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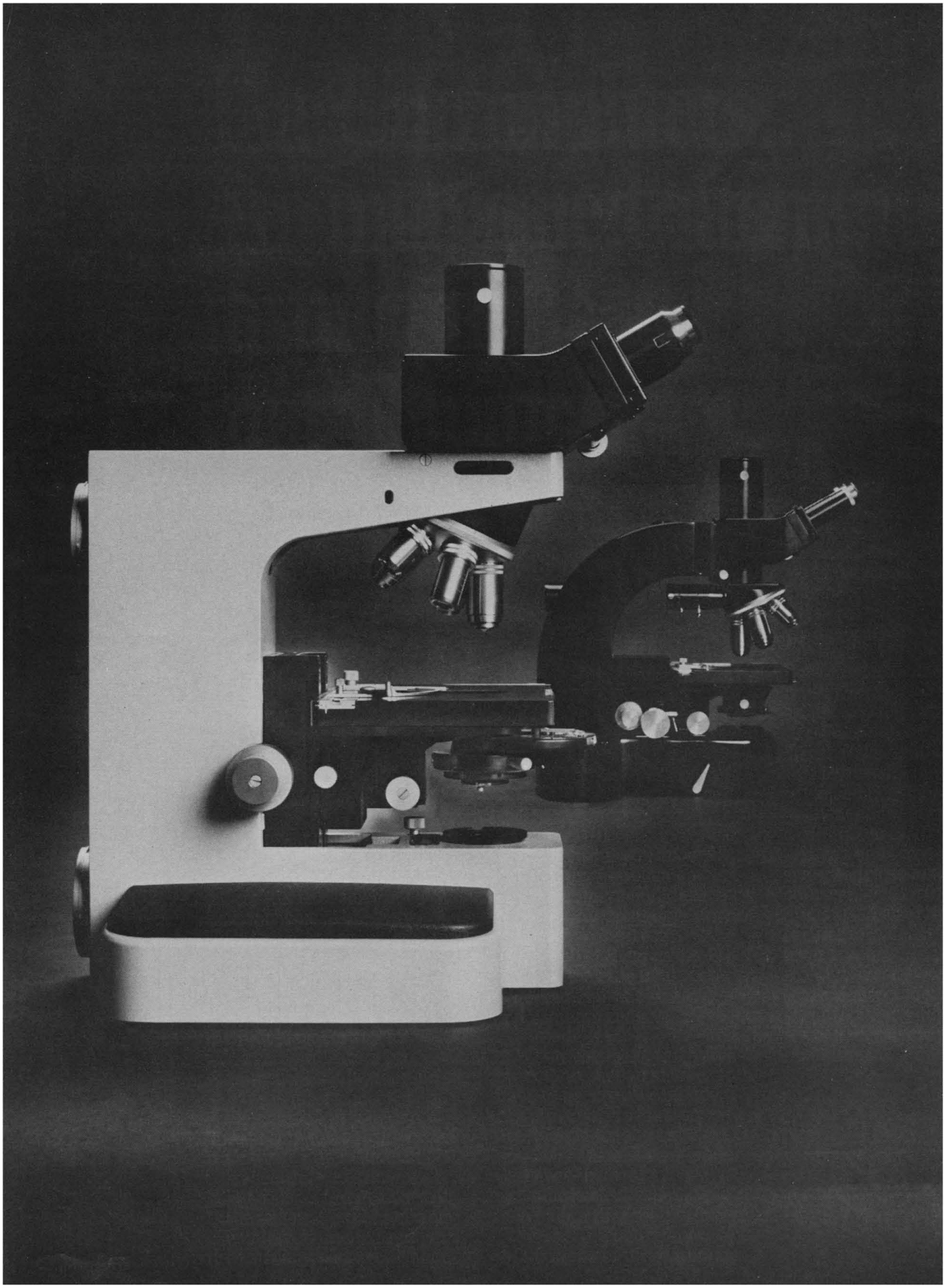

