Biology, University of California, San Diego, invites applications for a faculty position at the level of assistant professor (\$18,600 to \$24,500) in the general area of molecular biology of eukaryotic organisms. The appointee must have had postdoctoral training, and is expected to conduct a vigorous research program. Applicants should send curriculum vitae, including a list of publications and the names and addresses of five references. The position will be available beginning September 1981. Send applications before 5 February 1981 to:

Dr. Immo Scheffler
Search Committee
University of California, San Diego
Department of Biology, BO22
La Jolla, Calif. 92093

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

MOLECULAR GENETICS FACULTY POSITION Effective Immediately

Applications are invited for a tenure-track faculty position at the assistant or associate professor level. We are seeking a person who has worked or plans to work on higher plants. Our purpose is to attract an outstanding individual with proven ability to initiate and maintain an active research program, to supervise graduate student training, and to teach at the graduate level. Specific research areas of interest to us include DNA transformation in plants, gene isolation, plant cell culture, DNA cloning and sequencing, gene regulation, and control of gene expression in development. Candidates with postdoctoral experience and significant publications will be preferred. We are seeking excellence in research and teaching. Send curriculum vitae, three references, and a statement of research objectives to:

John G. Scandalios
Professor and Head
Department of Genetics
North Carolina State University
Box 5487
Raleigh, N.C. 27650

An Affirmative Action/Equal Opportunity Employer

PATHOLOGIST—Recent residency preferred, CAP eligible or qualified; 200-bed voluntary, nonprofit, upstate New York hospital, in Hudson Valley area; 50 minutes from Tanglewood, excellent skiing. Highly competitive salary and opportunity for advancement. Send résumé in confidence to: **Box 305, SCIENCE.**

The Science and Education Administration (SEA) of U.S. Department of Agriculture (USDA), has an opening for a **PHARMACOLOGIST** with a strong background in toxicology. The position is located at the Richard B. Russell Agricultural Research Center, Athens, Georgia. The incumbent will investigate pharmacological and toxicological properties of mycotoxins, phytoalexins, glycoalkaloids, nitroamines, and other broad classes of compounds of agricultural importance using laboratory animals. A strong background in pathology, teratology and/or toxicology is desired. This is a career-conditional Civil Service position and will be filled at the GS-11 (\$22,486 per annum) or GS-12 (\$26,931 per annum) level. Submit Form SF-171 and transcripts to: **Joanne M. Ward, Personnel Assistant, USDA, SEA-AR, Russell Research Center, P.O. Box 5677, Athens, Ga. 30613.** You will then be furnished with additional application requirements. Deadline for applications: 2 January 1981. *SEA-USDA is an Equal Opportunity Employer.*

GROUP LEADERS- SR. SCIENTISTS "State-of-the-Art Technology"

We are the Advanced Technology Group of a Fort. 500 co. located in Ohio. We seek scientists at the Group Leader, Sr. Scientist levels to be responsible for several key projects in the development and commercialization of ink jet printing technology. Education in either Physics, Electrical Engineering or Mechanical Engineering with several years exp. in physical research including fluid dynamics and ultrasonics is desirable. Compensation includes a base salary of between \$30,000-\$45,000 plus excellent fringe benefits and relocation package and significant promotion opportunities either technically or managerially.

Send resume and current salary info to: V.P., R & D., **Box 313, SCIENCE.**

Teratology/ Reproduction Studies

The Research & Development Division of G. D. Searle & Co., located in Skokie, has immediate openings for Teratologists in our Product Safety Assessment Department. Primary responsibility will be to conduct pre-clinical reproduction studies on lab animals for drug evaluation purposes.

Suitable candidates should possess a BS/MS in a Biological Science, with some course work in embryology, anatomy, or developmental biology. A working knowledge of teratology is preferred.

We offer an excellent starting salary and comprehensive benefits package. For confidential consideration, send resume including salary history to:

Barbara Gardner

Research &
Development Division

G. D. Searle & Co.

Box 5110

Chicago, IL 60680

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

SEARLE

THE COLD SPRING HARBOR
LABORATORY
THE STATE UNIVERSITY OF
NEW YORK AT STONY BROOK
THE BROOKHAVEN NATIONAL
LABORATORY

are pleased to announce an
inter-institutional

DOCTORAL PROGRAM in GENETICS

For information and applications for September 1981 admissions, write to:
Graduate Secretary for Genetics
Department of Microbiology
State University of New York
at Stony Brook
Stony Brook, NY 11794



The granting of degrees is vested in the State University of New York at Stony Brook

BIOCHEMICAL ENGINEER

Develop and apply
new technologies to
fermentation processes . . .

in Basic Research at Merck Sharp & Dohme Research Laboratories headquartered in Rahway, New Jersey. We're a long standing leader in the human and environmental and animal health care business.

This position offers unique opportunity for research, publications and broad interaction with scientists in a variety of disciplines. Successful candidate must possess a PhD in Biochemical Engineering (or equivalent) and 2-5 years experience in fermentation bioengineering techniques and related computerization knowledge.

Salary, benefits and growth potential are all excellent. Send resume to Ms. S. R. Jenkins,



MERCK & CO., INC.

P.O. Box 2000, Rahway, NJ 07065

An equal opportunity employer m/f

CHEMIST

sr. information chemist

FMC's R & D Center, located in Princeton, N.J. has a position available for a Sr. Information Chemist. You must possess an MS in Chemistry or Bio-Chemistry and a minimum of 3 to 5 years of experience in organic chemistry or technical information related to biotechnology. In addition you should have a background in the utilization of On-line retrieval techniques and the evaluation of technical information.

FMC offers a salary commensurate with your experience, a full range of company benefits and opportunity and challenge in a research & development environment. Contact Ed Politi, FMC CORPORATION, U.S. Route 1, P.O. Box 8, Princeton, N.J. 08540 or (609) 452-2300, COLLECT. Equal Opportunity Employer, M/F.

FMC

POSITIONS OPEN

PHARMACOLOGIST/TOXICOLOGIST

Tenure-track position as assistant professor is available to teach courses in pharmacology, toxicology, and other areas. Candidates completing their degree by the appointment date will be considered. An active research program and grant potential are essential. The area of research is open. Send curriculum vitae, including research and grant information, and three letters of recommendation to:

Dr. Leon W. Bone
Department of Physiology
Southern Illinois University
Carbondale, Ill. 62901
Telephone: 618-453-2745

Application deadline: 1 January 1981. Appointment date: 15 August 1981.

Southern Illinois University, Carbondale, is an Equal Opportunity/Affirmative Action Employer.

PHYSICAL CHEMISTRY ASSISTANT PROFESSOR. University of California, Santa Cruz, invites applications for appointment at the assistant professor level (tenure-track) in physical chemistry, starting 1 July 1981. Minimum requirements: Ph.D. in chemistry and exceptional promise in research and teaching at both the undergraduate and graduate levels. We especially encourage applicants with experimental interests whose research is in the broad area of photoprocesses. Applicants should provide detailed curriculum vitae, a short statement of future research plans, and three letters of recommendation to: **Professor Thomas Schleich, Chairperson, Chemistry Board of Studies, University of California, Santa Cruz, Calif. 95064.** Closing date: 15 January 1981.

An Equal Opportunity/Affirmative Action Employer

PHYSIOLOGY AND BIOPHYSICS

The Department of Physiology and Biophysics is seeking applicants for a tenure-track position in the areas of metabolism and/or endocrinology. Candidates are expected to establish an independent research program, and collaborate with our group focusing on insulin secretion and action at the levels of the cell and intact organism. Candidates familiar with analytical or mathematical modeling approaches are preferred. Responsibilities include teaching of medical, graduate, and pharmacy students. Ph.D. and/or M.D. and postdoctoral experience are required. Please send curriculum vitae, including research plans and three references, to: **Dr. Richard N. Bergman, Department of Physiology and Biophysics, University of Southern California Medical School, 2025 Zonal Avenue, Los Angeles, Calif. 90033.**

PLANT ECOLOGIST. Research and teaching in the general area of community or population ecology of plants, broadly enough defined to include a person interested in plant-animal interactions. Strong emphasis on field-based research and teaching. Tenure-track position; level commensurate with experience. Please send curriculum vitae, description of research and teaching interests, and the names and addresses of three referees to:

Dr. Robert K. Vickery, Jr.
Department of Biology
University of Utah
Salt Lake City, Utah 84112

Deadline: 1 February 1981.

