

mouriamorpha once again are the closest relatives of all other reptiles by virtue of their inclusion with the cotylosauria, the "stem-reptiles." Moreover, it is patently illogical to define reptiles as "tetrapods that produce amniotic eggs, but which have not developed feathers or mammary glands" (p. 541) and place them as an order within the class Amphibia when the latter is in turn defined as "tetrapod gnathostome vertebrates that have not developed extraembryonic (amniotic) membranes in the egg" (p. 540). Opposition to such changes and the confusion that follows is to be expected. Still, we must be cautious in our reluctance to accept the changes—are we opposed to the analytical methodology that generated them, or merely to the changes themselves?

"Stratigraphical order of the fossils, and consideration of environment and mode of life," in Westoll's phrase (p. 3), are accessory to the formulation of a hypothesis of relationships. They are useful adjuncts only insofar as they "can be deduced from geological record." The latter reservation is especially relevant in the case of papers on Upper Paleozoic continental distribution, Carboniferous geography, early land floras, and invertebrate terrestrial faunas and those that deal with the ecology of the flora and vertebrate fauna. Each of these contributions attempts to formulate a historical picture extrapolated from our understanding of the Recent—understanding that, in some cases, is based on examination of museum collections more than a century old. The exercise demands caution. The coincidence or non-coincidence of fossil forms in the geological record and the sedimentological context in which they occurred are matters of inference. The conclusions become all the more tenuous when dependent on a description of a 200- to 400-million-year-old habitat that necessarily has been derived from our knowledge of the ecological requirements of Recent forms. I heartily agree with the spirit of Scott's statement that "the interpretation of ecology from botanical structures can be very misleading and perhaps even dangerous" (p. 93). Thomson provides a parallel example relating to extrapolation of faunal characteristics on the basis of sedimentology. Although earlier he favored freshwater occurrence of crossopterygians in the Upper Devonian (*Biol. Rev.* 44, 132–133 [1969]), he now tends to accept even a marine (coastal) origin of tetrapods based on the distribution patterns of the first Upper Devonian tetrapods and the co-occurring fishes. Despite these reservations, the compilation

of paleogeography, flora, and fauna is the most valuable part of this volume; it provides a broad picture reflecting the present interpretations of the terrestrial environment of the Upper Paleozoic. A reader who looks at this volume for a definitive discussion of the origin of tetrapods will be misled.

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- Air-Sea Interaction.** Instruments and Methods. F. Dobson, L. Hasse, and R. Davis, Eds. Plenum, New York, 1980. xii, 802 pp., illus. \$39.50.
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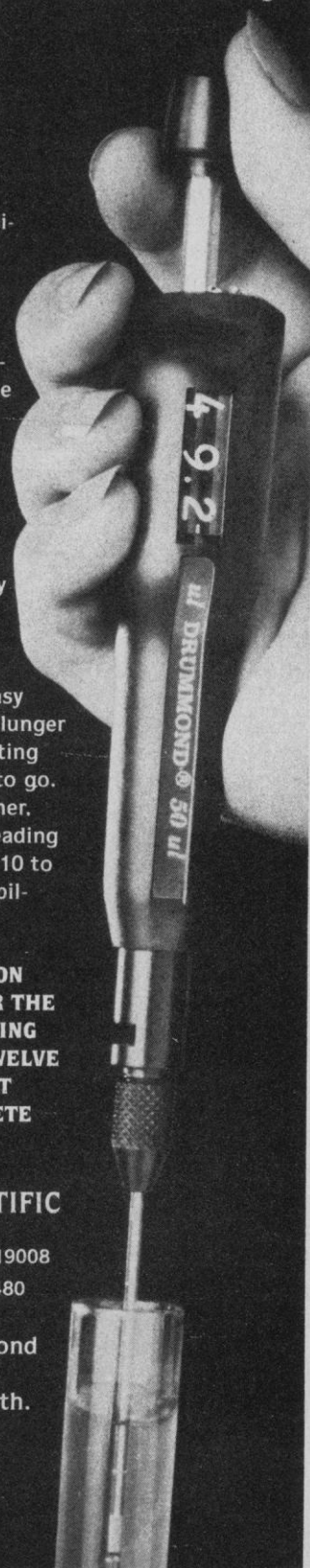
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Minicomputer for Research

The H300 is a 48-bit minicomputer. It offers up to 2 million bytes of real memory and more than 12 million bytes of virtual memory. There is an optional Scientific Arithmetic Unit which supports floating point and other operations independent of the central processor. The H300 features error-correcting main memory, an integral 80-megabyte Winchester-type disk, streaming tape drive, and a Vulcan operating system. It will support up to 48 interactive terminals. Languages include FORTRAN 77, extended BASIC, COBOL, APL, RPG II, Harris Macro Assembler, Pascal, and others. Harris, Computer Systems Division. Circle 784.

Disk Drives

Model 6182 is a 5¼-inch fixed disk drive with 6 megabytes of unformatted capacity on two platters. Model 6183 features 10 megabytes of capacity on three disks. Both offer track-to-track ac-

cess time of 2 milliseconds, an average data-access time of 100 milliseconds, and a transfer rate of 5 megabits per second. Track density is 254 per inch and bit density is 7690 per inch. These models are designed to upgrade floppy disk systems in laboratory, desktop, and personal computers. BASF Systems. Circle 787.

Minicomputer

The Megamini 3230 system features a processor with 512 kilobytes of memory, a system console, two terminals, an 80-megabyte disk, and an operating system. When configured with up to 8 megabytes of directly addressable memory, this system is designed for research such as simulation studies, seismic analysis, computer-aided design, and laboratory computation. Options include floating-point processor, writable control store, and others. Languages include ANSI-77 FORTRAN VII, Pascal, ANSI-Standard COBOL, BASIC, CAL MICRO, RPG II, CORAL 66, and Language C. Perkin-Elmer, Computer Systems Division. Circle 788.

Software for Quantitative Analysis

Compuset III mathematically compensates for solvent, sample environment, or sample matrix errors in quantitative infrared spectroscopy. The multicomponent program may be used for calibration with mixtures of known composition; pure standards need not be used. Calibration curves calculated with least-squares fit are stored and may be retrieved by name. Protocols may be programmed readily. Uses include calculation of intercept values; experimental replication; normalization to 100 percent; pathlength indeterminate analysis by band, ratio technique, or matrix manipulation method; and solving matrices of simultaneous equations. Beckman Instruments, Scientific Instruments Division. Circle 789.

