Behavioral Patterns

Primate Paradigms. Sex Roles and Social Roles. LINDA MARIE FEDIGAN. Illustrations by Linda Straw Coelho. Eden, Montreal, 1982. vi, 386 pp. Paper, $18.95.

Primate Paradigms: Sex Roles and Social Bonds is one of several recently published volumes on primate behavior and human evolution that focus on the role of female behavior in shaping social organization. Each characterizes the study of nonhuman primates as valuable for shedding light on human behavior and each attempts to redress what the author or authors see as a tradition of male bias in data interpretation and theory. Though another volume along these lines may seem at first to be somewhat redundant, Fedigan's work is a complementary and worthwhile contribution.

Fedigan has chosen to write an extended survey and critical review of male and female patterns of behavior among nonhuman primates in which she emphasizes accepted theories and concepts. In so doing she necessarily concentrates on the more extensively studied species of Old World monkeys and chimpanzees. This is in contrast with other works, for example Sarah Hrdy's *The Woman That Never Evolved*, which also criticizes aspects of the literature, but which focuses its discussions on new data and less well known species that present contradictions to less recent but persistent views of primate social organization and human evolution as male-centered. Unlike Hrdy, Fedigan does not attempt to present provocative new syntheses and speculations, but rather concentrates on dissecting the processes by which cultural attitudes and empirical data interact.

Fedigan's aim is that the book be "accessible and interesting to non-specialists, yet acceptable and even helpful to my colleagues in primatology." Her intended audience is nonspecialists and students of all kinds and specialists in primatology and women's studies. This is a tall order, as Fedigan is well aware, and with only a few reservations I think she has achieved her aim.

The scope of *Primate Paradigms* is broader than one might guess from the title. Fedigan wisely chooses not to discuss sex roles in isolation from other aspects of primatology and animal behavior, but rather within the broader contexts of adaptive "life-ways," which differ from species to species and even within species. She thus reviews in detail a wide range of topics before discussing their specific relationships to sex roles. The first 13 chapters are devoted primarily to primate taxonomy; to conceptual issues such as instinct and innate and learned behavior; and to specific aspects of social interaction such as aggression, dominance, kinship, and development. The next three chapters explore the "life-ways" of specific species grouped according to their type of social organization (for example, multi-male, multi-female groups; polygynous groups; and monogamous groups). The last three chapters deal with evolutionary approaches to sex roles, including one chapter that discusses a number of scenarios for the evolution of human social behavior. Thus Fedigan has produced a volume that could be described first as an overview of primate social relationships (and perhaps the most suitable available for an advanced undergraduate or graduate seminar), and second as a discussion of male-female issues.

The range of Fedigan's criticism is also broad. In criticizing studies that have led to dichotomous views of male primates as aggressive, competitive leaders and females as passive care-givers, Fedigan points out problems ranging from practical problems of following free-ranging animals to those of research design, data interpretation, and theory-building. An entire chapter is devoted to linguistic problems in reporting findings. These problems have sometimes been seen as the results of incompetence or conspiracy, but Fedigan realistically sees them as representing perhaps inevitable human tendencies for cultural assumptions "to color our view of even empirical data," and also for "certain scientific findings quickly [to] achieve public prominence and others . . . not." Scientific theories are seen as "dynamic exercises in human reasoning, rather than quests for immutable truths." The specific study of primates will not lead to the "truth" about human nature, but it can serve to provide humans with a broad comparative base for the construction of useful "mirrors, models, and even myths." These mirrors, models, and myths may progressively integrate more information over time but will always be shaped in part by cultural attitudes.

Not surprisingly, *Primate Paradigms* argues for a very conservative approach to data interpretation and theory-building and rarely supports any scientific statement wholeheartedly. It is excellent at pointing out the assumptions inherent in many well-established notions about sex roles and the incompleteness of the data supporting them. This is not to say that Fedigan has no preferred hypotheses. She has indeed, but for the most part these are clearly presented as opinion.

One reservation about this book is that it may give nonspecialist readers a somewhat exaggerated view of the degree to which present-day primate behaviorists espouse stereotyped views of sex roles. For example, Fedigan states that the view "that female choice plays no role in primate reproduction and that reproductive success is based (only) on interactions between males" is ubiquitous in the primate literature (p. 279). Later she cites numerous studies that explicitly refute these ideas. In discussions of sexual selection, perhaps too much emphasis is put on some of Darwin's early views (for example on intelligence in women) by comparison with current points of view. The impression of ubiquitous bias may also be aggravated by the book's apparently long time in press (the preface was written in April 1980), which might account for the omission of some recent references that might have softened this impression. In comparison with its strengths, however, these reservations are not serious. *Primate Paradigms* is a masterly, useful contribution to the primate literature.

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A Bird Family

The Cotingas. Bellbirds, Umbrellabirds and Other Species. DAVID SNOW. Color plates by Martin Woodcock. British Museum (Natural History), London, and Comstock (Cornell University Press), Ithaca, N.Y., 1982. 204 pp. $45.

Tremendous concern has been expressed in the last decade over the rapid demise of habitats, especially those in the tropical areas where many species of the avian family Cotingidae reside. One widely publicized effect of this destruction is the extinction of large numbers of species as yet undescribed. After reading this book, one is impressed with the idea that habitats must be saved not only so that we may describe unknown taxa but so that we may study them and the known ones as well.

