

RESEARCH NEWS

(Continued from page 840)

dered subsequence of DNA that two DNA molecules have in common. If the two DNA molecules consist of m nucleotides and n nucleotides, respectively, an algorithm can find their longest common ordered subsequence in m times n steps. However, Peter Wiener of the Rand Corporation in Santa Monica, California, has now found an algorithm that can perform this operation in $m + n$ steps, a considerable saving if m and n are large.

Wiener made two assumptions that enabled him to find an algorithm consisting of $m + n$ steps. Neither assumption was included in the algorithm that requires mn steps. First, Wiener assumed that the algorithm must find only contiguous subsequences of DNA. (Because the genetic code is translated from contiguous sequences, it is not acceptable to choose a subsequence consisting of DNA nucleotides that are separated from each other on the DNA strand.) Second, Wiener assumed that the algorithm would be run on a random access computer—a computer with a large core memory that enables it to quickly recall information that is asked for by name. Computers with auxiliary memories, such as tape or drum memories, recall information much more slowly. Wiener's solution is thus extremely helpful to those who need this special case of the algorithm for research on molecular evolution and who have random access computers. It does not aid those who need the more general algorithm or who have more restricted computers. Although research on special cases usually precedes the development of unifying theories, unifying theories have not as yet been proposed for problems involving computer algorithms.

Ronald Graham of Bell Laboratories in Murray Hill, New Jersey, believes that the lack of combinatorial theories is due in part to the fact that combinatorics has traditionally not been considered a subject unto itself. Only recently, he says, have researchers emphasized the unity of combinatorics. Moreover, the large number of as yet unsolved problems makes it difficult to build theories. However, the recent rapid development of combinatorics is encouraging to those who, like Rota, believe that combinatorial theories are necessary to the future of the mathematical, physical, and life sciences.

—GINA BARI KOLATA

Personnel Placement

It is requested that only those employers who will not discriminate on the basis of race, sex, religion, color, or national origin submit positions open advertising.

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POSITIONS WANTED

Biochemist, Ph.D. Experienced in heart and cancer research. With background in membrane transport, nucleic acid metabolism, oxidative phosphorylation, microsomal drug-metabolizing enzymes, cyclic nucleotides. Seeking research, teaching, or both. Box 107, **SCIENCE**. X

Biochemist, Ph.D. 1968. Postdoctoral experience in polysaccharides, glycoproteins, mucopolysaccharides. Synthetic carbohydrate chemistry, analytical biochemistry. Teaching experience. Seeks academic, industrial, or clinical position. Prefer major metropolitan area. Box 108, **SCIENCE**. X

Biochemist, Ph.D. 1972. Postdoctoral experience in lipid neurochemistry-metabolism. Strong analytical background in lipid methodology. Several publications. Desires academic, postdoctoral, or industrial position in New York State or New England. Box 17, **SCIENCE**. 3/1

Biochemist-Microbiologist, Ph.D. (biochemistry). Six years of teaching (graduate and medical), research guidance, administrative experience, publications in biochemical pharmacology, microbial pathogenicity, antibiotics, nucleic acids, carbohydrates. Seeking a challenging position in research-teaching-administration. Box 90, **SCIENCE**. 3/1

Electron Microscopist, M.S., with E.M. research, teaching and equipment maintenance experience. Desires position involved in these areas and laboratory management. Donald Bechtel, Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa 50010.

Experimental Pathology, Ph.D. 1969; 3½ years in pharmacology department. Experience in immunology, cell culture, electron microscopy, toxicology; seeks challenging industrial position. Box 109, **SCIENCE**. X

Fermentation Biochemist, Ph.D. 1967; 3 years of pilot plant research, 4 years' selling experience of investment properties. Seeks pharmaceutical marketing, scientific liaison. Chinese, permanent residence, multilingual. Box 689, Huntington Beach, California 92648. 3/8

Geneticist Biostatistician, Ph.D. Experienced, effective versatile teacher with research and administrative experience; presently associate professor at major university; seeks position in small, liberal arts college. Box 110, **SCIENCE**. X

Broadly trained **Geneticist, Ph.D.** 1965. Two years of postdoctoral training; 38. Outstanding teacher, 15 years of professional experience. Special interest innovative undergraduate programs. 2266 Lake Circle, Jackson, Mississippi 39211. 3/1, 29

POSITIONS WANTED

Immunologist, Ph.D. 1974. Desires teaching and research position as assistant professor or immunology or of microbiology in a medical or graduate school department. Publications in immunology. Research interests include tumor immunology, the macrophage, B- and T-cell interactions in the immune phenomena. Box 111, **SCIENCE**. X