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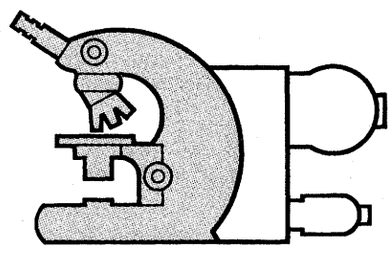

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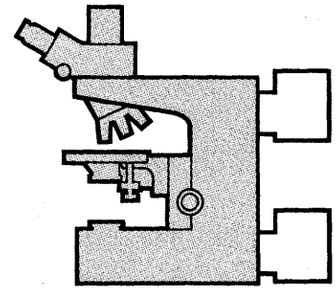

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*4) A. J. Coale, "Man and His Environment," 9 Oct. 1970 (8)
*5) A. Crancer, Jr., *et al.*, "Comparison of the Effects of Marihuana and Alcohol on Simulated Driving Performance," 16 May 1969 (4)
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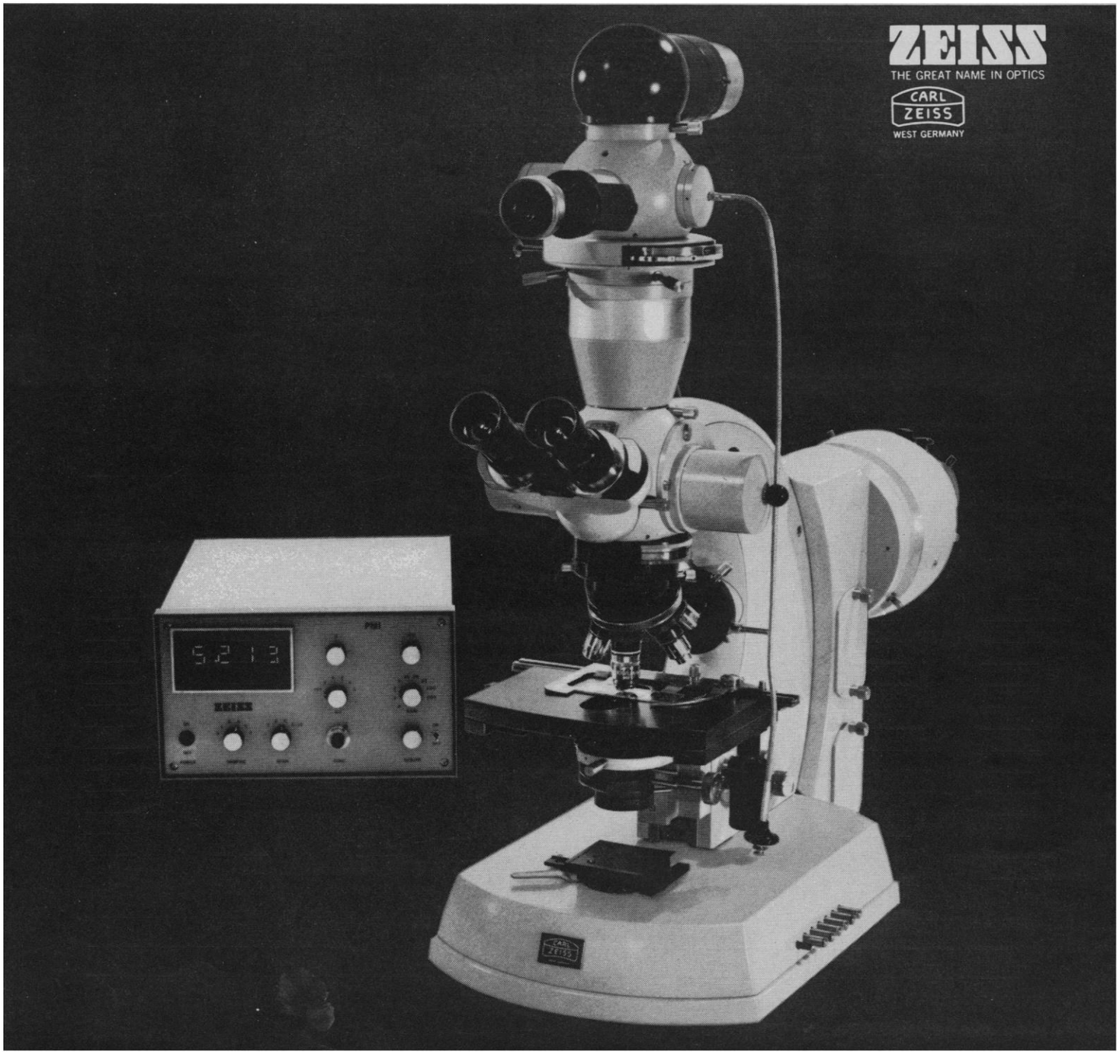