Distributed Data Processing

The PTS/1210 is diskless. It may be used as an entry level distributed processing system, as a multiprotocol communications controller, or as a remote batch terminal. There are five communication modes available to support the above applications. The PTS/1210 system will support up to 24 dual-intensity 1920-character displays with 3270-type typewriter or data entry keyboards. Additional peripherals are available. Raytheon Data Systems. Circle 786.

Disk Cartridge

The 4424 disk cartridge measures 11 inches square by 1 inch thick. It is compatible with 10½-inch drives such as CII Honeywell Bull D120 and D140 models. Storage capacity is 10 megabytes. Embedded servo signals position the read-write head. Each cartridge contains one disk with two recording surfaces. Track density is 500 per inch; recording density is 4750 bits per inch. Nashua. Circle 791.

Image Analysis

The GA3 system is microprocessor-based. It includes a full-size disk, line printer, and CRT terminal. It can be used to determine areas, length, and other parameters by manual tracing of an object or photograph. Measurements may be stored and recalled for analysis. The system will also serve as a general-purpose computer and for word processing. BASIC is supplied and custom programs are available. MicroGraphics. Circle 790.

Literature

Pharmaceutical Testing Equipment is a guide with more than 50 product categories. Van Kel Industries. Circle 780.

Buret is devoted to the Metrohm E 415 automated titrator. Brinkmann Instruments. Circle 781.

Liquid Chromatography Detector features model 441 for low ultraviolet wavelength detection. Waters Associates. Circle 783.

Plasma Separator describes the Cryomax processor for drugless therapy in the treatment of autoimmune diseases. Park Hannifin. Circle 792.

Energy, Environmental, and Science Education Materials is a catalog for educators and others. Crystal Productions. Circle 793.

Newly offered instrumentation, apparatus, and laboratory materials of interest to researchers in all disciplines in academic, industrial, and government organizations are featured in this space. Emphasis is given to purpose, chief characteristics, and availability of products and materials. Endorsements by *Science* or *AAAS* is not implied. Additional information may be obtained from the manufacturers or suppliers named by circling the appropriate number on the Readers' Service Card (on pages 602A and 698A) and placing it in the mailbox. Postage is free.


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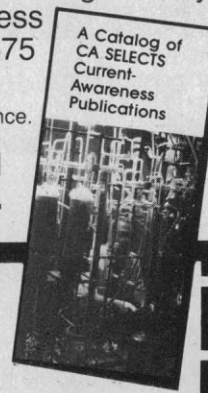
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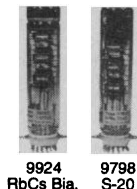
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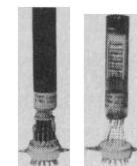
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CANCER PHARMACOLOGIST

The Cancer Center and Research Division of the Cleveland Clinic Foundation has a position for a laboratory-oriented cancer pharmacologist.

The candidate should be a Ph.D. with three or more years of experience in one or more of the following areas: drug testing for antitumor activity, mechanism of action and/or metabolism of anticancer drugs, clinical drug monitoring and radiation sensitizers. Excellent research support; resources and opportunities for interaction with well-established clinical chemotherapy and radiation therapy programs. Salary negotiable.

Send curriculum vitae and three references to:

Arthur Flynn, Ph.D.
Research Division
Cleveland Clinic Foundation
9500 Euclid Avenue
Cleveland, Ohio 44106

CELL SORTER OPERATOR. Laboratories involved in genetics, spectroscopy, and immunology seek individual with interest/experience in biotechnology to operate FACS II/IV. Experience with lasers/computers helpful. Opportunities for continuing education/participation in research. Salary: \$15,000 to \$20,000. Contact: **Dr. Samuel A. Latt, Genetics Division, Children's Hospital Medical Center, Boston, Mass. 02115.** Telephone: 617-735-7577.

POSITIONS OPEN

BIOSTATISTICIAN. We seek a highly qualified individual to develop a biometrics unit in the Johns Hopkins Oncology Center. Applicants should have a doctorate degree and relevant postdoctoral experience. Preference will be given to those with interests in automated data management and quality control techniques, experimental design, survival analysis, and computer applications.

The Center conducts much ongoing clinical and laboratory research and provides a wide variety of special patient care and consultation services. The successful applicant will be expected to develop independent research initiatives as well as productive collaborations with other faculty investigators. Joint faculty appointments will enhance the teaching of pre- and postdoctoral students in medicine and the scientific disciplines.

Applications, including complete curriculum vitae and bibliography as well as three references, should be forwarded (before 1 July 1981) to: **Dr. Albert H. Owens, Jr., Johns Hopkins Oncology Center, 600 North Wolfe Street, Baltimore, Maryland 21205.**
Equal Opportunity Employer

IMMUNOLOGIST, MICROBIAL GENETICIST, VIROLOGIST. Three faculty positions are available at the level of assistant professor and possibly associate professor. Effective date: 1 September 1981. Applicants for assistant professor should possess a minimum of 2 years of relevant postdoctoral research experience: **IMMUNOLOGIST** with an interest in cell-mediated immunity or tumor immunology with expertise in monoclonal antibody techniques; **MICROBIAL GENETICIST** with experience in recombinant DNA techniques and preferably a background in pathogenic microbiology; and **VIROLOGIST** with an interest in gene organization and animal virology. These positions involve teaching medical students and graduate students, supervision of Ph.D. thesis research, and the establishment of an independent research program. Send curriculum vitae and three letters of reference no later than 1 July 1981 to: **Dr. Thomas E. Shockley, Chairman, Department of Microbiology, Meharry Medical College, Nashville, Tennessee 37208.** *Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

Faculty position at the associate or full professor level to serve as **CHAIR** of the Department of Pomology. Ph.D. in horticulture, plant physiology, or other plant science discipline with a strong research background and with demonstrated leadership and administrative ability. Applicants should submit résumé, a list of publications, and the names and addresses of at least three referees to: **Dr. James Lyons, College of Agricultural and Environmental Sciences, University of California, Davis, California 95616,** prior to 15 June 1981.

DEAN FOR GRADUATE STUDIES AND RESEARCH

The University of Nebraska Medical Center

Applications and nominations are invited for the position of Dean for Graduate Studies and Research of the University of Nebraska Medical Center. The dean reports directly to the chancellor of the Medical Center and is responsible for graduate and research programs in the Colleges of Dentistry, Medicine, Nursing, and Pharmacy.

