With respect to matters of convenience, the *Atlas* has an index of genera and of people, but none for places, and there are no abstracts to articles. *Organisms and Continents* lacks an index altogether, but each article has an abstract. *Faunal Provinces* has both author and subject indexes, and all but one chapter has an abstract.

In general outlook, the *Atlas*, with its emphasis on the present distribution of continents, is the most traditional of the three books, but it has 60 percent of the articles and the most complete coverage. The *Atlas* marks the end of a long era of biogeographical charting on Recent maps. The organizers of *Organisms and Continents* (with its new maps) and *Faunal Provinces* have consciously incorporated lithospheric drift into the subject of geological biogeography. Virtually every paleontologist will need to consult these books for at least a few chapters concerned with his taxonomic or stratigraphic specialty. Thus they are of inestimable value to those concerned with the distribution of plants and animals of the past and, through the new set of paleogeographic maps, to those concerned with general geologic history.

THOMAS J. M. SCHOPF
Department of the Geophysical Sciences, University of Chicago, Chicago, and *Marine Biological Laboratory, Woods Hole, Massachusetts*

Genetic Interactions

Hybridization of Somatic Cells. BORIS EPHRUSSI. Princeton University Press, Princeton, N.J., 1972. xii, 176 pp., illus. Cloth, $9.50; paper, $4.95.

The observation made by Barski and colleagues in 1960 that mammalian cells in culture occasionally fuse and give rise to viable hybrid lines removed the major obstacle to the development of somatic cell genetics: the lack of a mating system. The author of this book was among the first to appreciate the scope and potentialities of Barski's discovery. What might have appeared to be just a laboratory "freak" became, in his hands, a reliable technique for directly testing genetic interactions between somatic cells of vertebrates. In this book, which contains essentially the text of a series of honorary lectures he gave at Princeton University in January 1971, Ephrussi describes the contributions of cell hybridization to the study of mammalian genetics, cell differentiation, and cancer. It is not the first book to be written on the subject. Harris's *Cell Fusion*, published two years earlier, covers to a similar extent the same general topic. The scope of Ephrussi's book is different, however. Essentially, it reflects the geneticist's approach to the problems of cell differentiation and cell multiplication. Cell hybridization is looked upon as the method of choice for testing somatic cell phenotypes for the sort of interactions which in other systems define specific functional relationships between genes—dominance and recessiveness, complementation, suppression and induction, recombination, and so on. Work related to cell differentiation—the author's major interest—is given priority. Critical experiments are described in detail and with sufficient clarity to be comprehensible to the nonspecialist. The different behavior following hybridization justifies the distinction, underlined by the author, between "household" and "luxury" functions in cells, and supports the interpretation of the latter as epigenetic rather than genetic changes. The author is careful in avoiding farfetched interpretations of data (the word "extinction" rather than "suppression" is used to describe the disappearance of characters following hybridization with negative cells). This conservative attitude does not detract from the author's witty style and critical, highly opinionated approach to problems.

Perhaps some of the present limitations of this method in analyzing genetically epigenetic changes should have been pointed out more explicitly. The main one stems from the very property of hybrid cells which has made them useful in the formal genetics of man: their chromosomal instability. As a result of this, most hybrid cell populations are intrinsically heterogeneous, and karyotypic characterization of them is based on mean or modal values. This limitation becomes obvious in the chapter devoted to the study of cancer. It strikes one as somewhat surprising that a debate over such a fundamental question as that of dominance versus recessiveness of malignancy could be based entirely on statistical evaluations of chromosome numbers. It should be added that, although he claims to have "little taste for formal genetics in general," the author stresses, in a different chapter, that "formal genetics is beyond any possible doubt an absolutely essential prerequisite to the attack of any other problem involving genetic mechanisms."

Finally, in the chapter devoted to a historical survey of the major contributions to the field, the author's careful assessment of priorities will not go unnoticed. It can hardly be found inappropriate. It adds, however, a flavor of contest between *prime donne* which many readers may find unnecessary.

G. MARIN
Laboratory of Molecular Embryology, National Research Council of Italy, Naples

The Order Carnivora

The Carnivores. R. F. EWER. Cornell University Press, Ithaca, N.Y., 1973. xvi, 494 pp., illus., + plates. $21.50.

Mention such animals as mongoose, otter, raccoon, hyena, tiger, grizzly bear, and wolf, and each person will conjure up mental images which engender emotions ranging from delight and exultation to fear and loathing. Man has for centuries been fascinated by members of the order Carnivora; he feels an emotional kinship to them, particularly to such large social ones as the lion and the wolf, perhaps because he, too, has evolved psychologically as a hunter. Whatever the reason, Ewer's book, the only available one devoted to the carnivores, is certain to interest a wide audience.

The book can be read at several levels, and the satisfaction it provides will to some extent depend on the depth of one's interest. I find it a useful reference on various topics. One chapter lists all species and their distribution, another discusses fossil carnivores. To someone like myself who knows little about anatomy, the first few chapters, comprising about one-third of the text, provide a useful summary of skeletal structure, anatomy of the soft parts, and a description of the capacities of the senses, including evidence for color vision and the upper limits of hearing. Should one want to know the diploid chromosome number of the coati, the composition of cheetah milk, or the gestation period of the polar bear, there are tables that give the answers.

About half of the text is devoted to natural history, primarily to food habits, land tenure systems, social organization, and reproduction. To present information on the ecology and behavior of nearly 250 species fully would