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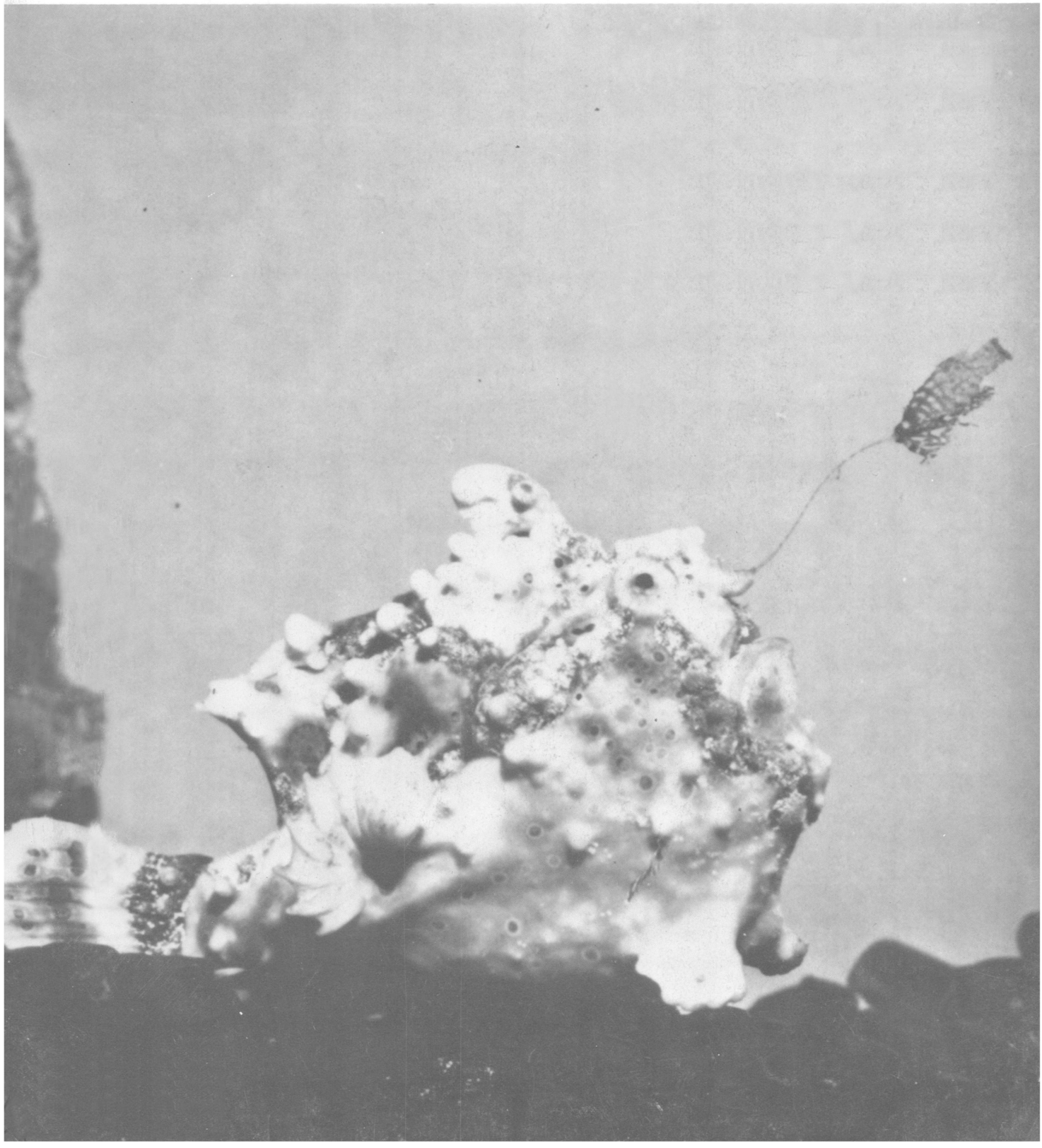

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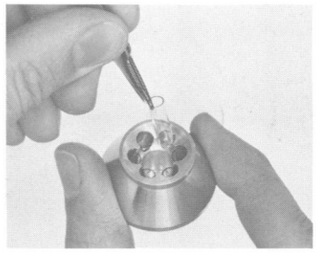

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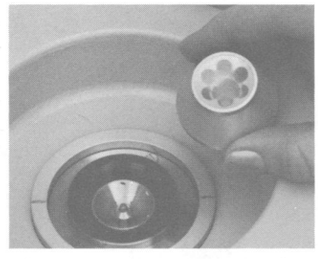

