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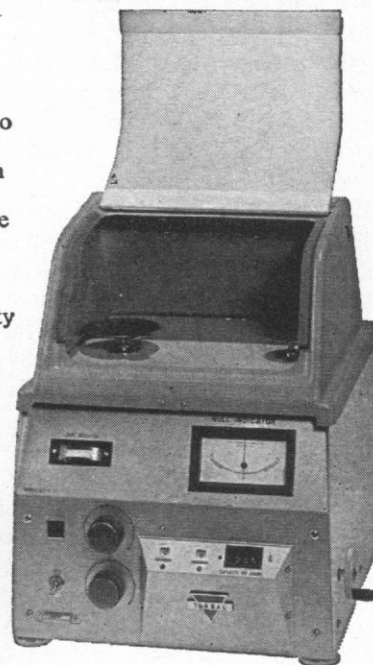
NEW EASE thanks to complete digital display without the use of optical projections or verniers to read, no estimating.

NEW EASE because the one piece construction of the exclusive Torsion weighing mechanism has no knife edges to chip, wear or collect dust—hence there's no loss in accuracy.

NEW EASE—thanks to the electronic null readout feature, the ET-1 is not affected by sensitivity changes—from temperature or humidity variations or effects of foreign matter or wear. As long as you can see the null needle move for a 1.0 mg weight change, then a difference of 1.0 mg in weight-reading means 1.0 mg—today, tomorrow, next month, next year.

NEW EASE because the ET-1's Torsion mechanism is far less affected by vibration than optical balances. You can use an ET-1 in conditions other balances can't take.

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The Affiliated Laboratories Division of Whitmoyer Laboratories, Inc. needs a D.V.M. or a Ph.D. in Virology to work as an independent investigator in its Research Laboratories at Whitehall, Ill. From 2 to 5 years' experience in cell culture is essential. The work involves the development of veterinary vaccines beginning in the laboratory, following through animal testing, clinical trials and presenting test results for Government approval.

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Courses

Computer Control and Systems Engineering, Cleveland, Ohio, 21 July–1 Aug. The course is directed to people in industry and assumes as prerequisites a B.S. degree in engineering or science and some background in dynamic systems analysis and feedback control theory. Enrollment is limited to 30. *Fee:* \$400. Lecture topics include programming languages for simulation and control, information processing and data reduction, numerical methods for optimization, mathematical programming algorithms, on-line computer control, hierarchical approach to control of complex systems. (Prof. I. Lefkowitz, Systems Research Center, Case Western Reserve University, Cleveland, Ohio 44106)

Infrared and Raman Spectroscopy, Cambridge, Mass., 3–14 August. This course is intended for chemists, biologists and medical research workers who wish intensive training in the methods of infrared spectroscopy and interpretation of infrared and Raman spectra. The course covers infrared and Raman instrumentation and techniques (1 week) and applications to problems of chemistry and biology (1 week). Tuition scholarships for academic personnel. (Dr. Richard C. Lord, Director Spectroscopy Laboratory, Massachusetts Institute of Technology, Cambridge 02139)

Industrial Process Control, Cleveland, Ohio, 7–18 July. The course is directed to engineers in industry who have limited formal background in dynamics analysis and control theory; it assumes a B.S. degree in engineering or science as a prerequisite. Enrollment is limited to 30. *Fee:* \$400. Lecture topics include: Dynamic modeling of physical systems, mathematical tools for transient and frequency response analysis, dynamic characteristics of feedback systems, design procedures for feedback control, advanced control concepts and multivariable systems, introduction to aspects of modern control theory applicable to industrial systems, and applications of theory to selected process systems. (Prof. I. Lefkowitz, Systems Research Center, Case Western Reserve University, Cleveland, Ohio 44106)

Fundamentals and Applications of Optical Information Processing and Holography, Boulder, Colo., 13–17 July. This course is intended for engineers, scientists and development specialists who must obtain a firm grasp of electro-optical science. The objective is to examine, discuss, and synthesize the concepts, techniques, and tools of optical information processing to their holographic applications and uses. Topics include the existence of spatial information on a wave, wavefront modulation, the analogy between spatial and temporal frequencies, optical Fourier transforms, spatial frequency filtering, recording spatial information on a wave. Holographic image formation data storage and display, holographic interferometry and non-destructive testing, analog optical computations, pattern recognition, image processing. *Fee:* \$275. (The Center for Management and Technical Programs, Business Bldg. 139, University of Colorado, Boulder)

