that the relatively high frequency of the recessively inherited sphingolipidoses (Tay-Sachs, Gaucher's, and Niemann-Pick diseases) among Ashkenazi Jews is caused by chance. A rare mutation for each one of these diseases is postulated to have occurred in a reduced Ashkenazi population following persecution and extermination. Whether such chance events or natural selection was at work is being contested hotly in the current literature, with proponents of natural selection asking how chance can explain why three different genes affecting sphingolipid metabolism occur in the Ashkenazi population. Mourant and his coauthors do not enter the argument.

The book is a brilliant and sweeping synthesis of historical and genetic information and can serve as a model for future research of this type on Jewish and other populations. Half of the book is taken up by extensive and detailed tables listing the results of gene frequency studies for many genetic markers in different Jewish populations. These tabulations alone make the book of lasting value.

The book is short and easy to read. It will be of interest to a wide variety of scientists interested in human biology and should attract many others interested in this unique set of populations.

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Auditory Systems

The Reptile Ear. Its Structure and Function. ERNEST GLEN WEVER. Princeton University Press, Princeton, N.J., 1978. xii, 1024 pp., illus. $50.

In this work Wever, who is one of the pioneer investigators of electric potentials generated in the ear, presents an extensive study of the structure and function of the reptilian peripheral auditory system. The investigations were carried out over the past 20 years, and much of the material in the book is presented for the first time.

After a description of the methods used and a general description of the anatomy of the reptilian ear, Wever surveys the structure and sensitivity of 250 species. Included among these are representatives of the major living groups of reptiles—lizards, snakes, amphisbaenians, turtles, crocodiles—and the only surviving species of the primitive rhynchocephalians, *Sphenodon*. The structure of each ear is described and illustrated with drawings based upon dissection and reconstruction of serial histological sections. Wever compares the structure with the cochlear electric potentials recorded on the round window of each species and speculates about the possible correlation of the morphology with the cochlear potential. The fact that the same techniques were used for all the ears permits easy comparison of a large number of different reptiles. Comparing the anatomy of these ears illustrates well the extensive experimentation that occurred among reptiles in the evolution of the ear. There are, however, limitations to these techniques. For example, the structure of the tectorial membrane and its fine connections to the cilia of the receptor cells are important considerations in Wever's interpretations. Because of the differential shrinkage of the auditory tissue and the overlying extracellular tectorial substance that is inherent in all histological procedures, it is difficult to convincingly demonstrate the relation of the tectorial membrane with the cilia in vivo. This same technical limitation is the crux of the current controversy about the relation of the tectorial membrane to the inner hair cells in the mammalian organ of Corti. Another limitation is the assumption that thresholds and frequency range of hearing can be precisely determined from sensitivity curves derived from cochlear potentials. These potentials are complex and not completely understood. Wever himself, in a section devoted to "some open horizons," points out the necessity of supplementing the sensitivity curve determined by the cochlear potentials methods with those obtained by recording neural responses and behavioral audiograms.

This book will be appreciated by biologists who are interested in the comparative structure and function of the ears of the different groups of reptiles as an aid to determining the taxonomic and phylogenetic relations between those subgroups of reptiles about which controversy still exists. It should also be of value to otolaryngologists, audiologists, and auditory scientists. As Wever readably demonstrates, the evolution of the reptilian ear has supplied us with many variations on the basic vertebrate ear which should stimulate our thoughts and be useful as experimental models for investigating the basic peripheral mechanisms of hearing.

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Social Behavior

Social Play in Primates. Proceedings of a symposium, University Park, Pa., 1977. EUCLID O. SMITH, Ed. Academic Press, New York, 1978. xii, 324 pp., illus. $18.

Play has remained one of the most enigmatic categories in animal behavior and development. Despite a plethora of studies and more than two dozen major reviews of the subject, there is no consensus concerning the definitions and functions of play. As Bateson (1955) indicated in his insightful essay on the role of metacommunication in play, the major problem resides in the simple question, how do we know when play is play? This perceptual problem for observers can also exist for the participants in play: if two monkeys are play-fighting, how do they discern the thin line between play and aggression when the behavioral acts can look so much alike?

Social Play in Primates, a compilation of papers from a symposium of the Animal Behavior Society, deals with such questions and attempts to elucidate the structural characteristics and functions of play in primates. The book consists of several theoretical papers, which provide overviews of the history and progress of research in this area, and a number of data-oriented papers. It is an important addition to the libraries of those interested in play and development, but in general it fails to have significance for a wider audience.

The most interesting and valuable chapters are the theoretical ones, which offer extensive literature reviews and reveal the state of the art. The editor, Euclid Smith, opens with an excellent history of the study of play. Frank Poirier, who has been an important reviewer of play studies, and his colleagues have written a good paper on the variables that affect the manifestation of play, such as age, sex, and environmental context. Poirier *et al.* also attempt to show that play has benefits for both the individual and the group, a point vehemently contested by Donald Symons in another