The Funding of Research

Contrary to the impression given in the letter of Mark V. Morkovin (25 Aug., p. 652), the American people *did* lobby in Congress for decreased dictation by the Department of Defense (DOD) of basic research in this country. Many of us feel that fundamental research should be funded through competent and strictly civilian agencies, such as the National Science Foundation, the National Institutes of Health, and the National Aeronautics and Space Administration, and not by an inbred organization with obvious vested interests in military involvements. Strong conversion of funding from military-sponsored to civilian-sponsored research must ensue if "most of the results will be used in peaceful applications." This feeling was reflected in the mood of Congress when it passed the Mansfield amendment to limit DOD research to projects that are "apparently and directly" related to DOD's military mission. The Pentagon's willful alteration of contract titles and reports in 1970 in order to hoodwink elected representatives is not to have walked a "tightrope," as Morkovin expresses it. Rather, this intentional deception flagrantly violated congressional intent and cheated the American public. The Mansfield amendment passed the Senate by a vote of 68 to 0 in 1971, and, even though it was modified in conference (*Science*, 6 Nov. 1970, p. 613), it still carries with it the intent of many in the Congress to encourage transfer of DOD spending to agencies in which there is a much higher probability of funding research with applications of benefit to society and to America. What we need now is an actual transfer by Congress of appropriations, not merely statements of guidelines. What we *don't* need is defense of deception.

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Research at Oberlin

In a recent letter (22 Sept., p. 1060) Rustum Roy states that "Dozens of small liberal arts colleges—the Wesleyans, Oberlins, Kenyons—managed to provide excellent undergraduate education without attempting to involve the faculty in formal (funded) research activities." Apparently he is not familiar with the activities at these institutions.

The six permanent members of our department are all engaged in research in areas that include the history of science, nuclear physics, and solar physics. Each has published material related to his research within the past 2 years. Two faculty members have outside funding (from the National Science Foundation and from the Research Corporation), and two others have proposals pending. Most members of the other science departments here are involved in original research, and several have outside funding.

It may be true, as Roy states, that research is not "needed to retain or produce the best undergraduate teachers," but it has been our experience that most fine teachers wish to do research to remain alive in their own fields as well as to offer research opportunities to their students as part of their educational experience. Several papers coauthored by our faculty and their undergraduate students have recently appeared in such journals as *Physical Review* and *Nuclear Physics*.

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Salvage Archeology

Ruth Gruhn (Letters, 28 Apr., p. 353) raises some important issues regarding salvage archeology in this country. In our opinion, she has so misrepresented the situation and presented such a divisive statement that a rebuttal is called for. Gruhn paints a rather grim picture of the loss of archeological resources, with an unrealistic segment of the profession standing by in grand aloofness, refusing to cooperate in the salvaging of information before it is lost. She labels this noncooperating segment of the profession, the "new archeologists" and seems to claim that the destruction of archeological resources is the result of their attitude. This is not true.

Gruhn also implies that the profession is polarized into two monolithic camps: one, the "new archeology," which views salvage archeology as "digging simply for the sake of digging," and a second group (unnamed) that is "realistic" and is the bulwark in the recovery of prehistoric remains about to be destroyed. Neither assertion is

accurate. In reality such a strict division of our profession does not exist. Certainly there are those archeologists who feel more comfortable adopting a nomothetic approach to their research, but it does not follow that these individuals cannot assist in the recovery of endangered archeological materials. Some selected examples make the point.