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

POPULATION GENETICIST

The Department of Molecular and Population Genetics of the University of Georgia is seeking qualified applicants in population genetics at the assistant professor level. Candidates in all areas of population genetics will be considered with preference given to those working in any of the following areas: adaptation, either organismal or biochemical; sociobiology; human population genetics; molecular evolution. Candidates must have a Ph.D. and a strong commitment to research as well as teaching. Duties include developing an independent research program and teaching at the graduate and undergraduate levels. Applicants should forward curriculum vitae, reprints, a brief statement of research plans, and arrange to have at least three letters of recommendation sent to: **Population Genetics Search Committee, Department of Molecular and Population Genetics, Biological Sciences Building, University of Georgia, Athens, Georgia 30602.** Deadline for applications is 15 February 1981. The position will not be filled unless qualified persons are available. *The University of Georgia is an Equal Opportunity/Affirmative Action Institution.*

POSITIONS OPEN

PLANT TAXONOMIST. The Department of Botany at San Diego State University seeks a plant taxonomist for a full-time, tenure-track assistant professorship (salary range: \$18,000 to \$21,600 per academic year) available 15 August 1981. A Ph.D. is required and postdoctoral experience is desired. The successful applicant will be expected to maintain an active research program and seek external research support. Duties will include overseeing a small herbarium, teaching upper division courses in plant taxonomy and cultivated trees and shrubs, and developing a new course on local flora. Send curriculum vitae, statement of research and teaching interests, and have three letters of recommendation sent to: **Chairperson, Plant Taxonomy Search Committee, Department of Botany, San Diego State University, San Diego, Calif. 92182.** Applications will be accepted until 15 February 1981. *An Affirmative Action/Equal Opportunity/Title IX Employer.*

POLYMER SCIENCE AND ENGINEERING (PSE), University of Massachusetts at Amherst.

The PSE Department anticipates having two tenure-track openings at the assistant professor level. The area of primary interest is polymer synthesis and theory, but well-qualified candidates in any area of polymer science and engineering will be considered. Fall 1981 is the anticipated starting date. Candidates should send their résumé, list of publications, a brief description of career goals and proposed research, and names of references to: **Professor William MacKnight, Head, Polymer Science and Engineering Department, University of Massachusetts, Amherst, Massachusetts 01003.**

An Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL FELLOWS. Two positions now available for persons with strong background in tissue culture, somatic cell genetics, and molecular biology for studies on cellular aging; 2 to 3 years with salary depending upon experience. Apply with curriculum vitae and names and addresses of three references to: **Dr. Sam Goldstein, Division of Gerontology, Department of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham, Little Rock, Arkansas 72205.**

POSTDOCTORAL POSITIONS (two)—Neurophysiologist/neuropharmacologist to study (i) role of neuropeptides in spinal cord injury, and (ii) neural control of the circulation, with emphasis on the role of neuropeptides. Applicants should have a Ph.D. degree, with research experience in the neuropeptide area. Send curriculum vitae and names of three references to: **Director of Research, attention: Personnel, Department of Neurology, Uniformed Services University of the Health Sciences, 4301 Jones Bridge Road, Bethesda, Maryland 20814.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITION to expand ongoing projects, purifying and characterizing human tumor-associated proteins or antigens; production of hybridoma monoclonal antibodies and development of serologic immunoassays for tumor-associated antigens. Ph.D. in biochemistry, immunology, or immunochimistry required. Prior training in techniques of cell culture/immunochimistry desirable. Send curriculum vitae and three references to: **Dr. Elliot Alpert, Department of Medicine, Baylor College of Medicine, 1200 Moursund, Houston, Texas 77030.** *Equal Opportunity Employer.*

POSTDOCTORAL POSITION

Active laboratory seeks individuals with training in biochemistry, cell biology, pharmacology, or endocrinology to participate in ongoing studies into the mechanisms of action of bacterial toxins. Fellowship is competitive and sponsored by the NRC. Applications must be completed by 15 January 1981. Position could be assumed between 1 July 1981 and 1 February 1982. Stipend is \$20,500 per year. Contact: **Dr. John L. Middlebrook, Pathology Division, USAMRIID, Fort Detrick, Frederick, Md. 20171.** Telephone: 301-663-7211.

POSTDOCTORAL POSITIONS

Veterans Administration Medical Center is inviting applications from postdoctoral-level scientists to assist with research programs in the areas of: (i) molecular mechanisms of chemical mutagenesis and carcinogenesis, and (ii) metabolism of chemical toxicants. Applicants should have training in chemistry, pharmacology, or biochemistry. Interested persons should send curriculum vitae and three names for reference to: **Carl B. Ferrell, Administrative Officer for Medical Research, VA Medical Center, 300 East Roosevelt Road, Little Rock, Ark. 72206.**

POSITIONS OPEN

POSTDOCTORAL FELLOW. Immediate opening for a Ph.D. in biochemistry for work on characterization of human aldehyde dehydrogenase isozymes. Experience in protein chemistry including chemical modification of enzymes peptide mapping and sequencing desirable. Salary: \$13,500 to \$15,000. Send curriculum vitae and three references to: **Dr. Regina Pietruszko, Center of Alcohol Studies, Rutgers University, New Brunswick, New Jersey 08903.** *An Affirmative Action/Equal Opportunity Employer.*

Two **POSTDOCTORAL POSITIONS** available immediately on a NIH grant, approved through March 1984. One, to isolate and characterize lysosomal enzymes involved in fertilization and second, to study the localization of these enzymes on periacrosomal membranes by histochemical, immunological methods and electron microscopy. Please write to: **Dr. P. N. Srivastava, Biochemistry Department, University of Georgia, Athens, Ga. 30602,** within one month of this advertisement.

POSTDOCTORAL POSITIONS. Postdoctoral training in cardiovascular studies for medical scientists and clinical investigators for M.D.'s and Ph.D.'s will be available for 1981 for 2-year periods. The training begins with a 2-month intensive teaching program in the physical sciences, instrumentation, and computer applications. The investigative programs, focused around the Center for Bioengineering, are in biological sciences (particularly physiology and biophysics, bioengineering and biological structure, and cardiology) and engineering (chemical, electrical, and mechanical). This is a National Research Service Award Program (open to U.S. citizens and landed immigrants) with stipends from \$13,380 to \$18,780. For information or application forms, write: **J. B. Bassingthwaite, M.D., Ph.D., Cardiovascular Bioengineering Training Program WD 12, University of Washington, Seattle, Wash. 98195.** *The University is an Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION in immunology. Available immediately in area related to regulation of the immune response. Experience with hybridoma technology desirable. Applicants please contact: **Dr. Gabriel Michael, Department of Microbiology, University of Cincinnati, College of Medicine, Cincinnati, Ohio 45267.**

POSTDOCTORAL/RESEARCH ASSOCIATE

Immediately available for study of the biochemical features of surface membranes of normal and malignant cells. Current emphasis is on surface macromolecules and growth regulation. Curriculum vitae and two letters of reference should be sent to:

Dr. Terry C. Johnson, Director
Division of Biology
Kansas State University
Manhattan, Kans. 66506

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

MICHIGAN STATE UNIVERSITY (MSU) POSTDOCTORAL RESEARCH POSITIONS ENVIRONMENTAL CARCINOGENESIS- MUTAGENESIS

Two positions available immediately (as well as two later) for persons with strong background in molecular biology, biochemistry, biophysics, or microbiology to investigate in diploid human cells in culture the molecular mechanisms of radiation and chemical carcinogen-induced mutagenesis and oncogenic transformation. The multidisciplinary approaches used include comparative studies in cells which differ in DNA repair capabilities; determination of the nature of the DNA lesions responsible for the biological effects; gene isolation, cloning, and sequencing; and site specific mutagenesis. Send application, including curriculum vitae, reprints, and letters of recommendation to: **Drs. J. Justin McCormick or Veronica M. Maher, Co-Directors, Carcinogenesis Laboratory—Fee Hall, Michigan State University, East Lansing, Mich. 48824.**

MSU is an Affirmative Action/Equal Opportunity Institution.

