

point of the volume. He analyzes much of the non-human data in light of his position that no non-human species can provide a complete model for human "erotosexuality." His discussion of behavioral traits that are sex-shared but exhibit threshold dimorphism adds insight into the issues discussed by Hurtig and Pichevin.

Gotz et al. seek to link sex-specific gonadotropin secretion and sexual orientation in what may become the most controversial chapter in the volume. They describe studies showing that human males classified as homosexual who were injected with estrogen exhibited a drop in serum luteinizing hormone (LH) followed by a surge above baseline levels, while men classified as bisexual or heterosexual exhibited a drop followed by a return to baseline. Gotz et al. argue that this pattern reflects differences in the level of sex hormones and/or neurotransmitters during brain organization. They view such differences as directly responsible for homotypical or heterotypical sexual orientation and behavior. This chapter seems out of place in a volume where most authors seem to operate with what Money identifies as the principle of "multivariate sequential determinism." There is no consideration of the social and cultural factors involved with the development of sexual orientation or gender role behavior in humans. The studies purporting to demonstrate that prenatal stress plays a strong causal role in a heterotypical sexual orientation are particularly weak, relying as they do on recall data and not considering that humans explain the present by constructing narratives suitable for public consumption. Might not "homosexual" women be more likely than "heterosexual" women to label themselves as undesired children or as illegitimate because of the need to explain their behavior to themselves or to others?

In chapter 8 Langevin surveys the material on human aggression to show that human aggression may be caused by many factors. The chapter is not focused tightly on sex differences, but does contain some interesting comments comparing violent females to violent males.

Whalen concludes the volume with a short chapter that touches on the issues raised by the other contributors and suggests directions for future research. His most interesting point is that those interested in explaining sex differences might profitably step back from analyzing behavior directly to examining sex differences in the saliency

and the meaning of stimuli that mediate behavior.

Each chapter in the volume is interesting and will excite specialists in the area of sex differences. A minor reservation is that because the chapters on non-human animals rarely deal systematically with the issues raised by those on humans, the book is not coherent in a way that would make it useful as a textbook for anthropology classes focused on sexuality and sex roles.

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A Longitudinal Study of Adolescent Growth. By John Buckler. xiii + 433 pp. London: Springer-Verlag. 1990, \$211.70 (cloth).

In 1972 Dr. Buckler began to measure boys and girls, between the ages of 9 and 10 years, attending 7 coeducational state middle schools in or near the city of Leeds, England and one private boy's boarding school in Berkshire. These children were examined three times per year for a variety of anthropometric measurements (height, weight, sitting height, limb length, circumferences, skinfolds, biacromial, and biiliac breadth), and also for pubertal stages, and for a smaller sample, bone age, and urinary gonadotrophins. The children were followed into 13 different high schools and examined until age 18 or until they left school. In the end, a total of 102 girls, 96 state school boys, and 120 boarding school boys, all "Caucasian" and healthy, were seen often enough to include in the analysis. That analysis is the content of this book.

Longitudinal studies are expensive and difficult to manage. The text indicates that 7 organizations contributed some funds, but I suspect that the author contributed much of his own time, if not money, without reimbursement. The management of the study was apparently a "one man show" since Dr. Buckler took all of the measurements, except for pubertal stages on older girls, and seems to have directed or actually done all of the analysis. I both admire and envy the dedication and professionalism Dr. Buckler displays in the data collection and publication of this study.

The data are presented in 15 chapters, each dedicated to a description of a subset of measurements (e.g., height, weight, limbs

and trunk, fat, etc.) or to an analysis of two or more variables (e.g., comparison of state vs. boarding school boys, or comparison of early vs. late maturing children). Each chapter consists of a brief overview of the data or the analysis, followed by many graphs and tables that present the data. There is also an appendix (comprising 170 pages of this book) that contains basic descriptive statistics and percentiles for each measurement, presented by sex and age.

In all, this is a reference book, designed to provide basic information on longitudinal growth of normal English children during adolescence. There are no surprise discoveries or innovative and complex statistical analyses. However, there are a few observations worth noting. Bone age shows an acceleration at the time of peak height velocity. This is not seen in cross-sectional or many mixed longitudinal studies. It does not conform to the theory of "bone age," which assumes a linear relationship between chronological age and skeletal development. Buckler finds that fatness is positively correlated with all stages of puberty in girls. Also, thin girls have proportionately longer limbs than fat girls, and body mass index (BMI) is a good indicator of fatness in girls. In contrast, boys show no correlation of fatness with puberty stages and the BMI of boys is not a good indicator of fatness. Boys with higher BMI have larger trunks, longer arms, and shorter legs. Another finding is that early and late maturers differ in height during childhood and adolescence, but both reach the same average height as adults. The late developers do end up with limbs proportionately longer than those of the early maturers. Finally, Buckler compares the Leeds study with the studies by James Tanner conducted in the London area some 20 years earlier. There is no evidence of secular acceleration in growth or maturation, but the Leeds group does grow for a longer period of time, and ends up taller and heavier than the London sample.

For those researchers, clinicians, and public health workers interested in normal growth this book will serve as a useful reference. The book also presents an opportunity for additional analysis of the data. These are the lasting values of longitudinal studies.

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Uniquely Human: The Evolution of Speech, Thought, and Selfless Behavior. By Philip Lieberman. 210 pp. Cambridge: Harvard University Press, 1991, \$27.95 (cloth).

During the 25 years Philip Lieberman has been writing about the origins of language, he has built an international reputation for his theories of primate, Neanderthal, and modern human vocal capacities. This concise and well-written book is a highly readable synthesis of his views. In many ways, the synthesis is a remarkable one which draws on the diverse evidence of archaeology, physiology, psychology, the synthetic theory of evolution, and modern concepts of parallel distributed processing systems. Perhaps, however, it is inevitable that a book which covers so much ground will contain serious errors and strange inconsistencies.

Lieberman's introduction argues that Darwinian principles apply to the evolution of language. Since some language origin theorists and linguists lack familiarity with evolutionary theory, this chapter is potentially a major asset to the field. Indeed, Lieberman's recognition of the importance of preadaptations, mosaic evolution, and genetic variation is important. The chapter contains, however, some curious errors which seriously detract from his ability to form a truly comprehensive theory. One involves Lieberman's failure to recognize that genes primarily code for proteins and that epigenetic events play major roles in assuring developmental congruity between various bones and joints. He states, for instance, that the upper and lower portions of the knee joint are controlled by different genes. Hence, "people's knees therefore fit together better or worse" (page 7).

More serious errors involve Lieberman's lack of familiarity with modern research on primate abilities. Consequently, much of his book is based on false premises. He alleges, for instance, that apes cannot create art or use syntax and that monkeys have no voluntary control over their vocalizations. Apes, however, have long been known for their art work. Recent evidence indicates that a number of apes have syntactical capacities, and some monkeys do have voluntary vocal control (Cheney and Seyfarth, 1990; Greenfield and Savage-Rumbaugh, 1990; Savage-Rumbaugh and Rumbaugh, in press).

Much of the book is devoted to a review of the neural control of language. Lieberman argues against modular theories of brain