Personnel Placement

SCIENCE publishes each Friday, except the last Friday of the year. Advertising closing for a particular Friday issue is Wednesday, 31/2 weeks **before**. Advertising is accepted only in writing; no abbreviations. Also, person-nel advertising is accepted only with the understanding that the advertiser does not discriminate among appli-cants on the basis of race, sex, religion, age, color, na-tional origin or handicap. tional 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, FELLOW-SHIPS, MARKET PLACE, and so forth): \$6.40 per milli-meter; \$160 minimum, per insertion (minimum charge covers 25 millimeters on a single column; 25 millime-ters 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 or-ders and billing information required for all other adver-tising. tising.

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., N Washington, D.C. 20005 NW

POSITIONS WANTED

Algal Ecologist. Environmental/evolutionary approach; chlorinated hydrocarbons; exciting red tide toxin proposal; publications; teaching experience. R. Michaels, Ecology and Evolution Department, State University of New York, Stony Brook, N.Y. 5/4.11 11794

Botanist, General Biologist, Geneticist. B.S. in biology/chemistry, M.S. and Ph.D. in botany, both with genetics emphasis. Fourteen years of teaching/research experience, 3 years research administration. Presently with veterinary pharmaceutical firm. 1607 South Elm, Shenandoah, Iowa 51601; telephone: 712-246-5167/712-246-3763. X

Continuing Medical-Allied Health Educator; Ed.D., M.S.S.W. Several years of experience in a universi-ty health science center and cancer center devel-oping innovative extended learning activities for health-care personnel; also experienced in patient and public health education; special interest in the psychosocial impact of illness; extensive medical science background; community organization skills. Box 146, SCIENCE. X

Pharmacologist, Ph.D. 1976. Neuroscience; emphasis on behavioral pharmacology. Supervisory and postdoctoral experience. Seeks toxicology or phar-macology position in industry, government, or insti-tute. Box 147, SCIENCE. 5/4, 11, 18

Plant Physiologist. Ph.D. Teaching/research experi-ence. Research interest in cell differentiation related to plant multiplication/improvement. Significant contribution in this field. European experience. Seeking full-time/consulting research position in in-dustry. Box 148, SCIENCE. X

Toxicologist, Ph.D., 13 years of direct laboratory ex-perience including pharmacology/drug metabolism, short-term assays for mutagen/carcinogen detection. Experience in data evaluation and report prepara-tion, including IND's, NDA's, and foreign sub-missions. Seeks part-time or consulting in drug safety evaluation, toxicologic test monitoring, bio-medical communications. Box 149, SCIENCE. X

4 MAY 1979

POSITIONS WANTED

Computer Analyst/Programmer seeks scientific reguage processing and computational linguistics. Box 145, SCIENCE. earch with experience in artificial intelligence lan-

POSITIONS OPEN

ANATOMIST: Ph.D. Tenure-track position begin-ning August 1979. Teaching responsibility to dental and allied health professional students. Potential ex-ists to participate in graduate education. Develop-ment of an independent research program is re-quired. Send curriculum vitae to: Dr. Howard M. Klitgaard, Chairman, Department of Basic Sciences, Marquette University School of Dentistry, 604 North 16 Street, Milwaukee, Wisconsin 53233.

Marquette University is an Equal Opportunity/Affirmative Action Employer.

ASSISTANT DIRECTOR NEUROSCIENCE PROGRAMS

Faculty position. Applicant must have a doctorate or Faculty position. Applicant must have a doctorate or its research equivalent in one of the basic sciences associated with neurological disciplines; previous teaching and administrative experience preferred; an M.D. helpful but not required. Significant research experience in the neurophysiology or neuropharma-cology of pain, cerebral blood flow, and/or genetic disorders relating to the nervous system preferred. Teaching responsibilities will be at the under-graduate, graduate, and postgraduate levels. Prima-ry appointment will be in the Department of Surgery with associate appointment in the basic science dewith associate appointment in the basic science de-partment of specialty, with level of appointment commensurate with applicant's experience

Send curriculum vitae including bibliography to: Henry D. Garreston, M.D., Ph.D. Department of Surgery University of Louisville P.O. Box 35260 Louisville, Kentucky 40232

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

Small Catholic liberal arts college primarily for women has two 9-month tenure-track positions available as ASSISTANT PROFESSOR (biology/ chemistry) and one part-time (adjunct) as ASSOCI-ATE PROFESSOR (foods/nutrition) in the Division of Science. Nine-month salary base is \$10,600. Pri-mary course coverage includes anatomy/physiology, organic chemistry, biochemistry, and nutrition. Doctorate is required for full-time positions; college credentials and teaching experience desirable as is ability to teach in more than one discipline. Send curriculum vitae, three letters of reference, and of-ficial transcripts by 15 June to: Search Committee, Di-vision of Science, St. Mary's Dominican College, 7214 St. Charles Avenue, New Orleans, La. 70118. An Af-firmative Action/Equal Opportunity Employer. Small Catholic liberal arts college primarily for

ASSISTANT/ASSOCIATE PROFESSOR. Tenuretrack appointment for an individual with a Ph track appointment for an individual with a Ph.D. in microbiology, biochemistry, or a closely related area and 2 years of postdoctoral training in the area of molecular genetics, cellular biology, or tumor virolo-gy. Applicants should send their curriculum vitae, publication list, and the names of three references to: Search Committee, Box S, Department of Micro-biology, School of Basic Health Sciences, State Uni-versity of New York, Stony Brook, NY. 11794. The Health Sciences Center at Stony Brook is an Equal Opportunity Employer and applications from minor-ity and women candidates are welcome ity and women candidates are welcome

BIOCHEMIST

Dening with Seattle, Washington, research center for individual with Ph.D. in biochemistry and 5¹/₂ years of specific research experience in membrane biochemistry. Duties include studies in chemistry of living process such as mechanism of development of normal and abnormal cells. Isolate, analyze, and identify enzymes. Chemical analysis of proteins and carbohydrates. Isolation and chemical character-ization of membrane glycoprotein. Cell surface la-beling and modification by various enzymes includ-ing endo-B galactosidase. Lectures for graduate stu-dents in membrane biochemistry. dents in membrane biochemistry.

Salary: \$1500 monthly, plus fringe benefits including health insurance, retirement plan, and so forth. Day shift. Applicants should submit résumés to: Duane Crosier, Fred Hutchinson Cancer Research Center, 1124 Columbia Street, Seattle, Washington 98104. An Equal Opportunity/Affirmative Action Employer, M/ F.