Laboratory Manager, Ph.D. (analytical chemistry). with 6 years of experience in laboratory supervision for pharmaceuticals and health industry products. Solid background in quality control, product development and FDA/GMP regulations. This innovative scientist seeks challenging position in technical management. Presently employed. Box 112, **SCIENCE**. X

Pharmacology, Ph.D. 1968. Background in analytical chemistry, drug metabolism, and neurochemistry. Several publications. Seeks challenging position in university or position with research opportunity. Box 113, **SCIENCE**. X

Physical-Inorganic Chemist, Ph.D. 1974. Experienced in Mössbauer spectroscopy, ESCA, instrumental design, computer programming, liquid helium work, and some vacuum line techniques. Desires challenging teaching, research or industrial position. Box 114, **SCIENCE**. X

Physiological Psychologist/Electrophysiologist, Young Ph.D. with postdoctoral research experience in learning and memory interested in research/academic position. Eight publications. Box 102, **SCIENCE**. 3/1

Polymer Organic Chemist, Ph.D. 1960, with strong biomedical background, extensive research experience in water-soluble and insoluble polypeptides, biodegradable/nonbiodegradable poly-alpha-hydroxyacids, cyano-acrylates, and their characterization including successful applications in medicine and surgery, with number of papers seeks immediate employment on research/academic position of real challenge. Box 104, **SCIENCE**. 3/8

Quantitative Experimental Psychologist, Ph.D.; 3 years of college teaching plus 5 years of full-time research experience. Twenty publications in human information processing and vision. Research or research and teaching position desired where computer, mathematics, and electronic skills can be utilized. Box 115, **SCIENCE**. X

Toxicologist, Ph.D. 1972. Seeks teaching and/or research position. Publications in environmental health toxicology and immunology. Box 116, **SCIENCE**. X

POSITIONS OPEN

ASSISTANT PROFESSOR

Applications are invited from qualified persons holding Ph.D. and/or M.D. degrees to fill four positions, preferably at the Assistant Professor level, one in **Neuroanatomy**, one in **Gross Anatomy**, one in **Pharmacology**, and one in **Biochemistry** in the School of Basic Medical Sciences, Urbana-Champaign. Appropriate departmental predoctoral or postdoctoral training is essential. Each position carries a joint appointment in one of the scientific departments on this campus. Teaching duties relate to curriculum development and supervision of medical student learning in an independent study program. Candidates must have demonstrated their capacity for original research as evidenced by publications of high quality.

The University of Illinois is an equal opportunity employer and encourages applications from women and members of minority groups.

Send applications, including curriculum vitae, publication list, important reprints, and at least three letters of recommendation to **Chairman, Search Committee, SBMS-UC, 1205 West California Street, University of Illinois, Urbana, Illinois 61801**.

ASSISTANT PROFESSOR OF MEDICINE

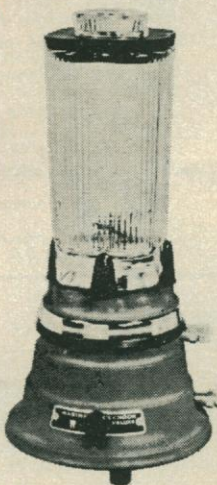
A position will be available 1 July 1974 in Wayne State University's School of Medicine, for M.D., Board certified in Internal Medicine, trained in pulmonary diseases, primarily to work in respiratory support unit. Responsibilities will include teaching, research, and related clinical care. Applications with curriculum vitae, bibliography and any other pertinent information should be sent to: **Dr. V. K. Vaitkevicius, Professor of Medicine, Chief of Medicine, Grace Hospital, 4160 John R Street, Detroit, Michigan 48201**.



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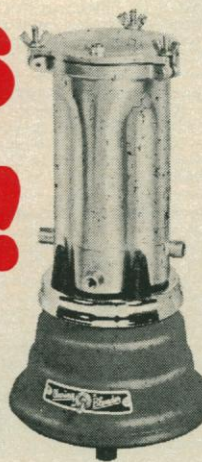
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MEMORIAL UNIVERSITY OF NEWFOUNDLAND

ASSISTANT PROFESSOR IN BIOCHEMISTRY

Applications are invited for the post of Assistant Professor in the Department of Biochemistry (Head Designate, Dr. C. C. Bigelow), to take effect from 1 September 1974 or as soon thereafter as possible. The Department teaches undergraduates in the Faculty of Science, and has an active postgraduate research and teaching program. The successful applicant will be required to take part in the teaching duties of the Department, and to develop his own research program. The salary is negotiable, depending on experience.

Applications, including a curriculum vitae and the names of three referees, should be sent to **Dr. E. A. Barnsley, Department of Biochemistry, Memorial University of Newfoundland, St. John's, Newfoundland, Canada**, to reach him not later than 31 March.

