carbonates next, and finally oxides. Ridler has been able to trace exhalite patterns for hundreds of kilometers along mineral belts in Canada. These markers of past hydrothermal systems are now being used in exploration.

What is still unexplained, as far as the role of seawater in leaching metals from submarine volcanic rocks is concerned, is exactly what controls which metals are leached, and a number of theoretical and experimental investigations of the geochemistry of hydrothermal systems are under way. Nonetheless this process has been proposed as responsible for the Troodostype ores found on Cyprus, which are associated with spreading centers; the young, massive sulfide ores associated with island arcs above subduction zones; and many older massive sulfide and precious metal deposits.

The interaction of seawater and crustal materials, and its implications for ore formation, may go beyond the presence of hydrothermal systems. Fyfe believes that chemical reactions involving seawater are not restricted to the area around spreading centers but continue as the oceanic plate moves. In particular, he believes that rocks in the upper portion of oceanic crust continue to change composition and to become more hydrated, locking in large volumes of water and other volatiles. Since most newly formed oceanic crust is eventually subducted and returned to the mantle, the plate tectonic process removes water from the oceans at a rate that, according to Fyfe, would deplete the oceans every 300 to 500 million years if it did not return. Thus Fyfe envisions a massive exchange of water and other volatiles between the crust and the hydrosphere which may be important in the production of volcanic and igneous rocks and their ore deposits above subduction zones. For example, melting of the oceanic crust being subducted is thought to be facilitated by the presence of seawater in the upper portion of the slab.

The ongoing reevaluation of ore formation processes in the context of plate tectonics is so broad that in some cases it is difficult to distinguish between it and more fundamental investigations of the earth's evolution. Some researchers, for example, are looking into the idea that the earth's oceans did not gradually evolve by degassing of the mantle but instead formed early in the planet's history and have been gradually diminished since then—a possibility suggested to them by mineral evidence. Thus whether or not the new metallogenic ideas improve our ability to find and extract metals, and they probably will, they promise to enliven geology for years to come.—ALLEN L. HAMMOND



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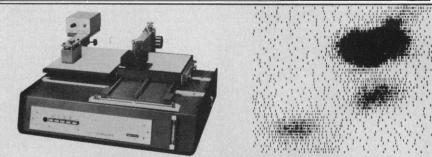
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Kansas State University invites applications for the Sciences. Applicants should have teaching experience in an academic discipline in the college and possess the terminal degree in that discipline. In addition to responsibilities as assistant dean, the person may also

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The assistant dean will coordinate part of the advis-The assistant dean will coordinate part of the advising program in the college, will serve as an adviser to undergraduate students, will participate with the associate dean and dean in development of the College's out-reach programs to off-campus persons, and will help faculty members to secure funds from internal and external sources for program development.

Direct applications and inquiries to Dean, College of Arts and Sciences, Kansas State University, Manhattan, Kansas 66506. Applications should include a curriculum vitae and names of three reference persons. Deadline for applications is 1 November 1975.

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Applications are invited for faculty position, assistant professor (base salary, \$15,184). Candidates should have Ph.D. degree with strong background in biochemistry. Successful candidate will be responsible for teaching at both undergraduate and graduate levels; for the development of an independent research program and supervision of graduate students. Closing date 31 December 1975. Send curriculum vitae and names of three references to: Dr. D. W. S. Westlake, Professor and Chairman, Department of Microbiology, Faculty of Science, Edmonton, Alberta, Canada.

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The University of Miami, School of Marine and Atmospheric Science, invites applications for a position as FULL OR ASSOCIATE PROFESSOR, according to qualifications. The position requires some teaching on the graduate level in the general area of physical meteorology, but major emphasis is in the area of research and research instruction. Preference will be given to candidates with experience and interest in atmospheric and oceanic planetary boundary layer processes, though well-qualified persons in any area of experimental meteorology, including radiation, satellites, and so forth, will be considered.

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so forth, will be considered.