POSITIONS OPEN

ASSISTANT PROFESSOR OF BIOLOGY with interests in immunology and serology to teach general biology and specialty courses. Active applied re-search program in forensic science is expected. By 15 May send résumé and three letters of recommen-dation to:

Professor Charles Kingston Professor Charles Kingston Chairman, Department of Sciences John Jay College of Criminal Justice 445 West 59 Street New York, New York 10019

Equal Opportunity/Affirmative Action Employer

ASSISTANT PROFESSOR OF BIOLOGY. Teaching responsibilities include comparative anatomy, gen-eral and advanced physiology; participation in in-troductory biology courses. Ph.D. required and background in at least one of the following: immu-nology, microbiology, or biochemistry. Active re-search encouraged. Applicants send résumés and letters of reference by 25 May 1979 to: Dr. Raymond Rose, Chairman, Department of Biology, Beaver Col-lege, Glenside, Pennsylvania 19038. An Equal Oppor-tunity Employer.

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applications are solicited for faculty positions in the following departments: **MEDICINE** (#155) assistant **professor** (research). Responsible for conducting original research in cardiac electrophysiology and postdoctoral training in cardiac electrophysiology. Applicants should send curriculum vitae identifying Applicants should send curriculum vitae identifying vacancy number for which they are applying to: Dr. Thomas N. Lynn, Dean, College of Medicine, Univer-sity of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Oklahoma 73190. We are an Equal Opportunity Employer

ASSISTANT PROFESSOR OCCUPATIONAL HEALTH AND ENVIRONMENTAL TOXICOLOGY

The Department of Environmental Health Sciences, Tulane University School of Public Health and Tropical Medicine, has an immediate opening com-mencing August 1979 for an assistant professor (ten-ure-track appointment). Candidates must have an appropriate doctoral degree with emphasis in occu-rational health and environmental toxicology or a pational health and environmental toxicology or a closely related discipline and will be expected to teach occupational health and air pollution courses, develop coursework in environmental toxicology, and participate in departmental and independent reand participate in departmental and independent re-search. Salary to be negotiated commensurate with qualifications and experience. By 30 June 1979 can-didates should send résumés and other supporting data, including three letters of reference, to: Dr. A. J. Englande, Acting Chairman, Department of Envi-ronmental Health Sciences,

Tulane University School of Public Health and Tropical Medicine 1430 Tulane Avenue

New Orleans, La. 70112

Tulane University is an Equal Opportunity/Affirmative Action Employer.

Assistant professor—parasitology/invertebrate zoology. Nine-month; tenure-track; \$13,000 to \$15,000. Summer support possible; beginning 15 September 1979. Ph.D. required and postdoctoral experience desired. Duties include teaching courses in parasitology and invertebrate and parasitic protozoa emphasizing coccidia. Send curriculum vitae, other supporting materials, and at least three letters of recommendation to: Dr. Gene W. Miller, Head, Department of Biology, UMC 53, Utah State University, Logan, Utah 84322 by 18 May 1979. Utah State University is an Equal Opportunity/Affirmative Action Employer. Employer.

The Department of Microbiology and Immunology of the University of Louisville, School of Medicine, is recruiting an ASSISTANT PROFESSOR IN VI-ROLOGY. The position requires a Ph.D. degree and 2 years of postdoctoral experience: appointee will be expected to develop and direct a quality research program and advise graduate students in molecular virology. This will include participation in the core courses for professional students and development of a graduate-level course in advanced virology. The applicant must show evidence of expertise or ac-complishment, publications, and awards. Reply to: Department of Microbiology and Immunology, Uni-versity of Louisville, Louisville, Ky. 40201. The Uni-versity of Louisville is an Affirmative Action/Equal Opportunity Employer.

CHAIRMAN DEPARTMENT OF SURGERY GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE

The school is searching for a new chairperson for this important clinical department who will also be chief of the surgical service at Georgetown Universi-ty Hospital and director of the residency programs. The department has services at several affiliated hospitals including the District of Columbia General Hospital. Applicants should be experienced in a surreospital. Applicants should be experienced in a suf-gical specialty, teaching at the undergraduate and postgraduate levels, and in research. Georgetown University is an Affirmative Action/Equal Opportu-nity Institution in employment and admissions. Let-ters from interested persons or proposals for the po-sition should be addressed to:

Heinz Bauer, M.D. Professor of Pathology Georgetown University School of Medicine Washington, D.C. 20007

CLIMATE DYNAMICIST

The Department of Land, Air, and Water Re-purces—Atmospheric Science Program, invites apsources—Atmospheric science riogram, invices ap-plication for a 2-year position, half-time being de-voted to teaching and half-time to research. Re-search emphasis should be in the areas of climate and climatic change and biometeorology, with em-phasis on the use of numerical methods for climate modeling. Teaching may include both undergraduate phasis on the use of numerical methods for climate modeling. Teaching may include both undergraduate and graduate level courses in meteorology. Rank and salary depend on qualifications; the Ph.D. is the minimal qualification. Applicants should submit cur-riculum vitae, statement of teaching and research in-terests and background, undergraduate and graduate transcripts, list of publications, reprints, and names and addresses of at least three references, to be sent to: Bryan C. Weare. Search Committee. Denartment to: Bryan C. Weare, Search Committee, Department of Land, Air, and Water Resouces, Hoagland Hall, University of California, Davis, California 95616. Closing date is 1 July 1979. The University of California is an Equal Opportu-

nity/Affirmative Action Employer and invites appli-cation from all qualified individuals.



POSITIONS OPEN

CLINICAL SCIENTIST

The position of assistant professor of internal medi-cine at a salary of \$27,000 is available for a Boardqualified internist with at least 2 years of experience as a postdoctoral research fellow in the area of dia-betes mellitus or closely related metabolic disorders. The position involves clinical investigation in Phoe-nix, Arizona. The individual must have had research experience and a bibliography that indicates recent research productivity of a type that is relevant to studies of the causes and management of diabetes and obesity. Submit résumé to: Roger H. Unger, M.D., The University of Texas Health Science Center, 5323 Harry Hines Boulevard, Dallas, Texas 75235. An Equal Opportunity Employer, M/F.

