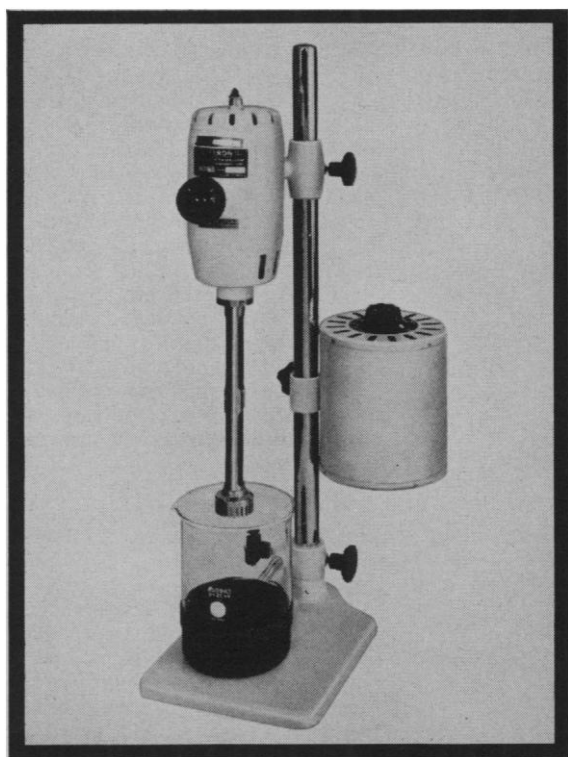


disperser homogenizer emulsifier



.... succeeds where others fail

The Willems Polytron® instruments are based on a unique design which produces unequalled results through a kinematic high-frequency system combining sonic and ultrasonic forces. This approach is so effective in inducing chemical and physical change that it has already revolutionized numerous procedures in diverse fields of research, application and production—with materials whose consistency ranges from penicillin to bauxite, in solid, semi-solid, liquid or gas forms. If you have such a problem, contact us and request a demonstration without obligation.

B **BRINKMANN**
INSTRUMENTS
CANTIAQUE ROAD, WESTBURY, N.Y. 11590/ED 4-7500

Reprints Reprints Reprints Reprints

Reprints Reprints Reprints

from Science

AAAS is now offering reprints of selected articles from recent issues of *Science*.

The following reprints are now available from AAAS Reprints, 1515 Massachusetts Ave., NW, Washington, D.C. 20005.

	Copies Ordered
B. Berelson, "Beyond Family Planning" (7 Feb. 1969), 12 pages	_____
H. J. Brudner, "Computer-Managed Instruction" (29 Nov. 1968), 8 pages	_____
James D. Carroll, "Science and the City: The Question of Authority" (28 Feb. 1969), 12 pages	_____
C. A. Doxiadis, "Man's Movement and His City" (18 Oct. 1968), 8 pages	_____
Heinz F. Eichenwald and Peggy C. Fry, "Nutrition and Learning" (14 Feb. 1969), 8 pages	_____
Marshall J. Gilula and David N. Daniels, "Violence and Man's Struggle to Adapt" (25 April 1969), 12 pages	_____
Garrett Hardin, "The Tragedy of the Commons" (13 Dec. 1968), 8 pages	_____
L. D. Harmon and K. C. Knowlton, "Picture Processing by Computer" (4 April 1969), 12 pages	_____
L. D. Jaffe, "The Surveyor Lunar Landings" (16 May 1969), 16 pages	_____
Eugene P. Odum, "The Strategy of Ecosystem Development" (18 April 1969), 20 pages	_____
Richard Evans Schultes, "Hallucinogens of Plant Origin" (17 Jan. 1969), 12 pages	_____
Andrew T. Weil, Norman Zinberg, and Judith M. Nelsen, "Clinical and Psychological Effects of Marijuana in Man" (13 Dec. 1968), 12 pages	_____

Reprints of other articles published since 1 September 1968 can be made available in quantities of 25 or more for classroom use. Identify each article by author, title, page number, and issue date.

Prices and Terms

	Two to nine reprints—60¢ each			
	10 reprints	25 reprints	50 reprints	100 reprints
4 pages	\$4.00	\$ 8.00	\$15.00	\$25.00
8 pages	\$5.00	\$11.00	\$20.00	\$35.00
12 pages	\$5.50	\$13.00	\$25.00	\$45.00
16 pages	\$5.50	\$13.00	\$25.00	\$45.00
20 pages	\$5.50	\$13.00	\$25.00	\$45.00

Please enclose payment with order. Do not send currency.

Personnel Placement

POSITIONS WANTED: 40¢ per word, minimum charge \$10. Use of Box Number counts as 10 additional words. Payment in advance is required. These rates apply to individuals only. Personnel agencies and companies take display rate for all advertising.