Candidates should have an earned doctorate and prior administrative and research experience in an academic setting. Applications, accompanied by résumés, should be received by 22 May 1981, and should be sent to:

**Dr. Manuchair Ebadi, Chairman
Search Committee**

**The University of Nebraska Medical Center
42nd and Dewey Avenue
Omaha, Nebraska 68105**

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

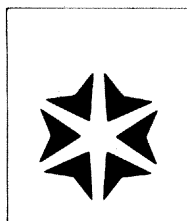
ELECTRON MICROSCOPIST for study of liver structure. At least 6 months of experience in embedding and cutting of sections, photographic developing, use of diamond and glass knife, electron microscope, and preparation of photographs for publication. M.S. degree with background in biochemistry and cell biology required. Salary: \$12,995; 37½-hour week. Submit résumé to: **Job Service, 634 Chapel Street, New Haven, Conn. 06510.** Job Order Number 297964.

POSITIONS OPEN

UNIVERSITY OF CALIFORNIA, BERKELEY, UNIVERSITY-WIDE ENERGY RESEARCH GROUP, Research Series (academic nonsenate) position to act as **DEPUTY DIRECTOR** of the group. Assist the director in the management of the group, and act on his behalf when requested. Qualifications include a Ph.D. or equivalent plus substantial research experience in an energy-related field; experience in the management of research programs, and with information systems, is very desirable. Less than 100 percent (but not less than 50 percent) time; allows for research or teaching in an energy-related field. Salary range \$32,900 to \$47,800 per year (full-time equivalent), depending on qualifications. Continuing position, subject to continued funding. Applicants should send curriculum vitae and three letters of reference by 1 June 1981 to: **Professor Jack M. Hollander, Universitywide Energy Research Group, Building T-9, Room 216, University of California, Berkeley, Calif. 94720.** *The University of California is an Equal Opportunity/Affirmative Action Employer.*

EXPERIMENTAL AND CLINICAL THERAPEUTICS. Develop therapeutic application of monoclonal antibodies generated by cancer seriology group at Sloan-Kettering Institute. Knowledge of pharmacology and animal therapeutics essential. Recent Ph.D., M.D., or D.V.M. preferred. Send curriculum vitae and bibliography to: **Dr. Joseph Fortner, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, N.Y. 10021.** *An Equal Opportunity/Affirmative Action Employer, M/F.*

INORGANIC/ORGANIC CHEMIST position for M.S. or Ph.D. with analytical and interpretive abilities as applied to water and waste instrumentation (atomic absorption and gas chromatography). Duties include development of chemistry division through equipment and personnel acquisition, proposal development, marketing, client interface, program design, data interpretation, and reporting. Salary range for M.S. is \$18,000 to \$20,000 and \$24,000 to \$28,000 for Ph.D. Send curriculum vitae and references to: **R. E. Schlotterbeck, 947 Newhall Street, Costa Mesa, Calif. 92627.**



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Our client's search is for high-calibre talent who can hold their own in this outstanding organization... consequently, the salaries and benefits offered match the situation.

Please send your detailed résumé to our Toronto office to establish if there is mutual interest. Naturally, all communications will be held in strictest professional confidence. Refer to File #430.

POSITIONS OPEN

FACULTY POSITION IN INDUSTRIAL HEALTH AND SAFETY

Applicants are invited for appointment as a faculty member (tenure-track) in the Program in Industrial Health and Safety (IHS), Center for Health Sciences, Oakland University, Rochester, Michigan. The IHS program integrates in its curriculum the educational goals and professional aspirations of not only traditional university students but also those of nontraditional students and workers. The responsibilities of the position include teaching selected courses in areas of industrial hygiene, safety, toxicology, human factors, or public health epidemiology, and to conduct research in any of the aforementioned subject areas. Applicants should hold a doctorate degree and be able to demonstrate research and professional competence in a field related to the foregoing position requirements. The appointment will be at the assistant professor level and salary is negotiable.

Oakland University is an Equal Opportunity/Affirmative Action Institution. Submit curriculum vitae to:

Uwe Reischl, Ph.D.
Program Director
Program in Industrial Health and Safety
Center for Health Sciences
Oakland University
Rochester, Michigan 48063

FACULTY POSITION

Field: Forest Photogrammetry and Remote Sensing.

Rank: Assistant or associate professor.

Minimum qualifications: Doctorate in the indicated or closely related field with at least one degree in forestry.

Duties:

- 1) Assume leadership for undergraduate and graduate teaching in the application of photogrammetric and remote sensing technology to forest resources management; and
- 2) Participate in the research programs of the School of Forestry.

Salary: Commensurate with qualifications.

Closing date: 30 June 1981 or until a successful applicant is found.

Starting date: 1 September 1981.

How to apply: Send résumé, transcripts, and three letters of reference to:

Dr. Kent T. Adair, Dean, School of Forestry
Stephen F. Austin State University
P.O. Box 6109—SFA Station
Nacogdoches, Texas 75962

FACULTY POSITION IN MATHEMATICS, 9-month, tenure-track position. Ph.D. in mathematics or master's in mathematics plus college teaching required. Teach and advise students; research. Salary based on qualifications. Start 24 August 1981. Application, transcripts, three references, and résumé to be postmarked by 1 June. Send to: **Barbara O'Hara, University of Alaska, Juneau, 11120 Glacier Highway, Juneau, Alaska 99801. Equal Opportunity/Affirmative Action Employer**

FACULTY POSITION IN BIOMETRICS, 9-month, tenure-track position. Ph.D. required. Teach, perform research, advise students and faculty on statistical problems. Salary based on qualifications. Start 24 August 1981. Contingent on funding. Application, transcripts, three references, and résumé to be postmarked by 1 June. Send to: **Barbara O'Hara, University of Alaska, Juneau, 11120 Glacier Highway, Juneau, Alaska 99801. Equal Opportunity/Affirmative Action Employer.**

MATERIALS POLICY

The Department of Engineering and Public Policy at Carnegie-Mellon University announces the addition of a new research focus in materials policy. The department offers an interdisciplinary, research oriented Ph.D. for persons with an undergraduate degree in engineering or the mathematical or physical sciences. A joint Ph.D. with the Department of Metallurgy and Materials Science can also be arranged. Persons with interest in materials supplies, reserves, and availability; stockpiling; extraction, refining and process technology; material substitution; process redesign; or materials recycling are especially welcome. Some financial support is available. Contact:

Dr. Indira Nair
Department of Engineering and Public Policy
Carnegie-Mellon University
Pittsburgh, Pa. 15213

POSITIONS OPEN

FACULTY POSITION VACANCIES. The Department of Pharmacology, University of Colorado School of Medicine, is seeking faculty members at the assistant professor rank. Applicants must have a Ph.D. degree in pharmacology, biochemistry, physiology, neurosciences, chemistry, or a related field and/or the M.D. degree and at least 2 years of postdoctoral research experience. Candidates must possess demonstrated research ability and a commitment to quality teaching of both professional and graduate students. Special consideration will be given to individuals with research background in molecular pharmacology, properties of receptors, neuroendocrine pharmacology, neuroactive peptides, immunopharmacology, or drug metabolism, but applications from outstanding candidates from all areas relevant to pharmacology will be welcome. Inquiries, which should include curriculum vitae, list of publications, reprints or preprints of selected papers, a brief description of the applicant's long-range research and career goals, and names and addresses of at least three individuals from whom letters of reference may be obtained, should be addressed to: **Faculty Search Committee, Department of Pharmacology (Box C-236), University of Colorado School of Medicine, 4200 East 9th Avenue, Denver, Colorado 80262. Applications from female and minority persons are especially encouraged. The University of Colorado is an Equal Opportunity/Affirmative Action Employer.**

DEPARTMENT HEAD. Department of Zoology, Oklahoma State University (OSU), starting 1 September 1981 or when a suitable candidate is available. Ph.D. required in zoology or closely related field and an established professional reputation; previous administrative experience desirable. To provide leadership for a department with a strong research base in aquatic ecology, vertebrate biology, and wildlife ecology and a commitment to high quality instruction. Department includes 23 faculty, 300 undergraduate majors, and 67 M.S. and Ph.D. students. Applications, including a résumé and the names of three references, should be submitted prior to 1 June 1981 to: **Dr. Jerry Wilhm, Department of Zoology, Oklahoma State University, Stillwater, Okla. 74708. OSU is an Equal Opportunity/Affirmative Action Employer.**

LIPOPROTEIN UNIVERSITY HOSPITAL LABORATORY

M.S. or Ph.D. interested in working with clinical pathologist and clinical pharmacologist in analytical assays for serum lipoprotein parameters in patients under research protocols involving diets and drugs at a LIPID-ARTERIOSCLEROSIS Prevention Clinic of the Clinical Pharmacology Division.

Capacity to work independently, setting up new assays and analytical quality controls.

Opportunity for independent research on related areas part of the time. Salary: \$14,000 to \$18,000 per year, depending on qualifications. Contact: **Dr. Fred Plapp, Clinical Laboratories, University of Kansas Medical Center, 39th and Rainbow Boulevard, Kansas City, Kansas 66103.**

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PHYSIOLOGIST, Ph.D. Immediate opportunity to teach physiology in professional curriculum at National College of Chiropractic. Area of interest should be cardiovascular or neurophysiology. Research encouraged. Credentials and experience should warrant rank and salary at assistant professor level.

Send curriculum vitae, official transcripts of all undergraduate, graduate, and/or professional education, and at least three letters of reference to:

Helen R. Zasadny
Chairman, Department of Physiology
National College of Chiropractic
200 East Roosevelt Road
Lombard, Ill. 60148

POSTDOCTORAL ASSOCIATE in insect biochemistry and toxicology. Full-time research position available immediately for studies on the pharmacokinetics and action of pyrethroid insecticides in insects and mammals. Background in pharmacology and experience in the development and use of radioligand assays desirable. Starting salary: \$14,000. Send detailed curriculum vitae, transcripts, names of three references, and relevant publications to: **D. M. Soderlund, Department of Entomology, New York State Agricultural Experiment Station, Cornell University, Geneva, N.Y. 14456.**

POSITIONS OPEN

MESSANGER RNA PROCESSING AND NUCLEAR STRUCTURE

NIH-funded postdoctoral positions are available in the laboratory of Dr. Thoru Pederson to participate in on-going studies of mRNA processing and nuclear RNP complexes (hnRNP and snRNP) in a variety of eukaryotic systems. Candidates are sought with experience in DNA and RNA sequencing, nucleic acid enzymology, and antibody purification. The Cell Biology Group of the Worcester Foundation is a vigorous research department focusing on eukaryotic gene structure and expression, the cytoskeleton, membrane biology, and virology. There are excellent opportunities for intra- and interlaboratory collaborations. The institute is situated on a wooded, semi-rural campus, 40 miles west of Boston. Applicants should send curriculum vitae and the names of three references to: **Dr. Thoru Pederson, c/o Personnel Office, Worcester Foundation for Experimental Biology, 222 Maple Avenue, Shrewsbury, Mass. 01545.**

An Equal Opportunity/Affirmative Action Employer.

NEUROANATOMIST—ELECTRON MICROSCOPIST. Tenure-track. Interest or experience in hair-cell systems (auditory, vestibular, lateral line) required. Rank and salary dependent on qualifications. Send curriculum vitae and letters of recommendation to: **Dr. Dennis G. Drescher, Director, Bio-otology Laboratory, Departments of Otolaryngology and Biochemistry, Wayne State University School of Medicine, 540 East Canfield Avenue, Detroit, Michigan 48201.**

PHYSIOLOGIST. A full-time, tenure-track position at assistant or associate professor level exists in the Department of Physiology and Biophysics of Temple University School of Dentistry starting in fall 1981. The department provides courses in physiology and biophysics at the undergraduate, graduate, and professional school levels. Extensive experimental, instrumental, and data processing facilities are available. Prospective candidates should be experienced in physics, engineering, or biophysics. A Ph.D. degree and relevant experience beyond the doctoral level are required. The successful candidate will be expected to participate in the teaching program of the department, to offer courses in his or her own specialty, and to pursue a vigorous research program. Rank, salary, and duties will be commensurate with qualifications. Interested applicants should send a résumé, official transcripts, summary of research plans, current reprints, and three letters of recommendation to:

Dr. Martin F. Tansy, Professor and Chairman
Department of Physiology and Biophysics
Temple University School of Dentistry
3223 North Broad Street
Philadelphia, Pa. 19140

Temple University is an Equal Opportunity/Affirmative Action Employer.