ELECTRON MICROSCOPIST. The University of North Carolina at Charlotte (UNCC) has a tenure-track position open for fall 1979. Applicants must have training/experience in EM and be willing to as-sume supervisory duties over the EM complex and carry on active research program. Teaching ex-pectations are in areas of EM, cytology/histology. Other courses may be developed that complement our current offerings. Earned Ph.D. (prior to fall 1979). Rank and salary are competitive. Deadline for applications is 15 May. Send résumés and support-ing materials to: Dr. Roger H. Trumbore, Chairman, ing materials to: **Dr. Roger H. Trumbore, Chairman, Biology, UNCC, Charlotte, N.C. 28223.** UNCC is an Equal Opportunity/Affirmative Action Employer.

DEPARTMENT OF BIOLOGY INSECT ULTRASTRUCTURE BACTERIAL TAXONOMY/ECOLOGY

Postdoctoral position available 1 September 1979. The position is initially for 1 year to study the struc-ture of the peritrophic membrane and gut wall of se-lected forest pests and renewable for a second year. The second year will involve a taxonomic and spatial analysis of the insect gut bacterial flora. Initial sal-ary: \$12,900. Send curriculum vitae and names of three references to: Dr. R. A. Nolan, Department of Biology, Memorial University of Newfoundland, St. John's, Newfoundland, Canada A1B 3X9.

DEAN OF THE SCHOOL OF ARTS AND SCIENCES VIRGINIA COMMONWEALTH UNIVERSITY **Richmond**, Virginia

Virginia Commonwealth University invirginia Commonwealth University in-vites nominations and/or applications for the position of dean of the School of Arts and Sciences. The School of Arts and Sciences currently

offers academic and professional preparation through departments or programs of Afro-American studies, biology, chemistry, com-parative and general literature, economics, English, foreign languages, history and geog-English, foreign languages, history and geog-raphy, mass communications, mathematical sciences, philosophy and religious studies, physics and physical science, political sci-ence, psychology, and sociology and anthroence, psychology, and sociology and antimo-pology. The baccalaureate degree is pres-ently offered in 17 areas, minors in 22 areas, and preparation for professional studies in the health sciences, law, and engineering. Master's degrees are now offered in seven departments and the Ph.D. in four; addition

departments and the Ph.D. in four; addition-al graduate degree programs are under plan-ning for the next 5 years. The dean is the chief academic and admin-istrative officer of the school. During 1978-1979 there were 235 full-time faculty, and a full-time equivalent enrollment of 2480 un-degraraduates and graduates dergraduates and graduates.

Applicants must have an earned Ph.D. de-gree with teaching and administrative experience representative of a discipline in the humanities, natural, or social science fields. Salary is negotiable and will depend upon

experience and qualifications. A current ré-sumé and names and addresses of at least three references should be received no later than 15 June 1979, and should be sent to:

Office of Academic Affairs Virginia Commonwealth University 01 West Franklin Street—Room 102 Richmond, Virginia 23284 901

Virginia Commonwealth University is an Equal Opportunity/Affirmative Action Em-ployer.

POSITIONS OPEN

DIRECTOR OF RESEARCH

Ph.D. or equivalent preferred in field of anatomy/ physiology to supervise research department at the Los Angeles College of Chiropractic. Adequate background in research methodology and grant writ-ing. Salary and rank negotiable.

ANATOMIST/PHYSIOLOGIST

Ph.D. or equivalent. Principal responsibilities will be in gross and neuroanatomy primarily involving teaching (laboratory included). Salary and rank negotiable

Positions available 1 September 1979. Send curricu-lum vitae and names of three references by 20 June 1979 to:

1979 to: Vice President of Academic Affairs Los Angeles College of Chiropractic 920 East Broadway Glendale, Calif. 91205 An Equal Opportunity/Affirmative Action Employer

FACULTY POSITION

The University of California, Irvine, Department of Biological Chemistry in the College of Medicine, invites applications for an appointment as **professor**; applications will also be considered at the **associate** professor level. Teaching responsibilities involve in-structing medical and graduate students in selected areas of biochemistry. Research experience and in-terest in eukaryotic cell systems dealing with ge-netics, protein synthesis, RNA synthesis and metabolism, or macromolecular processing and its control is preferred. Faculty members are expected to have a strong, independent, on-going research program. Applications from all qualified candidates are wel-come; minorities and women are encouraged to apply. Send curriculum vitae, three letters of refer-ence, and a detailed description of proposed research program to:

> Kivie Moldave Rive Moldave Department of Biological Chemistry College of Medicine University of California, Irvine Irvine, California 92717

The U.S. Army is conducting a program for the development and testing of live attenuated dengue virus vaccines. Laboratory development is in progress of four temperature-sensitive, attenuated strains, one for each dengue serotype. Eventual development of a quadrivalent vaccine is envisioned. One strain, a temperaturesensitive variant of dengue-2, has undergone initial safety and immunogenicity trails in human subjects. Expressions of interest are invited from organizations desirous of obtaining a solicitation of proposals for additional testing of live attenuated dengue-2 vaccine and later testing of other serotype volunteer subjects. Primary interest lies in assessing the safety, reactogenicity and immunogenicity of dengue vaccines administered to susceptible volunteers in varying doses and by differing routes of administration. Respondents should provide a curriculum vitae on and list experience of investigators, describe potential volunteer populations, and describe research facilities. This information should be provided, in four copies, within 20 days of the appearance of this announcement, to the U.S. Army Medical Research and Development Command, Attn: SGRD-RMA (Winpigler) Fort Detrick, Frederick, Maryland 21701.

SCIENCE, VOL. 204

ENVIRONMENTAL STUDIES

The Environmental Studies Department of New The Environmental Studies Department of New England College invites application for the position of assistant professor. A strong commitment to undergraduate teaching is expected. Applicants must have demonstrated academic training or related experience in the environmental sciences. Preference will be given to applicants who also have complementary training and/or experience in the social, political, and economic aspects of environmental issues. The Ph.D. degree is required. Position starting fall 1979. Send curriculum vitae and names of three Sues. The Ph.D. degree is required. Position starting fall 1979. Send curriculum vitae and names of three references by 14 May 1979 to: Dr. John Lemons, Di-rector, Department of Environmental Studies, New England College, Henniker, N.H. 03242. Equal Op-portunity/Affirmative Action Employer.