RESEARCH ASSOCIATE. A postdoctoral position is open for experimental and/or theoretical work on the conformation of nucleic acids. Please send curriculum vitae and three letters of recommendation to: **W. Curtis Johnson, Department of Biochemistry and Biophysics, Oregon State University, Corvallis, Oregon 97331.** Closing date: 1 January 1981. *Oregon State University is an Affirmative Action/Equal Opportunity Employer that complies with Section 504 of the Rehabilitation Act of 1973.*

POSTDOCTORAL RESEARCH AWARDS

Sponsored by the
**BALLISTIC
RESEARCH LABORATORY**
in association with
THE NATIONAL RESEARCH COUNCIL

The National Research Council will make awards in 1980 under the Resident Associateship Program, which provides awardees with opportunities to conduct experimental and theoretical research as visiting scientists and engineers in the fields of:

Applied Computer Sciences
Applied Mathematics
Probability Theory and Stochastic Processes

Combustion Research
Fluid Mechanics
Continuum Mechanics
Materials Sciences
Nuclear and Radiation Physics
Physical Chemistry
Quantum Chemistry

in the Laboratory complex located in the beautiful Chesapeake Bay country of Maryland, within easy driving distance of the metropolitan centers of Baltimore, Philadelphia, and Washington, D.C.

Some programs are open to senior investigators as well as recent doctorates.

Further details on research programs may be obtained from: **Dr. L. J. Puckett**, telephone: 301-278-2236, at the Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland.

For application materials and details on specific research opportunities, write promptly giving areas of interest to:

Associateship Office (608-E1)
NATIONAL RESEARCH COUNCIL
2101 Constitution Avenue, NW
Washington, D.C. 20418

Postmark deadline for application is 15 January.

SYMPOSIUM GENOTOXIC EFFECTS OF AIRBORNE AGENTS

**Brookhaven National Laboratory
Associated Universities, Inc.
Upton, Long Island, New York
February 9-11, 1981**

Inhalation is the major route of exposure to genotoxic agents in the workplace, and to a lesser extent in the home. This Symposium will provide a forum for leaders in the fields of Biochemical, Genetic and Inhalation Toxicology to focus on specific airborne agents and current in vitro/in vivo techniques used for assessing their genotoxic potential. Technical difficulties inherent to the generation of vapors and particulates, the extrapolation of experimental data to human populations for genotoxic damage, and regulatory risk policy will also be presented.

Organizing Committee:

Raymond R. Tice, Brookhaven National Laboratory (Chairman);
Robert T. Drew, Brookhaven National Laboratory;
Michael Waters, U.S. Environmental Protection Agency;
Frederick de Serres, U.S. National Institute of Environmental Health Sciences

Registration Fee:

\$US150.00 (includes accommodations)

For details, contact: **Raymond R. Tice**, Ph.D., Medical Department, Brookhaven National Laboratory; Upton, N.Y. 11973. Telephone (516) 345-3624

**BROOKHAVEN
NATIONAL
LABORATORY**



6TH AMPERE SUMMER SCHOOL ON BIOLOGICAL APPLICATIONS OF NMR

To be held 8 to 18 September 1981, in Schloss Seggau bei Leibnitz, Steiermark, Austria. The school will consist of lectures, group discussions, and problem sessions and is intended both for spectroscopists and for biochemists. Topics to be covered include: basic principles of NMR spectroscopy; new techniques; 2DFT, relaxation analysis, photo-CIDNP; NMR of macromolecules—methodology for resolution and assignment of signals; proteins: structure, dynamics and interactions with small molecules; nucleic acids: structure, dynamics and interactions with small molecules; NMR studies of enzyme mechanisms; membranes: molecular motion, protein-lipid interactions; NMR of whole cells and organs: ¹³C and ³¹P studies of metabolism and metabolic regulation, NMR imaging in vivo.

Tentative list of the faculty: E. R. Andrew (Nottingham), I. D. Campbell (Oxford), P. Cozzone (Marseilles), R. A. Dwek (Oxford), R. R. Ernst (Zurich), K. Hausser (Heidelberg), R. Kaptein (Groningen), M. P. Klein (Berkeley), P. C. Lauterbur (Stony Brook), J. L. Markley (Purdue), E. Oldfield (Urbana), D. Patel (Murray Hill), W. D. Phillips (St. Louis), J. H. Prestegard (Yale), G. K. Radda (Oxford), B. R. Reid (Seattle), J. Seeling (Basel), R. G. Shulman (Yale), I. C. P. Smith (Ottawa), A. Xavier (Lisboa), and members of the Organizing Committee.

International Organizing Committee: O. Jardetzky (Stanford), chairman; V. Bystron (Moscow); S. Forsen (Lund); G. C. K. Roberts (London); K. Wüthrich (Zurich).

Attendance is limited to 120 participants. Cost: 3000 Austrian Schillings, including room and board. Applications should include brief curriculum vitae and a letter of recommendation from a university faculty member. **DEADLINE FOR APPLICATION:** 1 April 1981. Applicants will be notified of the decision on their application by 1 May 1981. Letters of application and all correspondence should be addressed to: **Dr. G. C. K. Roberts**, National Institute for Medical Research, The Ridgeway, Mill Hill, London NW7 1AA, England. Telegrams: Natinmed London NW7. Telex: 922666 (Natinmed London). Telephone: 01-959 3666.

RESEARCH BIOCHEMISTS

CAPPEL LABORATORIES, a major company in the development and production of antigens, antisera and immunochemicals, has immediate openings for two (2) highly qualified Ph.D. level biochemists. These positions require extensive doctoral and post-doctoral experience in protein purification, preferably in complement and coagulation factors. Responsibilities include antigen purification and development of new products for the research and clinical laboratory market. Some experience or advanced courses in immunology is an added plus.

CAPPEL LABORATORIES is located in modern laboratory facilities situated in an attractive rural area 40 miles west of Philadelphia. Salary is open and excellent employee benefits are provided. Please forward curriculum vitae or resumes to:

William J. Stegeman, Ph.D.
Manager of Research and Development
CAPPEL LABORATORIES
Cochranville, Pa. 19330

CAREER OPPORTUNITIES IN PLATELET RESEARCH



Sandoz Inc. is known and respected worldwide as a leading pharmaceutical/chemical company with outstanding technical ability. We currently have two openings in the area of Platelet Research, providing the opportunity to join a team of biochemical pharmacologists and organic chemists in the evaluation of the importance of platelets in the development of atherosclerosis.

Both positions require a PhD with 2 or more years post doctoral experience and some exposure to platelet research. One position requires specific training in cellular immunology and associated techniques. The second position requires training in arterial wall physiology, biochemistry and pathology.

This growing research team offers excellent career opportunities. New laboratory facilities are being constructed and appropriate support staff will be available.