Prescott College has been conducting archeological investigations on Black Mesa in northern Arizona since 1967. Although this project was stimulated by the development of strip mining on the mesa, much of the research has been "theory-oriented" (*1*). Significantly, the Peabody Coal Company has supported a large portion of the work. The state-supported highway salvage program of the Arizona State Museum has been actively involved in recovery of archeological materials since 1964. Long-range planning for survey and excavation in this program has been made possible by ample funding and close liaison with the Arizona Highway Department. Such planning has permitted the development of testable hypotheses for some highway salvage projects (*2*). In other cases, data from previously excavated sites have been utilized in hypothesis testing (*3*). Most of this work has been conducted by graduate students in the Department of Anthropology at the University of Arizona. Sale of the Carter Ranch in east-central Arizona for subdivision and land development will result in the destruction of numerous sites. Some "salvage" may be carried out by personnel of the Field Museum of Natural History. Paul Martin and his associates have pioneered a problem-oriented research program in this area that provides a sound base for future excavation in endangered sites.

These examples demonstrate that "salvage" projects often are well funded. Furthermore, the critical need to develop adequate research designs prior to excavation is available in most instances, provided *all* archeologists work together in developing these programs. This has been the case in Arizona. Measures to increase this form of cooperation have been developed by the National Park Service in an effort to comply with recent federal environmental protection statutes, notably the Environmental Policy Act of 1969. Guidelines for the preparation of archeological resource sections of Environmental Impact Statements have been formulated by the Arizona Archeological Center of the National Park Service in Tucson. These guidelines clearly state that adequate research designs must be devised for the investigation of endangered sites before any excavation is carried out.

Salvage projects can be undertaken utilizing previously formulated hypotheses. Furthermore, data collection need not be structured totally by the testing of specific hypotheses. Archeological data that *are* viewed as important are so recognized because their utility has been demonstrated in previous problem-solving endeavors.

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R. GWINN VIVIAN
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Etymological Purity

I am irritated but not surprised to find the word "lipofuchsin" creeping into the scientific literature. It is being used to describe a yellowish-brown, yellow-green to orange, fluorescent, sudanophilic, acid-fast pigment, which demonstrates electron-dense, osmiophilic granules under the electron microscope and which is known by anyone who has any respect for scientific accuracy as "lipofuscin."

Lipofuchsin, despite attempts by a few who have been caught using it to justify themselves, has no meaning and is the product of careless reading of the original word lipofuscin, resulting in its verbal use in papers read at scientific meetings and now its menacing entry into the printed scientific literature.

Lipofuscin, itself a bit of a bastard, but a bastard with sense, comes from a Greek word *lipo* which means "fat" and a Latin word *fuscus* which means "dark" or "dusky"; hence, lipofuscin means a dark or pigmented lipid. Lipofuchsin, however, makes no sense, as fuchsin is simply an aniline dye.

I hope editors will smite this interloper and help to keep one fragment of the scientific world etymologically pure.

GEOFFREY H. BOURNE
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24 November 1972, Volume 178, Number 4063

SCIENCE

More Women for Higher Education

The slowness of many colleges and universities in supplementing their predominantly white, male professional staffs with proportionate numbers of women and members of minority groups is a major force behind the issuance of new, detailed guidelines from the Department of Health, Education, and Welfare's Office of Civil Rights for recruiting, hiring, and promoting qualified persons. In some instances, the delay has been rooted in the inability of frustrated administrators to determine appropriate proportions or to locate qualified applicants. These stumbling blocks do exist in recruiting from minority groups, but they should not be a problem in finding qualified women.

The first step is to understand and eliminate past discriminatory practices. In addition to stricter requirements for admission and less government support for women in graduate study, many who attained advanced degrees were restricted by reverse nepotism. Once hired, women faculty received less research support, lower salaries across all ranks, and slower promotions than their male cohorts. Few schools have accommodated to the needs of women with families.