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POSITIONS OPEN

DEPARTMENT OF BIOCHEMISTRY

Applications are invited for a position as assistant professor from candidates with a Ph.D. in biochemistry, with postdoctoral training, and preferably with research interest in neurochemistry. Interests related to clinical chemistry, endocrinology, or immunology also considered. Duties include teaching medical and undergraduate biochemistry. Position to be filled by 1 July 1976 (as early as 1 January 1976). Applicants should submit a curriculum vitae, list of publications, and the names of three references to Dr. Paul M. Anderson, Department of Biochemistry, School of Medicine, University of Minnesota at Duluth, Duluth, Minnesota 55812, by 15 November 1975. An Affirmative Action/ Equal Opportunity Employer.

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Postdoctoral training and x-ray crystallographic experience is highly desirable. Candidates should submit curriculum vitae, bibliography, a résumé of future research plans, and the names of three references to:

Dr. D. B. Wetlaufer, Chairman Chemistry Department, 1005 Brown Lab University of Delaware Newark, Delaware 19711

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ASSISTANT PROFESSOR IN PHYSICAL CHEMISTRY: The Department of Chemistry at Yale University is seeking applications for appointments to our faculty at the level of assistant professor in experimental physical chemistry. We are particularly interested in candidates in areas of condensed phases, such as light scattering, polymers, surface studies, or modern analytical methods. Yale has an active Affirmative Action Program and we are especially interested in minority group or female candidates who meet the above criteria. Candidates should request referees to write and should send a curriculum vitae, a list of publications, brief summaries of predoctoral research, and a brief outline of proposed research projects to the Chairman, Department of Chemistry, Yale University, New Haven, Connecticut 06520. Applications should be sent promptly, preferably by 30 November 1975, to assure consideration.

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CHAIRMAN DEPARTMENT OF MICROBIOLOGY

DEPARTMENT OF MICROBIOLOGY

The University of Maryland, College Park, invites nominations and applications for the position of chairman of the Department of Microbiology. We are seeking an experienced educator with significant research accomplishments to provide leadership for a vigorous program of teaching and research. All applications received before 1 January 1976 will receive full consideration. Qualified applicants should forward curriculum vitae, bibliography, and names of five referees to Chairman, Search Committee, Department of Microbiology, University of Maryland, College Park, Maryland 20742. An Equal Opportunity/Affirmative Action Employer.

Position available: CHAIRPERSON of Department of Zoology. Required: doctorate; experience in research, teaching, and administration; success and experience with granting agencies. Salary open. The department has 29 full-time staff, about 45 graduate students and 700 undergraduate advisees, and particular strengths in physiology, parasitology, and developmental biology. Application deadline 15 January 1976. Send inquiries to John A. Mutchmor, Search Committee Chairman, Department of Zoology, Iowa State University, Ames, Iowa 50010.

UNIVERSITY OF WESTERN AUSTRALIA CHAIR IN ZOOLOGY

Applications are invited for appointment to the Chair in Zoology to be vacated by Professor H. Waring, FAA, at the end of the year. Applicants should represent a field of integrating potential similar to that of ecology. A vertebrate worker will be preferred. The salary of a professor is \$A23,569 per annum. Further information may be obtained from the Staffing Officer, University of Western Australia, Nedlands, Western Australia, 6009, to whom applications in duplicate should be sent by 27 September. Applications, experience, and the names and addresses of three referees.

DEVELOPMENTAL BIOLOGIST, Ph.D. at assistant professor level, to teach advanced course in specialty and basic course in zoology. Send a curriculum vitae with statement of research and teaching experience to:

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Applications are invited for this position at the University of Nebraska College of Medicine. The University is seeking candidates with a strong academic background and with interests in patient care, teaching, and research. The director reports to the dean of the College of Medicine with interdepartmental relationships in internal medicine, pediatrics, and pathology. Rank and salary are open

in internal medicine, pediatrics, and pathology. Rank and salary are open.

Applicants should submit a curriculum vitae to Michael F. Sorrell, M.D., Department of Internal Medicine, University of Nebraska Medical Center, 42 and Dewey Avenue, Omaha, Nebraska 68105.

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Salary and starting date negotiable, but hopefully the position should be filled by 1 July 1976 at the latest. Applicants should submit a curriculum vitae and references to: Dr. J. M. Anderson, Chairman, Search Committee, Huntsman Marine Laboratory, St. Andrews, New Brunswick, Canada.