PLANT BIOLOGY

Zoecon Corporation seeks two scientists with interests in replication of extra-chromosomal nucleic acids or in the structure and function of RNA genomes.

Applicants should hold a Ph.D. and have demonstrated research ability. The successful candidates will be expected to initiate and implement a productive research program which will complement Zoecon research areas.

Zoecon is a division of Occidental Petroleum Corporation with substantial domestic and international operations. Zoecon headquarters and research are located in the Stanford University Industrial Park in close proximity to San Francisco.

Please submit (not later than 15 June 1981) curriculum vitae and names of three references in confidence to:

K. M. Holm
Manager, Employee Relations
Zoecon Corporation
975 California Avenue
Palo Alto, Calif. 94304

Equal Opportunity Employer, M/F

POSTDOCTORAL POSITION AVAILABLE IMMEDIATELY. Research on regulation of DNA replication in mammalian cells and biochemical studies of the enzymes involved in DNA replication. Salary: \$15,000. Send résumé and names of three references to: **Dr. Eliezer Rapaport, Department of Microbiology, Boston University School of Medicine, 80 East Concord Street, Boston, Mass. 02118.**

An Equal Opportunity Employer, M/F

POST DOCTORAL FELLOW

Opportunity to do fundamental research in the biochemical and molecular aspects of chromosome condensation and cell cycle regulation of animal cells in culture. Specific projects involve the purification and characterization of proteins involved in the condensation of chromosomes of mammalian cells. Micromanipulation of amphibian oocytes or embryos essential.

Applicants should have a PhD in cell biology or developmental biology. Starting salary up to \$20,000. Eligible for all company benefits.

Please send CV to:

Director of Administration
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The W. Alton Jones Cell Science Center, Inc., of Lake Placid, N.Y., seeks an individual with a background in research and education in cell biology, who, as director of the Center, will take over-all responsibility for its administration and lead its growth and development in education and research. Please address inquiries to: **Philip G. Cole, Chairman, Search Committee, c/o W. Alton Jones Cell Science Center, Old Barn Road, Lake Placid, N.Y. 12946.**

*An Affirmative Action/Equal
Opportunity Employer*

PHARMACIST

The American Society of Hospital Pharmacists is offering an exciting challenge in the drug information field.

The resignation of the editor of the American Hospital Formulary Service has created a rare opportunity for a new "team" to have a major impact on the publishing activities of the ASHP and drug information services. Two staff positions are available immediately.

To maintain the present high quality of the American Hospital Formulary Service loose leaf publication, we need a person to handle production and operations. Planning the supplements, editing monographs, problem solving and monitoring quality are the primary job responsibilities. This person must have strong organizational ability and experience in administration and supervising personnel. In addition, a strong background in pharmacology, therapeutics and clinical use of drugs and competence in the evaluation, critical selection and utilization of drug literature is essential. Previous experience in technical or medical writing, editing, publishing process and control is necessary. An advanced degree in pharmacy is preferred and exceptional written and oral communication skills are required.

Another position for planning and development of services related to the FORMULARY SERVICE is also available. This staff member will investigate and recommend new publications and services, participate in marketing of the AHFS and related services, implement and evaluate new production procedures and processes, develop and monitor budget, and participate in long range planning.

Candidates should have experience in administration, writing, editing and publishing, and an appreciation of drug information needs of health care practitioners. We are seeking someone with experience in developing salable products and services and some knowledge of computers and their application in the information sciences. Exceptional written and oral communication skills are essential and an advanced degree in pharmacy is preferred.

The American Society of Hospital Pharmacists provides its staff with a very attractive compensation package, including fully paid health, life, dental and disability insurance, fully paid retirement, thrift savings plan and tuition assistance.

For confidential consideration, submit your CV to:

**Thomas K. Somers, Secretary
Search Committee**

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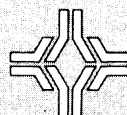
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POSITIONS OPEN

THE DEPARTMENT OF PLANT BIOLOGY, CARNEGIE INSTITUTION OF WASHINGTON, STANFORD, CALIF., seeks candidates for positions in one or both of two areas: (i) study of adaptive mechanisms in vascular plants, utilizing a genetic, physiological, or biochemical approach; and (ii) plant molecular biology. Possibility of long-term employment. Unique academic setting. We are particularly interested in individuals with interests and skills complementary to or bridging those of present personnel. Salary commensurate with experience. Housing assistance possible. Investigators who have recently completed doctoral or postdoctoral work preferred, but more advanced applicants are not excluded. Date of availability: after 1 September 1981. Application deadline: 1 June 1981. Please send applications and curriculum vitae, plus names and addresses of three referees, to: **Dr. Winslow R. Briggs, Director, Department of Plant Biology, Carnegie Institution of Washington, 290 Panama Street, Stanford, Calif. 94305. Equal Opportunity Employer.**

PLANT MOLECULAR BIOLOGIST. Research associate position available 1 September 1981 for work on developmental molecular biology and/or molecular genetics in higher plants. Applicants should have previous postdoctoral experience in a relevant field and be familiar with modern molecular techniques. Send curriculum vitae with names of three referees and copies of recent publications by 31 May 1981 to: **Dr. W. F. Thompson, Department of Plant Biology, Carnegie Institution of Washington, 290 Panama Street, Stanford, Calif. 94305.**

POSTDOCTORAL POSITION

A postdoctoral position is available for 3 years to examine the advantages of electron energy-loss spectroscopy (EELS) at high accelerating voltages (0.1 to 1.2 MV) for microanalysis. An experimentalist with a knowledge of programming, electronic instrumentation, and data reduction is desired. Salary: up to \$20,412 (plus fringe benefits) per annum, commensurate with qualifications and experience. Contact: **Dr. A. Ratkowski, New York State Health Department, Empire State Plaza, Albany, N.Y. 12201. Telephone: 518-474-6646.**



The International Atomic Energy Agency seeks for its Division of Life Sciences a

Medical Physicist

to support programmes relating to the use of radionuclides for medical diagnosis and research. Higher degree in physics or related subject and extensive experience in medical institutions desired. Initial contract two years, tax-free emoluments depending on experience and qualifications approx. \$38,000 per annum. Additional allowances for dependents. Travel and removal expenses paid. Six weeks annual leave. Send curriculum vitae indicating your nationality under 32/81 to the Division of Personnel, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna, Austria before 30 June 1981.