ASSISTANT PROFESSOR OF ONCOLOGY

Three 1-year positions will be available 1 July 1974 in the School of Medicine of Wayne State University, for holders of the M.D. degree, Board certified in Internal Medicine, qualified or certified in the subspecialty of oncology. Specialists are required in the following areas:

1) Breast cancer management and experience in estrogen metabolism studies.
2) Experience in leukapheresis in conjunction with IBM Cell Separator, white cell typing, and leukokinetics.

3) Tumor immunologist with laboratory experience in blocking antibody determination.

Responsibilities will include teaching, research, and related clinical care. Applications with curriculum vitae, bibliography, and any other pertinent information, should be sent to: **Dr. V. K. Vaitkevicius, Chairman, Department of Oncology, Wayne State University School of Medicine, 540 East Canfield, Detroit, Michigan 48201.**

ASSISTANT PROFESSOR—PLANT ECOLOGY

Applications are invited for a new position in Plant Ecology, Ph.D. required. Duties to begin in September 1974. Primary teaching responsibilities will be to develop an integrated course in ecology and to teach an advanced course in field of special interest. People with a strong interest in research are especially invited to apply. Send curriculum vitae and three letters of references by 1 April 1974 to **Dr. C. F. Herreid, Department of Biology, State University of New York at Buffalo, Buffalo, New York 14214.**

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ASSISTANT PROFESSOR/PULMONARY

University of California, San Diego. Appointment at the Assistant Professor level for a physician who has been completely trained in pulmonary physiology and medicine and who has published fundamental research in areas relating immunology to pulmonary disease. Will have responsibilities in teaching clinical pulmonary medicine and general internal medicine; patient care in these two areas; independent research in pulmonary immunology. Please forward curriculum vitae and three letters of reference by 31 March 1974. Respond to **Dr. Helen Ranney, Chairman, Department of Medicine, University Hospital, 225 West Dickinson Street, San Diego, Calif. 92103.** *An Equal Opportunity/Affirmative Action Employer.*

ASSOCIATE CHIEF OF STAFF FOR RESEARCH, San Diego Veterans Administration Hospital, and Faculty Member, University of California, San Diego School of Medicine, La Jolla, Calif. Applications are sought for a physician with the necessary scientific and administrative background to coordinate the further development of the research program of this hospital. The candidate should be eligible for a senior academic appointment at the University of California, San Diego School of Medicine, and will be encouraged to participate in all of the activities of his particular department in the medical school and its hospitals.

The **DEPARTMENT OF BIOLOGY** at Hampden-Sydney College has an opening for either an Invertebrate Biologist or a Microbiologist. Experience in Histology and/or Parasitology is desirable. Candidates should have the Ph.D. degree and preferably a few years of teaching behind them. Hampden-Sydney College is a small (700 students), liberal arts college for men in southside Virginia. The emphasis is on undergraduate teaching. The sciences are housed in a new building with excellent teaching and research facilities. Interested candidates should contact **Dr. T. H. Turney, Box 157, Hampden-Sydney, Virginia 23943.**

POSITIONS OPEN

ADMINISTRATIVE SERVICES ASSISTANT

A position is available immediately at the University of Health Sciences/The Chicago Medical School for a person knowledgeable in the design and construction of compilation/retrieval computerized information systems. Experience with applications directed to the general needs of an academic institution is desirable. The position will carry with it the opportunity for independent and innovative thinking encompassing conceptual through final product stages. Familiarity with both hand- and software computer equipment is expected. Salary is open.

Qualified applicants should address all inquiries with résumé and at least two letters of reference to:

Charles J. Martin, Assistant to the President
University of Health Sciences/
The Chicago Medical School
2020 West Ogden Avenue
Chicago, Illinois 60612

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ASSISTANT TOXICOLOGIST

Chemical analysis in postmortem medical legal cases. Experience in drug analysis and background in pharmacology or biochemistry desirable. Ph.D. Please send résumé to

Dr. Yale H. Caplan
State of Maryland
Office of the Chief Medical Examiner
111 Penn Street
Baltimore, Maryland 21201

BIOCHEMIST

Assistant Research Biochemist. Ph.D. with postdoctoral experience in automatic peptide and amino acid analysis, amino acid sequence determination, protein chemistry, instrumentation. Send résumé by 1 April 1974 to **Dr. Harvey A. Itano, Department of Pathology, School of Medicine, University of California, San Diego, La Jolla, California 92037. Equal Opportunity/Affirmative Action Employer.**

POSITIONS OPEN

CHAIRMAN AND DIRECTOR

The University of Michigan Medical School is currently conducting a search for the Chairman/Department of Postgraduate Medicine & Health Professions Education, and Director/Medical Center Office of Health Professions Education & Research—these two positions being held by the same person. The Department and Office serve the Medical School and Medical Center with regard to the entire spectrum of education for the health sciences. Send résumé to **Dr. Paul R. Lichter, Chairman/Search Committee, C-6155 University Hospital, Ann Arbor, Mich. 48104. A Nondiscriminatory Affirmative Action Employer.**