Located in Northern New Jersey, Sandoz offers an attractive salary and benefits package. Please send detailed resume, including publications and salary requirements, in confidence to:

J. O'Hagan, Personnel Manager



SANDOZ, INC.
RESEARCH and DEVELOPMENT
Route 10, East Hanover, New Jersey 07936
An Equal Opportunity Employer M/F

POSITIONS OPEN

RESEARCH ASSISTANTS (two): M.S. degree or equivalent experience. Ecosystem research in tall-grass prairie (Konza Prairie Research Natural Area). Areas of technical competence: meteorological instrumentation (operation and maintenance); plant ecology plus familiarity with electronic data handling technology (computers and/or microprocessors). Send résumé and names of references by 15 January 1981 to:

G. R. Marzolf
Division of Biology
Kansas State University
Manhattan, Kansas 66506

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

RESEARCH ASSISTANT PROFESSOR—The Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, invites applications for a research assistant professor within the Biological Sciences Section. Applicants should have a Ph.D. degree in pharmacology or physiology with emphasis on pharmacology. Applications and résumés should be directed to: **Dr. James C. Murphy**, Research Institute of Pharmaceutical Sciences, School of Pharmacy, University of Mississippi, University, Miss. 38677, by 1 February 1981, to ensure consideration. *Equal Opportunity Employer.*

RESEARCH ASSOCIATE POSITIONS MOLECULAR BIOLOGY MCGILL UNIVERSITY

A position is available for a 2- to 3-year term, to work in the area of molecular biology of symbiotic nitrogen fixation. Emphasis will be on the development of *R. japonicum* mutants for studying the expression of host genes. Experience in the field of microbiology, nucleic acid and/or protein biochemistry is essential and the knowledge of recombinant DNA technology is desirable. Salary (\$14,000 to \$18,000 per annum) commensurate with experience. Please send curriculum vitae and letters of reference to: **Professor D. P. S. Verma**, Department of Biology, McGill University, 1205 Dr. Penfield Avenue, Montreal, Quebec, Canada H3A 1B1.

VETERINARY ANATOMY POSITIONS

The Department of Anatomy, Tufts University Schools of Medicine, Dental Medicine and Veterinary Medicine, invites applications for tenure-track positions beginning July 1981. Applicants should possess the Ph.D. in anatomy and/or the D.V.M. (or equivalent). The positions involve independent research, as well as the teaching of veterinary gross anatomy and embryology at Tufts University School of Veterinary Medicine. Applicants for the assistant professor level should have at least 1 or 2 years of postdoctoral experience and show promise of developing an active and independent research program. Applicants for the associate professor or professor level must have an established research program and extensive teaching experience in veterinary anatomy. Current research areas in the department include pulmonary cell biology and metabolism, reproductive biology and neuroendocrinology, neurobiology, mechanisms of hormone action, comparative immunology and the effects of stress on immunosuppression, and cell biology including membrane structure, secretory mechanisms, cell-to-cell recognition, cell motility and developmental mechanisms. We also seek candidates to join a group involved in locomotor and musculoskeletal research. Salary and rank are dependent upon qualifications and experience. Applicants are invited to submit curriculum vitae, names of three references, and a letter describing research and teaching interests to: **Dr. Karen Hitchcock**, Chairman, Department of Anatomy, Tufts University Schools of Medicine, Dental Medicine and Veterinary Medicine, 136 Harrison Avenue, Boston, Massachusetts 02111. Deadline for receipt of applications is 1 March 1981.

Tufts University is an Equal Opportunity/Affirmative Action Employer.

VISITOR APPOINTMENTS are available for new and established Ph.D.'s for up to 1-year periods to carry out research in solar physics, solar-terrestrial physics, and related subjects. Applicants should provide curriculum vitae, including education, work experience, publications, the names of three scientists familiar with their work, and a statement of their research plans. Applications must be received by 15 January 1981 and they should be sent to: **Visitor Committee, High Altitude Observatory, National Center for Atmospheric Research (NCAR), P.O. Box 3000, Boulder, Colorado 80307.** *NCAR is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

RESEARCH SCIENTIST

Battelle, Pacific Northwest Laboratories at Richland, Washington, invites applications from **AQUATIC PHYSIOLOGISTS/ECOLOGISTS**. Applicants should have a Ph.D., a minimum of 5 years of progressive experience in physiological aspects of pollution biology, and a sound publications record. Formal training in systems ecology is desirable. It is essential the applicant have familiarity in handling organisms across the several trophic levels of typical aquatic ecosystems.

The work will be highly interdisciplinary in nature, involving extensive collaboration with descriptive biologists, chemists, toxicologists, and systems ecologists. Experimentation is planned in the areas of food-chain transfers and systems impact measurement.

The position is designed for an established scientist and will allow for significant growth in research and/or project management responsibilities.

U.S. citizenship is required.

Send curriculum vitae, publications list, and names of three references to: **Loren P. Henderson, BATTELLE-NORTHWEST, P.O. Box 999, Richland, Wash. 99352.**

An Equal Opportunity Employer, M/F

SABBATICAL REPLACEMENT

Physiological plant ecologist or plant geneticist with background in cell biology and plant systematics for 1-year replacement. Courses include field botany, seminar in area specialization, and team-teaching in ecology and cell biology. Position may be extended to 2 years. Research encouraged. Résumé and names of references to: **Dr. William H. Harvey, Convener, Biology Department, Earlham College, Richmond, Ind. 47374**, by 9 February 1981. *Earlham College is an Equal Opportunity/Affirmative Action Employer.*

TEACHING OVERSEAS. The Department of Chemistry at the American University of Beirut (AUB) invites applications for faculty positions, available 1 October 1981, in the following fields: analytical (instrumentation); inorganic-analytical; organic (natural products); and physical (spectroscopy). Appointments are normally made in the rank of assistant professor and for a 3-year period. Postdoctoral research experience is preferred. Interested persons may send their curriculum vitae and inquiries to: **The Chairman, Department of Chemistry, American University of Beirut, Beirut, Lebanon.** The department has a faculty of 12, an undergraduate B.S. program, and an M.S. program with research and thesis. *AUB is an Equal Opportunity/Affirmative Action Employer.*

TEACHING POSITIONS IN NICARAGUAN UNIVERSITIES

The Latin American Scholarship Program of American Universities (LASPAU), acting on behalf of the Universidad Nacional Autónoma de Nicaragua (UNAN) and the Universidad Centroamericana (UCA) of Nicaragua, is pleased to announce a program funded by USAID/Nicaragua which will bring ten U.S. university instructors to teach at these Nicaraguan institutions beginning in March or July 1981, or a 1-year renewable basis. This program will respond to a critical shortage of teachers in Nicaragua resulting from new open enrollment policies in that country's institutions of higher education.

Positions are available in: MATHEMATICS, PHYSICS, BIOLOGY, CHEMISTRY, COMPUTER SCIENCES, HYDROLOGY, FORESTRY, ECOLOGY, AQUACULTURE AND FISHERIES, NUTRITION, AND EDUCATIONAL EVALUATION AND RESEARCH.

Requirements: Master's degree in field; relevant teaching experience; and ability to teach in Spanish.

Teaching load: 12 to 18 hours per week.

Compensation package: Monthly salary of \$900 (equivalent to highest Nicaraguan university professor salary), plus additional allowances and benefits of approximately \$15,000. Spouse allowances also provided.

FOR FURTHER INFORMATION AND AN APPLICATION FORM, PLEASE CONTACT:

Nicaragua Project Coordinator
LASPAU
25 Mt. Auburn Street
Cambridge, Mass. 02138

DEADLINE FOR RECEIPT OF COMPLETED APPLICATIONS: 31 January 1981.