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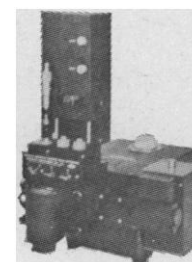
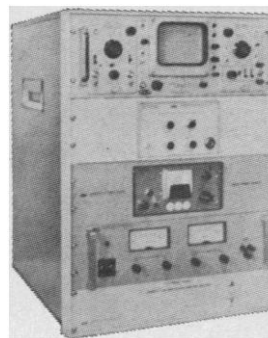
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Personnel Placement

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Consultant. Ph.D. Retired Insect Toxicologist-Department Head. Thirty years' experience as chemist, economic entomologist and insect toxicologist in government, university and industry. Successful research and development of ten insecticides. Desires consulting work in insecticide research and development; unique means of finding new toxic structures. Patents and scientific publications. Box 197, SCIENCE. X

Ph.D. Electron Microscopist. Fields of interest: experimental and comparative histology and pathology, cytology, zoology. Fully experienced in both transmission and scanning electron microscopy, micrographs. Extensive teaching and basic research experience. Publications. Desires senior level academic teaching/research position. Box 263, SCIENCE. X

Medical Writing, rewriting, editing, literature searches. Highest references. Box 264, SCIENCE. X

Microbiologist Postdoctoral. Research experience in biochemical genetics and microbial physiology. Desires research/teaching in United States/Canada. Will consider industry. Box 265, SCIENCE. X

Neurophysiologist - Neuropharmacologist. Ph.D. 1960. Teaching and research experience, publications. Seeking academic positions, locate anywhere. Box 267, SCIENCE. X

POSITIONS WANTED

Microbiologist, Ph.D., M.T. (ASCP). Experience in biomedical R & D, immunology, medical bacteriology and exfoliative cytology. Seeks position in medical laboratory environment. Box 266, SCIENCE. X

Radiobiology-Chemistry-Medical Sciences: M.S., B.S., B.A., Ph.D. tools: Computer Science/French. Graduate honors 3.6/4.0. Three years of experience V.A. isotopes research; academic research, tumor cells. Honorably discharged. Desires mainly research, medical/chemical, United States/Canada. Available immediately. Box 268, SCIENCE. 7/3

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BIOLOGICAL OCEANOGRAPHER: Teaching and research, with major responsibility for ongoing oceanic sampling programs. Ph.D., rank assistant professor, salary according to qualifications. Preference for individual with interests in ecology and distribution of oceanic zooplankton and/or midwater crustaceans or cephalopods. Apply to **Dr. Bernard C. Abbott, Department of Biological Sciences, University of Southern California, Los Angeles, California 90007.**

McMASTER UNIVERSITY, DEPARTMENT OF PATHOLOGY SURGICAL PATHOLOGY

Anatomical pathologist to be responsible primarily for the development and operation of the surgical pathology service of a new 420-bed university medical school hospital, to open in 1971. Candidates should be board certified and experienced in diagnostic tissue pathology. Technical facilities and staffing are being planned to provide opportunities specifically for service-related research. Preference will be given to candidates with an interest in the research and education potential of surgical specimens and with previous research experience in this field. The position carries an academic appointment with teaching responsibilities. Inquiries with curriculum vitae may be directed to: **Administrative Assistant, Department of Pathology, McMaster University, Hamilton, Ontario, Canada.**

POSITIONS OPEN

Ph.D. Biochemist or Pharmacologist with some biochemical background or M.S. with experience to take charge of special chemistry and development work in a 142-bed Medical School associated Community Hospital. Some interest or experience in thin-media chromatography and electrophoresis and in steroid work an advantage. Well-equipped, well-staffed laboratory. Year-round vacation area, skiing, sailing, tennis, and so forth. Close to Tanglewood and other music festivals. Apply to **Dr. W. Beautyman, Berkshire Medical Center, Pittsfield, Mass. 01201.**

BIOLOGY DEPARTMENT CHAIRMAN

Applications are invited for the position of Chairman, for a bioscientist with research, teaching and administrative experience. The position is effective 1 July 1971, for a 3-year term, and is renewable. Applications with curriculum vitae including the names of three references should be sent to:

**Appointments Committee
Department of Biology
University of Waterloo
Waterloo, Ontario, Canada**

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Applications are invited for the post of associate professor in Cell Biology. Position involves leadership of the Department of Cell Biology at the Zoölogical Laboratory of this university, and the teaching of general cell biology. Preference will be given to candidates with interests in fundamental aspects of cell biology in relation to morphogenetical questions. The salary could be within the range of Dfl. 2798 and Dfl. 4060 per month.

