Hitachi, Ltd. of Japan, in advance of worldwide competition, announces the successful production of the HU-11, the latest in electron microscopes.

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*Cincinnati Division, The Bendix Corporation
Sexual management cannot always recruit—even with the weapons of more generous salary and bonus arrangements—the supervision over research that is meaningful. This is implied by the famous, humbling statement that many of us involved in research administration keep framed at our desks—a statement by the late C. E. K. Mees, long-time director of research of Eastman Kodak Company.

Research is a gamble. It cannot be conducted according to the rules of efficiency engineering. Research must be lavish of ideas, money and time.

The best advice is, don’t quit easily, don’t trust anyone’s judgment but your own, especially don’t take any advice from any commercial person or financial expert and finally, if you really don’t know what to do, match for it. The best person to decide what research work shall be done is the man who is doing research. The next best is the head of the department. After that you leave the field of best persons and meet increasingly worse groups.

The first of these is the research director, who is probably wrong more than half the time. Then comes a committee, which is wrong most of the time. Finally, there is the committee of company vice presidents, which is wrong all the time.

Allen Kent
Center for Documentation and Communication Research, Western Reserve University, Cleveland, Ohio

Sex Conversion in the Copepod

Vacquier [Science 135, 724 (1962)] reports that application of high hydrostatic pressures to larval stages of the copepod Tigriopus resulted in a shift in the sex ratio toward females, and says “At this stage of the work it is impossible to distinguish between selective effects...and sex conversion.” In this he is mistaken, his data being quite adequate to demonstrate conversion.

At pressure of 1 atmosphere there were 142 surviving males out of a sample of 175 individuals of both sexes. Thus, no more than 33, or 19 percent, could have been females. This is clearly discordant with a finding of 96 surviving females out of a sample of 225 exposed to pressure of 600 atmospheres, the random sampling probability being less than 0.001. It is also discordant with a finding of 75 surviving females out of a sample of 253 exposed to pressure of 550 atmospheres, the random sampling probability being less than 0.02. In view of the fact that these comparisons involve not the ac-

tual number but the maximum number of females the 1-atmosphere sample could have had, there is no reason to doubt “conversion.” Whether the conversion is morphological or functional is another matter. Also, it can be doubted whether sampling was random with respect to sex in making up the lots for the experiment. If sampling was not random, any conclusion regarding the sex ratio would be affected equally.

H. W. Norton
College of Agriculture,
University of Illinois, Urbana

Government Regulations

The editorial on needless obstacles to government service [Science 137, 89 (1962)] requires clarification of the statement that government employees must not receive compensation from any outside source. The point intended must have been that government employees must not accept outside compensation for activities performed as part of their government service, or some such qualification.

The main point of the editorial—that the government sometimes hamstring its recruitment programs, and that certain types of restriction on employment subsequent to government service are undesirable—is strengthened considerably through full examination of the conflict-of-interest practices and regulations.

One part of the regulation forbids any government employee from aiding in the filing of a claim against the government if he stands to gain by the claim or if the claimant is his child or wife. If taken literally, this forbids a government employee from helping his wife fill out her income tax refund claim. Although the regulations are supposed to be interpreted strictly, it seems hard to imagine that this restriction is intended. But the damage done by unforeseen and unprovided-for restrictions may be more serious than the evils which the regulations are meant to correct. Even worse is the lessening of regard for good regulations which is caused by the tendency to ignore masses of poorly planned instructions which cannot be either understood or applied and which say much more than they mean, and therefore usually mean little to the persons concerned.

[Name withheld by request]
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ing crystalline imperfections directly.” The methods of direct observation include etching, internal decoration (precipitation of foreign matter in dislocations), diffraction contrast in electron microscopy, x-ray diffraction “topography” (a picture of the crystal taken, for example, along one of its x-ray reflections), and study of irregularities in field ion microscopy. The results of work in all of these fields have recently been reported in the literature.

Those working in the field are presumably familiar with this literature, so the book will probably have its greatest appeal to scientists in related fields. Such readers will be particularly interested in the first three survey chapters, which outline the methods and results obtained by the methods of optical and electron microscopy, x-ray diffraction topography, and field ion microscopy. The main body of the book comprises a series of individual papers that reveal the present state of the art.

It is a curious fact that the study of dislocations has not been carried forward by crystallographers, but by metallographers and solid-state physicists, who have studied the crystals with which they are most familiar, particularly the metals and alkali halides. Conclusions of general validity probably cannot be made from the study of such trivial patterns of atoms. Apparently little work has been undertaken on dislocations in complex structures. In this book, however, Amelinckx and Delavignette report on dislocations in layer structure, and they include the silicates talc and mica.

This book not only provides a picture of the progress that has been made in the study of dislocations, but it also highlights the fields which have been left uncultivated. For example, what is the status of work on dislocations in crystals with nontrivial structures, such as the feldspars, pyroxenes, and tourmaline. What is the relation of crystal habit—in other than layer structures—to screw dislocations? Is lineage structure related to dislocations? These are obvious directions in which the study of dislocations must be extended.

This book will awaken the crystallographer to these questions. Other scientists will be enlightened if they happen to encounter the book in a library, but they will probably not care to buy it themselves for $21.50.

