

NEWS AND COMMENT

(Continued from page 684)

search fellow, Carnegie Commission on Higher Education. . . . **David V. Ragon**, dean, School of Engineering, Dartmouth College, to dean, College of Engineering, University of Michigan.

RECENT DEATHS

Richard A. Bloomfield, 39; acting dean, Graduate School, University of Missouri; 19 April.

Robert W. Dickey, 79; professor emeritus of physics, Washington and Lee University; 24 March.

Julius Fox, 57; associate clinical professor of dental surgery, Albert Einstein College of Medicine; 5 May.

Harry Gold, 72; professor emeritus of clinical pharmacology, Cornell University Medical College; 21 April.

Julius Halpern, 60; professor of physics, University of Pennsylvania; 13 May.

Frederick V. Hunt, 67; professor of physics, Harvard University; 21 April.

Edward C. Kendall, 86; visiting professor of chemistry, Princeton University; 4 May.

Aubrey E. Landry, 91; professor emeritus of mathematics, Catholic University; 3 May.

Ernest L. Mackie, 79; professor emeritus of mathematics, University of North Carolina; 18 April.

John N. McDonnell, 62; former president, College of Pharmacy, Columbia University; 11 April.

Sandor Rado, 82; retired president and dean, New York School of Psychiatry; 14 May.

Melvin C. Rigg, 76; former chairman, philosophy and psychology department, Wisconsin State University, Eau Claire; 15 March.

Wendell G. Scott, 66; professor of clinical radiology, Washington University School of Medicine; 4 May.

John Q. Stewart, 77; retired professor of astronomy, Princeton University; 19 March.

Joseph Stokes, Jr., 76; professor emeritus of pediatrics, University of Pennsylvania; 10 March.

Lloyd E. Swearingen, 75; professor emeritus of chemistry, University of Oklahoma; 9 March.

Laszlo Zechmeister, 82; professor emeritus of organic chemistry, California Institute of Technology; 28 February.

25 AUGUST 1972

Personnel Placement

POSITIONS WANTED

Anthropologist: Near Ph.D.; 4 years of teaching experience. Academic specialties: kinship and social organization, evolution and culture change, theoretical anthropology, ethnology of North America. Research experience and interest in psychology. Immediate availability in United States or foreign country. J. Vernon Shehan, 1572 June Avenue, San Jose, California 95122. X

Biochemist Ph.D. 1962. Physical and chemical properties of carbohydrates and interacting enzymes. Desires teaching and/or research position. Write O. S. Fisher, Blackfoot, Idaho 83221. X

Electron Microscopy, technician with 1 year of experience in most phases of electron microscopy work. Box 334, SCIENCE. X

Ophthalmologist. Subspecialist in corneal diseases and ocular microbiology and immunology. Director of large academic research group and clinical service with major grants and contracts. Considerable experience with anti-infectives, anti-inflammatories, and FDA procedure. Interested in product development and promotion internationally. Desires creative top management position. Call 319-337-4734. X

Ph.D. Nutritional Biochemistry, Massachusetts Institute of Technology, 1970; D.M.D., Tufts, 1964. Experience includes biostatistics, electron microprobe, SEM. A. J. Saffir, 1342 Fieldfair Court, Sunnyvale, California 94087. X

Ph.D. Pharmacology; physiology, microbiology minors, medical background, experienced teacher seeks medical, biology, nonacademic position, available September. Box 335, SCIENCE. X

Pharmacology M.S., chemistry B.S.; 25, recent graduate. Lab experience in chemistry spectroscopy, physiology and pharmacology; adaptable. Desires industrial position. Box 336, SCIENCE. X

Physicist Ph.D. 1972. Light scatterer. Diverse experience in laser excited light scattering and fluorescence. Desires to apply background to environmentally or biologically related research. Available in September. Box 337, SCIENCE. X

POSITIONS OPEN

UNIVERSITY OF LOUISVILLE COLLEGE OF ARTS AND SCIENCES

Applications are invited for the position of **Dean**, College of Arts and Sciences. Earned doctorate, college teaching, and faculty committee experience required. Administrative experience desirable. Address all inquiries to **Professor William G. Bos, Chairman, A & S Search Committee, University of Louisville, Louisville, Kentucky 40208**. The University is a state-supported Urban University and is an Equal Opportunity Employer.

