It is likely that more words have been written about human sexuality than any other topic, with the possible exception of human death. Indeed, the two experiences are combined in a characteristic French phrase, *le petit mort*. In the book under review, Janet Shibley Hyde, a professor of psychology and women's studies at the University of Wisconsin—Madison, has edited seven chapters reviewing the psychobiology of human sexuality. These well-written contributions range from an introduction to the relationship between contemporary neuroscience and research on sex to a concluding chapter forecasting future directions and prospects for the field. What sets this book apart from related texts is its emphasis on the biological basis of human sexuality.

In Chapter 1, Hyde convincingly argues that “an explosion of neuroscience research on sexuality” (p. 3) has been driven by pharmacological and technological advances. It is also likely that the pace of studies on human sexuality has been driven by basic science (e.g., Craig, Harper, & Loat, 2004; Lim et al., 2004). Hyde justifies her focus on the biological substrates of human sexuality by highlighting the “tremendous amount” (p. 3) of information about these processes that has been learned in the past 10 years. However, her use of the term *genetic blueprints* to characterize one level of substrate is unfortunate given our current understanding of genes as dynamic, modifiable, capable of being immobilized, and, possibly, subordinate to environmental induction in some conditions. Additionally, Hyde’s introduction, or a separate chapter, should have discussed the evolution of sex as well as the molecular and cellular levels of analysis (e.g., pheromone perception) and epigenetic processes as they are thought to relate to human sexuality (e.g., antagonistic coevolution between the sexes and intersexual ontogenetic conflict, including genetic imprinting).

Hyde discusses “The Genetics of Sexual Orientation” in Chapter 2, providing a basic overview of the topic appropriate for undergraduates. The logic and rationale of twin studies are clearly presented, and the utility of these studies' findings are discussed without bias but from a critical scholarly posture. This chapter could have provided a more thorough summary of nonhuman models (e.g., fish and a broader range of bird and mammal species, especially monkeys and apes). Chapter 2 would have been the appropriate location for an assessment of the potential conflict between behavioral sexual orientation and biological orientation (e.g., Rieger, Chivers, & Bailey, 2005). However, Hyde avoids topics that may be difficult for nonspecialists to understand.

Chapter 3, by Dick F. Swaab, addresses sexuality in relation to the hypothalamus and endocrine system. This chapter, including several supporting figures and a helpful glossary, is reminiscent of the best review chapters in medical school textbooks and will prove to be an informative and accessible reference for the nonspecialist and the undergraduate as well as a useful resource to the graduate student and expert. Like Hyde’s approach in her chapters, Swaab's approach takes no intellectual risks. Nonetheless, his analysis supports the conclusion that nonhuman animals and humans appear to differ in their primary mechanisms of sexual differentiation, a topic in need of further investigation.
In a straightforward review (Chapter 4), Kevin E. McKenna discusses central nervous system (CNS) control of human sex modulated by pharmacological agents. This author summarizes recent advancements in our understanding of neuroanatomy, neurophysiology, and pharmacology of CNS control, emphasizing the significance of brain structures and CNS chemicals for the excitation or inhibition of sexual function. Similar to studies of the biology of sex and reproduction in nonhuman primates, McKenna's chapter points out that most research on humans to date has concentrated upon male response, calling for an increased emphasis on studies of female sexual function. It is worth noting that more than one topic discussed in this review (e.g., the role of oxytocin) is related to fundamental aspects of social behavior that may have import across a broad range of mammalian species (e.g., Keverne & Curley, 2004).

The research team, Barry R. Komisaruk and Beverly Whipple, provide a fascinating review (Chapter 5) of their investigations of women with spinal cord injury using PET and fMRI. This chapter, copiously illustrated with images, is the first technical study to identify brain regions activated during female orgasm. These authors speculate that the Vagus nerves provide an alternate sensory pathway to the brain, bypassing the spinal cord and, thus, spinal cord injury—indeed of an injury's level (the "genitosensory Vagus" hypothesis). This speculative hypothesis is supported by Komisaruk's previous studies with rats in the laboratory (e.g., Komisaruk et al., 1996). Komisaruk and Whipple conclude (a) that the Vagus nerves bypass the spinal tract in women, projecting directly to the brain, (b) that Vagus nerve sensations are sufficient to induce orgasm in women, and (c) that orgasm in women is associated with the activation of specific brain regions. This important work, if valid and reliable, has the potential to contribute significantly to quality of life for women with spinal cord injury and may have implications for all women experiencing physiologically induced sexual dysfunction.

Chapter 6 provides another clinical perspective on sexual response. Eli Coleman reviews compulsive sexual behavior (CSB) in relation to neuroanatomy and neurotransmitter dysfunction. This author suggests that hypersexuality may have "multiple etiologies and treatments" (p. 148) and proposes that hypersexuality may represent problems of impulse control rather than obsessive–compulsive motivation. Citing the effectiveness of pharmacological intervention for individuals with CSB presenting with "neuroanatomical abnormalities, disturbances, or neurotransmitter dysregulation" (p. 163), Coleman calls for rigorous clinical trials to provide evidence-based treatment regimens. This author points out that CSB is expected to be a function of both endogenous and exogenous factors and that these interactions may complicate the treatment process, including psychotherapy. Like the studies reported by Komisaruk and Whipple, the research reported by Coleman has the potential to mitigate human suffering.

Hyde and Whipple provide a final, synthetic overview in Chapter 7, outlining major themes in human sexuality studies and suggesting directions for research. Consistent with recent developments in biology, these authors emphasize the biological substrate as a developmental process and point out that human sexuality—a component of whole organism behavior—is a multilevel subsystem. Hyde and Whipple label human sexuality complex. However, in my opinion, their use of this term is anachronistic, implying the outdated classification of animals (including humans) as lower or higher. A modern perspective would view each taxon from a functional perspective, including the challenges encountered in a niche. Each phenotype (niche), then, is more or less suited to address certain categories of problems, with varying degrees of specialization and generalization within and between species. Indeed, the primary criticism that I have of Hyde's volume is that it places insufficient emphasis upon the variability of sexuality (within and between species)—variability that might be induced by biological as well as environmental factors (and these in interaction).

Biological Substrates of Human Sexuality will prove useful as a supplement for courses in physiological psychology and biopsychology. The book's utility is enhanced because each chapter can stand alone, permitting a professor to customize usage of the text to a range of syllabi topics. This volume also will be very helpful to biopsychologists who teach the psychology of sex and gender and who desire an alternative to books on the market stressing a psychosocial perspective. Should I teach this course again in the future, I will definitely adopt Hyde's text.

References