POSITIONS OPEN

POSITION OPENING IN PLANT GENETICS

Eleven-month, tenure-track appointment; 75 percent research, 25 percent teaching. Rank and salary open to full professor and geneticist commensurate with experience in the Experiment Station. Responsibilities for research program in genetics and breeding of processing tomatoes and teaching in the departmental curriculum. Ph.D. in genetics or plant science—related discipline with research experience in plant genetics required. Submit curriculum vitae with list of publications, transcripts (if Ph.D. received fewer than 5 years ago), reprints, summary of research interests and career goals, and names of at least three referees to: **Dr. L. Rappaport, Chair, Department of Vegetable Crops, University of California, Davis, Calif. 95616.** Application deadline: 1 September 1981. *The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

POSTDOCTORAL POSITION available immediately for a research program involving enzyme catalyzed group transfer reactions and energy-transducing ATPases. Background in enzyme reaction mechanisms or organic reaction mechanisms desirable. Send curriculum vitae with names of three referees to: **Michael J. Gresser, Department of Chemistry, Simon Fraser University, Burnaby, British Columbia, Canada V5A 1S6.**

Several **POSTDOCTORAL POSITIONS** to work in: (i) Structure and function relationships of B_6 -dependent enzymes, protein chemistry and ^{19}F , ^{13}C , and ^{31}P NMR and spin-labeling, as well as nanosecond fluorescence methods used in this research; (ii) Molecular-level membrane reconstitution problems involving nicotinic acetylcholine receptors, ligand recognition, and kinetics of neurotransmitter-mediated ion translocation. Applicants should send résumé and three letters of recommendation to: **Dr. M. Martinez-Carrion, Chairman, Department of Biochemistry, Medical College of Virginia, Virginia Commonwealth University, Richmond, Va. 23298.** *An Equal Opportunity/Affirmative Action Employer.*

POSTDOCTORAL POSITION available in molecular biology of tobacco. Preference will be given to persons with experience in cloning and other molecular techniques. Salary: \$18,000. Send résumé and three letters of reference to: **Dr. D. F. Matzinger, Department of Genetics, North Carolina State University, Raleigh, N.C. 27650** by 1 June 1981. *An Affirmative Action/Equal Opportunity Employer.*

POSTDOCTORAL POSITION in diabetes research program presently available with group investigating pancreatic islet cell biochemistry, physiology, and morphology. Involves extensive use of tissue culture techniques. Applicants must possess M.D. or Ph.D. degree with background in biochemistry, physiology, or cell biology. Stipend is competitive. Send curriculum vitae, description of current research interests and objectives, and three letters of reference to: **W. L. Chick, M.D., Department of Biochemistry, University of Massachusetts Medical School, 55 Lake Avenue North, Worcester, Mass. 01605.**

The University of Massachusetts Medical School is an Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION—BIOCHEMIST. Available immediately. Second-year renewal possible. For research program studying enzymatic inactivation of human plasma proteinase inhibitors via limited proteolysis. Experience in protein and enzyme purification and characterization required. Send résumé, brief summary of thesis research, and two references to: **Dr. Lawrence F. Kress, Laboratory of Enzymology, Roswell Park Memorial Institute, Buffalo, N.Y. 14263.** *Equal Opportunity/Affirmative Action Employer.*

Two **POSTDOCTORAL** or **RESEARCH ASSOCIATE POSITIONS** available immediately in mammalian cytogenetics and somatic cell genetics. Ongoing projects are banding studies of chromosome structure and function (including use of monoclonal antibodies), gene amplification in cultured cells, somatic cell hybridization, and gene regulation by DNA methylation.

Send curriculum vitae to:

**Professor Orlando J. Miller
Department of Human Genetics
and Development, HHSC 1424
College of Physicians & Surgeons
Columbia University
701 West 168 Street
New York, New York 10032**

An Affirmative Action/Equal Opportunity Employer

POSITIONS OPEN

POSTDOCTORAL POSITION for research on gene regulation utilizing purified eukaryotic RNA polymerases and DNA and chromatin templates. Training in biochemistry (protein purification and characterization and/or microbial genetics) (recombinant DNA techniques) desirable. Send curriculum vitae and name of three references to: **Dr. J. J. Furth, Department of Pathology, School of Medicine G/3, University of Pennsylvania, Philadelphia, Pa. 19104.**

POSTDOCTORAL RESEARCH POSITION (postgraduate research) available immediately for 1 year initially for a plant biophysicist to develop multilevel explanatory model of leaf photosynthesis. Experience in mathematical modeling, computer use, plant physiology, and biochemistry. Application should be received by 1 June 1981.

Salary: \$14,900 to \$15,600 annually.

Send curriculum vitae to: **Dr. Norman Terry, Department of Plant and Soil Biology, 108 Hilgard Hall, University of California, Berkeley, Calif. 94720.**

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

UNIVERSITY OF CALIFORNIA, IRVINE POSTDOCTORAL RESEARCH IN PSYCHOBIOLOGY

The Department of Psychobiology, University of California, Irvine (UCI), anticipates filling several postdoctoral research positions in the laboratories of the faculty with starting dates between now and 1 March 1982. The current faculty and their research interests are D. Aswad (neurochemistry); C. Cotman (synaptic growth and plasticity); R. Josephson (comparative physiology of muscles); H. Killackey (developmental neuroanatomy); M. Leon (developmental psychobiology); G. Lynch (neuroanatomy); J. Marshall (neural plasticity of catecholamines); J. McGaugh (memory storage processes); N. Weinberger (neural mechanisms of learning); and P. Yahr (neuroendocrinology and behavior).