EXECUTIVE DIRECTOR RESEARCH CORPORATION OF THE UNIVERSITY OF HAWAII

THE UNIVERSITY OF HAWAII The Board of Directors of the Research Corpora-tion of the University of Hawaii invites nominations and applications for the position of executive direc-tor to direct, manage, and administer the affairs of the Research Corporation; coordinate and develop relationships with the University of Hawaii, the State of Hawaii, federal agencies, industry, private sector, and other academic and research institu-tions; execute the basic policies established by the board and determine and control the overall objec-tives, programs, and operations of the Research Corporation; approve contracts, joint agreements, annual and other reports. Minimum qualifications: a doctoral degree or its equivalent demonstrated by experience in research administration and publications in professional jour-nals, as principal investigator or researcher support-

nals, as principal investigator or researcher support-ed by grants and contracts from federal agencies or national foundations; extensive experience in aca-demic or public administration; combination of the above. Professional résumé or curriculum vitae and at least three names of references should accompany each nomination or application.

Send nomination of applications to: Chairman of the Board, Research Corporation of the University of Hawaii, 1110 University Avenue, Room 402, Hono-lubu, Hawaii 96826. Nominations will close 15 May 1979. Applications accepted to 15 June 1979.

FACULTY POSITION

We anticipate an opening for September 1979 at the assistant or untenured associate professor level in littoral processes. The initial appointment will be for 3 years. Can-didates should hold a Ph.D. The individual will be expected to concentrate on problems in New York's coastal waters.

By 15 May 1979 send complete résumé and have three letters of reference sent directly

Dr. J. R. Schubel, Director Marine Sciences Research Center State University of New York at Stony Brook Long Island, New York 11794 Equal Opportunity/Affirmative Action Employer

Opportunity for innovative person with natural science background (chemistry, physics, and biol-ogy) and interest in history and philosophy of science to teach a course each semester in physical and biological science to juniors and seniors not majoring in science at a liberal arts institution committed to excellence. The position will have additional course work in Biology and Chemistry Departments. Per-son needed will have strong commitment to teaching at the undergraduate level in the liberal arts tradi-tion, and will have at least a master's degree. Submit résumé, academic transcript, and letters of recom-mendation from three sources to: C. J. Halley, Okla-homa Baptist University, Shawnee, Oklahoma 74801. An Equal Opportunity/Affirmative Action Employer

PARASITOLOGIST. Nine-month leave replacement position beginning 1 September 1979. Teach semes-ter undergraduate courses in parasitism and comter undergraduate courses in parasitism and com-parative anatomy, assist in other laboratories. Ph.D. required. Salary at assistant professor entry level. Send curriculum vitae and three letters of recom-mendation by 26 May 1979 to: Dr. William H. Heid-camp, Chairman, Department of Biology, Gustavus Adolphus College, St. Peter, Minn. 56082.

UNIVERSITY OF MAINE

With the establishment of the Center for Marine Studies, the University of Maine is placing priority emphasis on the development of a strong, competitive research and graduate education program in marine resources. Nominations and applications are invited for the following positions.

CHAIRPERSON DEPARTMENT OF OCEANOGRAPHY

The Oceanography Department, a graduate department offering M.S. and Ph.D. degrees, is primarily housed at the University's marine laboratory at Walpole, Maine. It currently has a faculty of 8. Present research activities include ecology of sub-boreal estuarine organisms, environmental biology and geochemistry, aquaculture and geological oceanography.

to serve as chief administrative officer, and develop a coordinated research program in physico-chemical es-Responsibilities: Qualifications:

and activity of the communicative of the control of a control of the control of the

Academic appointment as Associate or Professor, tenure track. Salary open within University constraints.

FISHERIES POPULATION DYNAMICIST DEPARTMENT OF ZOOLOGY

The Zoology Department, with a current faculty of 18, is primarily housed on the Orono campus, and includes the Cooperative Fisheries Unit. Ten of the faculty have research interests in marine or freshwater biology.

to develop a graduate education and research program on population dynamics of fishes. (1) earned doctorate, (2) additional professional experience in marine fisheries biology desirable. Responsibilities: Qualifications:

Academic appointment as Assistant Professor, initially one year with probability of additional 2-4 year University commitment.

MIGRATORY FISH BIOLOGIST MIGRATORY FISH RESEARCH INSTITUTE

The Migratory Fish Research Institute is an interdisciplinary group of primarily Zoology faculty whose research interests focus on the biology of migratory fishes.

to collaborate in research on oceanic and estuarine migrations of larval and juvenile eels, and to assist in research proposal development. (1) earned doctorate Responsibilities: Qualifications:

eurneu aoctorate training and experience in fish migration and orientation preferred, and marine background or orientation.

Research appointment, initially one year with probability of second year continuation and possibility of third year depending an extramural program funding.

MARINE STATION ADMINISTRATIVE OFFICER

The Ira C. Darling Center is the marine laboratory of the University of Maine. It is located on a 152 acre site on the Damariscotta estuary and includes Lowe's Cove. The facility comprises 10,000 square feet of laboratory and teaching space, including an Aquaculture Center, a developing conference center, a library, dockside facilities, and a fleet of small vessels.

| Responsibilities : | to serve as the Chief Administrative officer of a semiisolated marine facility in support of educational and research programs, to be responsible for budget development and control, and for an expanding promo- |
|---------------------------|--|
| | tional/developmental activity. |
| Qualifications: | (1) extensive administrative experience, |
| | (2) evidence of ability to communicate effectively with the public, and |
| | (3) experience in a sea-oriented organization including logistics, desirable. |
| | £10.000 |

Salary \$16,000-\$18,000.

Applicants should send complete resumes, samples of publications, and names of three referees, by May 15, 1979, to:

> Secretary, Search Committees **Center for Marine Studies** Room 14, Coburn Hall University of Maine at Orono Orono, ME 04469 U.S.A.

The University of Maine is an Equal Opportunity/Affirmative Action Employer

DEPARTMENT OF INTERNAL MEDICINE SCHOOL OF MEDICINE ST. LOUIS UNIVERSITY MEDICAL CENTER HEMATOLOGY

A full-time faculty position at the assistant or associ-ate professor level available 1 July 1979. Individual should be Board-certified or -eligible in hematology or hematology-oncology and should have demon-strated competence and continued interest in basic or clinical research, preferably in the area of hemo-stasis and thrombosis. Send curriculum vitae to:

J. H. Joist, M.D., Ph.D. Jirector, Division of Hematology-Oncology St. Louis University Medical Center c/o Personnel Services 3556 Caroline Street St. Louis, Mo. 63104

An Equal Opportunity/Affirmative Action Employer, M/F/H

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

Two positions available 1 July 1979 and 1 January 1980 for **INSTRUCTORS** in the Department of Anesthesiology. Board-certified anesthesiologists with licenses in Michigan. Instructional and clinical experience. One position requires experience in struction of students and residents. Code 100H0, 500F0. Reply to: **Box 144**, **SCIENCE**. A non-discriminatory Affirmative Action Fundlover discriminatory, Affirmative Action Employer.