POSITIONS OPEN: \$7 per column line, if publisher's type is used (12 lines = 1 inch). Minimum ad is 12 lines or \$84. All ads using larger than 6 point type will be billed as display ads at \$90 per inch. No charge for Box Number. Rates net. No agency commission allowed for ads under 4 inches. No cash discount. Ads over 1 inch will be billed to the nearest half inch. Payment in advance is required except where satisfactory credit has been established.

COPY for ads must reach SCIENCE 4 weeks before issue date (Friday of every week). Send copy for Personnel Placement advertising to:

SCIENCE, Room 211
1515 Massachusetts Ave., NW
Washington, D.C. 20005

Replies to blind ads should be addressed as follows:

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

POSITIONS WANTED

Analytic Biochemist, Ph.D. College teaching, industry, hospital clinical biochemistry; cancer research experience. Desires academic institute or allied senior industrial research position. Box 423, SCIENCE. X

Astrophysicist, 30, Ph.D., publications, seeks interesting research/teaching position (fall 1970). Box 424, SCIENCE. X

Biochemist, Ph.D. due in 1970, desires teaching position in university or college. Box 418, SCIENCE. X

Biologist, Ph.D. 1961, Woodrow Wilson Fellow, seeks teaching position in high caliber small college. Broad background with teaching experience in General Biology, Cell Biology, Physiology, Development. Publications. Box 425, SCIENCE. X

Cancer Biochemist, lipids, Ph.D., 1965. Experienced in metabolic, structural, nutritional, enzymatic, and biomembrane research; in vivo and in vitro. Thirty publications. Box 419, SCIENCE. X

Cytogeneticist, Ph.D. in biology, postdoctoral experience in mammalian cell kinetics in culture, experienced in autoradiography, microspectrophotometry and plant tissue culture, desires research and/or teaching position. Box 426, SCIENCE. X

Ecologist-Oceanographer, Ph.D., postdoctoral experience with computer simulation models, seeks teaching/research position in United States or abroad starting September 1970. Box 427, SCIENCE. X

Embryologist, Ph.D. Desires teaching and/or research position. Developmental biology, endocrinology, reproductive physiology, vertebrate morphology. Publications. Résumé sent on request. Box 428, SCIENCE. X

Immunologist-Microbiologist, Ph.D. 1962; postdoctoral study, publications; seeking research, clinical, or industrial opportunity. Available January 1970. Box 420, SCIENCE. X

Microbiologist-Plant Physiologist, Ph.D. Eight years' teaching, research, publications, grants. Teaching experience, microbiology, plant physiology, general biology, botany. Seeks teaching/research position, temporary, permanent. Available January 1970. Box 421, SCIENCE. X

Science Editor. Develops editorial programs; writes, edits, researches. Works independently and with scientists. Oceanography of special interest. Box 422, SCIENCE. X

28 NOVEMBER 1969

POSITIONS WANTED

Geneticist, Ph.D. 1965. Experienced, seeks teaching/research position. Publications concerning isozymes, starch-gel electrophoresis. Box 429, SCIENCE. X

Genetics/Marine Biology, recent Ph.D., desires teaching and research or marine research, available February. Box 430, SCIENCE. X

Physiology, Ph.D. with research experience in biomedical engineering, cardiovascular physiology, and prosthetics is looking for a challenging position in research. Willing to teach on an undergraduate level. Box 431, SCIENCE. X

Soil Scientist, Ph.D., 1965. Background in soil chemistry, radiochemistry, radiometric age dating, soil genesis, soil-plant relationships, publications. Desires position commensurate with education and experience. Box 432, SCIENCE. X

Steroid Biochemist, Ph.D. (Physiology). Desires teaching and/or research opportunity. Seeks challenge in United States or Canada. Box 433, SCIENCE. X

Venturesome Chemist has 18 years of research, process, and product experience with hop extract, coffee, tea, polymers, space systems, hydrazines, cellulose, fats. Strong materials science interests. Box 414, SCIENCE. X

POSITIONS OPEN

Ph.D. PHYSIOLOGIST

Scientific interest in research aspects of respiratory physiology and inhalation toxicology. This position is in our Inhalation Toxicology Department and entails assisting in the conduct, design, coordination, and evaluation of animal research programs.

HAZELTON LABORATORIES, specializing in the life and environmental sciences, is located in the suburban area of Washington, D.C. If you have one to three years' experience in pulmonary physiology, please send résumé to Mr. Michael J. Mackert.

HAZELTON LABORATORIES, INC.

A Subsidiary of TRW Inc.

P.O. Box 30

Falls Church, Virginia 22046

An Equal Opportunity Employer

Applications are invited for a Position in the **Biology Department** effective September 1970. We are looking for a candidate whose speciality is teaching in the introductory program. An active research program is encouraged. Rank and salary open.