AGRICULTURAL BIOCHEMIST

Faculty position with dual research title of comparable rank in the Agricultural Experiment Station. To teach chemistry and metabolism of nucleic acids and develop research program in plant proteins, nucleic acids, or virus metabolism at the cellular and sub-cellular level. Minimum of 13 years of postdoctoral experience with publication record demonstrating capacity for independent productive research. Rank and salary will be based on qualifications and experience. Applications including curriculum vitae, names of three referees, list of publications, and a statement of research interest should be sent to **Dr. Mitchell G. Vavich, Head, Department of Agricultural Biochemistry, University of Arizona, Tucson, Arizona 85721**.

An Equal Opportunity Employer

CELL BIOLOGIST, Ph.D.

To join a team effort to study mechanism of chemical carcinogenesis for nonprofit medical research organization in New York City. Send curriculum vitae and salary requirements to: **Box SM 447, 810 7th Ave., New York, N.Y. 10019**.

Cardiopulmonary Physiology

Medical Devices Test and Evaluation

The IIT Research Institute has challenging positions for experienced physicians and physiologists to join a multi-disciplinary research group whose primary objective is focused upon the test and evaluation of cardiac and pulmonary assist devices.

The candidates we are seeking should have a demonstrated capability in the application of cardiovascular and pulmonary physiology to solving interdisciplinary research problems. The physician sought should have training in internal medicine and cardiology. Primary interests of all candidates should be one or more of the following areas; cardiovascular physiology, pulmonary physiology, artificial organs and assist devices. The candidates should have between 5 and 7 years of experience with clinical and/or animal research and surgery, including the use and understanding of medical instrumentation.

The positions will entail the responsibility for the test and evaluation of artificial organs, circulatory and respiratory assist type devices. Included will be the development of clinical criteria for meaningful evaluation procedures.

The IIT Research Institute is located on the campus of the Illinois Institute of Technology and is an independent contract research organization serving industry and government. Its activities encompass nearly all of the physical and biological sciences and their related technologies. For prompt consideration of your interest, please forward a detailed resume, including salary history, to Mr. Ronald C. Seipp, or call collect (312/225-9630, Ext. 4231).

IITRI IIT Research Institute

10 West 35th Street
Chicago, Illinois 60616

An Equal Opportunity Employer
(M/F)

NIH

Applications Are Invited for Appointment as PROJECT SCIENTIST

IN THE NATIONAL INSTITUTE OF DENTAL RESEARCH

The National Institute of Dental Research has established the National Caries Program to develop measures and agents for markedly reducing the prevalence of tooth decay. A concerted effort is now being made to sponsor research to produce new information toward this end. Implementation of this program requires the appointment of one or two scientists, on a selective basis, who: (1) have had significant experience at the postdoctoral level in dental research or related basic sciences, (2) have a genuine interest in being a full-time science administrator, and (3) are willing to relocate to the Washington, D.C. area.

The development of enzymes and anti-metabolites to combat caries-inducing bacteria is one of the key research areas in the National Caries Program. Accordingly, individuals with recent experience in enzymology, immunology, pharmacology, and/or related disciplines are preferred. Project scientists in this program are responsible for development, coordination, site-visiting and reporting of collaborative research projects and contracts. The beginning salaries for these Civil Service appointments range up to \$21,960. U. S. citizenship required.

Those interested in being considered are invited to submit their resumes before October 1, 1972, including a covering letter explaining their motivation toward a career in science administration as opposed to participation in laboratory research.

NATIONAL INSTITUTES OF HEALTH

National Institute of
Dental Research
National Caries Program
Westwood Building, Room 549
5333 Westbard Avenue
Bethesda, Maryland 20016

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POSITIONS OPEN

CELL PHYSIOLOGIST

Recent Ph.D. for research in the intracellular transport of small solutes and macromolecules. Will learn advanced biophysical techniques. Position requires initiative and technical proficiency. Send vitae and references to: **Dr. S. B. Horowitz, Michigan Cancer Foundation, Detroit, Michigan 48201**

CRYOBIOLOGIST

Ph.D. with experience in cryobiology to supervise a cryobiology research program in blood cell and tissue cryopreservation. Additional information, contact **Dr. R. E. Reed, ACOS, VA Hospital, 2215 Fuller Road, Ann Arbor, Michigan 48105, 313-769-7100 ext. 221.**

DEPARTMENT HEAD Tissue Culture

Progressive biomedical research and production company has immediate opening for an experienced individual to supervise all phases of tissue culture preparation in a production department. Require B.S. or M.S. degree in microbiology or chemistry with in-depth knowledge of tissue culture and virology and 2 to 5 years' experience necessary. Prior supervisory experience would be an advantage. Excellent starting salary and company benefits. Send résumé in confidence to **Box 338, SCIENCE**

UNIVERSITY OF OTAGO Dunedin, New Zealand

CHAIR OF HUMAN NUTRITION

Applications are invited from medical or science graduates for the newly established Chair of Human Nutrition.