Candidates should address inquiries to: **Postdoctoral Research Advisor, Department of Psychobiology, University of California, Irvine, Calif. 92717.**

UCI

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RESEARCH OPPORTUNITIES IN MOLECULAR BIOLOGY, ASSOCIATES AND ASSISTANTS. RESEARCH ASSOCIATES: Two positions available at the level of associate; junior faculty appointment, not tenure track, for work on several projects involving DNA tumor viruses; molecular biology of malignant transformation and gene expression. Ph.D. required. Substantial experience in recombinant DNA technology required. Salaries commensurate with experience, up to \$20,000. **Research involves** working with mammalian cell genetics, in vitro chemical carcinogenesis, genetic transformation, and DNA cloning and sequencing. Relevant experience in tissue culture and malignant transformation techniques desirable, but will train the right candidates. **RESEARCH ASSISTANTS:** Research involves working with animal viruses, nucleic acids, DNA sequencing and cloning, and development of new techniques for in vivo and in vitro genetic manipulation. Bachelor's degree in relevant science required. Similar experience desired but will train the right candidates. Superbly equipped, stimulating and rapidly growing department; 10 miles from downtown Manhattan and minutes from pleasant suburbs. Send résumé to: **Dr. G. di Mayorca, Professor and Chairperson, Department of Microbiology, College of Medicine and Dentistry of New Jersey, 100 Bergen Street, Newark, N.J. 07103.** *An Equal Opportunity/Affirmative Action Employer.*

THEORETICAL COMMUNITY ECOLOGIST/ORNITHOLOGIST. The Department of Zoology of the University of Tennessee, Knoxville, is seeking candidates for a tenure-track position effective 1 January 1982. Responsibilities will include teaching ornithology, participation in the department's ecology curriculum, and developing a graduate-level course in community ecology. The successful candidate must establish and maintain a high-quality research program. Affiliation with the University of Tennessee Graduate Program in Ecology is available. The position will be filled at the assistant or associate professor level with salary dependent upon qualifications. Candidates are expected to have had at least 1 year of postdoctoral research or teaching and research experience. Curriculum vitae and three letters of recommendation should be sent by 31 July to: **Dr. Susan E. Riechert, Department of Zoology, University of Tennessee, Knoxville, Tennessee 37916.** *An Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE position available for research in somatic cell genetics and gene-transfer systems in mammalian cells. The project involves the study of growth regulation in neoplastic cells and fractionation and cloning of the human genome. A Ph.D. in biochemical genetics or biochemistry with broader interests in nucleic acids is preferred. Salary commensurate with experience. Send curriculum vitae and names of references to: **Dr. Raghbir S. Athwal, Department of Microbiology, College of Medicine and Dentistry of New Jersey, New Jersey Medical School, 100 Bergen Street, Newark, N.J. 07103. An Equal Opportunity/Affirmative Action Employer.**

POSTDOCTORAL RESEARCH FELLOW

The Division of Geological and Planetary Sciences at the California Institute of Technology expects to offer a research fellow appointment in the area of atmospheric chemistry. Candidates should have experience with the photochemistry of the atmospheres of planets and their evolution.

Research fellowships in geology, geophysics, geochemistry, geobiology, and planetary sciences are also available from time to time. Interested persons are asked to contact: **Dr. Barclay Kamb, Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125. An Equal Opportunity/Affirmative Action Employer.**

Title: POSTGRADUATE RESEARCH MICROBIOLOGIST.

Responsibilities: To work with primary investigator on research involving nitrogen utilization by gastrointestinal microflora and effect of dietary fiber on bacterial enzyme activity.

Qualifications: A Ph.D. in general microbiology with a strong background in nutritional science and biochemistry. Previous experience working with laboratory animals and performing animal surgery is desirable.

Salary range: \$14,916 to \$18,732 per annum, dependent on experience and qualifications.

Position available: 1 July 1981. This is a regular position to be funded from National Science Foundation. Funding guaranteed through grant period September 1982.

Application deadline: 30 May 1981. Apply to:

Dr. George Chang
Department of Nutritional Sciences
327 Morgan Hall
University of California
Berkeley, California 94720
Telephone: 415-642-0603

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SENIOR RESEARCH ASSOCIATE—B/H

Responsibilities include designing and conducting experiments and evaluating the effects of environmental chemicals on cellular toxicity and mutagenicity. The individual selected will also assist in correlating studies in toxicity. Interested candidates should have a Ph.D. in cell biology or a related field with 3 years of postdoctoral experience in tissue culture techniques. Working knowledge of short-term mutagenicity experimentation with prokaryotic and eukaryotic cells and experience in performing biochemical and cytogenetic assays on variant mammalian cells are also required. Salary: \$19,680 to \$29,040. This is a 40-hour-per-week position. Forward résumé to: **Clearance Representative, Ohio Bureau of Employment Services, 309 South Fourth Street, Columbus, Ohio 43215.**

VERTEBRATE PHYSIOLOGIST

Applications are invited for an academic year (9-month) appointment at the instructor level beginning 15 August 1981 and renewable annually for up to four additional years. We seek a broadly trained Ph.D., D.V.M., or M.D. vertebrate physiologist with an interest preferably in pulmonary, cardiovascular, or reproductive physiology to team-teach in undergraduate physiology course, teach a graduate specialty physiology course, and supervise physiology class laboratories. Salary: \$12,000 plus possibility of augmentation through summer teaching and/or research. Send curriculum vitae, statement of professional goals, and reprints and arrange to have three letters of recommendation sent independently, all by 5 June 1981, to: **Dr. Jerome M. Yochim, Chairman, Physiologist Search Committee, Department of Physiology and Cell Biology, University of Kansas, Lawrence, Kansas 66045.**

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POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE WITH RESEARCH EXPERIENCE IN RNA BIOCHEMISTRY. Position available immediately. Investigate higher order structure of small ribosomal RNA as related to eukaryotic ribosome biogenesis and function. Study involves mapping of rRNA structure in solution employing psoralen cross-linking, nuclease susceptibility, and chemical modifications. Send résumé and three references to: **Dr. Raymond E. Lockard, Department of Biochemistry, The George Washington University School of Medicine and Health Sciences, 2300 Eye Street, NW, Washington, D.C. 20037. An Equal Opportunity/Affirmative Action Employer.**

RESEARCH ASSOCIATE position in neuromuscular neurobiology available July 1981, for the study of neuromuscular plasticity and physiology with altered usage or aging. Experience in intracellular synaptic physiology, ultrastructure, or cholinergic neurochemistry essential. Computer knowledge desirable. Open to U.S. and non-U.S. residents. NIH-scale salary according to experience. Send curriculum vitae, reprints, and names of references to: **Dr. Norman Robbins, Anatomy, Case Western Reserve School of Medicine, Cleveland, Ohio 44106. Equal Opportunity Employer.**