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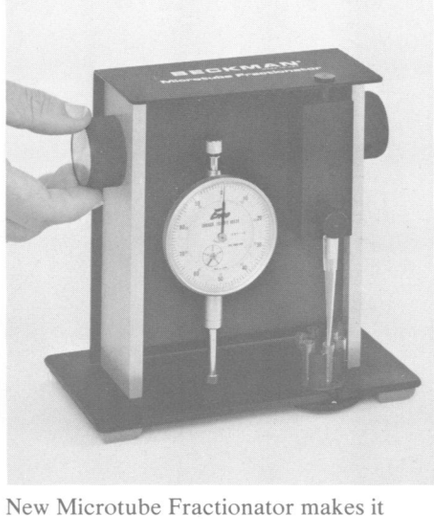

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COVER

Anglerfish of the genus *Antennarium*, in luring posture, displays a bait that bears a remarkable resemblance to a small fish. See page 369. [D. B. Grobecker and T. W. Pietsch, California State University, Long Beach, California]

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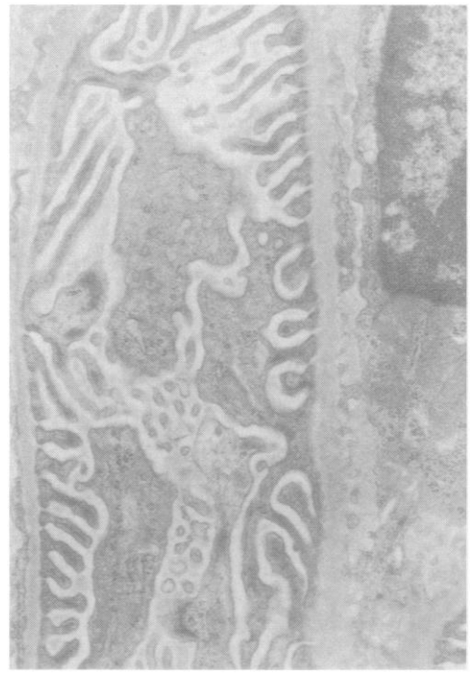

A transmission electron micrograph of a section of the renal cortex of a rat (magnification 16,000×). Exposed in the microscope on KODAK Electron Image Film 4463—one of a number of Kodak products designed for specialized applications.

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According to the *Science* article, Roth claimed that the excess of lung cancer mortality among workers exposed to beryllium could be explained by correcting for cigarette smoking. This conjecture is in conflict with analyses of data from a 1967–68 Public Health Service survey of smoking habits among beryllium workers at the study facility (*2*). NIOSH presented data at the OSHA hearing demonstrating that a higher percentage of workers exposed to beryllium had never smoked cigarettes (27.2 percent) when contrasted with the U.S. white male population (24.7 percent). Whereas a lower percentage of workers exposed to beryllium were found to be current cigarette smokers (50.4 percent versus 54.7 percent), a higher percentage of those beryllium workers who smoked cigarettes were found to smoke more than one pack daily (21.4 percent versus 15.3 percent). This distribution of smoking habits among workers at the beryllium production facility under study was of a magnitude to increase the lung cancer risk by only 14 percent in the absence of beryllium exposure. However, in the group with the greatest latency period (25 or more years since initial employment), the lung cancer risk was increased by 85 percent. Thus, NIOSH presented data indicating that cigarette smoking per se could not have accounted for the increased risk of lung cancer among the study cohort.

The *Science* article states that the beryllium companies would like to see "another study made of a separate cohort of beryllium workers." In view of the lack of positive action by industry and its consultants in the past, we, as public health scientists, can only interpret the "new" recommendation by industry as a tactic to delay government regulatory decision-making. In view of the demonstrated findings of increased lung cancer mortality in four independently ascertained data sets of populations exposed to beryllium, together with results of carcinogenesis bioassay studies, we also view the request for additional data collection in the context of a continued and needless exposure of workers to a proved human carcinogen.

Finally, as government and independent researchers, we accept responsibility for the objective conduct and evaluation of epidemiological studies. At the same time, as scientists with a public trust for protecting the health of workers, we expect a similar degree of objectivity on the part of all investigators, including those from industry and its consultants. In like manner, we would hope that representatives of the press, particularly those involved in "scientific" is-

around, maybe Jean Marx will, after all, see the day when a few dinosaurs are "rounded up and studied directly."