FACULTY POSITION

A position is available at the assistant professor level for an individual with special interests in research and teaching in the area of neurobiochemistry. Applicants should send curriculum vitae and three letters of recommendation to: John Gilroy, M.D., Chairman, Department of Neurology, Wayne State University, 3990 John R, Detroit, Michigan 48201.

FACULTY POSITION available immediately for M.D. or Ph.D. with interest in immunology and pathology. Responsibilities will include direction of histocompatibility laboratory and teaching. Pursuit of individual research interests as well as participation in ongoing research is encouraged. Academic rank will depend on qualifications. Send curriculum vitae to:

Jacob L. Chason, M.D., Chairman
Department of Pathology
Wayne State University School of Medicine
540 East Canfield Avenue
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DEPARTMENT OF MICROBIOLOGY UNIVERSITY OF CINCINNAT COLLEGE OF MEDICINE CINCINNATI, OHIO 45267

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Women and minority candidates are encouraged to

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Send curriculum vitae, résumé of experience and goals, and three letters of recommendation to Dr. H. C. Lichstein, Head, Department of Microbiology.

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The successful applicant will be expected to commence duties as soon as possible, but at the latest early

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MICROBIOLOGIST

Assistant professorship available September 1976. Prefer person with postdoctoral experience and special interest in biochemistry and genetics of bacterial sporulation to collaborate with established group. Candidates will be chosen on basis of demonstrated research ability and capacity for undergraduate and graduate teaching. Send curriculum vitae and names of references to J. E. Varner, Department of Biology, Washington University, St. Louis, Mo. 63130. An Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

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POPULATION GENETICIST, Assistant Professor: Ph.D. in genetics, preferably with emphasis in population biology and biostatistics. The appointee will be expected to develop and teach a course in population genetics, and participate in the departmental teaching of general biology. Appointment will be made by January 1976. Send résumé to: Chairperson, Department of Biology, Wheeling College, Wheeling, West Virginia 26003.

POPULATION AND/OR QUANTITATIVE GENETICIST

The Department of Genetics, University of Alberta, invites applications for a position of Assistant or Associate Professor, available 1 July 1976.

The applicant should demonstrate accomplished research in theoretical population and/or quantitative genetics, and be able to teach introductory genetics, and population, quantitative, and biometrical genetics at a more advanced level.

Submit a letter of application with curriculum vitae,

description of current research interests, list of publica-tions, and names of three potential referees to: R. C.

von Borstel, Chairman, Department of Genetics, University of Alberta, Edmonton, Alberta, Canada T6G 2E9.

Applications received after 15 December 1975 will be considered only if no well-qualified candidate has been found by that date.

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POSITION OPEN
Revco Inc., a manufacturer of refrigerated medical products, has an opening for a person willing to travel extensively to collect and compile information of present and new products. Applicants must be self-motivated and able to communicate with all levels of professional people. A marketing aptitude with ability to transfer ideas and information onto paper is a must. Because of contact with research scientists a Ph.D. degree in biological sciences or a related field is highly desired. Box 394, SCIENCE.

DOCTOR OF VETERINARY MEDICINE (DVM)

To participate in the toxicology evaluation and studies pertaining to the development of both human and veterinary health products. Orientation towards research projects and experience with small laboratory animals essential. Competence in preparing scientific reports and a background in toxicology and pathology desirable.

Roche, a recognized leader in the health industry, offers an outstanding total compensation package. Our modern facilities and research environment stimulate professional growth.

Please send resume in confidence to: Mr. E. Meseck, Hoffmann La-Roche Inc., Nutley, New Jersey 07110. An equal opportunity employer M/F

HOFFMANN-LaROCHE Inc.

Industrial Hygienist

The Exxon Corporation's Medical Department in Linden, New Jersey has an immediate and challenging opening in their Research and Environmental Health Division.

Primary responsibilities are the provision of professional scientific services and counsel designed to identify and help eliminate potential health hazards in Exxon affiliates. Some work time will be spent surveying our world-wide facilities.

Qualifications include a degree in Industrial Hygiene, Chemical Engineering, or an adjacent scientific field with special courses in industrial hygiene. Also we want someone with the ability to detect, in preliminary stages, potential problems related to processes or equipment, so engineering controls may be integrated. Obviously, this requires abilities in both oral and written communication.

If you qualify, we will offer a competitive salary, superior benefits, and opportunity for professional growth.