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP available 1 July 1981 for studies of phospholipid biochemistry supported by NIGMS/NIH. Purification and characterization of phospholipases; drug effects on phospholipid metabolism in cultured cells and in experimental animals. Prior experience in lipid biochemistry essential. Send curriculum vitae and names of two references to:

Dr. Karl Y. Hostetler
Department of Medicine
Division of Metabolic Disease (V-111G)
University of California, San Diego
La Jolla, Calif. 92093

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POSTDOCTORAL FELLOWSHIPS IN IMMUNOBIOLOGY

Positions available beginning fall 1981 to study various aspects of immunoregulation and lymphocyte physiology under normal and pathological conditions in the mouse model. Research focuses on idiotype interactions among lymphocytes, abnormalities of tumor-bearing host, and infections with retroviruses. Experience in tissue culture desirable. Apply with curriculum vitae with names of references to: **Dr. Jan Cerny, Department of Microbiology, University of Texas Medical Branch, Galveston, Texas 77550.**

POSTDOCTORAL FELLOWSHIPS available starting 1 July 1981. Experience in protein purification and/or RNA-DNA hybridization analysis preferred. (i) To study estrogen receptor-mediated events related to gene transcription and (ii) to study the mechanism of alterations in gene expression related to prostate neoplasia. Send curriculum vitae, graduate transcripts, and three letters of recommendation to: **Roy G. Smith, Ph.D., The University of Texas Medical School at Houston, 6431 Fannin, Suite 6018, Houston, Texas 77030. An Equal Opportunity Employer.**

Neuroscience Clinical Research...MD Fellowships

Good Samaritan Hospital & Medical Center of Portland, Oregon has **MD Fellowships** available in **Behavioral Neurology** (Oscar Marrin, MD, Director) and **Human Motor Control** (Lewis Nashner, Sc.D.). • *These fellowships are scheduled to begin July, 1981. Salaries are within range of current NIH stipend, and are one-year renewable. Send applications or inquiries to: Neurological Sciences Center, Good Samaritan Hospital & Medical Center, 1015 N.W. 22nd Avenue, Portland, Oregon 97210. Good Samaritan is an Equal Opportunity Employer.*

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIPS: HUMAN GENETICS, two positions will be available 1 July 1981 within interdepartmental program:

HUMAN BIOCHEMICAL GENETICS, for Ph.D. in biochemistry to participate in a project on enzyme replacement therapy in lysosomal storage diseases. Research includes in vivo and in vitro study of blood-brain barrier permeability; receptor-mediated glycoprotein endocytosis; and catabolic effects of purified, native, or modified lysosomal enzymes, using cats with Gm; gangliosidosis as model. Previous work on these or related subjects desirable. Résumé and three references to: **Marlo C. Rattazzi, M.D., Director, Human Biochemical Genetic Research Laboratory**, address below.

CLINICAL GENETICS, for M.D. with at least 2 years of postdoctoral training in pediatrics or other clinical specialty, to gain extensive experience at this Maternal and Child Health Center and Regional Genetic Program and participate in research projects in clinical, biochemical, or cytogenetics. Résumé and three references to: **R. M. Bannerman, M.D., Director, Division of Human Genetics, Department of Pediatrics (State University of New York at Buffalo), Children's Hospital, 219 Bryant Street, Buffalo, N.Y. 14222. An Affirmative Action/Equal Opportunity Employer.**

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The Ventilated Animal Rack:

Some day soon most research animals, personnel, and research programs will be protected this way.*

What is a "Ventilated Animal Rack"?

It is a portable, totally enclosed animal rack with four separate, independent, isolated-from-each-other chambers. Low velocity air enters each chamber, makes a single pass over the cages, and is exhausted by negative pressure directly to the main exhaust system. This special rack (VR-1) most effectively isolates the animals from the animal room... and the research personnel from the animals.

What are the benefits to the animals?

There are many. Cross-contamination is substantially decreased because air from an infected animal goes to the exhaust system with an absolute minimal exposure of the other animals. Animal stress is also significantly reduced: the enclosed environment is quiet; drafts and thermal and humidity fluctuations are greatly minimized; and animals can be easily observed without inducing stress. The success of this environment is attested to by the fact that the total number of animals born to a species that breeds poorly (DBA/2J mice) is increased and the percent survival is also appreciably higher. Additional evidence: judging by acceleration of weight gain, newly arrived animals housed in this system become acclimated more rapidly. Further evidence? Even multiple species can be successfully housed in the same rack.

What are the benefits to the research workers?

Since the air in the rack is exhausted into the main exhaust system and does *not* re-enter the animal room itself, research workers are effectively isolated from animal dander or other allergens, odor, pheromones, microorganisms, and food and bedding dust. Even with the doors of the unit open, the direction of air flow tends to be *from* the room and *into* the unit which helps to contain contaminated air *within* the unit. Result: virtual elimination of allergic reactions and generally, a cleaner, safer, odor-free work environment for the research people.

What are the benefits to research programs?

Because this system greatly reduces the chance of cross-contamination, and because it provides a much less stressful environment generally (e.g., it tends to reduce the amount of animal handling required), the chances of jeopardizing expensive research programs are substantially minimized.

Are there other benefits?

The air velocity is variable and is separately adjustable for each shelf. The system offers a choice of bottle watering or a specially designed upfeed serpentine automatic watering configuration that eliminates stagnant water, permits flushing during the day, and significantly minimizes contamination. This rack also permits excellent space utilization since multiple species can be safely housed in the same room. Cleaning is easy; VR-1 can be handled by most standard rack washers. The unit is quiet. And, in summary, it is a most effective isolation system *that can actually divide a room into multiple separate, isolated environments.*

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Lab Products now offers the widest selection of systems for environmental protection: five Stay-Clean™ laminar flow systems; Isosystem™ housing system consisting of a disposable filter cap, cage cover, and plastic cage; Enviro-Gard™ filter system with permanent filter bonnets; and See-Through™ suspended cage systems with a special filtering system. We are now likely to have at hand solutions to virtually all of your environmental problems.

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clean-burning tungsten halogen bulb with continuously variable intensity control. It's the easiest to change tungsten halogen lamp on any lab scope. □ Human engineering is the hallmark of the One-Ten. Convenient, up front controls regulate the illumination source, field diaphragm and neutral density filter. A unique, focusable nosepiece permits the stage to remain secure and vibration-free. A comfortable low positioned coaxial coarse and fine focusing control plus an exclusive

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