POSITIONS OPEN

RESEARCH BIOCHEMIST with background in platelet phospholipid metabolism to work in hemostasis unit at Harvard teaching hospital. Reply to: **Robert I. Handin, M.D., Hemostasis Unit, Brigham and Women's Hospital, 75 Francis Street, Boston, Mass. 02115.**

RESEARCH PROFESSORSHIPS

The Department of Physics and Astronomy of The University of North Carolina (UNC) at Chapel Hill announces the creation of two research professor positions: **research professor** and **research assistant professor** with renewable term appointments of up to 5-year duration and competitive salaries in the fields of experimental materials science and/or experimental surface physics pertinent to microelectronics. With these appointments and supporting staff the department seeks to establish a vigorous research program focused upon key physics problems influencing microelectronics of the future. Applicants for the senior post must have a record of significant experimental research achievement, productivity and leadership in an appropriate research field with current or potential impact on microelectronics. Although the choice of the research professor will influence the filling of the research assistant professor post, applications for both posts are invited at this time. The department has ongoing research in the related areas of defects in solids, electron transport in disordered materials, high pressure and investigations of solids with EPR, NMR, Mössbauer, and x-ray techniques. A 2-MeV VdG accelerator is available for channeling backscattering research. There is related research in the Chemistry Department. Send applications, including complete résumés and three references, to: **J. H. Crawford, Department of Physics and Astronomy, University of North Carolina, Chapel Hill, N.C. 27514.** *UNC is an Affirmative Action/Equal Opportunity Employer.*

ANNOUNCEMENT

The March of Dimes Birth Defects Foundation is interested in receiving applications for **SMALL-SCALE RESEARCH PROJECTS** designed for the recognition, elucidation and ultimate prevention of reproductive hazards in the workplace. Projects with emphasis on human experience are particularly encouraged.

For further information, please write to:

Vice President for Research, March of Dimes Birth Defects Foundation, 1275 Mamaroneck Avenue, White Plains, N.Y. 10605.

ADVANCED STUDY INSTITUTE

A NATO Advanced Study Institute on **Advances in Vertebrate Neuroethology** will be held in Kassel, Germany, from 13 to 24 August 1981. Subtitle: Experimental concepts for the investigation of the neurophysiological bases underlying animal behavior: localization, identification, communication, motivation. Type of course: lectures, seminars, roundtables.

Applications for travel grants for junior scientists are being accepted by the Institute-Director.

Institute-Director: Professor Dr. J.-P. Ewert, Department of Neuroethology FB19, University of Kassel, Kassel, FRG.

Co-Directors: Professor Dr. R. J. Andrew, University of Sussex (United Kingdom), Professor Dr. R. R. Capranica, Cornell University, and Professor Dr. D. J. Ingle, Brandeis University.

Applicants must enclose three items:

- 1) Educational and research background,
- 2) Abstract of recent or ongoing research, and
- 3) A letter of recommendation from a senior scientist who is familiar with this research.

The deadline for receipt of applications is 15 February 1981.

TRAINING OFFICER

Provide leadership for high level agricultural research management; plan & organize seminars & workshops with national leaders.

Excellent management seminar skills; 10 yrs experience. Agricultural training. PhD preferable.

Headquarters in The Hague but travel developing countries required.

Salary & Benefits competitive. Send CV & three references to Director General, International Service for National Agricultural Research (ISNAR), P.O. Box 93375, 2509 AJ The Hague, Netherlands.

POSTDOCTORAL TRAINING PROGRAM

Applications are invited for the Institute's program of postdoctoral traineeships in basic sciences relevant to cancer research. These appointments are open to U.S. citizens, U.S. nationals, or persons who have been lawfully admitted to the United States for permanent residence and have in their possession a permanent visa at the time of the appointment. Before appointment, an applicant must hold a Ph.D. or its equivalent in a scientific field such as: physics, chemistry, biochemistry, immunology, microbiology, virology, pathology, genetics, molecular biology, developmental biology, or cellular biology and must also have had no more than 3 years of postdoctoral experience. M.D.'s are also invited to apply. Appointments will be for one year, renewable for a second year. In addition to stipends, there are fringe benefits and certain travel and relocation allowances. The appointments are funded by the NIH and are subject to the National Research Service Act (Public Law 93-348).

Applicants may seek research training in laboratories of one or more participating staff members. Special seminars and colloquia focusing on fundamental problems of cancer research are a feature of the program. Application forms can be obtained from:

Dr. Thomas F. Anderson, Coordinator
Postdoctoral Training Program
The Institute for Cancer Research
7701 Burholme Avenue
Philadelphia, Pa. 19111

A completed application will also include undergraduate and graduate transcripts, lists of publications, abstract of doctoral thesis (approximately 500 words), and letters of recommendation from three persons acquainted with the scientific work of the applicant.

*The Institute for Cancer Research
is an Equal Opportunity/Affirmative Action Employer*

SENIOR RESEARCH OFFICER

Provide leadership for review/analysis of national agricultural research systems in developing countries.

Research management experience developing countries essential. PhD and 10 years experience preferred. Ability to work well with all nationalities essential.

Headquarters in The Hague but travel developing countries required.

Salary & Benefits competitive. Send CV & three references to Director General, International Service for National Agricultural Research (ISNAR), P.O. Box 93375, 2509 AJ The Hague, Netherlands.

BOEHRINGER
MANNHEIM,
a leading
company in the
pharmaceutical
industry

require a (Ph. D level) graduate

Microbiologist or Biochemist

for the Biochemical Research Centre in Tutzing, by the lake of Starnberg.

We look for a dynamic young scientist with strong background in nucleic acid biochemistry and/or molecular biology, and preferably with own practical experience in the isolation of eucaryotic mRNA and its reverse transcription in vitro. You will join a competent and cooperative research group, dealing with an ambitious project.

The Research Centre is situated in an area of extreme natural beauty and we offer social benefits and working conditions in accordance with a progressive company.

If you are interested in working with us we will be pleased to receive written applications which will be answered by return of post.



Boehringer Mannheim GmbH
Biochemica Werk Tutzing
- Personalabteilung -
Postfach 120, D-8132 Tutzing
West Germany

WORKSHOP

International Workshop on Herpesviruses 27 to 31 July 1981—Bologna, Italy

This workshop will cover topics related to herpesvirus genome structure, function and replication, cell transformation, latency, immunology, and chemotherapy. Individuals interested in participating in the workshop should write to: **Dr. Fred Rapp, Department of Microbiology, The Pennsylvania State University, Hershey, Pa. 17033. Telephone: 717-534-8253.**

PROGRAM

PREDOCTORAL TRAINING PROGRAM IN ANATOMY AND CELLULAR BIOLOGY

The Department of Anatomy, Tufts University Schools of Medicine, Dental Medicine and Veterinary Medicine, invites applications for its Ph.D. training program. Major research areas include pulmonary cell biology and metabolism, reproductive biology and neuroendocrinology, neurobiology, mechanisms of hormone action, comparative immunology and the effects of stress on immunosuppression, and cell biology including membrane structure, secretory mechanisms, cell-to-cell recognition, cell motility, and developmental mechanisms. All students admitted to the program receive tuition waivers; stipends may also be available for qualified trainees. Applications should be completed by 15 April for entrance to the program in September 1981.

For application materials write:

Dr. Karen R. Hitchcock, Professor and Chairman
Department of Anatomy
Tufts University School of Medicine
136 Harrison Avenue
Boston, Massachusetts 02111

FELLOWSHIPS

Fill a staff position on Capitol Hill. Two American Chemical Society **CONGRESSIONAL FELLOWSHIPS** to begin fall 1981. For further information, write: **Amanda B. Huston, American Chemical Society, 1155 16th Street, NW, Washington, D.C. 20036. Telephone: 202-872-4384.**

POSTDOCTORAL FELLOWSHIP. Immediate availability. Research in the enzymology or opioid peptide metabolism. Experience in enzymology and/or peptide chemistry desirable. Supported by an NIDA training grant. Applicants must be U.S. citizens or permanent residents. Submit curriculum vitae and names of three references to: **Director, Post-Graduate Studies, Department of Pharmacology, The Mount Sinai School of Medicine, One Gustave L. Levy Place, New York, N.Y. 10029. An Equal Opportunity Employer, M/F.**