Professorial salaries are fixed at various points within the range of \$NZ11,698 per annum to \$NZ14,947 per annum. The rates are subject to both triennial review and intervening cost-of-living adjustments.

The Department of Human Nutrition has recently been expanded and in addition to courses for the degrees of B.H.Sc., M.H.Sc., and Ph.D. is now offering courses in the Science Faculty for B.Sc. (Hons) and M.Sc.

Particulars are available from the **Secretary-General, Association of Commonwealth Universities (Apts), 36 Gordon Square, London WC1H 0PF (Tel: 01-387-8572)** or from the **Registrar, University of Otago, P.O. Box 56, Dunedin, New Zealand.**

Applications close in New Zealand and London on **30 November 1972.**

DEPARTMENT OF PATHOLOGY OF MEDICAL SCHOOL AT MAJOR EASTERN UNIVERSITY

Invites inquiries from suitably qualified M.D.'s or Ph.D.'s for one or more positions at the rank of Assistant Professor or Associate Professor with major research interest in the field of:

- 1) Surgical Pathology—particularly bone, renal, or cardiac problems
- 2) Cellular immunology and immunochemistry

Applications, including curriculum vitae and three references, should be sent to **Box 327, SCIENCE.** The University is an equal opportunity employer.

MONASH UNIVERSITY DEPARTMENT OF PSYCHOLOGY SENIOR TEACHING FELLOW/ TEACHING FELLOW (two vacancies)

Applications are invited for appointment early in 1973 as Teaching Fellow or Senior Teaching Fellow in the Department of Psychology. Applicants should be graduates in psychology with a good honours degree or a postgraduate qualification of a similar standard. The department, which is in the Faculty of Science, teaches a major and honours course in that Faculty and a minor course in the Faculty of Arts. Research interests extend over a broad range of experimental psychology.

Salary: Senior Teaching Fellow: \$A5,441 to \$A6,556 p.a., Teaching Fellow: \$A4,465 to \$A5,300 p.a.

Benefits: Traveling expenses for appointee and family; removal allowance, repatriation after 3 years' appointment if desired; temporary housing for an initial period.

Further general information and details of application procedures are available from the **Acting Academic Registrar, Monash University, Wellington Road, Clayton, Victoria 3168.** Inquiries about the department and research interests of the staff from the Chairman, Professor R. H. Day.

Closing Date: 30 September 1972.

The University reserves the right to make no appointment or to appoint by invitation.

POSITIONS OPEN

MOSQUITO ECOLOGIST, Ph.D., to participate in laboratory research and field studies in Pakistan to assess genetic methods of mosquito control. Appointment for 2 to 3 years. Travel, housing, and American education for grade and high school dependents provided. Salary commensurate with training and experience. Submit curriculum vitae by airmail to: **Dr. Richard H. Baker, Director, Pakistan Medical Research Center, University of Maryland, 6, Birdwood Road, Lahore, Pakistan.**

WHO RESEARCH AND TRAINING CENTRE FOR IMMUNOLOGY AND INTERNATIONAL REFERENCE CENTRE FOR IMMUNOGLOBULINS, INSTITUT DE BIOCHIMIE, UNIVERSITÉ DE LAUSANNE

An **Immunologist/Immunochemist** is required to work in the field of humoral immunology. The Centres are concerned with research into aspects of immunology especially relevant to the programme of the World Health Organization, and practical applications of advances in immunology to problems of human disease. Candidates should have good research experience in humoral immunology and show capability in organizing research and in the supervision of research students. Knowledge of French would be an advantage. Conditions of employment will be according to qualifications and experience. Inquiries and applications to **Dr. D. S. Rowe, WHO Research and Training Centre for Immunology, 21 rue du Bugnon, 1011 Lausanne, Switzerland.**

RECENT Ph.D.

experienced and interested in mechanism of action of estrogens, estrogen receptor proteins. Immediate opening. Send résumé.