Food Safety and Quality Service (FSQS), Residue Evaluation and Surveillance Division, U.S. Depart-ment of Agriculture (USDA) is anticipating an IN-**TERDISCIPLINARY VACANCY** located in Wash-ington, D.C., at the GS-14 level. Current incumbent is a chemist (GS-1320 series) but will consider veteri-narians (GS-701), pharmacologists (GS-405), and mi-crobiologists (GS-403) who meet the respective qual-ification standards as outlined in the Civil Service ification standards as outlined in the Civil Service Handbook X-118. Must possess expert knowledge of the effects of toxic chemicals in the human foodthe effects of toxic chemicals in the human food-chain in amounts judged harmful and skill in provid-ing for residue analysis, consultation, and planning services; and capable of sustaining a productive working relationship with people in professional and technical positions in both the national and inter-national arena. Submit completed Standard Form 171 to: Announcement 7c-83, USDA, FSQS, South Building, Room 3438, 14th and Independence, SW, Washington, D.C. 20250. Telephone: 202-447-6617. Sorry, but we cannot accept applications after close of business 25 May 1979. Equal Opportunity Employer.

MARINE SCIENTIST

The Pacific Northwest River Basins Commission is The Pacific Northwest River Basins Commission is seeking applications for the position of assistant pro-gram manager for the Columbia River Estuary Data Development Program. The applicant should have a minimum of 4 years of experience in the environ-mental sciences, physical oceanography, or marine biology, and possess a graduate degree in one of these fields. Salary is \$18,000 to \$26,000 per annum, based on experience. A position announcement is available on request. Please send résumé and names of three references to: **Program Manager**

Program Manager Columbia River Estuary Data Development Program P. O. Box 908 Vancouver, Wash. 98666

Telephone: 206-696-7551

Applications should be submitted by 18 May 1979. The position is available in June 1979. Equal Oppor-tunity/Affirmative Action Employer.

OCEANOGRAPHER Salary: \$23,087 to \$30,017 per annum (Salary commensurate with qualifications)

U.S. NAVAL RESEARCH LABORATORY has a po-U.S. NAVAL RESEARCH LABORATORY has a po-sition available to conduct basic research in physical oceanography. Principal areas of interest are upper ocean thermal structure and motion, mesoscale ocean features, oceanic turbulence, and air-sea in-teraction. Ph.D. or equivalent in physical oceanog-raphy is required. Send detailed résumé or SF-171 by 25 May 1979 to:

Naval Research Laboratory Code 1811-NF 455 Overlook Avenue, SW Washington, D.C. 20375 U.S. citizenship required An Equal Opportunity Employer

POSITIONS OPEN

MANAGING DIRECTOR **Boyce Thompson Institute at Cornell University**

Applications are invited for the position of MAN-AGING DIRECTOR of the Boyce Thompson Insti-tute for Plant Research at Cornell University. The managing director serves as chief executive officer and is responsible for: formulation of policy, pro-grams, selection of personnel, recruitment of re-search support, and the operations of the institute. Selection will be based upon experience consistent with goals of the institute, which include basic and applied research in the plant sciences relevant to na-tional and world agriculture. Previous administrative experience, scholarly endeavor, and success in reexperience, scholarly endeavor, and success in re-cruiting research support will be considered. Appli-cants should send curriculum vitae, bibliography, and names of five professional people acquainted with applicant's background to: **Dr. Leonard H.** With applicant's background to: Dr. Leonard H. Weinstein, Chairman of the Search Committee, Boyce Thompson Institute at Cornell University, Ithaca, N.Y. 14853. All applications should be submitted by 15 July. An Affirmative Action/Equal Opportunity Employer.

MOLECULAR BIOLOGIST—Assistant professor position leading to tenure at Fels Research Institute, Temple University, Philadelphia. Areas of research should focus on translational or transcriptional mechanisms and cell membrane receptors. Address applications to: Dr. G. Litwack, Search Committee for the Biochemistry Group, Fels Research Institute, Temple University School of Medicine, Philadelphia, Pa. 19140. Enclose curriculum vitae, bibliography, and names of three references. The Fels Research Institute is an Equal Opportunity Employer.

MOLECULAR BIOLOGIST-Assistant professor position leading to tenure at Fels Research Institute, Temple University, Philadelphia. To join small group of cell and molecular biologists interested in cell proliferation. Special emphasis on individuals with training in DNA oncogenetic viruses, recombi-nant DNA. Write: **R. Baserga, Chairman, Search Committee, Temple University Medical School, Phila-delphia, Pa. 19140.** Enclose curriculum vitae, bibliography, and names of three references. Equal Oportunity Employer.

Positions available for **POSTDOCTORAL FEL-**LOWS in the Department of Neurology-Neuro-pathology, Harvard Medical School. (i) Protein chemistry of 100-Å brain filaments; (ii) regulation and turnover of 100-Å brain filament proteins in neu-ral cell lines and primary brain cultures. Appli-cations from married couples (both postdoctoral or postdoctoral and research assistant) are also wel-come. Salary range: \$12,000 to \$15,000. Contact:

Dr. A. Bignami Dr. A. Bignami Spinal Cord Injury Research West Roxbury Veterans Administration Medical Center 1400 Veterans of Foreign Wars Parkway Boston, Mass. 02132

POSTDOCTORAL POSITION available immediately. Prefer background in bioengineering and computprogramming. Project involves analysis of systol-and diastolic mechanics in patients before, during, and after cardiac surgery. Two-dimensional ul-trasound and innovative analytical techniques are al-so under development in experimental and animal laboratory for patient studies. Two-year position. Rank and salary commensurate with experience. Send curriculum vitae and two letters of recommen-Send curriculum vitae and two letters of recommen-dation to: Henry M. Spotnitz, M.D., Director, Car-diovascular Surgery Research Laboratory, Columbia University College of Physicians and Surgeons, 630 West 168 Street, New York, New York 10032. Colum-bia University invited Advanced Comments bia University is an Affirmative Action/Equal Opportunity Employer.