CHIEF OF GASTROENTEROLOGY

Full-time Chief of Gastroenterology at VA Hospital, University of California, San Diego. Responsibilities include administration, teaching of clinical gastroenterology, basic gastrointestinal physiology and general internal medicine. Extensive experience in these areas and active program in postdoctoral research required. Salary and appointment dependent upon academic qualifications. Applicants should submit curriculum vitae, bibliography, and letters from three professional referees by 31 March 1974. Inquiries should be addressed to **Dr. Helen Ranney, Chairman, Department of Medicine, University Hospital, 225 West Dickinson Street, San Diego, Calif. 92103. An Equal Opportunity/Affirmative Action Employer.**

FACULTY POSITION

Assistant Professor; joint appointment in Department of Molecular Biology and Microbiology and Tufts Cancer Research Center at Tufts University School of Medicine. Virologist to work on molecular aspects of oncogenic viruses. Must have strong foundations in molecular biology. Will participate in teaching medical, dental, and graduate students and should have an interest in interdisciplinary cancer research. Position available in September 1974. Contact **Dr. M. Schaechter, Chairman, Department of Molecular Biology and Microbiology, Tufts University School of Medicine, Boston, Mass. 02111. Tufts University is an equal opportunity and affirmative action employer and encourages applications from women and minority group candidates.**

POSITIONS OPEN

BIOLOGIST/ELECTRON MICROSCOPIST

A unique career opportunity having substantial growth potential has presented itself with a national leader in bioeducational supply. Responsibilities are to develop production techniques and timetables for expansion into new product areas emphasizing cytology, histology, and histochemistry. We invite individuals having a solid background in electron microscopy and a minimum M.S. biology to send a résumé and salary history to: **Box 117, SCIENCE. An Equal Opportunity Employer.**

CHAIRPERSON, BIOLOGY DEPARTMENT

Suburban, state-supported, nonresidential university in Washington, D.C., area seeks chairperson for 23-member biology department offering graduate (M.S.) and undergraduate degrees. Position starts September 1974. Submit curriculum vitae to **Dr. M. K. Cabell, Chairman of Search Committee, Department of Mathematics, George Mason University, Fairfax, Virginia 22030. An equal opportunity/affirmative action employer.**

MONASH UNIVERSITY MELBOURNE, AUSTRALIA CHAIR OF PHARMACOLOGY

Applications are invited for a full professorship in a new Department of Pharmacology to be responsible for courses at undergraduate and postgraduate levels. The professor will be involved in development of clinical pharmacology within the Monash Medical School; it is hoped he can be appointed during 1974.

Salary: \$A19,102 (\$A20,247 per annum if medically qualified). Superannuation is based on an endowment assurance scheme, the employee and employer contributing 5 and 10 percent of salary, respectively.

Further information and details of application procedure are available from **Mr. J. D. Butchart, Academic Registrar, Monash University, Wellington Road, Clayton 3168, or the Secretary-General, Association of Commonwealth Universities, 36 Gordon Square, London, W.C.1.**

Closing Date: 31 March 1974.
The Council reserves the right to make no appointment or to appoint by invitation at any stage.

PHARMACEUTICAL RESEARCH

Continued growth has created several new research positions in the McGaw Laboratories' division of American Hospital Supply Corporation.

RESEARCH MANAGER

Assume responsibility for several areas of pharmaceutical research and product development, supervising a small group of professionals and technicians with opportunities for significantly expanded responsibilities. Must be knowledgeable in pharmaceutical research including all phases of stability testing, formulation and sterile filling operations. Requires a Ph.D. in a pharmaceutical discipline. Knowledge of biochemistry and chemistry are strong assets. Position requires outside professional contacts, development of new program areas and close liaison with other departments.

RESEARCH SCIENTIST

Conduct research in pharmaceuticals, product development, testing, formulation and filling/packing operations. Requires an advanced degree in a pharmaceutical science, chemistry or biochemistry with several years of related background. Must be innovative with potential for added responsibility and advancement.

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Ph.D. with minimum of seven years' research experience in the field of Viral Oncology and working knowledge of grant and contract administration required. Responsibility will focus on coordination of ongoing projects in viral oncology, with opportunities to conduct personal research.