Box 339, SCIENCE

SENIOR TOXICOLOGIST

Huntingdon Research Center—Towson, Md. (Branch HRC-Worldwide) invites applications for position of Toxicologist, Ph.D. or D.V.M. Experience in safety evaluation of drugs, food additives, pesticides, medical devices. Salary commensurate with experience. Applications to **Director, Huntingdon Research Center, P.O. Box 6857, Baltimore, Md. 21204.**

VIROLOGIST, Ph.D.

To develop antiviral evaluation program. Experience with in vitro and in vivo systems desirable. Publication and participation at scientific meetings is encouraged. Available 1 Oct. 1972. Salary open. Please forward résumé to:

**T. E. Lynes, Ph.D.,
Newport Pharmaceuticals International, Inc.
1590 Monrovia Boulevard
Newport Beach, California 92660**

The Market Place

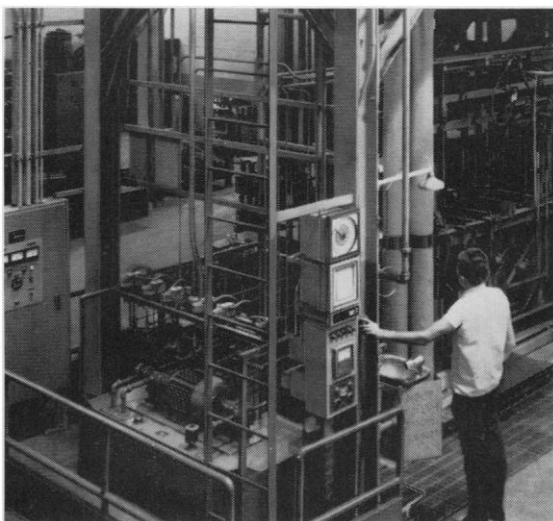
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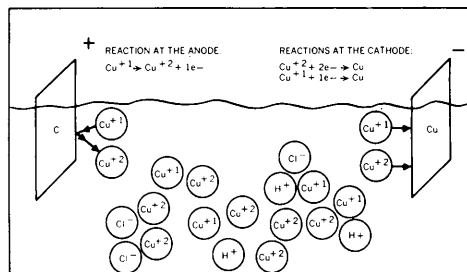
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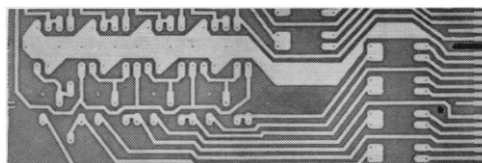
WESTERN ELECTRIC REPORTS



Automatic regeneration and plating machine has a heavy, rubber-lined tank with 22 stationary graphite anodes and 57 rod-like copper cathodes moving at the rate of 90 transfers an hour.



The action at the cathode. Electrochemical reversal of the etching reaction effecting etchant regeneration and copper recovery.



Typical printed wiring board consists of copper (only 0.0028 inch thick) laminated to a phenolic-resin panel. With the new process, unwanted metal is etched away with cupric chloride.

Creating an entirely new way to etch printed circuits.

One of the most common methods of printed circuit manufacturing is by batch-etching with ferric chloride. However, while batch-etching produces circuits of high quality, it also has some processing disadvantages.

For instance, it takes more and more etching time as the etchant is used. Then, to replace the spent etchant means considerable downtime. And the etching of 100,000 circuit boards produces 2000 pounds of copper in a non-recoverable form.

Engineers at our Columbus, Ohio plant set out to discover a better way to etch that would eliminate all of these inherent problems.

Their new process is the first closed-loop, spray-etching system that electrolytically reverses the chemical reaction of etching. It continuously recycles cupric chloride and has reduced the cost of etching wiring boards by over 90%.

Virtually all the problems of the old method have been overcome. No more machine downtime is required to change etchant. No more costly ferric chloride

is needed. Etchant strength does not diminish. The etching rate is now constant and faster than the average ferric chloride rate. There's no more waste of etched copper. It is now recovered, about 20 pounds per hour, and resold.

Conclusion: The first completely closed-loop cupric chloride etching system in the printed circuit industry is a major innovation that has improved efficiency and quality, eliminated downtime and decreased costs by more than 90%. Furthermore, it has helped conserve a valuable natural resource.



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