Applications including a curriculum vitae should be addressed to:

Prof. Dr. A. Quispel
p.a. Subfaculteit Biologie
Nonnensteeg 3
Leiden, Netherlands

UNIVERSITY OF NEW BRUNSWICK DEPARTMENT OF BIOLOGY

Applications are invited for a teaching position in the Department of Biology, University of New Brunswick (Saint John Campus). The successful candidate will be expected to teach a second-year course in Genetics and to participate in the teaching of the Introductory Biology course.

Preference may be given to candidates with interest in marine biology. Facilities for research are good.

Salary and rank open, dependent on qualifications and experience. Appointment effective 1 September 1970 or sooner if possible. Address applications to:

Professor H. V. Pritchard,
Acting Chairman, Department of Biology
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Send a curriculum vitae and other relevant information to **Box 271, SCIENCE.**

MUSEUM TECHNICIAN

Full-time position. Collecting, preparation, and curatorial duties for a bird and mammal collection of 45,000 specimens. Starting salary up to \$8,500 based on experience. Write: **Chairman, Section of Ecology and Systematics, Building 6, Langmuir Lab., Cornell University, Ithaca, New York 14850.**

CLINICAL BACTERIOLOGY

Senior Technologist of M.S. status, to take charge of Bacteriology Unit with special reference to mycobacteria and mycology, in 800-bed, university-affiliated, general teaching hospital.

Excellent spectrum of clinical materials and developing facilities. Salary commensurate with experience, in region of \$8,500. Apply to: **G. K. Richards, M.B., Bacteriologist.**

The Buffalo General Hospital
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SENIOR RESEARCH SCIENTIST

The health and medical group of International Paper Company's Corporate Research Center located in Sterling Forest, New York, has an immediate opening for a Senior Scientist to perform basic and applied research and development on health care products. The successful candidate should possess an advanced technical degree with several years experience in the development of medical, surgical products, preferably in the area of surgical dressings. Knowledge of FDA requirements and polymer evaluation helpful. This position offers excellent growth opportunity and compensation for an aggressive innovator possessing the scope and depth necessary to assume additional responsibilities.

Please send résumé, including salary history, to:

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PROGRAM DIRECTOR. Institutional Cancer Training Grant Director. Available immediately. Strong interest and background in cancer necessary. Administrative experience. M.D. or Ph.D. Salary \$25,000; fringe benefits. Write or call—**I. Brodsky, M.D., Director, Division of Hematology, Hahnemann Medical College & Hospital, 230 N. Broad Street, Philadelphia, Pa. 19102, (215) Lo-4-5000 Ext. 711.**

Graduate Teaching Assistantships available for September 1970 for study toward the Master's degree in biology or chemistry: \$2500 per ten-month academic year plus remission of tuition. Contact **Dean, Faculty of Science and Mathematics, State University of New York, College of Arts and Science, Plattsburgh, New York 12901.**

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MACRO *Our company has become an important repository of skills in handling visual imagery on a massive scale. Within the extant structure of society, we seek ways to join these skills of ours most effectively with organized endeavors of others for rational assessment, sharing, utilization, and conservation of the earth's finite resources. Our point of initial contact with such organized efforts may be addressed as "Advanced Planning," Eastman Kodak Company, Rochester, N. Y. 14650. Contact is earnestly invited.*

Role seeking, role development, role guarding—all as basic as breathing, eating, sleeping. Do it without shame, but don't admit you're doing it. Roles should be honorable and important.

Nothing today is more honorable or important than coping with the new-found finiteness of global surface. Since Columbus, rumors have persisted that space to explore and exploit is theoretically less than infinite. Quite recently brave, camera-carrying tourists on their way to and from the moon proved the theory with color pictures of the whole earth.

