

## Careers

NON-TRADITIONAL CAREERS FOR WOMEN, by Sarah Splaver. 1973. Julian Messner, New York. 200 p. \$5.64.

Careers in law, medicine, science and mathematics, engineering, business, the healing arts, the creative arts, and the helping professions are only some of the opportunities that await the motivated and ambitious woman today. It is a time when women who have interest, ability, and perseverance can invade the domains formerly considered exclusively male.

In her discussion of more than 200 kinds of career opportunities, Splaver explains the nature of each field of work, its specialized branches, requirements to enter the field, and opportunities for employment once requirements are met. She concludes each discussion with specific and up-to-date references for further information. In most cases an interview with a woman who has successfully entered the discipline provides valuable insight into some of the problems that may be encountered and some of the rewards that ensue. This book should be available to all young women involved in the crucial process of making career choices.

The tone of the book is optimistic and constructive. It honestly appraises the difficulties that may arise for a woman trying to embark on a nontraditional career. At the same time it offers encouragement to the applicant by elaborating the rewards of successful entrance on such a career. The book concludes with a frank discussion of the evolution and, one may hope, the dissolution of male-female stereotypes in job situations. Its final plea is for intelligent, concerned women to overcome the prejudices that exist and take their place working with men, not in competition but in cooperation.

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## Cell Biology

THE CHROMOSOMES, by M. J. D. White. 6th ed., 1973. Halsted Press, New York. 214 p. \$6.50 softback, \$11.75 hardback.

In its first five editions *The Chromosomes* established itself as a classic introduction to chromosome studies. The sixth edition continues the tradition of excellence and high quality in writing and presentation. Written for both students and professional biologists, it includes excellent critical analyses of current states of information on most topics related to chromosomes, with the exception of chromosomes of microorganisms. Inclusion of current information on the human karyotype, in chapter 4, is a welcome addition.

Photographs and diagrams are good, but the beginning student might have profited from even more of them, even though this might have increased the cost of the book. The bibliography is useful, especially to those persons otherwise unfamiliar with the literature in the field. The index is good, but even more specificity might have been achieved. Basic concepts are presented, lucidly and to the point. Particularly noteworthy is the treatment, of "aberrant" chromosomal conditions.

*The Chromosomes* should become a standard textbook in many undergraduate courses in cytology and cytogenetics. It is a book that any serious student of chromosomes should include in his basic library. The quality of the book makes investment in the hardback version a wise choice.

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THE SCULPTURE OF LIFE, by Ernest Borek. 1973. Columbia University Press, New York. 181 p. \$10.00 hardback, \$2.95 softback.

This book arose as a result of the signing of the Cancer Act, in 1971, according to Borek. Borek, a distinguished biologist and science writer, was disturbed over the obvious lack of understanding about cancer research by senators, congressmen, and lay persons and set out to provide a "report from the laboratory." Using a flowing, easy-to-read style, Borek brings together selected facts and descriptions of important experiments in developmental and molecular biology and skillfully weaves them together to form a primer on cancer. He starts with nuclear transplant experiments and then discusses cell ultrastructure, mitosis, DNA and the genetic code, cyclic AMP and aggregation in cellular slime molds, sexual reproduction, tissue culture, cell fusions and chromosomal patterns, gene regulation, induction and organizers, teratology, and the role of RNA and DNA in differentiation, before he discusses cancer.

It is a difficult task to popularize scientific research and make it meaningful yet accurate. This is especially true of research in molecular and developmental biology. Borek has only partly succeeded; what he has gained in clarity he has lost in accuracy. Some of his information is incorrect. For example, the cellular slime mold *Dictyostelium discoideum* is not flagellated at any time in its life cycle, and the evidence for plasmogamy and karyogamy is inconclusive. Pseudopodia are not "primitive tentacles," bacteria do have chloroplasts, and bacteriophages do not possess ATP. His descriptions of experiments are concise and to the point, and his asides on scientists are delightful. Both provide a great deal of insight into science and scientists; however, slight

inaccuracies detract and cast some doubt on the reliability of the descriptions. For instance, Spemann's transplant experiments were usually performed on gastrulas, not blastulas; new experiments to learn about the nature of the organizer were not "designed after the pattern of Dr. Mangold's" (p. 128); and Pasteur's work on the diseases of wine and of silkworms was mission-oriented from the start. Borek uses picturesque analogies, like "the centrioles . . . stretch between them gossamer threads or spindles which are microtubules" (p. 14). Sometimes these stretch the imagination a bit too far, although certain readers will find them charming. Likewise, the occasional touches of teleology and anthropomorphism may not disturb some readers, but they bother me; so do discourses like "God, who created our physical universe . . . But the God who created the living world was a pragmatic empiricist" (p. 16).

The book is worth reading by students and teachers, provided they are aware of the presence of errors; but it cannot be used as a reference, because it lacks an index. It does provide some insight into scientific research; and the last chapter, on the role of basic science in society and what has happened to the support for this important activity in the United States, is superb.

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## Environmental Biology

OUTDOOR EDUCATION EQUIPMENT, by Russell E. Bachert, Jr., and Emerson L. Snooks. 1974. Interstate Printers & Publishers, Danville, Ill. 204 p. \$7.95.

Plastic milk-bottles, soup cans, paper cups, soda straws, and silk stockings are a few of the materials needed to make 105 instruments, described in this manual, for scientifically answering questions about the environment. Teachers from the third grade through high school will find the equipment useful for investigations outdoors. Several of the instruments—for example, anemometers made of paper cups and barometers made of tin cans, cellophane, and soda straws—will be familiar to many elementary teachers, but it is convenient to have the plans for their construction presented in a single reference work.

Broad questions or comments about each instrument are intended to stimulate student investigations. However, the design of actual experiments is left to the students and the teacher. All of the instruments—ranging from a seismograph to insect aspirators—are simple enough to be built by the students; and this activity alone has value.

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