The primary message of this book seems to be our overwhelming lack of information concerning the biology of the Cotingidae, even though the family includes some of the most conspicuously

plumaged and bizarrely behaving birds known, study of which can be expected to advance significantly our understanding of the relationships between ecological factors, behavior, and social organization. For each species our knowledge ranges only from moderate to meager, but it is enough to tease and tantalize, and one can easily envision enthusiastic readers of the book hastily departing for the field in search of data. Because of the wealth of exciting research topics suggested by the organisms it describes, this volume is one of the most stimulating books to appear in a long time for avian ecologists, sociobiologists, behaviorists, and systematists. Every species of cotingid is illustrated, and for most dimorphic species both the male and the female are figured. The color plates by Woodcock are excellent and should greatly facilitate identification of specimens in hand, but the size of the book, 9 by 11 inches, makes it unwieldy for field use.

The book begins with three chapters that briefly review the classification, evolution, behavior, and major morphological features of the family. These are followed by treatments of each genus, with species considered separately where information is available. Topics covered include distribution, ecology, behavior, annual cycles, plumages and molts, and physical characters. The literature coverage is excellent, though the author has not cited every publication mentioning the natural history of cotingids, and the accounts are good representations of what is known of each species. In addition, Snow has supplemented his sections with accounts by individuals especially knowledgeable about particular species.

The excellent distribution maps give individual localities instead of the vague shading usually provided in books of this type. This allows the reader to assess more easily areas of actual or potential sympatry or parapatry among species and to identify potentially suitable field sites. Unfortunately, the author did not provide an appendix listing the localities and citing the sources of information about them (museum specimens, literature references, and so forth). This would have been of value to scientists and birders alike. For the average reader, a map indicating the 10 to 15 topographic features repeatedly used in the distribution sections of the species accounts also would have been helpful. These omissions reflect the somewhat hybrid nature of the volume, which seems to have been designed to appeal to both the amateur and the scientist, preference being given to the former.

Two criticisms of the book seem justified. First, the author repeatedly refers to the scarcity of available information about the family but nevertheless bases generalized and unqualified statements on the insufficient evidence. This is particularly true with regard to food habits and molt cycles. For most species, data on these subjects are extremely limited or were collected during very narrow calendar periods and do not take seasonal variation into account. One suspects that many of Snow's statements are correct, but at present they remain unsubstantiated.

Second, the book was not rigorously edited. Typographical errors are few, but misplaced modifiers abound. Labels for the white-tailed and white-winged cotingas in plate 11 are reversed. The distribution maps are often far larger than necessary, and many pages are less than half or a quarter full; the resulting wasted space surely contributed to the expense of this volume.

On balance, these criticisms are minor. The book will be a valuable addition to the libraries of graduate students and senior investigators alike as a reference work on the Cotingidae, as a source of research ideas, and for the selection of species for investigation.

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Stellar Evolution

Binary and Multiple Stars as Tracers of Stellar Evolution. Proceedings of a colloquium, Bamberg, Germany, Aug. 1981. ZDENĚK KOPAL and JÜRGEN RAHE, Eds. Reidel, Boston, 1982 (distributor, Kluwer Boston, Hingham, Mass.). xxx, 504 pp., illus. $67.50. Astrophysics and Space Science Library, vol. 98.

Using binaries to trace the course of normal stellar evolution is not quite the same thing as studying the evolution of binary systems themselves; and the majority of the 62 papers in this volume (including most of the more interesting ones) in fact focus on some aspect of the latter topic.

The book (and, perhaps, the conference of which it is the proceedings) could profitably have had a larger complement of broad-based reviews. There are only three: R. Kippenhahn on post–main-sequence evolution of single stars of less than 10 $M_\odot$, M. J. Plavec on evolution of close binary systems, and P. van de Kamp on wide binaries. The second of these is probably of the widest general interest, bringing the reader up to date on a variety of classical problem systems, like ϵ Aurigae (whose massive disk component may well have a black hole at the center, though this doesn't really help much in understanding the system), the symbiotic stars (some of which may be experiencing rapid mass transfer onto a hydrogen-burning hot star rather than a white dwarf), and the barium stars (which are apparently all binaries, but again this doesn't help much in understanding them). There is also a new class of objects, the W Serpentis stars, which may be transitional between the symbiotics and the classical Algol binaries, in which mass transfer onto a main sequence star occurs quite slowly.

The contributed papers contain a feast of tidbits for the connoisseur of binaries. Different ones will be new to different readers, but I learned, for instance, that among nearby stars most of the binaries have similarly oriented orbital planes (J. Dommanget) and that stars like the sun (F6 through G5) have a lower incidence of binary companions than other spectral types (T. J. Herczeg).

Several authors toss out intriguing theoretical suggestions that should prove handy targets for future attacks. For instance, the brightest stellar objects seen in external galaxies, the Hubble-Sandage variables, may really be wide binaries with an unstable accretion disk around the main sequence component (F. Meyer and E. Meyer-Hofmeister); very-low-mass binaries might account for an appreciable fraction of the mass in extended galactic halos (H. Zinnecker); and the δ Scuti stars (a puzzling class of A-type main sequence variable stars) may be explicable by tidal interactions in close binaries (E. Antonello). One of the observations presented is at least as puzzling but much harder to attack—helium-rich single white dwarfs systematically have much lower masses (0.3 to 0.45 $M_\odot$) than those in wide binary systems (0.65 to 0.82 $M_\odot$) according to I. Bues. Standard evolutionary considerations would predict quite the opposite.

The largest group of theoretical papers addresses the origin, structure, and evolutionary status of low-mass contact binaries, the W Ursae Majoris stars, which are exceedingly common (nearly 0.1 percent of all stars; E. Budding). None of the proposed models is entirely satisfactory. A preponderance of the papers