The second step, affirmative action, begins with a statement of reasonable numerical or percentage goals. The proportion of all research doctorates conferred on women (perhaps the best measure now available in determining realistic goals) has averaged 12.2 percent since 1920 and has risen substantially in the past 5 years. However, there is wide variation within fields. Since about 91 percent of women doctorates are now in the labor force, persons earning Ph.D.'s since 1939 provide a base for a present pool. Sex proportions are available by subfield in the doctorate record file maintained by the National Research Council, and some general breakdowns by field may be useful. In the physical sciences, 4.6 percent of the Ph.D.'s granted since 1939 were conferred on women. The proportion in the life sciences is 11.4 percent; in the social sciences, 14 percent; in the arts and humanities, 15.5 percent; in engineering, 0.5 percent; in education, 20 percent; in professional fields, 11.4 percent; and in all fields combined, 11.9 percent. Since within the doctorate population a higher proportion of women than men seek academic employment, somewhat higher proportions of women may be realistic goals.

The final step is to locate available, qualified women. Every recent survey of involuntary unemployment among professionals has found unemployment rates to be two to three times as high among women as among men. While married women are less mobile than men, eliminating reverse nepotism will allow many women to accept local opportunities.

More than 35 professional societies have internal groups concerned with the status of women, and many have rosters that may be used to find qualified applicants. An extensive listing of women seeking employment in higher education is available through the Cooperative College Registry in Washington, D.C.

Upgrading the rank and salary of women already employed to match their male cohorts requires no outside assistance.

Present law makes inevitable the ultimate acceptance of qualified and capable women on an equal basis with men in institutions of higher education. Only the time lag remains uncertain. While a reluctant few individuals may have to be forced to comply with regulations, most thoughtful administrators will welcome the infusion of talent and dedication from this underutilized resource pool.—BETTY M. VETTER, *Executive Director, Scientific Manpower Commission, 2101 Constitution Avenue, NW, Washington, D.C. 20418*

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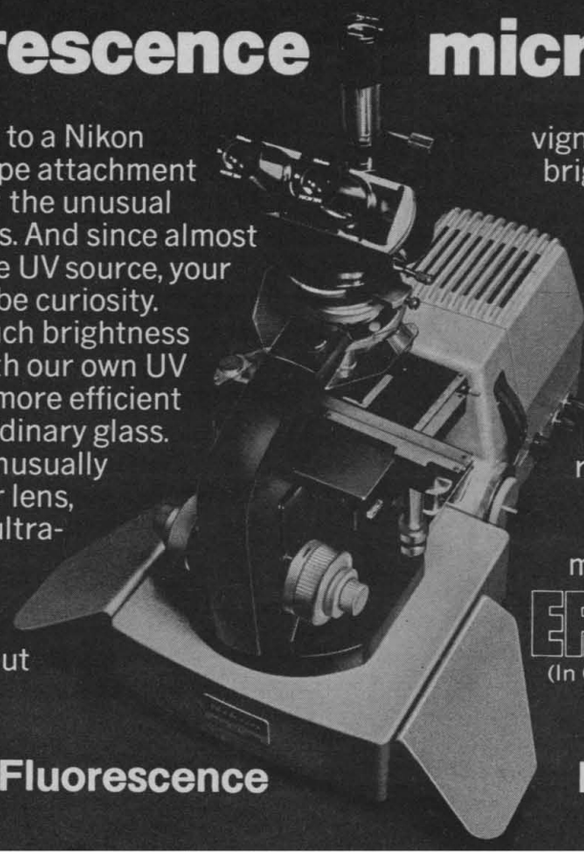