PREDOCTORAL AND POSTDOCTORAL FELLOWSHIPS IN MOLECULAR BIOLOGY

Graduate fellowships and postdoctoral fellowships are available to qualified applicants with a science or medical background who wish to pursue an M.Sc. or Ph.D. programme, or postdoctoral studies in molecular biology in the Faculty of Medicine at Memorial University of Newfoundland. Research activities carried out in a modern, well-equipped Health Sciences Centre include regulation of gene expression, with emphasis on translational and post-transcriptional control; molecular mechanisms of hormone action; biogenesis and molecular morphology of ribosomes; interactions of viruses and cell surfaces; structure and functional relationships in viruses; mechanisms of cell transformation by oncogenic viruses; structure, function and replication of DNA; genetics and function of bacterial pili; drug resistance transfer plasmids; RNA metabolism and degradation. Teaching opportunities available. Application forms and further information may be obtained from:

Dr. Bruce H. Sells
Professor and Director of Molecular Biology
Faculty of Medicine
Memorial University of Newfoundland
St. John's, Newfoundland, Canada A1B 3V6

FELLOWSHIPS

GRADUATE FELLOWSHIPS IN THE NEUROSCIENCES are available for fall 1981. Stipends are approximately \$6000 for 12-month appointments. Send letters of inquiry to:

Dr. Vernon Pegrum
Director, Neurosciences Program
University of Alabama in Birmingham
Birmingham, Alabama 35204

Equal Opportunity/Affirmative Action Employer

POSTDOCTORAL FELLOWSHIPS IN BLOOD BANKING SCIENCES

NIH-funded training program with research opportunities in transplantation immunology, immunobiology of HLA, hemostasis, platelet physiology, immunohematology, and transfusion therapy. Positions available for qualified candidates with M.D. and/or Ph.D. degrees. U.S. citizenship or permanent residency status required. Applicant should submit curriculum vitae and references to:

Dr. Rene J. Duquesnoy
Director—Research and Development
The Blood Center of Southeastern Wisconsin
P.O. Box 10-G
Milwaukee, Wisconsin 53201

POSTDOCTORAL FELLOWSHIPS available immediately for studies of the structure and reactivity of FeMoCo and its reconstitution of nitrogenase. Please send résumé and two letters of reference to:

William E. Newton
C. F. Kettering Research Laboratory
150 East South College Street
Yellow Springs, Ohio 45387

PREDOCTORAL FELLOWSHIPS IN PHARMACOLOGY. Available immediately, student fellowships for predoctoral study in the Pharmacology Graduate Program of the Grace Cancer Drug Center, Roswell Park Memorial Institute. Stipends average \$5,000 plus tuition waiver. The program offers diversified training related to the pharmacological and biochemical basis for drug action with emphasis on cancer therapeutics: inhibition of nucleic acid, protein and membrane components, enzyme activity regulation, coenzyme action and inhibition, basis for selective toxicity, pharmacokinetics and drug metabolism in animals and cells, medicinal chemistry of nucleosides, carbohydrates and antifolates, immunotherapy, immunosuppression, experimental chemotherapy, molecular pharmacology, endocrine pharmacology and metabolic regulators, hematology, preclinical and clinical pharmacology. Send applications to: **Dr. E. Milich, M.D., Chairman, Graduate Pharmacology Program, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, New York 14263. An Equal Opportunity Employer, M/F.**

RESEARCH AWARDS IN SCIENCE (Faculty of Science— Memorial University of Newfoundland) (1981-1982)

The Faculty of Science has available a number of research assistantships and postdoctoral fellowships tenable in the Departments of Biochemistry, Biology, Chemistry, Computer Science, Geology, Mathematics and Statistics, Physics, Psychology, and in the Newfoundland Institute of Cold Ocean Science. The positions are normally tenable for 1 year in the first instance with a possibility of renewal.

Applications, which should include curriculum vitae and the names of three referees, and a request for further information may be made either directly to: **Head of the appropriate department, or to: Dean of Science, at:**

Memorial University of Newfoundland
St. John's, Newfoundland, Canada A1B 3X7

GRADUATE AND POSTDOCTORAL FELLOWSHIPS IN REPRODUCTIVE ENDOCRINOLOGY at the University of Michigan. An interdisciplinary program involves 15 faculty in 9 basic science and clinical departments. Positions available in the areas of: protein hormone action; neuroendocrine regulation of cyclicity; mechanisms of hormone biosynthesis; control of gene expression; sexual development and puberty; structure and function of steroid-secreting cells; hormonal regulation of follicular maturation, differentiation, and atresia; and corpus luteum function. Application information and more detailed descriptions of the research programs are available upon request from: **Dr. Thomas Landefeld, Program Coordinator, Reproductive Endocrinology Program, Department of Pathology, University of Michigan, Ann Arbor, 48109. The University of Michigan is an Equal Opportunity/Affirmative Action Employer.**

FELLOWSHIPS

PREDOCTORAL FELLOWSHIPS. The Graduate Program in Molecular Cell Biology invites applications from highly qualified students interested in an interdisciplinary Ph.D. program. Major areas of emphasis include animal virology, bacterial and somatic cell genetics, cancer biology, cellular immunology and immunochemistry, connective tissue and protein biochemistry, infectious diseases and host defense, membrane biochemistry, nucleic acid synthesis, and research involving the cause and prevention of dental caries. All students admitted to the program receive stipends of \$6300 plus tuition and fees per year. After admission to candidacy the stipend is increased to \$7000 per year. Contact: **Dr. Roy Curtiss III, Director of Molecular Cell Biology Graduate Program, Department of Microbiology, University of Alabama in Birmingham, Birmingham, Alabama 35294.**

POSTDOCTORAL FELLOWSHIPS IN PROTEIN-CHEMISTRY (2 to 3 years), BEGINNING JULY 1981.

Opportunities are available for individuals with either Ph.D. or M.D. interested in joining an interdisciplinary group engaged in structure function studies of proteins. Ongoing research involves studies of fibrinogen and human chorionic gonadotropin using modern sequence technology, monoclonal antibodies and immunochemical techniques to study protein conformation and function, and clinical radioimmunoassay applications. Send curriculum vitae and names of references to: **Dr. Robert E. Canfield, Department of Medicine, College of Physicians and Surgeons of Columbia University, 630 West 168 Street, New York, N.Y. 10032. Columbia University is an Affirmative Action/Equal Opportunity Employer.**

POLYMER SCIENCE AND ENGINEERING. University of Massachusetts at Amherst. Research fellowships will be awarded in 1981-1982 for studies toward a Ph.D. degree in the Polymer Science and Engineering Department. Each fellowship will pay \$6500 per year. The stipends are income tax-free and include a tuition waiver. Research and course programs are available in polymer synthesis, characterization, morphology, rheology, physics, and engineering. Applications by qualified students with a first degree in chemistry, physics, materials science, or engineering should be made to: **Professor Richard Farris, Polymer Science and Engineering, University of Massachusetts, Amherst, Massachusetts, 01003, by 1 March 1981. An Equal Opportunity/Affirmative Action Employer.**

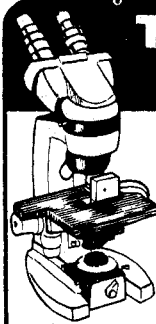
MARKETPLACE

FOR SALE: Used Amino Chance dual-wavelength split-beam recording spectrophotometers.

Dr. D. R. Sanadi
Cell Physiology Department
BOSTON BIOMEDICAL
RESEARCH INSTITUTE
20 Staniford Street
Boston, Mass. 02114

HYBRIDOMA, CELL FUSION; COMMERCIAL REALITIES AND POSSIBILITIES

Special issue describes companies, technology, products, and legal issues. Includes glossary and current news section. Send \$24.95 (\$29.95 overseas) to: **BioEngineering News, Suite 304, 109 Minna Street, San Francisco, Calif. 94105.**



THERMAL STAGE

Model TS-2 holds any temperature, minus 25°C to plus 60°C. It's thermoelectric, has no moving parts, no vibration.

The TS-2 stage fits most microscopes. Temperature control is automatic and the equipment includes a microprobe thermometer.

BAILEY INSTRUMENTS INC.
Saddle Brook, N.J. 07662 • (201) 845-7252

Instructions for Contributors

The Editors of *Science*

Manuscripts submitted to *Science* for consideration for publication can be handled expeditiously if they are prepared in the form described in these instructions.