M. J. Buerger

Laboratory of Crystallography, Massachusetts Institute of Technology

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Notes

Gerontology

Students of gerontology will find little new information in Structural Aspects of Ageing (Geoffrey H. Bourne, Ed. Pitman, London; Hafner, New York, 1962. 419 pp. $20), but they should nevertheless welcome the volume as a useful compendium. Unfortunately, a disturbing number of chapters appear, as the editor’s preface candidly states, to have been collected “only for the sake of demonstrating the gaps in our knowledge.” The chapters concerned with age-associated changes in joints, blood vessels, cartilage and bone, and teeth and oral tissues should, however, prove to be of particular value, especially to workers in clinical fields. Those workers have too long neglected the significance of findings that are here comprehensively discussed.

W. Bondareff

U.S. Public Health Service Hospital, Baltimore, Maryland

Economics and the Social Sciences


Mathematics, Physical Sciences and Engineering


21 SEPTEMBER 1962

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New Books

Biological and Medical Sciences


Those who do, have attempted to identify unusual spectra, have learned a great deal about attenuated total reflection — a development of far-reaching importance to infrared spectroscopists, and have read provocative editorials such as the following excerpt from a discussion of this year’s Ohio State Symposium on Molecular Spectroscopy:

"Columbus used to be the calm and relaxed meeting place where the theoretical academician, the practical industrial spectroscopist, and the hungry instrument maker met—the first to point the direction, the second to find the broad application, and the third to provide the tools. However, this happy mixture of interests has gradually disappeared... Could it be that industry has forsaken Columbus because the academician has ceased to be leader in the field of Molecular Spectroscopy?... The academic spectroscopist might do well to pause and consider the significance of the growing divergence of his work and that of the industrial spectroscopist."

The CIC Newsletter is published bi-monthly, is devoted to the fields of infrared spectroscopy and chromatography, and is distributed without charge. If you’re not receiving it now, you should be — you’ll find it valuable and interesting. Why not fill out the coupon?

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Meetings

Forthcoming Events

October


22-26. Society of Motion Picture and Television Engineers, convention, Chicago, Ill. (C. S. Stodter, 55 W. 42 St., New York 35)


23-1. Care of Children in Institutions, Geneva, Switzerland. (World Health Organization, Palais des Nations, Geneva)


24-26. Society for Experimental Stress Analysis, annual, Milwaukee, Wis. (B. E. Rossi, 21 Bridge Square, Westport, Conn.)

24-27. International Assoc. of Milk and Food Sanitarians, annual, Philadelphia, Pa. (H. L. Thomasson, Box 437, Shelbyville, Ind.)

24-28. Angiology, intern. conf., Darmstadt, Germany. (Sekretariat, c/o Medizinische Klinik, Bismarckstr. 28, Darmstadt)

25. New Mexico Acad. of Science, Albuquerque. (K. G. Melgaard, P.O. Box 546, Mesilla Park, N.M.)


26-28. American Heart Assoc., scientific sessions, Cleveland, Ohio. (AHA, 44 E. 23 St., New York 10)

27. American Mathematical Soc., Hanover, N.H. (AMS, 190 Hope St., Providence 6, R.I.)
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WRITE FOR CATALOG TCS/9212

21 SEPTEMBER 1962
The Scientific Research Staff at Republic Aviation is conducting a wide range of theoretical and experimental programs in electronics and guidance research, including a significant advance in nuclear gyroscopes.

The photograph above shows gyro inventor Stanley M. Forman, Physicist with Republic’s Scientific Research Staff, and Milton J. Minneman, Chief Staff Scientist-Electronics, with a working laboratory model of the new “proton” gyro concept. Fundamentally a magnetic field in a water-filled sphere, the only moving parts are spinning electrons and protons. A long-term investigation was initiated in this area by Republic in 1959. Recently the company was awarded a contract by the Bureau of Naval Weapons for further research and development of a practical magnetic induction gyroscope. It is expected to have a lower drift rate than the best existing gyros and cost far less.

Opportunities exist on this program for interested Physicists with PhD and experimental or theoretical experience in magnetic resonance or related field.

The Scientific Research Staff is supported by the excellent facilities of Republic’s Paul Moore Research & Development Center, the most sophisticated aerospace research complex in the East. Appointments to the Staff are also open in these other areas of research:

**ELECTRONICS & GUIDANCE RESEARCH**

**ELECTROMAGNETIC THEORY & ANTENNAS.** Involves several aspects of electromagnetic theory and antenna research. At the theoretical and experimental level, investigations are exploring broadbanning phenomena. Related studies concern a miniature antenna concept with characteristics equivalent to much larger units. Other work relates to electro-optics, effects of plasma on communications, electromagnetic means of determining vehicle attitudes, as well as the initiation of new research studies. Requirement: PhD (or MS working toward PhD) and heavy research experience.

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You are invited to write in confidence to Mr. George R. Hickman, Professional Employment Manager, Dept. 35J-3.
The classic maple shape outlines a specimen micrograph of leaf epidermis made at X100 with a Honeywell Pentax camera and a Honeywell 52-A Strobonor for flash illumination. (Sharp eyes will identify the leaf as *philodendron*, not maple; please indulge our preference in design!)

A Pentax should be a part of your standard laboratory equipment. At $149.50 for the Model H-1, the reliable Pentax is undoubtedly your very best choice of a versatile single lens reflex camera. There are 13 interchangeable lenses for it (35 mm to 1000 mm).

The 52-A Electronic Flash Unit ($69.95) plugs into 110V-AC and features a modeling light which insures your directing the flash into your microscope’s mirror. This flash unit absolutely stops specimen movement and the effects of camera shake; it cannot burn or cook slides.

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