RESEARCH ASSOCIATE IN CLINICAL CARDI-OLOGY. Emphasis on 2D sector scanning in pa-tients undergoing cardiac surgery for ischemic, val-vular, and congenital lesions. Opportunities for stud-ies of cardiac mechanics intraoperatively and in the animal research laboratory. Computer analysis of accumulated data and participation in clinical and basic science conferences featured. Qualifications: cardiology training and experience with sector scan-ning preferred. Positions available July 1979 and 1980. Send curriculum vitae and two letters of rec-ommendation to: Henry M. Spotnitz, M.D., Director, Cardiovascular Surgery Research Laboratory, Co-lumbia University College of Physicians and Sur-geons, 630 West 168 Street, New York, New York 10032. Columbia University is an Affirmative Action/ Equal Opportunity Employer. RESEARCH ASSOCIATE IN CLINICAL CARDI-

POSITIONS OPEN

PHYSIOLOGIST

A junior or senior faculty position for a Ph.D., M.D., or equivalent degree holder is available begin-ning 1 July 1979. Rank of this tenure-track position depends on the qualifications of the candidate. For consideration as assistant professor, a minimum of 2 years of postdoctoral experience is required. We are seeking a **CELL PHYSIOLOGIST** working in any seeking a **CELL PHYSIOLOGIST** working in any area of physiology. Applicants are expected to par-ticipate in the teaching of medical, paramedical, and graduate students and to have an independent, vig-orous research program, capable of competitive sup-port from granting agencies. Deadline for appli-cations is 15 July 1979. Applicants should submit curriculum vitae, a sum-mary of current and future research plans, and the names of three references to:

Chairman, Department of Physiology University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City, Kansas 66103

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POSTDOCTORAL POSITIONS in microbiology, biochemistry, or molecular biology to conduct re-search on isolation and characterization of plasmids, search on isolation and characterization of plasmids, transposability of genes specifying biodegradation and virulence. Should be familiar with electron mi-croscopy of DNA, preferably heteroduplex analysis and hybridization techniques. Also, enzymologists to study regulation and genetic mapping of arometic degradative pathways in enteric bacteria. Must have experience in enzyme purification and immunologi-cal characterization. Address inquiries, including curriculum vitae with list of publications and three letters of recommendation to: Dr. Anada Chakra-barty, Department of Microbiology and Immunology, College of Medicine, University of Illinois at the Medi-cal Center, 835 South Wolcott Street, P.O. Box 6998, Chicago, Illinois 60680. Chicago, Illinois 60680.

POSTDOCTORAL POSITION. Join group probing mechanisms of proteolytic enzymes. Experience in protein purification, organic synthesis, and FT-NMR helpful but not required. Annual salary: \$14,000. Available 1 May 1979 through 31 August 1980, with possibility of longer appointment. Send résumé to: Dr. Michael S. Matta, Department of Chemistry, Southern Illinois University, Edwards-ville, Illinois 62026. As an Affirmative Action Em-ployer, this university offers Equal Employment Op-portunity without regard to race, color, creed or reli-gion, sex, national origin, or handicap.

Two POSTDOCTORAL POSITIONS available immediately to study structural organization of nitromediately to study structural organization of nitro-gen-fixing gene cluster of *Klebsiella*. One additional position available 1 June to clone plant DNA in *Esch-erichia coli* and in yeast. Requirements: Ph.D. in biochemistry or molecular biology. Research experi-ence in phage, viral, or plasmid systems preferred. Send curriculum vitae and two references to: Dr. A. A. Szalay, Boyce Thompson Institute at Cornell Uni-versity, Tower Road, Ithaca, N.Y. 14853. Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available immediately for research in the control of cell differentiation. Approach will involve application of somatic cell hyspridzation procedures to myogenic cells. Previous experience in developmental cell biology, immuno-chemistry, or cell hybridization desirable. Appoint ment renewable annually: salary ranges from \$11,000 to \$14,000, depending on experience. Send curriculum vitae, summary of research interests, and three letters of reference by 15 June to: Dr. John R. Coleman, Division of Biology and Medicine, Brown University, Providence, R.1. 02912.

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Position available for a POSTGRADUATE RE-SEARCH BIOLOGIST to work on the determination of high resolution structure of enzyme-substrate complexes at low temperatures. Tools available: one complexes at low temperatures. Tools available: one of the best high-speed data collection systems, a very good low-temperature cooling device, a Vax 11/ 780 computer, and two Evans and Sutherland com-puter display systems. Experience with single crys-tal diffraction (large or small molecule) and/or at least square refinement desired. Available immedi-ately. Salary will be commensurate with experience and qualifications. Salary range: \$11,880 to \$14,916 per year. Please send résumé and the names of two references by 15 May to: **Professor Xuong Nguyen-Huu Department of Chemistry, B-017 University of California, San Diego** La Jolla, Calif. 92093

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POSTDOCTORAL POSITION—RECOMBI-NANT DNA. The research involves the isolation and characterization of mammalian tRNA genes. The appointment is available immediately for a 2-year period. Experience with nucleic acids is desirable. Salary: C\$12,000 to C\$13,000 per year. Send curriculum vitae and the names of three references to: Dr. Lawrence Kleiman, Lady Davis Institute, 3755 Cote Ste-Catherine Road, Montreal, Québec, Canada H3T 1E2.

POSTDOCTORAL RESEARCH ASSOCIATE in sympathetic neuron development in vitro. Salary commensurate with qualifications. Possibility of nontenure-track faculty appointment.

Vernon D. Rowe, M.D. Neurology Department University of Kansas Medical Center 39th and Rainbow Boulevard Kansas City, Kansas 66103

POSTDOCTORAL RESEARCH ASSOCIATE

Position available immediately for Ph. D. or M.D. to collaborate in research on carbohydrate metabolism in human cells and tissues with special reference to congenital disorders of glycogen metabolism. Starting salary: \$12,500. Send curriculum vitae and names of two references to:

Dr. David H. Brown or Dr. Barbara I. Brown Department of Biological Chemistry Washington University School of Medicine Saint Louis, Missouri 63110

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POSTDOCTORAL RESEARCH POSITION—Available immediately to study behavioral and neurochemical aspects of chronic narcotic administration in animals. Candidates with strong biochemical background preferred with Ph.D. or M.D. Send complete curriculum vitae, reprints and abstracts, and names of three references to: Dr. Kirstin R. Carlson, Department of Pharmacology, University of Massachusetts Medical School, Worcester, Mass. 01605. An Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATES. Ph.D. biochemistry or cell biology are immediately available for a minimum of 3 years. The research will involve studies of multienzyme systems in respiratory and tumor tissues which regulate the composition, synthesis, and secretion of cell surface antigens and mucin glycoproteins in these tissues. A second position is available to study the role of phosphorylation of soluble enzymes and membrane proteins in the mechanism of hormone action in kidney. Salaries for these positions range from \$12,500 to \$15,000, commensurate with experience. Send résumé and names of references to:

Dr. Joseph Mendicino Department of Biochemistry University of Georgia Athens, Georgia 30602

SENIOR BIOMASS SCIENTISTS AND PROJECT MANAGERS

Positions are available at The MITRE Corporation which offer challenge in working with both industry and government in wood energy projects including: commercialization planning for wood combustion, wood market assessments, energy and forest policy analysis, and resource availability estimates. Other integrated biomass programs in which MITRE is involved are: engineering systems for production of liquid and gaseous fuels, policy and economic analysis of biomass conversion systems, and technology assessment.