Submit an original and two duplicates of each manuscript. With the manuscript send a letter of transmittal giving (i) the name(s) of the author(s); (ii) the title of the paper and a one- or two-sentence statement of its main point; (iii) the name, address, and field of interest of four to six persons in North America but outside your institution who you think are qualified to act as referees for your paper; (iv) the names of colleagues who have reviewed your paper for you; and (v) the field or fields of interest of readers who you anticipate will wish to read your paper.

Editorial Policies

All papers submitted are considered for publication. The author's membership or lack of membership in the AAAS is not a factor in selection. Papers are accepted with the understanding that they have not been published, submitted, or accepted for publication elsewhere. Authors will usually be notified of acceptance, rejection, or need for revision in 4 to 6 weeks (Reports) or 6 to 10 weeks (Articles).

Types of papers. Five types of signed papers are published: Articles, Reports, Letters, Technical Comments, and Book Reviews. Familiarize yourself with the general form of the type of paper you wish to submit by looking over a recent issue of the journal, and then follow the instructions for that type of paper.

Reviews. Almost all Articles, Reports, and Technical Comments, whether solicited or not, are sent to two or more outside referees for evaluation of their significance and soundness. Papers that depend on statistical inferences for their conclusions are sent to statisticians (in addition to other referees) for review. Forms showing some of the criteria reviewers are expected to consider are available on request.

Editing. Papers are edited to improve

the effectiveness of communication between the author and his readers. The most important goal is to eliminate ambiguities. In addition, improvement of sentence structure often permits readers to absorb salient ideas quickly. When editing is extensive, with consequent danger of altered meanings, papers are returned to the author for correction and approval before type is set. Authors are free to make additional changes at this stage.

Proofs. One set of galley proofs or an equivalent is provided for each paper. Keep alterations to a minimum, and mark them only on the galley, not on the manuscript. Extensive alterations may delay publication by 2 to 4 weeks.

Reprints. An order blank for reprints accompanies proofs.

Writing Papers

Organize your material carefully, putting the news of your finding or a statement of the problem first, supporting details and arguments second. Make sure that the significance of your work will be apparent to readers outside your field, even if you feel you are explaining too much to your colleagues. Present each step in terms of the purpose it serves in supporting your finding or solving the problem. Avoid chronological steps, for the purpose of the steps may not be clear to the reader until he finishes reading the paper.

Provide enough details of method and equipment so that another worker can repeat your work, but omit minute and comprehensive details which are generally known or which can be covered by citation of another paper. Use metric units of measure. If measurements were made in English units, give metric equivalents.

Avoid specialized laboratory jargon and abbreviations, but use technical terms as necessary, defining those likely to be known only in your field. Readers will skip a paper they do not understand. They should not be expected to consult a technical dictionary.

Choose the active voice more often than you choose the passive, for the passive

voice usually requires more words and often obscures the agent of action. Use first person, not third; do not use first person plural when singular is appropriate. Use a good general style manual, not a specialty style manual. The University of Chicago style manual, the style manual of the American Institute of Physics, and the *Council of Biology Editors Style Manual*, among others, are appropriate.

Manuscripts

Prepare your manuscript in the form used by *Science*. Use bond paper for the first copy. Submit two duplicates. Double-space title, abstracts, text, signature, address, references (including the lines of a single reference), figure legends, and tables (including titles, column headings, body, and footnotes). Do not use single spacing anywhere. Put the name of the first author and the page number in the upper right-hand corner of every page.

Paging. Use a separate page for the title; number it page 1. Begin each major section—text, references and notes, and figure legends—on a new sheet. Put each table on a separate sheet. Place figure legends and tables after the references.

Title. Begin the title with a word useful in indexing and information retrieval (not "Effect" or "New").

References and Notes. Number all references to the literature, footnotes, and acknowledgments in a single sequence in the order in which they are cited in the text. Gather all acknowledgments into a single citation, and keep them short ("I thank," not "I wish to thank"). Cite all references and notes but do not cite them in titles or abstracts. Cite several under one number when feasible. Use *Bibliographic Guide for Editors & Authors* with the few suggested revisions in *International List of Periodical Title Word Abbreviations* for abbreviations of journal names. If the journal is not listed there, provide the full name. Use the following forms:

Journal: H. Smith, *Am. J. Physiol.* **98**, 279 (1931).
Book: F. Dacheille and R. Roy, *Modern Very High Pressure Techniques* (Butterworth, London, 1961), pp. 163–180.
Chapter: F. Dacheille and R. Roy, in *Reactivity of Solids*, J. H. de Boer, Ed. (Elsevier, Amsterdam, 1960), p. 502.

Illustrations. Submit three copies of each diagram, graph, map, or photograph. Cite all illustrations in the text and provide a brief legend, to be set in type, for each. Do not combine line drawings and photographs in one illustration. Do not incorporate the legend in the figure itself. Use India ink and heavy white paper or blue-lined coordinate paper for line drawings and graphs. Use heavier lines for curves than

you use for axes. Place labels parallel to the axes, using initial capital and lower-case letters; put units of measurement in parentheses after the label—for example, Length (m). Plan your figures for the smallest possible printed size consistent with clarity.

Photographs should have a glossy finish, with sharp contrast between black and white areas. Indicate magnification with a scale line on the photograph.

Tables. Type each table on a separate sheet, number it with an Arabic numeral, give it a title, and cite it in the text. Double-space throughout. Give each column a heading. Indicate units of measure in parentheses in the heading for each column. Do not change the unit of measure within a column. Do not use vertical rules. Do not use horizontal rules other than those in the heading and at the bottom. A column containing data readily calculated from data given in other columns can usually be omitted; if such a column provides essential data, the columns containing the other data can usually be omitted.

Plan your table for small size. A one-column table may be up to 42 characters wide. Count characters by counting the widest entry in each table column (whether in the body or the heading) and allow three characters for spaces between table columns. A two-column table may be 90 characters wide.

Equations and formulas. Use quadruple spacing around all equations and formulas that are to be set off from the text. Most should be set off. Start them at the left margin. Use the solidus for simple fractions, adding the necessary parentheses. But if braces and brackets are required, use built-up fractions. Identify handwritten symbols in the margin, and give the meaning of all symbols and variables in the text immediately after the equation.

Articles

Articles, both solicited and unsolicited, may range in length from 2000 to 5000 words (up to 20 manuscript pages). Write them clearly in reasonably nontechnical language. Provide a title of one or two lines of up to 26 characters per line and an objective summary of 50 to 100 words indicating the scope and main finding.

Do not break words at the ends of lines. Write a brief author note, giving your position and address. Do not include acknowledgments. Place title, subtitle, and author note on page 1. Begin the text on page 2.

Insert subheads at appropriate places in the text to mark your main ideas. The set of subheads should show that your ideas are presented in a logical order. Keep subheads short—up to 35 characters and spaces.

Do not submit more than one illustration (table or figure) for each four manuscript pages unless you have planned carefully for grouping. With such planning many illustrations can be accommodated in the article. Consult the editorial office for help in planning.

Reports

Short reports of new research results may vary in length from one to seven double-spaced manuscript pages of text, including the bibliography. Long papers are subject to delays in reviewing and editorial consideration. Short papers receive preferred treatment. Limit illustrative material (both tables and figures) to two items, occupying a total area of no more than half of a published page (30 square inches). A research report should have news value for the scientific community or be of unusual interest to the specialist or of broad interest because of its interdisciplinary nature. It should contain solid research results or reliable theoretical calculations. Speculation should be limited and is permissible only when accompanied by solid work.

Title. Begin the title with an important word (preferably a noun) that identifies your subject. The title may be a conventional one (composed primarily of nouns and adjectives), a sentence (containing a verb), or a structure with a colon (Jupiter: Its Captured Satellites). Limit it to two lines of complete words of no more than 55 characters per line (spaces between words count as one character each). Do not use abbreviations. Type the title in the middle of page 1.

