cies in which females are dominant over males. W. L. Franklin extends the earlier work of C. B. Koford on the vicuña, confirming that this camel-like species is the most strictly territorial of all mammal species and is organized into year-round harems totally dominated in all activities by the resident male. A series of articles by several authors on the pronghorn antelope and reindeer elevate these unique north temperate species into the ranks of the best studied of all animal species. Many other examples of excellent special studies can be cited.

Several new syntheses also deserve particular mention: mother-offspring relations by P. C. Lent; courtship and combat behavior by F. R. Walther, nicely illustrated by the author's professional-grade drawings; the sociobiology of the Suidae by Hans Frädrich; the sociobiology and behavior of the antelopes and other bovids of Africa, which constitute one-third of the entire world ungulate fauna, by R. D. Estes; and the first attempt to formulate the ecological correlates in terms of some principles of population biology, by Valerius Geist. While the future of some of the most interesting ungulate species remains threatened by the continued destruction of their habitats, there is an occasional cause for optimism. R. C. Bigalke reports that 19 of the 44 species of South Africa have adapted sufficiently to farmed land to maintain reasonably large, stable populations. H. Mendelssohn describes the increasingly strict measures taken by the Israeli government to protect the two gazelle species still found within its borders. Other authors, including H. K. Buechner, P. A. Johnstone, and John Vincent, describe a few successful attempts to stabilize wild ungulate populations in African reserves and game ranches.

In their general introduction the editors disarmingly list the weaknesses of the book, most notably a relatively thin coverage of deer and other cervids and of ecology and physiology generally. They compensate by providing a short but useful bibliography in these areas. In addition there are two defects in organization. The index is limited to the names of the ungulate species and the contributing authors, making searches for general topics through the 56 chapters unnecessarily laborious. Also, each author's bibliography is presented after his own chapter, whereas a unified bibliography at the end of the two volumes would have been more useful. But these are not major flaws. The editors and authors have made an important and lasting contribution to sociobiology and ecology, and they have brought the ungulates to the center of the stage alongside the primates and carnivores.

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Comparative Endocrinology

The Pituitary Gland. A Comparative Account. R. L. HOLMES and J. N. BALL. Cambridge University Press, New York, 1974. x, 398 pp., illus. $28.50. Biological Structure and Function, vol. 4.

This is the first book devoted entirely to a comparative treatment of pituitary gland structure and function in all vertebrates. Such treatments have been slow in coming not because of a lack of interest in the subject but because of a dearth of basic information. The great body of published work that has been accumulating on the hypophysis in various classes of vertebrates is still meager in view of the fact that the division includes more than 60,000 species and that it is dangerous to extrapolate from one group to another not only within a class, but even among members of the same genus. Holmes and Ball approach the subject by presenting detailed descriptions of representative species, but they also present examples of deviations from a basic plan within a group and stress the number of variations that the gland has undergone during the course of evolution.

The book begins with a brief general outline of the structure and function of the pituitary gland. This is followed by several chapters on specific aspects of the mammalian gland and then by a series of chapters on the other vertebrates. Since we know most about the gland in mammals this is a good sequence to follow. Each chapter is well organized, beginning with an introduction to the taxonomic and phylogenetic position of the class under consideration and then treating in sequence gross morphology, histology and cytology, the cell types present, the evidence concerning their function, the structure and function of the hypothalamus and neurohypophysis, and the mechanisms of control of secretion from that region of the gland. The book ends with a chapter entitled "Some general considerations"—a somewhat disappointing termination for an otherwise good book because of the selection of topics discussed and the cursory nature of the discussion.

One of the strengths of the book is that structure is never divorced from function. The physiology of the gland is dealt with in terms of anatomy, histology, and cytology. The authors are to be especially commended for discussing in considerable detail the development of staining techniques and the problems involved in their use and in the interpretation of the results. These important matters too often are discussed only superficially.

A comparative textbook should incorporate all the available information on the structure and function of the system being studied and discuss the evolutionary significance of the observations. These things have been essentially accomplished by Holmes and Ball. It is not an easy task to compile and catalog information from different groups of animals when common tools and language of investigation and discussion are not available. This book does not alleviate this formidable problem, but calling attention to it is a step in the right direction.

The Pituitary Gland: A Comparative Account should receive widespread acceptance as a textbook for introductory courses in comparative endocrinology and as a general reference. By making the reader aware of the unique features of the gland in the various classes of vertebrates it can, as a comparative book should, suggest new ideas and new approaches to old problems.

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Telomerization Reactions

Free Radical Telomerization. CHARLES M. STARKS. Academic Press, New York, 1974. xii, 268 pp., illus. $23.

Since the 1940's, when the nature of free radical telomerization reactions was first recognized, these reactions have been the subject of many investigations. Much of the useful information concerning them, however, is found in the patent literature and in foreign (particularly Russian) journals. Starks has made a unique contribution in assembling the literature