The MITRE Corporation, a not-for-profit systems engineering organization, offers stability and challenge for outstanding professionals. The biomass activities at MITRE are part of a comprehensive, interdisciplinary program in energy, resources, and the environment.

Your experience in the forest products industry or forestry research is highly desirable. A plus is handson experience in production, processing, or end market exposure. Successful management experience is valuable. Send your résumé by 1 June 1979, to: V. B. Jasper, The MITRE Corporation, 1820 Dolley Madison Boulevard, McLean, Va. 22102. Men and women of all races desired. PROFESSOR AND CHAIRPERSON, DEPART-MENT OF MICROBIOLOGY. Applications are invited for this position, presently vacant. An established record of scholarly activities including a doctoral degree, evidence of research interests, teaching competence, and administrative leadership potential should be identified. This department of eight fulltime faculty members is in a new and developing school on the campus of a major state-supported university. Please send a letter of application, curriculum vitae, and names of references by 30 June 1979, to: J. Ted Hartman, M.D., Chairman, Search Committee for Microbiology, Texas Tech University School of Medicine, Lubbock, Texas 79430. Competitive salary. Texas Tech University School of Medicine is an Equal Opportunity Employer.

Two-year TEMPORARY APPOINTMENT, master's level, beginning September 1979 to teach undergraduate courses including general physiology and cell biology. Average faculty load of 12 hours per semester. Contact: R. S. Peckham, Ph.D.

R. S. Peckham, Ph.D. Acting Chairman Department of Biology Mount St. Mary College Newburgh, N.Y. 12550

TOXICOLOGIST/PHARMACOLOGIST — The Department of Pharmacology has an opening for an assistant or associate professor of pharmacology with research experience as a toxicologist/pharmacologist. Candidates are expected to have a doctorate degree with at least 1 or 2 years of postdoctoral training in toxicology, and for the associate professor rank, must have experience commensurate with the rank. The position requires candidates who have demonstrated productivity in toxicological research which will permit the attainment of externally supported research program. The applicant must have experience in teaching and will participate in all the teaching programs of the department and will help develop toxicology research programs within the department. The college is located on a new, 50-acrecampus in Newark. Many opportunities are available in the geographic area for academic and industrial interactions. Send curriculum vitae, including the names of three references, to: Dr. George A. Condouris, Professor and Chairman, Department of Pharmacology, code AB, The College of Medicine and Dentistry of New Jersey—New Jersey Medical School, 100. Bergen Street, Newark, N.J. 07103. Equal Opportunity/Affirmative Action Employer.

VICE PRESIDENT FOR RESEARCH UNIVERSITY OF UTAH

Applications and nominations are invited for the above position which has administrative responsibility for research grants and contracts of some \$50 million primarily in the fields of engineering, medicine, minerals, pharmacy, and science. Primary responsibilities include contacts with federal granting agencies and foundations, keeping faculty and other state colleges informed of grant opportunities and application procedures, and participating in the development of general university policies.

Desired qualifications include an earned doctorate in technical discipline, demonstrated success in working with federal and private granting agencies from an academic base, a knowledge of research accounting and contracting procedures and requirements, and previous high-level administrative experience.

Biographical data and names of references should be sent by 30 May to: Dr. Anthony Morgan, Search Committee, 211 Park, University of Utah, Salt Lake City, Utah 84112.

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FELLOWSHIPS

PREDOCTORAL AND POSTDOCTORAL TRAINING IN BASIC NEUROSCIENCES

The Department of Physiology of the University of Colorado Medical School offers predoctoral and postdoctoral training fellowships in the basic neurosciences to individuals planning research and teaching careers. Address inquiries to:

Dr. A. R. Martin Department of Physiology University of Colorado Medical School 4200 East Ninth Avenue Denver, Colorado 80262

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FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS available now in the Laboratories of Connective Tissue Research of the Department of Biochemistry, Baylor College of Medicine, Houston, Texas 77030, for a Ph.D. (biochemistry or organic chemistry) with good working experience in enzymology or chemistry of structural proteins. Send curriculum vitae and three letters of recommendation, or write for additional information to: Dr. Nicola Di Ferrante at the above address. An Equal Opportunity Employer.

TRAINING PROGRAMS

POSTDOCTORAL RESEARCH TRAINING

The Department of Psychiatry at the University of Colorado Medical Center in Denver is offering a Research Training Program in Developmental Psychobiology with an emphasis on the development of maladaptive behavior. A multidisciplinary faculty offers a formal core curriculum as well as research opportunities ranging from basic to clinical science, including comparative work with nonhuman primates. Candidates must have Ph.D. or M.D. degree. For details, contact: Martin Reite, M.D., Department of Psychiatry, Box C 268, University of Colorado Medical Center, Denver, Colorado 80262. The University of Colorado is an Affirmative Action/ Equal Opportunity Employer.

POSTDOCTORAL TRAINING PROGRAM INTERDISCIPLINARY IMMUNOLOGY

Applications are invited for an NICHHD-supported interdisciplinary training program in immunology. The program provides a core curriculum of interdepartmental training in basic and clinical immunology with an emphasis on developmental processes. Research opportunities are available in the basic science disciplines of immunobiology, immunochemistry, immunogenetics, immunopathology, and immunopharmacology, and the clinical disciplines of allergy and immunology, infectious disease, disorders of immune regulation, and respiratory diseases. Training program offered by the Georgetown University International Center for Interdisciplinary Studies of Immunology which is one of four NIH Centers for Interdisciplinary Research in Immunologic Diseases (CIRIDS). Applicants should have a Ph.D., M.D., or equivalent degree and be interested in a career in academic medicine. Positions available beginning July 1979. Send curriculum vitae and three letters of reference as well as other supporting documents to: Dr. N. Balter, Gorman 130, 3800 Reservoir Road, NW, Washington, D.C. 20007.