Dr. G. R. Norris
Biology Department, Denison University
Granville, Ohio 43023

CLINICAL CHEMISTRY

Ph.D. preferred, with experience. Well instrumented, active, expanding laboratory in 600-bed hospital. To join energetic, creative group of five pathologists, two Ph.D.'s, and electrical engineer. Contact **M. J. Salwen, M.D., Director of Laboratories, Monmouth Medical Center, Long Branch, New Jersey 07740.**

RESEARCH ASSOCIATE position available for recent Ph.D. interested in fermentation research, laboratory and pilot-plant scale. Project involves biosynthesis studies with radiotracers and preparation of radio-labelled fermentation products. Please contact:

Dr. Lloyd E. McDaniel
Institute of Microbiology
Rutgers University
New Brunswick, New Jersey 08903

new...
from
pcr

CATALOG G5



CALGON
SUBSIDIARY OF MERCK & CO., INC.

organo-fluorine
organo-silicon
scintillators
peptide reagents
liquid crystals
organic intermediates



PENINSULAR CHEMRESEARCH
CALGON CORPORATION
SUBSIDIARY OF MERCK & CO., INC.

FOR YOUR COPY WRITE TO PCR, DEPT. 68-1
P.O. BOX 1466, GAINESVILLE, FLORIDA 32601

POSITIONS OPEN

PHYSIOLOGIST—PHARMACOLOGIST (ENDOCRINOLOGIST)

The Food and Drug Administration has an immediate requirement for several physiologists or pharmacologists with experience in the physiology of reproduction (control of fertility) in laboratory animals.

These non-laboratory positions are located in FDA's Bureau of Medicine (Division of Metabolism and Endocrine Drugs) and involve the review and evaluation of research data submitted in support of requests to market new drugs.

Salary commensurate with experience and training (Ph.D. preferred). U.S. Citizenship required. Major relocation expenses reimbursed. All positions are located in the suburbs of Washington, D.C.

Résumé (transcripts and list of publications desirable) or Federal Application Form 171 should be sent to:

Personnel Office, Code SM-2
Attention: M. Donald H. Owen
Food and Drug Administration
200 C Street, S.W.
Washington, D.C.

FDA is a Constituent Agency of the Consumer Protection and Environmental Health Service, PHS.

FDA—Where Equal Opportunity is the Rule

DENTAL LIBRARIAN Faculty of Dentistry University of Manitoba

Applications are invited for the above position. Applicants should have library training and experience to enable them to direct a specialist scientific library. Rank and salary commensurate with experience. Range \$9,700 to \$13,000. Moving expenses equivalent to one month's salary. Please send résumé to Mr. David Wilder, Director of Libraries, University of Manitoba, Winnipeg 19, Manitoba.

ELECTRON MICROSCOPIST

M.S. or Ph.D., preferably experienced in oncogenic viruses and virology. Full-time research working with team of investigators on human malignancies. Private support, permanent position. Dr. Gokcen, Life Sciences Foundation, 3901 Golden Valley Road, Minneapolis, Minnesota 55422. Tel. (612) 588-2771.

RESEARCH IN IMMUNOCHEMISTRY

Opportunity for full-time research with an active and stimulating group studying fundamental problems related to tumor and tissue immunology and to the molecular basis of immune reactions, including antibody structure and formation. Candidate should have Ph.D. or M.D. with a strong background in either immunology, immunochemistry, or pertinent protein chemistry or biochemistry. Stimulating working conditions assured by location in a large multidisciplinary research institute engaged in graduate education. Salary and tenure dependent upon qualifications.

Send curriculum vitae and statement of interests to David Pressman, Ph.D., Director of Cancer Research in Biochemistry, Roswell Park Memorial Institute, 666 Elm Street, Buffalo, New York 14203.

MICROBIOLOGY SUPERVISOR—B.A., M.A., or Ph.D. Experience in medical diagnostic microbiology important. Six hundred bed voluntary general hospital in midtown New York City affiliated with university medical center. Modern clinical lab., well equipped with latest developments, including fluorescent microscopy. Excellent salary commensurate with experience and education. Fringe benefits. Please reply to Box 417, ISENCE.

POSITIONS OPEN

BACTERIOLOGISTS/MICROBIOLOGISTS

Ph.D. with experience in bacteriology and immunology to head Research and Development of Veterinary bacterial products. Also, B.S. or M.S. with similar experiences. Excellent growth potential with dynamic, medium-sized company located in Midwest.

Box 434, SCIENCE

GRADUATE STUDY

POSITIONS OPEN

Available Fall 1970, permanent position, **EXPERIMENTAL EMBRYOLOGIST**, Ph.D. required. Salary and rank open. Send résumé to:

Chairman, Department of Zoology
University of Arkansas
Fayetteville, Arkansas 72701

GRADUATE STUDY

THE UNIVERSITY OF MELBOURNE, AUSTRALIA RESEARCH FELLOWSHIP IN ORGANIC CHEMISTRY

Applications are invited for the above-mentioned appointment to work on an A.R.G.C. sponsored project, under the direction of Professor D. W. Cameron, on organic pigments from soils.