Unbelievers grow scarce. A major stocktaking must be organized. Is there going to be enough fresh water? What temperature? How about the oil? Timber for housing? Ore? Must the mines come that close to the clam beds? Will there be enough food? What kind of food? What do the savants think—the geologists, the hydrologists, the agronomists, the climatologists, the forestry people, the fisheries people, the ecologists?

Introspection having gone out of style among savants, they ask for data, synoptic data—pictures. An observer on foot or in a surface vehicle gets only a traverse. That is hardly enough, nor is a single spectral band. Correlation of signals from several bands makes up the signature of a condition, sensed from a distance. Remote sensing from aircraft creates desire for the more synoptic view from satellites. Impressive as is a single frame of film bearing the entire earth, it permits relatively few judgements.

Thus roles shape up for the space technologists. Even if the earlier on-board sensors are all-electronic, down on the ground the message needs to be put into graphic—photographic—form for eye-to-brain judgement. If the resolution is fine enough to be useful, much photographic material will be required, and in colors for the additional channels of information to the brain that colors provide. There will have to be many copies for distribution to the various disciplines. Those of us who measure success in acreage of film made, exposed, and processed in machinery of our manufacture will experience the joy of role fulfillment.

Certain full-time innovators among us who made their mark with the Lunar Orbiter now seek role extension by advocating photography as the original sensor. They argue that this is the only proven way yet to get enough resolution for significant data from orbital altitudes. And with the awesome volume of data that would then need sifting, a role is in prospect for still others of us who dream of machines that will scrutinize film at great speed and with inhuman immunity to boredom.



MICRO *People of our Laboratory of Industrial Medicine. A minor recent accomplishment of theirs, quite incidental to their tasks, has been the discovery that Methyl 5,12-Diethylfluorindinium Methosulfate, when fed to housefly larvae, is retained as a blue abdominal stain into the adult stage. This may prove useful for studies of the dispersal patterns in agricultural pests. The dye has been made available through lab supply houses as EASTMAN Organic Chemical No. 11258. A solution of 0.1 g in 50 ml of water-yeast-malt mixture is added to 25 g of commercial fly larva media. When the adult is crushed on filter paper, the stained viscera color the paper blue.*

The tasks since 1936 have been to probe into the biological consequences of what we do, make, or plan. The chemist-physician who heads the staff of 50 is not a highly competitive person. He does not boast of more zeal than counterparts in certain other famous companies. They can speak for themselves. In this branch of scientific endeavor prevail other criteria of diligence than number of pages of research published. For all we know, other companies also illuminate with a xenon arc the bottles of effluvia in which laboratory fish live. Not just the discharge but the products of sunlight shining on it should be proved innocent.

Certainly we are not the only chemical manufacturer who employs young ladies to count and measure bones in the skeletons of newborn rodents. Charge it to corporate curiosity about the teratogenic potential of a compound which might, for example, be proposed some day as a modifier of a plastic which could find its way into the construction of food-handling equipment.

Could be helpful in the commercial interests of product development to learn what chemical doors to shun. No point wasting development money in directions that are bad for the ecosystem and even worse for us ourselves who, unwarned and unguarded, might take into our personal bodies larger doses of intolerables for a mere paycheck.

Good old developer on the rocks

On March 7, 1970, during the total eclipse, the Naval Research Laboratory fired through the top of the atmosphere a rocket containing four spectrographs loaded with KODAK Special Film 101-01, a low-gelatin film for the deep ultraviolet. They worked as planned. The parachute did not. For two weeks the equipment rested one thousand fathoms deep while decisions were being weighed. A torpedo recovery device was pressed into service. It worked.

One of the four chambers had survived destruction by electrolysis. NRL chose to cut the time in KODAK Developer D-19 to 80 seconds and to keep the sea bottom temperature with ice cubes. Result: ten strips of spectra with 1.5 line density against 1.0 background, locating the transition between the 10⁴ K chromosphere and the 10⁶ K corona.

People who know their way around photographic instrumentation don't mind that KODAK Developer D-19 is a relic of a bygone age. They find the 25-gallon size convenient, contrasty, and economical. It's torpedo recovery devices that run dear.

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