VIEWS AND REVIEWS

Human Birth: An Evolutionary Perspective.
Wenda R. Trevathan. 1987. Aldine de Gruyter. xii + 268 pp. ISBN 0-202-02029-0. Hardbound. $29.95.

This book brings together clinical information on human birth and comparative data on other mammals, a required foundation for evolutionary speculations, which are also included. It is the only detailed and reasonably quantitative attempt to do so that I know of that covers the entire spectrum of physiology, biochemistry, morphology, and behavior involved in the mammalian birth process and early maternal care. Throughout the book adaptive or evolutionary explanations for widespread observations or correlations are thrown off as ideas which might be profitably pursued further in a rigorous fashion but which are not critically evaluated here. Some of this speculation is naive but all of it draws attention to patterns that are unlikely to be well known among most evolutionary biologists and that beg for an evolutionary interpretation. Her few discussions of highly controversial topics, such as the relative size, of the pelvic opening of the neonatal cranium in extinct hominids, particularly Neanderthals, are unsatisfying. She fails to provide a discussion of the type of information that could resolve the controversy if available, perhaps an unreasonable expectation in a book of this scope but nevertheless disappointing.

The concluding chapter, which provides an evolutionary perspective on human birth and bonding, is spoiled by uncritical use of ideas which are widely accepted but not necessarily correct. This chapter highlights the problem of trying to build new evolutionary theories on the basis of older ones that have not yet been well established or on oft-repeated textbook facts that are incorrect. For example, great apes do not complete half their brain growth in utero (only 30-40%) and modern human neonates are in absolute size both larger-brained and larger-bodied than those of any of the great apes. Therefore pelvic restriction, as a result of the bipedal stance evolved in our small-brained ancestors, was not very limiting comparatively. Modern humans have carried the fetus in utero as far as possible to take advantage of the high embryonic absolute growth rate of the brain (thus ensuring a larger adult brain as a consequence) and even beyond, because cesarian delivery enables females to give birth to neonates too large for their pelvic size. The social smile is no more delayed in humans than in chimps relative to brain maturation and, in fact, it appears relatively late in rhesus monkeys, at the time the young monkey starts interacting with its peers. Another misconception involves how long it would take a human to achieve the same relative brain growth at birth as chimpanzees. The 3-month delay of Trinkaus that Trevathan accepts may not be correct. Because this size increase of neonate brain is within the range of observed human births, an interesting question is whether a larger brain at birth means a larger brain at maturity or possibly an earlier attainment of maturity. This chapter does propose a logical sequence of problems faced by evolving hominids, but the association of the innovations with particular events in hominid history is largely unconvincing because of a lack of quantitative reasoning.

Despite the book's faults, however, Trevathan has done a great service in focusing attention on an important and generally poorly treated topic in human biology. At the least it provides a broad and excellent introduction to the field and at best raises many questions to be answered, many of which have not been previously considered because of a lack of examining the human birth process in a detailed comparative fashion. -vcm

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Evolutionary Theory 9: 104 (July, 1989).