J. RICHARD GREENWELL
Office of Arid Land Studies,
University of Arizona, Tucson 85719

Yale's Discontinued Department

The article " 'New wave in academia' wipes out department at Yale" (News and Comment, 17 Mar., p. 1189) contains several inaccuracies which should be put straight. The initiative for discontinuing the Department of the History of Science and Medicine at Yale did *not* originate in the School of Medicine. The fourth professor was George (not Charles) Rosen. At no time did the medical school "want to deploy the vacant professorship in a subject such as the ethics of medicine." In fact, the School of Medicine is currently engaged in a search for an individual to fill a senior faculty position at the rank of professor or associate professor as the head of a Section of the History of Medicine.

ROBERT W. BERLINER
Office of the Dean,
School of Medicine, Yale University,
New Haven, Connecticut 06510

Sex Differentials in Salaries: Faults in Analysis of Covariance

Much criticism has been leveled against the use of covariance procedures to adjust for known differences among populations in order to test for hypothesized differences among them. The criticisms offered by Woodward and Goldstein (9 Sept. 1977, p. 1096) of the research on "communication deviance in the families of schizophrenics" apply, with minor variations, to the work of Bayer and Astin (23 May 1975, p. 796) relative to salary differences between men and women on university faculties.

The major conclusion of Bayer and Astin is that men are paid more than women of similar academic rank, departmental affiliation (*1*), number of publications, and so forth. Variables such as number of publications are, however, fallible indicators of constructs, and being fallible they control incompletely for the target construct, research productivity. As a result, one cannot infer a salary differential because of sex from the analysis offered by Bayer and Astin.

Instead of reiterating criticisms of analysis of covariance offered by Woodward and Goldstein and many others, I refer the reader to Fig. 1, which is derived from Bayer and Astin's data (*2*). In that figure it is evident that there are sex differences in both number of publications and salary. However, inspection of this figure, and other figures (*3*) based on the means of other homogeneous groupings in the same population, indicates that there is no systematic salary differential attributable to sex per se. Although in some of these groups men seem to have been paid more than women, the opposite seems true equally often.

Fig. 1. Mean log salary plotted against mean number of articles for groups homogeneous with respect to sex, rank, and departmental affiliation (*3*). For each group $N \geq 25$.

In many respects this way of looking at the data is also vulnerable to criticism. No claim is made from this analysis that a sex differential in salary is not present. It seems reasonable to suppose, however, that one should be able to detect a sizable differential from inspection of such plots. On the other hand, the covariance analysis used by Bayer and Astin is known to be biased in the direction the results indicate: that is, the group higher on the fallible covariate will tend to appear disproportionately higher on the variate (when the variate and the covariate are positively correlated) even when there would be no such disproportionate difference if an infallible covariate were used.

LEROY WOLINS
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Iowa State University, Ames 50011

References and Notes

1. Departmental affiliation is a grouping of faculty according to kind of department: business, education, biology, physical sciences, social sciences, fine arts, humanities, health.
2. I thank Bayer and Astin for making these available.
3. Tables upon which Fig. 1 and the other figures are based are available from the author.
4. Supported by contract NIE-C-74-0115 from the National Institute of Education.

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The Importance of Marine Affairs

The work of the Third United Nations Conference on the Law of the Sea has, in one form or another, been going on for about 10 years. It has proved extremely difficult to reach agreement on a treaty acceptable to 156 participating nation-states. Whether or not the conference produces a treaty that can be signed and ratified by the required number of states to allow it to come into force, it has been the agent of a revolutionary change in the regime governing the world ocean. We are, in fact, in the midst of a global enclosure movement affecting the oceans in which about 35 percent of the planet is currently passing to national control. At the same time, patterns of ocean use are being modified by major advances in technology.

Some of the effects of the enclosure movement—particularly those related to the conduct of marine scientific research and to fisheries—have been discussed in detail in the professional literature. It is clear that distant-water oceanographers, such as those from the United States, will face more restrictive conditions in the future with respect to access for research in the 200-mile economic zones of other states. The enclosure movement will also affect all of the world's stocks of fish and shellfish, except for most whales, about 35 to 40 percent of tuna and similar species, and a few stocks of other oceanic species. Fishery management systems will have to face regimes amounting to national property rights in various stocks of fish, as opposed to the open access of the past.