Georgetown University is an Equal Opportunity/Affirmative Action Employer. Applications from women and minorities are encouraged.

ADVANCED STUDY INSTITUTE

NATO STUDY INSTITUTE

An Advanced Study Institute entitled, **Sludge Characteristics and Behavior**, will be conducted at the University of Delaware, Newark, Delaware, from 17 to 26 July 1979. The format of the institute will be tutorial including lectures, discussion, and problem sessions. The tentative course outline is as follows:

Sludge Properties: Physical; Biological; Chemical; Sludge Behavior; Age; Hydrodynamic Influences; Complexation; Compressibility; Water Binding; Inactivation and Stabilization; Reactions; Leaching; and Case Histories and Regulatory Considerations.

The lectures will be given by eminent engineers and scientists from different countries.

Accommodations will be provided for participants at the Clayton Hall Complex located on the campus of Delaware University. The cost of the full 10-day period including accommodation, full board, and lecture notes is U.S.\$400 for single rooms and U.S.\$350 per person for double rooms. There will be no admission fee. A limited number of fellowships will be available to cover travel and living expenses.

The working language of the institute will be English. Since attendance is limited early applications are encouraged. Applications should be addressed:

Dr. Judith B. Carberry Department of Civil Engineering University of Delaware Newark, Delaware 19711

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research scientists toxicologists & pharmacologists

Senior positions are open in the Research & Development Laboratories of a major producer of OTC pharmaceuticals and toiletry products. Applicants should have a Ph.D. (or equivalent) plus experience in personally conducting studies in the respective areas. Successful candidates should be selfstarters with the ability to apply knowledge and experience from diverse disciplines to the design and implementation of safety studies and pharmacologic/toxicologic evaluations to aid new product development.

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Interested, qualified applicants should send resume stating salary requirements in confidence to: Personnel Department, Bristol-Myers Products, 225 Long Avenue, Hillside, N.J. 07207. An equal opportunity employer. Age No Barrier. Male/Female/Handicapped/Veteran.

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STAFF FELLOWSHIP

The National Institutes of Health seeks a postdoctoral fellow for a research and development position with the Computer Systems Laboratory, Division of Computer Research and Technology. The position will involve the development of instrumentation, minicomputer and microcomputer systems, and software for application to biomedical research. Candidates should have a Ph.D. or equivalent experience in electrical or biomedical engineering. Background or experience is desirable in one or more of the following areas: microprocessors, minicomputers, instrumentation, software engineering. Initial appointment will be for two years with potential for one year extensions to a maximum of four years. Stipend range is \$15,120 to \$26,937 depending upon qualifications.

Contact or send resume to:

Mrs. Stella A. Graves

NATIONAL INSTITUTES OF HEALTH Public Health Service 9000 Rockville Pike Building 12A, Room 3019 Bethesda, MD 20205 An Equal Opportunity Employer

VETERINARY PATHOLOGIST

We are seeking a Veterinary Pathologist to participate in a variety of subchronic, chronic and special studies involving oral, dermal and inhalation toxicology/pathology. The studies will be conducted at Stauffer's new Environmental Health Center in Farmington, Connecticut. The successful candidate will have a DVM degree, diplomate status in the American College of Veterinary Pathologists and 3-5 years experience in toxicology/pathology. This position offers excellent opportunities for collaborative programs with staff in the Inhalation Toxicology, Analytical Chemistry, Biochemistry, and Metabolism/Pharmacokinetics Sections.

The new Environmental Health Center is adjacent to the University of Connecticut Health Center, and is located in one of the state's most attractive, semi-rural towns. Stauffer offers a very competitive salary and an excellent benefits program. Please send a curriculum vitae, brief description of your experience, and salary requirements to:

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CHEMICALS

Dr. Gary Zwicker

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What does an academic person like Julia Tan do in a film factory?

Answer: She finds out things about polymers that are useful to the factory and interesting to other scientists.

For example:

• When ionization causes a compact globular coil of copoly(ethyl acrylateacrylic acid) to start uncoiling, the distribution of acid has little influence on the onset of the transition (Macromolecules 6, 741 [1973]). A wormlike model for this copolymer correlates viscosity data with light-scattering data (J. of Polymer Science, Polymer Physics Edition 12, 1785 [1974]). Binding of the fluorescent dye TNS,1 much used to study hydrophobic binding sites in proteins, and of the cationic dye Acridine Orange² is a sensitive function of chain conformation for this polymer (J. Phys. Chem. 79, 1380 [1975]).

• Ion binding in some sulfonate-containing polyelectrolytes is insensitive to changes in polymer concentration but sensitive to salt concentration (*J. of Polymer Science, Polymer Physics Edition* **14,** 239 [1976]).

• Sulfonate-containing polyelectrolytes are highly expanded in salt solution and cannot be precipitated with added salt. The persistence lengths of these polymers can be estimated by applying the wormlike-chain model to light-scattering and viscosity data. The behavior of charged polymeric chains thus becomes easier to understand (Macromolecules 10, 947 and 955 [September-October, 1977, an issue of this journal in honor of the 80th birthday of the eminent physical chemist Maurice Huggins, originator of the concept of hydrogen bonding, formerly of the Kodak Research Laboratories]).

Before joining us Dr. Tan taught chemistry at Wesleyan University. Turns out she didn't have to give up the pleasure of dealing with the eager young when she succumbed to our wiles. Academic chemistry departments send us bright students to work under people like Dr. Tan for a summer. One of hers



has gone on to Ecole Nationale Supérieure de Chimie de Paris, one to graduate studies at Case-Western Reserve, and one to a petrochemical company.

Julia Tan also works as a sculptor in gold and gemstones (see right). She sees little basic difference between her science and her art, doubting there is any. When she switches from the shapes of real macromolecules to the shapes of abstractions in gold, her technique is the ancient one of lost wax, her tool an acetylene-fired centrifugal casting machine.

Address for polyelectrolyte correspondence: Dr. J. S. Tan, Chemistry Division, Kodak Research Laboratories, Rochester, N.Y. 14650.



Y. T. Tan

¹No. 10613 in our laboratory chemicals catalog ²No. 1757 in our laboratory chemicals catalog