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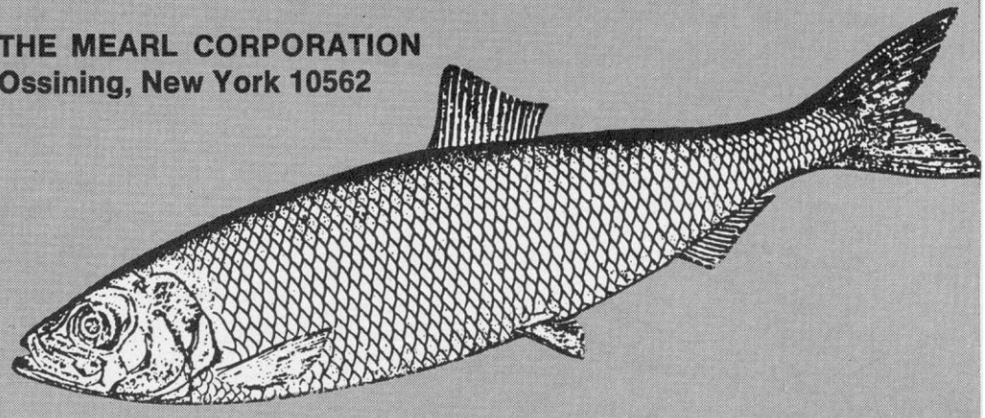

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NEW BOOKS RECEIVED

(Continued from page 858)

Ether Lipids. Chemistry and Biology. Fred Snyder, Ed. Academic Press, New York, 1972. xx, 434 pp., illus. $27.50.

The Fascination of Reptiles. Maurice Richardson. Illustrated by Shaun Milne. Hill and Wang, New York, 1972. 240 pp. $10.

Flora Palaestina. Part 2, Platanaceae to Umbelliferae. Michael Zohary. Israel Academy of Sciences and Humanities, Jerusalem, 1972. 2 vols. Text, viii, 490 pp. + map. Plates, unpaged.

Fortschritte der Chemie organischer Naturstoffe. Progress in the Chemistry of Organic Natural Products. Vol. 29. W. Herz, H. Grisbach, and G. W. Kirby, Eds. Springer-Verlag, New York, 1972. viii, 554 pp., illus. $57.40.

From the Land and Back. Curtis K. Stadtfeld. Illustrated by Franklin McMahon. Scribner, New York, 1972. xx, 204 pp. $6.95.

Functional Units in Protein Biosynthesis. A symposium, Varna, Bulgaria, Sept. 1971. R. A. Cox and A. A. Hadjiolov, Eds. Academic Press, New York, 1972. xii, 430 pp., illus. $22. Seventh Federation of European Biochemical Societies Meeting, vol. 23.

Genetics and American Society. A Historical Appraisal. Kenneth M. Ludmerer. Johns Hopkins University Press, Baltimore, 1972. xiv, 222 pp. $10.

Geo-Code. Vol. 2, East Edition. Sydney W. Gould. The Gould Fund, New Haven, Conn., 1972. xiv, 348 pp., illus. $35.

Handbook of Commercial Scientific Instruments. Vol. 1, Atomic Absorption. Claude Veillon. Dekker, New York, 1972. xvi, 174 pp., illus. $11.75.

Handbook of Sensory Physiology. Vol. 7, part 4, Visual Psychophysics. Dorothea Jameson and Leo M. Hurvich, Eds. Springer-Verlag, New York, 1972. x, 812 pp., illus. $78.70.

Handbook of the Birds of India and Pakistan together with Those of Nepal, Sikkim, Bhutan and Ceylon. Vol. 5, Larks to the Grey Hypocolius. Sálim Ali and S. Dillion Ripley. Oxford University Press, New York, 1972. xvi, 276 pp. + plates. $17.50.

International Medical Care. A Comparison and Evaluation of Medical Care Services throughout the World. John Fry and W. A. J. Farndale, Eds. Washington Square East, Wallingford, Pa., 1972. viii, 342 pp., illus. $10.

Investigations in the Triassic Chinle Formation. Carol S. Breed and William J. Breed, Eds. Museum of Northern Arizona, Flagstaff, 1972. viii, 104 pp., illus., + table. Paper, $5. Museum of Northern Arizona Bulletin No. 47.

