BOOK REVIEW

Primate Vocal Communication. Edited by Dietmar Todt, Philipp Goedeking, and David Symmes. Springer-Verlag, Berlin, 1988, x + 222 pp., $82.50 (hardcover).

This is an interesting book that will enjoy a wide audience, including primatologists, avian biologists, ethologists, and neuroethologists. In their preface, the editors correctly point out that in recent years the study of primate vocal communication has benefited from increasing sophistication of ethological approaches, more powerful statistical techniques for analyzing vocalizations, and the use of digital signal processing techniques. Although not all the contributors that one might have expected in a survey volume appear here, this is a good exposition of current topics in primate vocal communication. The book is organized into four sections: Comparative and Field Studies, Social Interactions, Biological Substrates, and Conceptual Frameworks. The glossary of important terms and expressions will be useful to newcomers.

This book is up-to-date, with many authors presenting new ideas and lines of research and some previously unpublished data. The editors accommodate a diversity of interests and approaches, with some authors taking a theoretical perspective, while other report in the style of an original data contribution. Although this diversity may somewhat exacerbate the often-observed unevenness that all edited volumes seem to suffer, it does permit a broad range of ideas and expertise to be expressed under one cover. Thus, this book reports on valuable ideas and techniques, and the editors have provided for “extra” material where appropriate. For example, the chapter by Brown and Waser provides a helpful basis for viewing communication within the constraints of transmission through the acoustic habitat, while contributions by Ploog and by Scherere and Kappas explore conceptual frameworks of vocal communication.

Since vocal learning and vocal behavior have been so prominent in the study of birds, many authors make reference to or relate their studies
to birds. Marler and Mitani's introductory chapter exploring these relationships is therefore appropriate and valuable. In general the authors as a group appreciate the relationship of their work to bird research (and visa versa), but perhaps lessons learned from other animal systems could also be profitably incorporated. Birdsong research may have made important contributions, but it was interesting for this reader to note that the complexity of primate vocal systems, at both the individual and the group level, the existence of graded vocalizations, etc., have forced primate researchers to develop techniques (for example) that birdsong researchers have generally not yet had to adopt. As complex social interactions and attendant subtleties in vocal expression come under investigation in other animal systems, the primate studies will contribute a solid research foundation.

From the current offering, it is clear that workers now approach the question of call categorization with considerable caution. The reliance on discriminability by the human observer, either by direct listening or by analysis of sonographs, as a means of categorization has been moderated. There are fewer papers that use classical ethological approaches to assign a specific call to a specific function; much more emphasis is placed on the delivery of calls within a social group and, thus, the relationships between calling and social organization. Among many useful contributions, Gautier and Gautier-Hion provide powerful statistical approaches for differentiation of like vocalizations from sympatric species of guenons. Maurus et al. also take a very interesting approach. Starting with structural analysis of vocalizations, their functional analysis uses changes in intraindividual transitions that depend on social interactions as the basis for elucidating categories. Goedeking, investigating pitch-contour instability and other measures in relationship to wrestle play in cotton-top tamarins, also demonstrates covariation between natural behavior and vocal signals as an appropriate basis for categorization. His work also serves as a good example of the application of modern digital signal processing techniques. In general, variation within "stereotyped" forms or within categories may be a valuable focus of analysis. This may be obvious to primatologists, who deal with variable signals, and less so in cases where signals tend to be more stable.

In marked contrast to ethological studies of vocal behavior, the study of the neurobiological bases of primate vocal communication continues to lag considerably. The few chapters (3) and few pages (23) in the book devoted to this topic reflect this unfortunate state of affairs. In auditory physiology, there has been relatively little progress since the early 1970s, when the initial set of provocative neurophysiological recordings from squirrel monkey auditory cortex was performed. In motor systems