Much less is generally known about the effects related to ocean shipping, pollution controls, the exploration and exploitation of nonliving resources beyond the continental margins, the conduct of military operations, modification of the marine environment, and possible innovations such as weather modification and the development of new sources of energy from the oceans.

Our concern is that the scientific and technological communities will be insufficiently prepared to deal with the ramifications of the world enclosure movement. These jurisdictional changes are occurring at a time when technological advances are intensifying human use of the coastal zones of the world ocean. They will allow coastal states to exercise various degrees of control over most of the activities occurring in these zones. The implications of different patterns of ocean use will have to be taken into account when these states begin to consider what they will do with the jurisdiction gained. It is therefore necessary for national and international marine policies to be formulated and implemented in a more coherent and coordinated fashion than they have been in the past.

The enclosure movement can be viewed as presenting opportunities for imaginative action. New methods and procedures will be needed for future marine activities. We would like to see these opportunities emphasized in American marine policy, but we feel that this is a neglected area among the myriad studies made of the marine environment. The study of marine affairs has been the subject of many planning meetings by the International Decade of Ocean Exploration and other organizations, but it is still poorly defined, poorly funded, and lacks the participation of many important and knowledgeable scientists. The few people currently working in marine affairs are usually specialists in particular disciplines such as economics, sociology, law, oceanography, fishery biology, and systems analysis. The training of people in the broad areas relevant to marine affairs must be expanded so that the U.S. government and the scientific community can respond to the changing regime governing use of the world ocean.—DAVID A. ROSS, *Woods Hole Oceanographic Institution, Woods Hole, Massachusetts 02543,* and EDWARD MILES, *Institute for Marine Studies, University of Washington, Seattle 98195*

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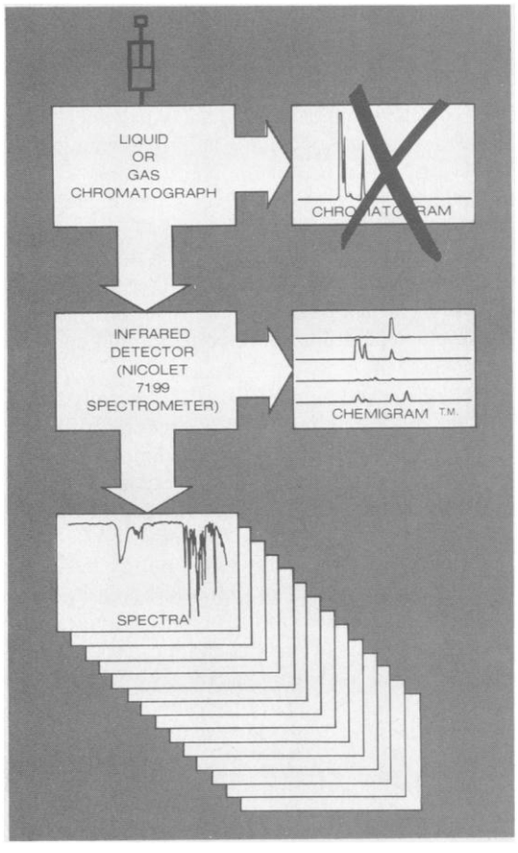

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Reagent Spray Enclosure

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Automated Slide Stainer

Model HMS 360 will stain up to 360 microscope slides per hour. Slides are transported through a series of strains and rinses for set times then dried and accumulated. Honeywell Test Instruments. Circle 694.

Literature

Lectins, Enzymes and Antibodies describes a line of pure chemicals for a variety of research applications. E·Y Laboratories. Circle 686.

Laboratory Products is devoted to instruments, reagents, and accessories for electrophoresis, thin-layer chromatography, and other techniques. Gelman Instrument. Circle 687.

Chromatography Accessories and Supplies lists columns, injectors, solvents, fittings, and many other items. P. J. Cobert Associates. Circle 688.

Piezoelectric Measuring Instruments are the subjects of a catalog of crystals for determining pressure, force, and acceleration. Kristal Instrument. Circle 689.

Transient Waveform Recording techniques and applications are discussed in a handbook. Physical Data. Circle 690.

Test and Measurement Instruments lists the modular TM 500 line of electronic apparatus. Tektronix. Circle 691.

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—RICHARD G. SOMMER

BOOKS RECEIVED

(Continued from page 338)

Immediate Hypersensitivity. Modern Concepts and Developments. Michael K. Bach, Ed. Dekker, New York, 1978. xxii, 848 pp., illus. $47.50. Immunology Series, vol. 7.

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