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UNIVERSITY OF MASSACHUSETTS, AMHERST

POSITION AVAILABLE 1 September for **FLORICULTURIST-ORNAMENTAL HORTICULTURIST**. Undergraduate teaching and research duties. Ph.D. Academic rank dependent on qualification and experience. Salary competitive and negotiable. Outstanding fringe benefit program. Greenhouse and research laboratory space available. Submit résumés promptly to F. W. Southwick, Head, Department of Plant and Soil Sciences, French Hall. The University is an equal opportunity employer and both female and minority applicants are urged to apply.

UNIVERSITY OF ZAMBIA

Applications are invited for (a) SENIOR LECTURESHIP OR (b) LECTURESHIP IN ANIMAL SCIENCES in the School of Agricultural Sciences. Applicants should have a good first degree, preferably in Agricultural Science, and postgraduate training to Ph.D. level in Animal Breeding and/or Livestock Management and Breeding. Preference will be given to those with teaching experience in cattle and/or pig improvement and production. Appointee will be expected to teach undergraduate courses in the above-mentioned fields to students studying general agricultural science; to supervise and instruct these students during practical training; to develop postgraduate training in animal science; to initiate research relevant to Zambia's developing livestock industries; to assist generally in the running of the School of Agricultural Sciences. He will join an animal science team consisting of an animal physiologist, two animal nutritionists and a Veterinarian. The University is currently developing farm facilities and the School is expected to move into a new laboratory/teaching complex in 1976. Salary scales: (a) K5,600-K6,600 p.a. (b) K4,000-K5,400 p.a. (£1 sterling = K1.43). The British Government may supplement salary in range £200-£500 p.a. (sterling) for married appointee or £100-£200 p.a. (sterling) for single appointee (normally free of all tax) and provide children's education allowances and holiday visit passages. Family passages; various allowances; superannuation and medical aid schemes; regular overseas leave. Detailed applications (2 copies), including a curriculum vitae and naming 3 referees, should be forwarded by air mail, as soon as possible, to the Registrar, University of Zambia, PO Box 2379, Lusaka, Zambia. Applicants resident in UK should also send 1 copy to Inter-University Council, 90/91 Tottenham Court Road, London W1P 0DT. Further particulars may be obtained from either address.

UNIVERSITY OF MASSACHUSETTS, AMHERST

FORAGE CROP MANAGEMENT position available 1 September. Undergraduate teaching and research. Ph.D. Greenhouse and research laboratory space available. Academic rank will depend on qualifications and experience. Salary competitive and negotiable. Outstanding fringe benefit program. Submit résumés promptly to F. W. Southwick, Head, Department of Plant and Soil Sciences, French Hall. The University is an equal opportunity employer and both female and minority applicants are urged to apply.

HEAD, DEPARTMENT OF LIFE SCIENCE— BIOMEDICAL ENGINEERING

We seek a person to head the Department of Life Sciences at Worcester Polytechnic Institute, Worcester, Mass. 01609. Department offers an undergraduate program in Life Sciences and a graduate program in Biomedical Engineering (with cooperation of University Medical School and associated hospitals). Background that includes a Ph.D. in engineering or physical sciences and an M.D. preferred. Send curriculum vitae to: Prof. R. Cheatham. WPI is an affirmative action employer.

IMMUNOLOGIST

Full-time research position for a Ph.D. Immunologist or Immunobiologist for 1 year available immediately in a highly immunologically oriented department. Send curriculum vitae to:

Robert E. Franzl,
Department of Biochemistry,
Thomas Jefferson University,
11th and Walnut Streets,
Philadelphia, Pa. 19107
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MILWAUKEE PUBLIC MUSEUM

Is seeking three scientists: (i) **Mammalogist**, (ii) **Curator of Invertebrate Zoology**, and (iii) **Curator of Botany**. Contact:

Dr. Max A. Nickerson, Chairman,
Search Committee,
Milwaukee Public Museum,
800 West Wells Street,
Milwaukee, Wis. 53233.

MARINE SCIENCE

The Marine Science Institute of the University of Texas-Austin invites applications for two faculty positions from research-oriented people with an interest in teaching. One position is in the area of Seagrass Biology. The second opening is in the area of Coastal Zooplankton. Both positions are at the assistant professor level and require a Ph.D. with postdoctoral or equivalent experience desirable.

Requests for further information and applications with curriculum vitae and letters of recommendation should be addressed to P. L. Parker, Director, The University of Texas Marine Science Institute, Port Aransas, Texas 78373.

The University of Texas is an equal opportunity/affirmative action employer.

PUBLISHING

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KINESIOLOGY DEPARTMENT SIMON FRASER UNIVERSITY

A faculty member required, preferably with demonstrated ability in one or more of the following areas: biomechanics/prosthesis design, engineering/ergonomics, or applied physiology/cardiorespiratory. A major function will be to integrate current strengths of the department and to give stimulus and leadership in the area of the man-machine design interface. A person cognizant of the contemporary need for practical relevance in academic work is sought. Kinesiology is broadly defined as the scientific study of human movement and human performance in all its aspects from chronic disability to supreme excellence. Academic rank, appointment and salary according to qualifications and experience. Inquiries to Dr. E. W. Banister, Chairman, Department of Kinesiology, Simon Fraser University, Burnaby 2, British Columbia, Canada.