Send your resume to: Exxon Corporation, P.O. Box 518IH, Radio City Station, New York, N.Y. 10019. All information will be kept strictly confidential.

EXXON CORPORATION



We are an equal opportunity employer, m/f

DIRECTOR OF VIRAL ONCOLOGY

Unusual opportunity to provide scientific leadership to an ongoing, multi faceted program of research in viral oncology and to conduct a personally directed research project in his/her area of expertise. Will be closely associated with colleagues in immunobiology and chemical carcinogenesis. Excellent laboratory facilities, a good scientific library, an extensive experimental animal farm and other related support activities are available.

Candidates should have a doctorate degree in one of the biomedical sciences and a mimimum of 10 years' subsequent experience. Evidence must be presented of research originality and productivity.

The successful candidate will be offered a liberal salary, attractive benefits and relocation expenses.

Letters of application, accompanied by a comprehensive curriculum vitae, complete bibliography, and three references will be accepted until Sept. 26th 1975.

All correspondence should be addressed to:

Dr. Robert E. Stevenson Chairman, Search Committee Litton Bionetics, Inc. Frederick Cancer Research Center Post Office Box B Frederick, Maryland 21701

An Equal Opportunity Employer, M/F

Biochemical Geneticist

Ph.D. in Biochemical Genetics. Scientist is sought who has experience in animal or mammalian-cell genetics and who also has a broad background in biochemical procedures for detecting mutagenic events. Candidate would be responsible for measuring the mutagenic and/or carcinogenic potential of chemicals in both in vitro and in vivo models. Particular emphasis will be given to the development of experimental models or procedures which have greater predictive value in assessing the potential genetic or carcinogenic risk for man.

Opening is in the Genetic Toxicology Section of the Safety Evaluation Department at Pfizer's Medical Research Laboratories, located in an attractive Connecticut shore community.

Please send resume to: M. L. H. Bentley, Pfizer Central Research, Eastern Point Road, Groton, Connecticut 06340.



An equal opportunity employer, m/f

POSITIONS OPEN

NEUROBIOLOGIST

Faculty position available at Bryn Mawr College in the fall of 1976. Candidates with doctoral degree and the fall of 1976. Candidates with doctoral degree and strong background in physiology should have an active interest in undergraduate teaching, in the direction of master's and doctoral students, and in the pursuit of a vigorous research program. Appointment will be made at the assistant professor level. Send curriculum vitae and three references to Box 371, SCIENCE.

An Equal Opportunity Employer

POSTDOCTORAL FELLOW

A unique opportunity is available at the Squibb Institute for Medical Research to gain industrial research experience as a postdoctoral fellow in biochemical pharmacology. Candidates must have a Ph.D. in pharmacology, biochemistry, or physiology with preferably 0 to 5 years of experience in the modification of pharmacologic or physiologic responses by alteration of the metabolism of cyclic nucleotides. The position involves an examination in vitro and in vivo of the physiologic effects of modification of biochemical parameters in animals. Oualified candidates are invited to forward animals. Qualified candidates are invited to forward their curriculum vitae to the Recruitment and Selection Manager, Department PF-SH, E. R. Squibb & Sons, Inc., P.O. Box 4000, Princeton, New Jersey 08540.

An Equal Opportunity Employer M/F

POSTDOCTORAL POSITION

Immediate opening for Ph.D. with strong background in plant morphology, preferably electron microscopy, and cell culture to study cotton fiber development. Send curriculum vitae and names of three references to Dr. Jerry D. Berlin, Department of Biological Sciences, Texas Tech University, Lubbock, Texas 79409.

An Affirmative Action Employer

POSTDOCTORAL POSITIONS

Opportunities for research training in cardiovascular physiology, muscle metabolism, and nutrition. Ph.D. or M.D. applicants send résumé, with references, to:

Dr. Alexander R. Lind, Professor and Chairman Department of Physiology Saint Louis University School of Medicine 1402 South Grand Saint Louis, Mo. 63104

POSTDOCTORAL POSITION AVAILABLE

Wanted: Analytical chemist with field sampling experience. Appointment will involve environmental atmospheric monitoring via aircraft platforms.

Salary: \$11,000 per year.