Abstract. Provide an abstract of 45 to 55 words on page 2. The abstract should amplify the title but should not repeat it or phrases in it. Qualifying words for terms

used in the title may be used. Tell the results of the work, but not in terms such as “_____ was found,” “is described,” or “is presented.”

Text. Begin the text on page 3. Put the news first. Do not refer to unpublished work or discuss your plans for further work. If your paper is a short report of work covered in a longer paper to be published in a specialty journal, you may refer to this paper if it has been accepted. Name the journal. If the manuscript has not been accepted, refer to it as “in preparation.” Do not use subheads.

Signature. List the authors on the last page of the text and give a simple mailing address.

Received dates. Each report will be dated the day an acceptable version is received in the editorial office.

Letters

The Letters section provides a forum for discussion of matters of general interest to scientists. Letters are judged only on clarity of expression and interest. Keep them short and to the point; the preferred length is 250 words. The editors frequently shorten letters.

Technical Comments

Letters concerning technical papers in *Science* are published as Technical Comments at the end of the Reports section. They may add information or point out deficiencies. Reviews are obtained before acceptance.

Book Reviews

The selection of books to be reviewed is made by the editors with the help of advisers in the various specialties; arrangements are then made with reviewers. A sheet of instructions accompanies each book when it is sent to the reviewer.

Cover Photographs

Particularly good photographs that are suitable for use on the cover are desired.

STAFF FELLOW RESEARCH POSITION

The Laboratory of Behavioral and Neurological Toxicology at the National Institute of Environmental Health Sciences, National Institutes of Health, Public Health Service is seeking qualified applicants for a non status Staff Fellow or Senior Staff Fellow position in the area of developmental neurotoxicology.

Candidates should have a doctoral degree (Ph.D.) in pharmacology, toxicology, or experimental psychology with demonstrated research interests in developmental psychobiology, behavioral teratology, or developmental neurotoxicology. Familiarity with techniques in physiological psychology, teratology, and/or neuropharmacology is desirable as well as interest or experience in the use of laboratory minicomputers to conduct behavioral studies.

Research will concern the characterization of neurotoxicity following exposure to environmental factors during development and the study of mechanisms of and factors that predispose individuals to neurotoxicity.

Salary is competitive and commensurate with education and experience.

Applicants should send curriculum vitae, bibliography, and names and addresses of three professional references by January 16, 1981, to: Dr. Clifford L. Mitchell (I-32), Chief, Laboratory of Behavioral and Neurological Toxicology, National Institute of Environmental Health Sciences, P.O. Box 12233, Research Triangle Park, NC 27709. An Equal Opportunity Employer.

NATIONAL INSTITUTES OF HEALTH

PHARMACOLOGIST VACANCY GS-13 (\$32,048 per annum)

The Laboratory of Behavioral and Neurological Toxicology at the National Institute of Environmental Health Sciences, National Institutes of Health, Public Health Service is seeking qualified applicants for position in the area of *Behavioral Toxicology*.

Candidates should have a doctoral degree (Ph.D.) or equivalent training/experience in pharmacology, toxicology, or experimental psychology with demonstrated research interests in behavioral and neurological toxicology. The incumbent will serve as the Laboratory liaison person with the National Toxicology Program to devise and monitor protocols that assess the neurobehavioral effects of environmental factors. The successful candidate will also be responsible for the development of sensitive, cost-effective neurobe-

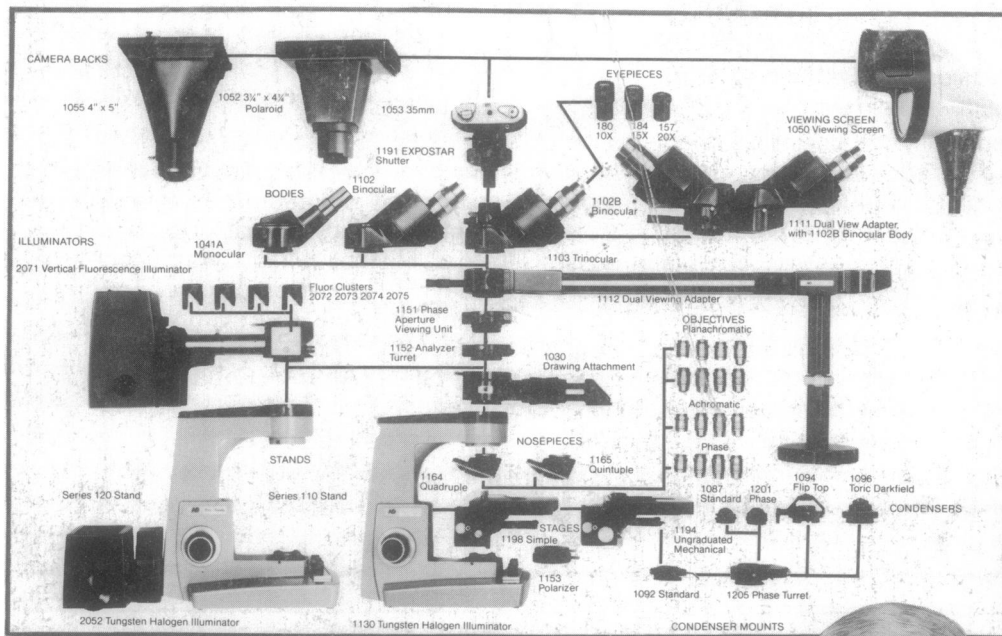
havioral procedures to assess the neurotoxicity of environmental factors and for the actual assessment of neurotoxic agents as needed by the Laboratory.

This is a permanent Civil Service position and as such requires U.S. citizenship and Civil Service status or be reachable on a Civil Service Register.

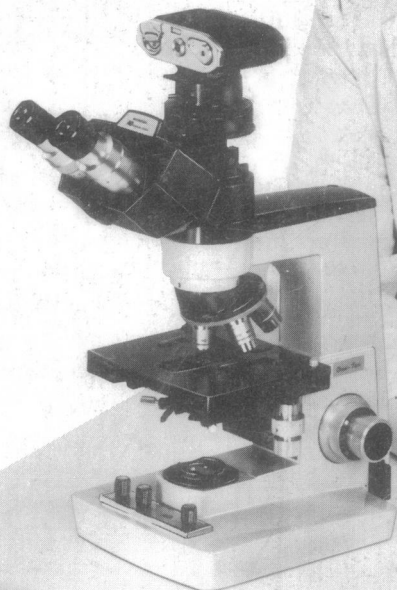
Applicants should send SF-171 (Federal Application form), bibliography, and names and addresses of three professional references by January 16, 1981, to: Dr. Clifford L. Mitchell (I-11), Chief, Laboratory of Behavioral and Neurological Toxicology, National Institute of Environmental Health Sciences, P.O. Box 12233, Research Triangle Park, NC 27709. An Equal Opportunity Employer.

NATIONAL INSTITUTES OF HEALTH

The total microscope system.



AO Series One-Ten MICROSTAR® microscope



We call the AO One-Ten a microscope system because you can buy as much capability as you need. The "building block" design lets you add components whenever you need them. Models are available for brightfield/darkfield. Add phase contrast, fluorescence, dual view, multiview and photographic accessories.

The advanced One-Ten is widely accepted. Users like its contemporary styling and smooth, rich finish. But most of all, they like its performance and many features: the magnificent illumination from the bright tungsten-halogen illuminator with continuously variable intensity; the fine AO optics that give a flat edge-to-edge image over a 20mm field of view; the focusable nosepiece that allows the stage to remain secure and solid; the convenient low positioning of the coaxial coarse and fine focusing controls; plus much more.

Send for a detailed brochure or ask your AO dealer representative for a demonstration. American Optical, Scientific Instrument Division, Box 123, Buffalo, NY 14240.

AO
American Optical

Circle No. 200 on Readers' Service Card