OCEANOGRAPHER

Applications are invited for two faculty positions at the assistant professor or associate professor level for graduate teaching and research in oceanography beginning in September 1974. Preference will be given for specialization in quantitative aspects of geological oceanography, animal-sediment relationships, and fisheries oceanography. Please send résumés, reprints of publications, and names of references by 1 April to Search Committee Chairman, Department of Oceanography, Florida State University, Tallahassee, Fla. 32306.

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MICROBIOLOGY

Applications are sought in tumor virology and molecular biology. Doctorate degree and research productivity required. Level of position and salary dependent upon qualifications. Please send curriculum vitae and three letters of reference to: Dr. Fred Rapp, Department of Microbiology, M. S. Hershey Medical Center, The Pennsylvania State University, Hershey, Pennsylvania 17033. Affirmative Action Employer.

ORGANIC SYNTHESIS CHEMIST

Research laboratory of Radiology department, University of California in San Diego Medical School has position open for Ph.D. or M.A. Chemist to work with team of biochemists, organic chemists and physicians on new drug synthesis in radiographic contrast media program. Salary range: \$15,000. Write: Milos Sovak, M.D., Radiology, University of California at San Diego, La Jolla, Calif. 92037.

DEPARTMENT OF PHYSIOLOGY UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE

Applications are hereby invited for a full-time faculty position at the level of Assistant Professor from candidates with demonstrable research accomplishments in organismic, integrative, or systems physiology. Applicants must have completed a period of formal postdoctoral study, be prepared to initiate independent research programs and to fund these from extramural sources after an initial period of departmental support. Please submit a curriculum vitae and a substantive outline of research plans. Department of Physiology, 614 Scaife Hall, University of Pittsburgh, Pittsburgh, Pa. 15261. An Equal Opportunity, Affirmative Action Employer.

PLANT GENETICIST

Assistant Professor, University of California, Riverside. Available 1 July 1974. Research in genetics related to plant breeding and the utilization of gene resources of plant populations, with special emphasis on protein quality and quantity. Expectation of undergraduate and graduate teaching in genetics and plant breeding, and direction of graduate students. Ph.D. with strong background in plant genetics and training in biochemistry and plant breeding. Rank and salary dependent on qualifications. Applicant should send biographical information, transcripts, at least three references and other pertinent information to Dr. B. L. Johnson, Department of Plant Sciences, University of California, Riverside, California 92502.

An equal opportunity employer.

SECTION HEAD—PLANT SCIENCE

The Illinois State Natural History Survey has an opening for a plant physiologist who will also serve as administrative head for a botany-plant pathology research staff. Administrative duties are light. Qualifications: scientific leadership and ability to apply physiological research to pathological and/or ecological problems. Applications from younger scientists welcomed. Apply to **J. B. Hanson, Chairman Search Committee, 289 Morrill Hall, University of Illinois, Urbana, Illinois, 61801.**

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POSTDOCTORAL POSITION

Postdoctoral position available for work in cell and developmental biology and biochemistry. Experience and interest in the biochemistry and sequencing of nucleic acids would be an asset. Please send curriculum vitae and references to:

Dr. Gerald M. Kolodny
Radiology Research Laboratory
Massachusetts General Hospital
Boston, Massachusetts 02114

Applications are invited for a **RESEARCH POSITION AS EVOLUTIONARY ECOLOGIST**. Candidates interested in plant ecology, plant-animal relationships, and/or tropical forests will be favored. Applicants should submit curriculum vitae and names and addresses of references who may be contacted. Submit data via air mail to: **Director, Smithsonian Tropical Research Institute, Box 207Z, Balboa, Canal Zone. Equal Opportunity Employer.**

RESEARCH ASSOCIATE

To investigate immunochemical nature of cell surface structures with clinically important biological activities. Individual with 1 to 5 years' experience and strong background in carbohydrate and protein chemistry desired. Excellent salary. Apply

Box 119, SCIENCE
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PLANT OR SYSTEMS ECOLOGIST

Opening for plant or systems ecologist on Colorado Springs campus of the University of Colorado beginning in September 1974. Research required. Teaching experience is preferred with salary and rank open. Submit letters of application and curriculum vitae to: **Dr. Robert W. Reese, University of Colorado, Cragmor Road, Colorado Springs, Colorado 80907. This is an equal opportunity institution.**

TOXICOLOGIST

Washington, D.C., area corporation has excellent opportunity for knowledgeable toxicologist, preferably with D.V.M. and Ph.D. Minimum of 5 years' experience required in the organization, performance, evaluation, and reporting of toxicology studies on potential human or veterinary drugs, and agricultural and other chemicals. Applicant must have extensive and current knowledge of FDA, EPA, and other regulatory requirements. Effective oral and written ability essential for communication with management, clients, and governmental agencies.