Dr. Douglas D. Davis, Associate Professor Chemistry Department
Box 57
University of Maryland
College Park, Maryland 20742
Telephone: 301-454-2616

POSTDOCTORAL RESEARCH ASSOCIATE

Available immediately. Collaborative NSF project, somatic cell genetics of lethal alleles in the mouse. Time to be divided between Albert Einstein College of Medicine and Harvard University (MGH). Strong background in enzymology and cell biology required. Salary: \$12,500. Send curriculum vitae and three references to: Dr. Salome G. Waelsch, Department of Genetics, Albert Einstein College of Medicine, Bronx, N.Y. 10461. An Equal Opportunity/Affirmative Action Em-

POSTDOCTORAL RESEARCH POSITION

Biochemist, preferably with experience in histone fractionation, to work with group investigating early events in implantation. Position available now. Salary \$12,000. Send curriculum vitae and names of three references to: Dr. B. Baggett, Department of Biochemistry, Medical University of South Carolina, 80 Barre Street, Charleston, South Carolina 29401. Qualified women and minority group members are encouraged to apply. to apply.

POSTDOCTORATE-To work on the enzyme chemistry of 5-thio-D-glucose and its derivatives and action as a male antifertility agent and as an antiparasitic agent. Available immediately. Details from Roy L. Whistler. Department of Biochemistry, Purdue University, West Lafayette, Indiana 47907. Equal Opportunity/Affirmative Action Employer.

POSITIONS OPEN

POSTDOCTORAL POSITION (\$10,000 to \$13,000) available immediately. Involves radioimmunoassays for fibrinogen/fibrin degradation products. RIA experience preferred but not essential. Part of the work will be done in NASA's Johnson Space Center. Send curriculum vitae and names of three references to **Dr.** James P. Chen, Biochemistry/Genetics Department, University of Texas Medical Branch, Galveston, Texas 77550. An Equal Opportunity Employer.

The University of Minnesota Medical School invites nominations and applications for the position of PRO-FESSOR AND HEAD of the Department of Neurology. This position requires a Board-certified neurologist with substantial, demonstrated teaching, research, and administrative abilities to provide leadership in a large academic department. Inquiries, including a curriculum vitae, should be sent to Dr. Shelley N. Chou, Chairman, Search Committee, Department of Neurosurgery, B-590 Mayo Building, University of Minnesota Medical School, Minneapolis, Minnesota 55455. An Equal Opportunity/Affirmative Action Employer. The University of Minnesota Medical School invites

PSYCHOLOGIST

The Medical Biology Division of the Oklahoma College of Osteopathic Medicine and Surgery is seeking a faculty member to administer, coordinate, and teach behavioral sciences as related to the training of physicians. Duties will also include organizational and planning work with community agencies. Teaching/research experience and an earned doctorate required. Rank, tenure, and salary commensurate with experience. Submit letter of application, curriculum vitae, and names of three references to: Dr. W. G. Robertson, Chairman, Medical Biology Division, Oklahoma College of Osteopathic Medicine and Surgery, Ninth and Cincinnati, Tulsa, Oklahoma 74119. An Equal Opportunity/Affirmative Action Employer.

RECEPTOR BIOLOGIST NORTHWESTERN UNIVERSITY

Full-time faculty position available for 1 September 1976 in the Department of Biological Sciences. Salary and academic rank (instructor or assistant professor) to depend on qualifications.

Send curriculum vitae and names of three referees to: Neena Schwartz, Department of Biological Sciences, Northwestern University, Evanston, Illinois 60201.

Northwestern University is an Equal Opportunity Employer.

RESEARCH ASSOCIATE/CELLULAR IMMU-RESEARCH ASSOCIATE/CELLULAR IMMU-NOLOGY. Applications are invited for a postdoctoral position available immediately in cellular immunology. Areas of investigation include (i) alloimmune reactivity in transplant recipients and (ii) suppressor cell function in transplant and cancer patients. Salary \$10,000 to \$11,500 per year. Submit résumé, statement of research interests, copies of publications, and three letters of reference to Dr. Rolf F. Barth, Department of Pathology and Oncology, University of Kansas Medical Center, Kansas City, Kansas 66103, no later than 6 weeks after publication of this notice. An Equal Opportunity Employer. tunity Employer.

