lection in wild populations." Both chapters are recommended to American students, who often are not sufficiently exposed to the work of British ecological geneticists.

Another Englishman, John Harper, writing on terrestrial plant ecology, is less parochial than Ford or Cain and has contributed an essay full of fascinating tidbits of information (for example, that cereal plants absorb 75 percent of their required nutrients before they have made 25 percent of their growth) and analysis. He believes that "the development of terrestrial plant ecology has been desperately hindered because of the failure to develop theory and the existence of the intellectual gap between scientists concerned with natural communities and those concerned with man-used systems." According to my prejudices, he might have added, "and because plant ecologists have stubbornly refused to recognize the major role herbivores play in shaping plants and plant communities," a defect so glaring that Harper's recent monumental book is the first general work on plant ecology to deal with plant-herbivore coevolution.

Daniel Janzen, who started on the road to becoming today's premier tropical ecologist with coevolutionary studies of ants and acacias, has contributed the most unusual chapter in the book. He describes very well what he has done: "I have . . . poked into the ecological literature much as I poke into habitats in the field." The result is an analysis of the contributions of research in the tropics to our understanding of ecology. The temperate-zone bias in the literature is worse than I had imagined. It is difficult not to agree with Janzen that "the new frontiers in ecology are in the tropics" and not to marvel at the wide-ranging ideas he would like to test there. But when one has seen what is happening there (or reads statistics such as Raven cites in his chapter or Janzen's statements here and elsewhere about the disappearance of tropical ecosystems), it is hard to be sanguine about the chances that those frontiers will be properly explored before they are closed.

I was disappointed by only one thing in this otherwise extraordinary volume. The Academy of Natural Sciences is one of our oldest museums and repositories of taxonomic collections. Fourteen years ago (*Syst. Zool.* **13**, 109 [1964]) I raised a series of questions about how, in the face of a biota going extinct faster than it could be adequately described, taxonomists should attempt to sample the global flora and fauna and how museums might attempt novel ways to preserve representatives of them. It would have been most appropriate for a section of *Changing Scenes in the Natural Sciences* to explore these questions, but only Raven touches on them. Perhaps this is because taxonomists and museums persist in behaving as if they had all of eternity to complete a catalog of the earth's living things. But even apart from these questions, taxonomy is short-changed in the volume to the extent that its one true revolution since Linnaeus, that of numerical taxonomy, is not discussed. This is all the more surprising because one of the principal revolutionaries, Robert Sokal, provides the introductory remarks to the section on evolution and systematics. The Academy, perhaps in an attempt to be "modern," has neglected the nuts-and-bolts discipline that is still crucial to so much work in population biology. But on the whole, symposium convener and editor Clyde Goulden and his organizing committee are to be congratulated on producing a book of unusually high quality.

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Genetic Apparatus

The Eukaryotic Chromosome. C. J. BOSTOCK and A. T. SUMNER. North-Holland, Amsterdam, 1978 (U.S. distributor, Elsevier, New York). xviii, 526 pp., illus. $79.75.

From the frequency with which it is cited, it seems that the most popular general work on chromosomes in recent years has been E. J. DuPraw's *DNA and Chromosomes*. Since its publication in 1970, however, there have been remarkable advances in our understanding of the structure and function of eukaryotic genetic apparatus, so that a book such as the one under review can be welcomed for its fairly comprehensive, up-to-date coverage of the subject. In a sense the same may be said of volume 2 of Benjamin Lewin's *Gene Expression*, but its scope is more limited than that of *The Eukaryotic Chromosome*, and its review format limits its usefulness for students.

Bostock and Sumner have brought together in a quite readable way a large body of information published before about the middle of 1976 on the structure and composition of chromosomes and on the general behavior and properties of chromosomes in mitotic and meiotic cells. Most passages in the book contain sufficient background or explanation of techniques to enable readers new to the field to appreciate details and implications, and the book is well illustrated with drawings and with figures reproduced from original articles. The authors do well, on the whole, in interpreting disparate data where issues are not yet resolved, and their errors and misstatements are few.

Bostock and Sumner have focused on the 15 or so years preceding 1977, and their account is biased toward molecular aspects. This is proper and useful as long as readers are aware of complementary works, such as M. J. D. White's *The Chromosomes*, that deal with more classical aspects. The book covers DNA, RNA, and chromosomal proteins, properties and activities of interphase nuclei and polytene and lampbrush chromosomes, chromosome mapping, and chromosome damage and repair. For many of the topics covered, Bostock and Sumner incorporate information on diverse organisms, thus illustrating both the generalities that can be drawn and the variety of strategies that have been successful in chromosome evolution. The authors have also been fairly generous with citations, so that bibliographies at the end of each chapter are extensive.

In their preface, the authors suggest that much of the book will be of interest to specialists in that it can help them come abreast of related specialties and develop a perspective for their subject. Good idea. However, I think the book will find its most appreciative readership among advanced undergraduate and graduate students, for whom it is very appropriate.

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Phenomenology of Perception

The Perceptual World. K. VON FIEANDT and I. K. MOUSTGAARD. Academic Press, New York, 1977. viii, 680 pp., illus. + plates. $62.50.

The study of perception in the United States has recently been dominated by researchers concerned with how perception takes place, in terms either of physiological mechanisms or of the structure of the perceptual information processing system. This interest in mechanism and process has often lead to