We offer an excellent salary commensurate with experience, plus a comprehensive benefits program and a substantial opportunity for advancement in a rapidly growing company. Qualified applicants should send a detailed résumé in confidence to **J. B. Carter, Employment, Litton Biometrics, Inc., Division of Litton Industries, 5541 Nicholson Lane, Rockville, Maryland 20852. EOE/M-F**

DEPARTMENT OF ZOOLOGY UNIVERSITY OF CALIFORNIA, DAVIS

The Department of Zoology announces the opening of two faculty positions at the Assistant Professor level. One is for a person to offer an advanced course in **Invertebrate Zoology**. The other is for a person to offer an advanced course in **Protozoology**. Both individuals should be prepared to participate in the instruction of introductory lower division courses as need arises. Each will be expected to offer an upper division course of his own design, as well as participate in the advising program and in graduate instruction. Research fields are not specified for these positions, but it should be noted that the department has special need for research programs in neurophysiology, behavior, and evolution.

Applicants should mail a curriculum vitae, three letters of recommendation, and statements of teaching capabilities and research areas to: **Dr. R. J. Baskin, Chairman, Department of Zoology, University of California, Davis, California 95616.** Consideration of applications will begin in early March. *The University of California is an Equal Opportunity and Affirmative Action employer and will welcome applications from members of minority groups and women.*

POSITIONS OPEN

VASCULAR PLANT SYSTEMATIST

Assistant or associate professorship (Ph.D.) combined with herbarium curatorship in the Arnold Arboretum and the Gray Herbarium, Harvard University. Position involves teaching and supervisory work in herbarium (half time) and research (half time). Stimulating environment and excellent opportunity for academic advancement for broadly trained herbarium-oriented systematist with interest in administration and ability in teaching and research. Send résumé to **Professor Carroll E. Wood, Harvard University Herbarium, 22 Divinity Avenue, Cambridge, Mass. 02138. Harvard University is an equal opportunity employer with an affirmative action program; applications from women and members of minority groups are encouraged.**

UNIVERSITY OF SURREY GUILDFORD, ENGLAND APPOINTMENT OF VICE CHANCELLOR

The University of Surrey was established in 1966 and is predominantly technological. The Vice Chancellor, Dr. D. M. A. Leggett, has notified the University of his intention to retire on 30 September 1975. The Joint Committee of Council and Senate charged with finding a successor have considered the nature of the appointment and the likely background of the person they hope to find. A note of this information is available. Persons interested in this appointment are invited to write for a copy to:

P. J. Timms
Clerk of the University Council
University of Surrey
Guildford, England

The strictest confidence will be maintained.

Applications are invited for the following two positions to be filled at the rank of **Assistant Professor: VERTEBRATE ZOOLOGIST**: To teach undergraduate courses titled Field and Systematic Vertebrate Zoology and Contemporary General Biology; possibly additional undergraduate and graduate courses in zoology-ecology area; **GENERAL BIOLOGIST**: Teaching lead to consist entirely of a basic biology course titled Contemporary General Biology. Successful candidates will also advise students in Master of Science Program. Appointments are contingent upon state funding and would begin September 1974. Ph.D. preferred. Salary range \$9,500 to \$13,700. Send curriculum vitae, three references, and transcripts as soon as possible to **J. M. Schuetz, Hiring Committee, Biology Department, Towson State College, Baltimore, Maryland 21204. An equal opportunity employer**

FELLOWSHIPS

POSTDOCTORAL FELLOW (BIOCHEMIST)

Molecular aspects of differentiation in chick embryo. Available immediately, Midwestern university. \$8000 per annum plus dependent allowances.

Box 118, SCIENCE

POSTDOCTORAL FELLOWSHIPS

Applications are invited for postdoctoral research fellowships in Biochemistry. Fellowships carry a stipend of \$8900 per annum, taxable, and are of 1 to 2 years in duration.

Research areas include mechanisms of action of pituitary hormones, subunit structure and mechanism of regulatory enzymes, adaptations in the metabolism of peptide and protein hormones in pregnancy and lactation, biogenesis of mitochondria and mitochondrial RNA, mechanism of protein synthesis, host-virus interaction in cultured animal cell systems, transfer RNA structure and function, molecular events underlying growth and development of organisms, the regulation and behavior of folate enzymes in cultured mammalian cells, mechanism of action of mutagens and carcinogens, and synthesis of oligonucleotides of biological significance.