RESEARCH BIOCHEMIST (PSYCHOPHARMACOLOGY)

Applications invited from qualified investigators. At least 10 years of experience. Extensive knowledge of drug transport systems with controlled substances, work in both animal and human clinical pharmacolowork in both animal and human clinical pharmacology; good background in subcellular separation techniques, spectrophotofluorometry, use of isotopes; and application of computer techniques to data analysis. Understanding of clinical psychiatry helpful. Teaching at undergraduate and graduate levels necessary. Send curriculum vitae, list of publications, and four references to: John J. Schwab, M.D., Professor and Chairman, Department of Psychiatry and Behavioral Sciences, School of Medicine, University of Louisville, Health Sciences Center, Louisville, Kentucky 40201.

RESEARCH FELLOW IN NEUROPHYSIOLOGY. A position is available for a Ph.D. (neurophysiology) in a new departmental facility for the study of pain and acupuncture. Electronic and computer assistance is available. Applicants must be capable of independent research involving unitary recording and analysis from the animal brain. Send curriculum vitae, reprints of publications, and the names of two referees to Dr. P. G. Dellow or Dr. J. J. Seguin, Department of Physiology, Health Sciences Centre, University of Western Ontario, London, Canada, N6A 5C1.

POSITIONS OPEN

RESEARCH POSITION for Ph.D. at instructor or

Qualifications: Must have good mathematical abiliqualifications: Must have good mathematical abilities. Experience in cell biology, statistics, and computer modeling highly desirable. Salary dependent on qualifications. Female and minority candidates are encouraged to apply. Box 401, SCIENCE.

FELLOWSHIPS

THE CENTER FOR SYSTEMS NEUROSCIENCE

Invites applications for Fellowships, tenable 1 September 1976 through 30 May 1977, with a stipend of up to \$10,000 (which fellows may supplement from other sources). Applicants should be established neuroscientists. Fellows will collaborate with Center staff to deto experimental research. For further information and application forms write to Michael A. Arbib, Director, Center for Systems Neuroscience, Graduate Research Center, University of Massachusetts, Amherst, Mass. 01002. Awards will be made on an Equal Opportunity

POSTDOCTORAL FELLOWSHIP

Position available for postdoctoral research fellow to participate in a program of far-infrared and submillimeter astronomy using a 62-inch telescope to be situated at White Mountain, Calif. Position involves responsibility for installation, upgrading and maintenance of the telescope, development of detectors, and construction of other auxiliary apparatus as well as carrying out observing programs. The fellow will spend much of the time in Pasadena, but up to half time at White Mountain. Applicants should be familiar with techniques and instrumentation of infrared astronomy. Position available for postdoctoral research fellow to White Mountain. Applicants should be familiar with techniques and instrumentation of infrared astronomy. Starting date: January 1976 or earlier. Salary: about \$13,000. Appointment is for 1 year, renewable. Send résumé and two references to Professor M. Werner, California Institute of Technology (320-47), Pasadena, Calif. 91125. Caltech is an Equal Opportunity/Affirmative Action Employer and any qualified person is encouraged to apply. encouraged to apply.

MARKET PLACE

USED ELECTRON MICROSCOPES

Five-year-old JEOL U3 scanning EM, excellent working order, many accessories including TV monitor, photometer, specimen micromanipulator. Also, RCA 3F and Siemens I (recirculating water cooler), both in good condition. All microscopes under service contract. For details contact: Dr. E. Raviola or Dr. E. Hay, Department of Anatomy, Harvard Medical School, 25 Shattuck Street, Boston, Mass. 02115. Telephone: 617-724.3300. 734-3300, Ext. 312.





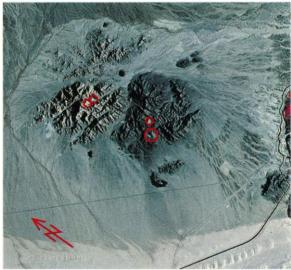
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Circle No. 76 on Readers' Service Card

We want to be useful ...and even interesting



This is an enlargement of a 3% fragment from a 5" x 5" square of film on which Skylab one day photographed 12,000 km² centered near Yuma, Arizona while sailing overhead at an altitude of 435 km, with a ground speed of 7.5 km/sec. Certain white pinpoints have been marked. At right, the same Cargo Muchacho Mountains as seen ten years earlier from spacecraft Gemini V. When one attempts to enlarge the earlier view this is all one sees:



A geologist discusses the improved view from Skylab:

"The sharp oval line framing the mountains separates finely divided silts, clays, and gravels of the alluvial fans and their drainage patterns from the sands and silts of the desert floor. Certain clays have sharp reflectance peaks in the near-infrared. The finer the clay particles, the higher the peak. The white pinpoints among the prominent SE-NW-trending faults in the mountains mark where liquid magma intrusions bearing heavy metals, including gold, have thrust up through the sedimentary rocks, reacting with them. Then hydrothermal activity created the clays as reaction products. Erosion exposed these intrusive structures as cross sections. From the material of those same white dots and others, gold was eroded into the placer gravels along the Colorado River. In the 18th century, Spaniards found it and sent back tales of the treasure that lay waiting. Maybe more is still waiting."

So says Ira C. Bechtold, president, Bechtold Satellite Technology Corp., City of Industry, Calif. Associated with him in the firm is Capt. Walter M. Schirra, Jr., who has had personal experience on board satellites. On Mercury he was alone, had



one colleague on Gemini VI, and two on Apollo VII. Bechtold has put in his long years in field boots. Now he finds he can see more by putting up a nice big color print from space on his office wall and letting it operate on his perceptions at odd moments. Currently he is awaiting reactions to his just-published perception that the ancestral fracture zone of the San Andreas fault passes east of Yuma into Sonora, Mexico some 45 km from a splay that has hitherto been considered the main trace of the famous fault. That particular perception came from the grand sweep of relatively low-resolution LANDSAT-1 (ERTS-1) telemetered imagery, a tool quite different from direct photography.

To do good geology, surgery, or cabinetry it helps to have a good choice of tools.

The price of all the terrain camera film exposed by Skylab was less than \$3,000. The shot discussed at left was made on Kodak High Definition Aerochrome Infrared Film (Estar Thin Base) SO-131. This film stands at the low-speed end of the tradeoff between speed and resolving power. Its novel feature is a narrowed spectral sensitivity for the cyan-forming layer, peaking at 800 nm. Thus the infrared is little diluted by red light. The years have brought platform steadiness, mechanical advances in film transport and forward-motion compensation, and optical advances that deliver resolution at f/2.8 over the entire field that once would have been miraculous at f/6.3. Thanks to those contributions, we can afford to trade film speed for film acutance.

For information about availability of imagery from orbit of any place on earth, write EROS Data Center, Sioux Falls, SD 57198 (not Kodak, please). The picture from which the upper left illustration is taken is identified as SL4-93-058; the Gemini shot is S65-45747.



GCA/McPherson's Ratio-Recording Spectrophotometer VS. The Competition

CHECK THE SPECS . . . COMPARE THE FEATURES . . .

THEN ASK YOURSELF WHICH IS THE BEST SPECTROPHOTOMETER.

	GCA/McPherson 707D	Beckman 25	Gilford 250	Varian 635D
Photometric Accuracy (at or near 1.0 Abs)	±0.002 Abs	±0.005 Abs	±0.005 Abs	±0.006 Abs
Wavelength Accuracy	±0.1 nm throughout	±0.5 nm throughout	±0.5 nm at 400 nm	±0.5 nm throughout
Absorbance Range (digital display)	-0.3 to +3.000 Abs	0.0 to +2.000 Abs	0.0 to +3.000 Abs	-0.5 to +3.000 Abs
Digitally Programmable	Yes	No	No	No
Signal Averaging or Damping	Digital signal averaging	Damping	Unavailable	Damping
Automatic Sample Positioner Available	Yes	Yes	Yes	Yes
Beam Configuration	Double-beam	Double-beam	Single-beam	Double-beam
Atomic Absorption Available	Yes	No	No	No
Gel Scanner Available	Yes	Yes	Yes	Yes

All information based on manufacturers' recent literature.

Our latest data sheet compares other important aspects of these spectrophotometers and details the special features you get only with GCA/McPherson 700 Series Spectrophotometers. Send for your copy. Write GCA/McPherson Instrument, 530 Main Street, Acton, Mass. 01720. Phone: 617-263-7733.

GCA/McPHERSON INSTRUMENT

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