Applicants should hold the degree of Ph.D.

The fellowship is tenable for the year 1970 but may be renewed for a maximum of a further two years. The commencing salary will be determined according to experience within the range \$A.5,400-5,940 p.a.

Further information may be obtained from The Registrar, The University of Melbourne, Parkville, 3052, Australia, with whom completed applications, including the names of two referees, should be lodged by 31 December 1969.

UNIVERSITY OF OTAGO Dunedin, New Zealand

LECTURER OR SENIOR LECTURER IN ANATOMY

Applications are invited from suitably qualified persons for appointments as Lecturer/Senior Lecturer in Anatomy (two positions).

Applications are particularly sought from persons whose interests and experience fit them to assume responsibility for one of the following courses.

- (1) Embryology (including Developmental Biology).
- (2) Gross Anatomy for Medical Students.

Salary according to qualifications and experience within the following scales:

Science Graduate—Scales under review. The interim rates for 1969 are as follows:

Lecturer—\$NZ3,100 x \$200—\$4,700 x \$100—\$4,800 per annum.

Senior Lecturer—\$NZ4,700 x \$200—\$5,500 per annum; thereafter a range of salaries up to \$6,600 per annum.

Medical Graduate:

Lecturer—A scale from \$NZ4,270 to \$6,800 with a bar at \$5,600 per annum.

Senior Lecturer—A scale from \$NZ7,000 to \$8,100 per annum.

A particularly well qualified candidate could be appointed at the grade of Associate Professor at a salary within the range of \$6,600 to \$7,300 p.a. (Science) or \$8,500 to \$9,150 p.a. (Medical).

(Note: \$NZ100 equals £46.13.4 stg.; \$US112; \$A100).

In certain circumstances, a short term appointment, with provision for return fares, may be negotiated. In general, such an arrangement would be on the basis of a three-year term.

Further particulars are available from the Secretary-General, Association of Commonwealth Universities (Apts.), 36 Gordon Square, London, W.C.1., or from the Registrar of the University.

Applications close in New Zealand and London on 15 January 1970.

Postdoctoral in Sulphur Nutrition of Crops

Fellowship available preferably from 1 July 1970 for soil research entailing applied biochemistry and/or plant physiology related to the supply and adequacy of sulphur for agricultural crops. Stipend: \$6000 (tax free) and travel allowance; renewable once. Apply to:

C. F. Bentley
Department of Soil Science
The University of Alberta
Edmonton, Alberta, Canada

PREDOCTORAL AND POSTDOCTORAL TRAINEESHIPS IN IMMUNOLOGY

For recent graduates with B.S. or Ph.D. degree in biology or chemistry. Research training in immunochemistry, immunogenetics, and cellular immunology. Must have B average and be U.S. citizen or on Permanent Residency Visa. Ample stipends and free tuition. Write for details to: Dr. Sheldon Dray, Head, Department of Microbiology, University of Illinois at the Medical Center, P.O. Box 6998, Chicago, Illinois 60680.

PREDOCTORAL FELLOWSHIP IN PHYSIOLOGY—Training leading to the Ph.D. with special orientation in physiological control systems, cardiovascular, temperature regulation, endocrinology, and neurophysiology. Emphasis upon preparation for academic careers combining teaching and research. Stipends with tuition and dependency allowance available to qualified undergraduates in engineering, biology, chemistry, mathematics, or physics. A maximum of five new students accepted each year, maintaining a low student-adviser ratio. Detailed information from Dr. Clarence N. Peiss, Graduate Program Director, Department of Physiology, Loyola University Medical Center, Stritch School of Medicine, 2160 South First Avenue, Maywood, Illinois 60153.

Postdoctoral Traineeships in Neurobiology

For research training in Neurochemistry, Neurophysiology, and Experimental Psychology. Stipends are \$6000 to \$8000 per annum (depending on training and experience) plus a dependency allowance. NIMH. Write:

L. T. Graham, Jr., Ph.D., Program Coordinator
or
J. I. Nurnberger, M.D., Chairman and Director
The Institute of Psychiatric Research
Indiana University Medical Center
Indianapolis, Indiana 46202

Postdoctoral Fellowships—MOLECULAR BIOLOGY applied to chemical and viral carcinogenesis especially murine leukemia, enzymes of nucleic acid metabolism. Apply to

Director
Cancer Research Laboratory
University of Western Ontario
London, Canada

The Market Place
BOOKS • SERVICES • SUPPLIES • EQUIPMENT

MINIPIGS

(Miniature Swine)
Vita Vet Laboratories
Marion, Indiana 46952
Phone 317—664-0013
Forest E. Conder