Closing date for applications is 1 April 1974. For further information write to: **Dr. K. B. Freeman, Chairman, Department of Biochemistry, McMaster University, 1400 Main Street West, Hamilton, Ontario L8S, 4J9, Canada.**

POSTDOCTORAL FELLOWSHIPS IN NEUROANATOMY

Candidates holding the Ph.D. or M.D. degree will be considered for fellowships in neuroanatomy beginning 1 July 1974. This program provides research training under experienced sponsorship appropriate for an investigative or academic career. For information write: **Malcolm B. Carpenter, M.D., College of Physicians and Surgeons, Columbia University, 630 West 168 Street, New York, N.Y. 10032.**

FELLOWSHIPS

NEW ZEALAND NATIONAL RESEARCH ADVISORY COUNCIL RESEARCH FELLOWSHIP IN MYCOTOXIC DISEASE

Applications are invited from scientists interested in the biochemistry, microbiology, or pathology of mycotoxic diseases, particularly facial eczema. The toxin responsible for facial eczema is sporidesmin, a metabolite of the fungus *Pithomyces chartarum* which contaminates pastures under suitable weather conditions, when the toxin is ingested by sheep and cattle.

Current research on facial eczema includes mechanisms of action of fungicides, microbial ecology, biochemistry of toxin action of sporidesmin, detoxification mechanisms, evaluation of nutritional protection of animals against poisoning, and the development of immunochemical methods for protecting animals. The fellow, who will work at Ruakura Agricultural Research Centre, will have the opportunity to work on other mycotoxic diseases currently being studied at the Centre. Good laboratory and field facilities are available for experimental pathology, microbiology, biochemistry, and animal nutrition.

Fellowships are normally for 2 years with the right, before completion of this period and by mutual agreement, to have this extended either up to 4 years, or converted to an appointment to permanent establishment.

The emolument will be up to \$15,265 a year, depending on scientific merit. The emolument is taxable. If applicable, the employer's contribution to superannuation scheme will be paid. If reciprocal social security between the fellow's country and New Zealand does not apply, a medical insurance premium will be paid.

A grant equivalent to return economy-class air fares to New Zealand from the fellow's home or the town and country in which he is employed when appointed will be paid. If the fellow's wife and family accompany him a grant equivalent to their return fares will also be paid. A grant will be made toward the cost of transport of personal effects. While in New Zealand reasonable traveling expenses incurred in connection with the research work will be paid. Housing is available for a married fellow.

Further details are available from **The Director, Ruakura Animal Research Station, Private Bag, Hamilton, New Zealand.**

Application forms may be obtained from the **New Zealand Embassy, 19 Observatory Circle, NW, Washington, D.C. 20008** with whom applications close on 20 June 1974.

GRADUATE STUDY

GRADUATE STUDIES IN PHYSIOLOGY

Applications invited for admission to Ph.D. program in cardiovascular, CNS, dental, endocrine, GI, germ-free animal, metabolic, renal, and so forth, Physiology. Fellowships available. Contact

**Dr. John J. Spitzer, Head
Department of Physiology
Louisiana State University
Medical Center
1542 Tulane Avenue
New Orleans, La. 70112**

GRADUATE STUDIES IN KINESIOLOGY

Applications are invited for admission into graduate programs in the Department of Kinesiology at Simon Fraser University near Vancouver, B.C. Graduate studies emphasize an interdisciplinary approach to human movement and performance including the physiological, anatomical, anthropometric, biochemical, biomechanical, neuroscience, psychological, cultural, engineering, and systems aspects. Applicants with a bachelors degree which includes at least a minor in the physical or life sciences should write for further information and application forms to: **Chairman, Graduate Program Committee, Department of Kinesiology, Simon Fraser University, Burnaby, B.C. V5A 1S6, Canada.**

REQUEST FOR PROPOSALS

It is the intention of the **Carcinogenesis Area** of the **National Cancer Institute** to advertise the availability of two Requests for Proposals entitled, "Susceptibility of Fetal and Neonatal Tissues to Carcinogens" (RFP No. NO1-CP-C-43326-62) and "The Role of Hormonal Induction of Permanent Cellular Alterations during Perinatal Exposure and the Influence of subsequent Events on its Expression" (RFP No. NO1-CP-C-43327-62).

Individuals representing research organizations who wish to receive a copy of Request for Proposals when they become available are invited to submit their names to the following address prior to 11 February 1974: **Mr. Fred L. Suggs (301-496-1781), National Cancer Institute, Cancer Cause and Prevention Contracts Section, Research Contracts Branch, National Institutes of Health, Landow Building, Room B-401, Bethesda, Maryland 20014.** Proposals in response to this RFP are due 1 April 1974.

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