Light Scattering from Polymer Solutions. M. B. Huglin. Academic Press, New York, 1972. xviii, 886 pp., illus. $45. Physical Chemistry, 27.

Liver and Drugs. F. Orlandi and A. M. Jezequel, Eds. Academic Press, New York, 1972. xii, 268 pp., illus. $15.

Lysosomes. A Laboratory Handbook. J. T. Dingle, Ed. North-Holland, Amsterdam; Elsevier, New York, 1972. x, 248 pp., illus. $19.

Management-Oriented Management Information Systems. Jerome Kanter. Prentice-Hall, Englewood Cliffs, N.J., 1972. xviii, 270 pp., illus. $11.50.

Mathematical Models in the Social Sciences. John G. Kemeny and J. Laurie Snell. M.I.T. Press, Cambridge, Mass., 1972. viii, 146 pp., illus. $10.95.

Neurotransmitters. Proceedings of meeting, New York, Dec. 1970. Irwin J. Kopin, Ed. Williams and Wilkins, Baltimore, 1972. xvi, 556 pp., illus. $30. Research Publications. Association for Research in Nervous and Mental Disease, vol. 50.

The New Astronomies. Ben Bova. St. Martin, New York, 1972. x, 214 pp., illus. $7.95.

New Pathways in Psychology. Maslow and the Post-Freudian Revolution. Colin Wilson. Taplinger, New York, 1972. 288 pp. $7.95.

Proceedings of the Sixth Berkeley Symposium on Mathematical Statistics and Probability. June 1970. Vol. 2, Probability Theory. Lucien M. Le Cam, Jerzy Neyman, and Elizabeth L. Scott., Eds. University of California Press, Berkeley, 1972. 1, 606 pp. $22.50.

Psychoanalytic Studies of the Sighted and the Blind. Dorothy Burlingham. International Universities Press, New York, 1972. viii, 396 pp. $15.

Public Expectations and Health Care. Essays on the Changing Organizations of Health Services. David Mechanic. Wiley-Interscience, New York, 1972. xii, 314 pp. $12.95.

Puzzles for Pleasure. E. R. Emmet. Emerson Books, New York, 1972. x, 310 pp., illus. $6.95.

Reflections. Bio-psychological, Psychoanalytic, Philosophical, Socio-political, Aesthetic and Personal. Ross Thalheimer. Philosophical Library, New York, 1972. xii, 248 pp. $7.50.

Results and Problems in Cell Differentiation. A Series of Topical Volumes in Developmental Biology. J. Reinart, W. Beerman, and H. Ursprung, Eds. Springer-Verlag, New York, 1972. Vol. 3, Nucleic Acid Hybridization in the Study of Cell Differentiation. H. Ursprung, Ed. xii, 76 pp., illus. $11.50. Vol. 4, Developmental Studies on Giant Chromosones. W. Beerman, Ed. xvi, 228 pp., illus. $18.80. Vol. 5, The Biology of Imaginal Disks. H. Ursprung and R. Nöthiger, Eds. xviii, 172 pp., illus. $14.60.

Reverse Osmosis Membrane Research. A symposium, Washington, D.C., Sept. 1971. H. K. Lonsdale and H. E. Podall, Eds. Plenum, New York, 1972. xii, 504 pp., illus. $27.50.

RNA Viruses and Host Genome in Oncogenesis. Proceedings of a conference, Amsterdam, May 1971. P. Emmelot and P. Bentvelzen, Eds. North-Holland, Amsterdam; Elsevier, New York, 1972. xiv, 380 pp., illus. $26.

Rock Mechanics and Engineering. Charles Jaeger. Cambridge University Press, New York, 1972. x, 418 pp., illus. $35.

Social Exchange and Interaction. Edwin N. Wilmsen, Ed. University of Michigan, Ann Arbor, 1972. iv, 148 pp., illus. Paper, $3. Anthropological Papers, No. 46.

Soil Geography. J. G. Cruickshank.