**Book Reviews**

**Behavioral Neuroscience 8th Edition.** By S. Marc Breedlove and Neil V. Watson. Sunderland, MA: Sinauer Associates, Inc.; 2017. US $102.00 (Hardcover). 643 p. ISBN: 978-1605354187

With the ever-advancing technology and state of art research in the world of modern medicine, what has been described as “Biological Psychiatry” may be more appropriately referred to as “Behavioral Neuroscience.” Over the most recent decades, scientists and research pioneers have attempted to better understand the underlying mechanisms of behavior and its relationship to neuronal structure and function. Behavioral neuroscientists use three approaches to understand the relationship between brain and behavior: somatic intervention, behavioral interventions, and correlation – all of which are introduced and explained in the text. In *Behavioral Neuroscience, 8th Edition*, the authors have organized a text with the requisite fundamental knowledge of neuroscience and its relationship to behavioral patterns. New findings have been included with a succinct, detailed, well-delineated structure. Six-hundred newer literature sources and over 1,300 new links pertaining to behavioral neuroscience from the past couple of years are cited in this edition.

The contents of *Behavioral Neuroscience* are organized in a coherent and thoughtful manner. The text is divided into six parts with more specific chapters therein, namely: “Part I: Biological Foundations of Behaviors,” “Part II: Evolution and Development of the Nervous System,” “Part III: Perception of Action,” “Part IV: Regulation and Behavior,” “Part V: Emotions and Mental Disorders,” and “Part VI: Cognitive Neuroscience.” Part I introduces the fundamental groundwork for the latter sections and describes neuroanatomy, intrinsic hormone functioning, and neurophysiology. Part II focuses on the developmental stages of the brain and consequent related behavioral pattern changes throughout the life span. Part III addresses perception and behavioral activation with emphasis on general principles of sensory processing, sensations, motor control, and plasticity. Part IV details the intrinsic regulatory function such as the hormonal and neural basis of sexuality, internal homeostasis, and other biological rhythms. Part V explores the biological basis of some pathological behaviors and related bio-physiological changes in emotions, and effects on stress and aggression levels. Part VI details and discusses the association of neurophysiology with higher executive functions such as learning and memory, attention and higher cognition, and language and lateralization.

Innovative new findings are well-integrated and described throughout the text. For example, Chapter 2 highlights the growing concerns that the algorithms guiding fMRI analysis may be faulty and compares different types of functional brain imaging. Chapter 7 reviews new brain scanning methods to visualize tau pathology as well as amyloid for screening for Alzheimer’s disease. Chapter 13 contains a discussion of new evidence that long-lasting metabolic changes work against permanent weight loss and for the intrigued reader, even provides an in-depth introduction of Fecal Microbiota Transplant. Chapter 17 outlines the growing consensus for a dual-process model of human memory that distinguishes between familiarity and recollection. Compared with previous editions, the new 8th Edition provides a broader perspective of the field, including new revolutionary findings and technological breakthroughs in neuroscience.

Continuing the practice of the previous edition, each chapter ends with a section called “The Cutting Edge,” wherein the most exciting examples of recent research are discussed, followed by a “Visual Summary,” wherein vivid graphic reminders are presented to review the principle findings. For example, Chapter 19 illustrates what is described as chronic traumatic encephalopathy, and describes studies that have used a special type of PET scan to investigate misfolded tau proteins and how this interferes with functioning in a similar fashion as to that seen in Alzheimer’s disease. Chapter 8 talks about important new insights in pain mechanisms revealed by the study of scorpion venom. Each chapter begins with a vignette, relating someone’s real-life experiences that will be better understood as the content of the chapter unfolds.

A section denoted “Step Further” is a collection of online supplements that can be found throughout the text, and the “Recommended Reading” section at the close of each chapter further guides the reader to valuable external sources. The appendix illustrates some fundamental concepts and important technologies such as western blot, genomic replication, and polymerase chain reaction. This section enables readers who are not familiar with the basic principles a succinct, detailed overview of the relevant neuroscience, and provides a concise, detailed review of these principles for those well-versed in neurosciences.

*Behavioral Neuroscience, 8th Edition*, offers readers...
a well-delineated, thoughtful, and complete review of all aspects of neuroscience, with specific focus on underlying neuronal structure and its relation to function and behavior. It is notable that the text reviews in-depth scientific literature, research evidence, and is most geared towards individuals who have both research and clinical backgrounds. Conversely, clinicians with limited neuroscience background may find it difficult to interpret some of the cited studies and information. The focus on innovative findings within a well-organized structure provides fundamental knowledge for researchers and medical (especially mental-health) professionals. The thorough discussion of related psychiatric conditions and relevant behavioral neuroscience literature will especially benefit clinicians who are hoping to understand the underlying neurobiological basis for emotional and behavioral issues that warrant clinical attention. In closing, the text is an excellent, well-organized, detailed yet concise, pertinent review of relevant behavioral neuroscience and is highly recommended for clinician-scientists well versed in the neurosciences.

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A Short History of Medicine. By Erwin H. Ackerknecht. Baltimore, Maryland: John Hopkins University Press; 2016. US $29.95 (Paperback). 272 p. ISBN: 978-1421419541

With the continued rise of drug development, medical advances, and translational research, it is humbling to revisit mankind’s fortuitous beginnings into this field. A Short History of Medicine extraordinarily captures this rich history and is a valuable book for any scholar within the field of biomedical research. The author grasps the reader’s attention from the beginning with a discussion on paleomedicine and notable ancient civilizations. Many advances during this time were purely founded on a supernatural ideology. Trephination had become common practice for the release of “spirits” mostly caused by cranial pressure due to head injuries. It wasn’t until the onset of ancient India, China, and Greece that physicians became more empirical in their approach to medicine. The separation of physicians from the hierarchy of priests had a profound impact on their practice. As mentioned in the book, during the time of Hippocrates, unstable job security and lower social status of practicing physicians prompted their disposition of avoiding the “incurable.” Interestingly, the Hippocratic Oath defines the role of physicians as caregivers that diagnose and prevent harm to their patients, however during that time it was deemed ethical to avoid the “impossible” prognosis.

The author provides a brilliant concise history on drug development. This initially was founded on the ability of the physician to utilize the local pharmacopeia through the use of plants and diet. Specialization was rampant from the success of physicians and their progression to treat only patients with similar diagnoses. As noted in the chapter on basic sciences, Francois Magendie is described as one of the fathers of modern pharmacology. This began from the ability to isolate pure compounds from raw drugs. His pioneering work included introducing drugs from the alkaloid family and his continued study of morphine. From this research, opium, nicotine, and many other narcotics were further characterized. Synthetic drugs were also introduced by pharmacologic industry, including sulfonal. These advances coincide with the work of Paul Ehrlich in chemotherapy. His motivation to discover vital stains or dyes for hematology, led to his side chain theory: that there was a chemical affinity of certain drugs to certain cells. His work laid the foundation for explaining the host’s immune response to infection.

The newly revised expanded edition contains a few added figures, notably in the Greek medicine chapters. However, not much has changed from the previous edition and would not recommend obtaining a second new version, unless for the sole purpose of having a well-printed text. The previous 1982 edition typesetting is a word/letter jumble in comparison. Undoubtedly, written originally in 1955, this book contains unapologetic personal opinions. However, the author provides a clear and concise narrative that educates and informs the enthusiast or avid student.

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Applying Pharmacogenomics in Therapeutics. Edited by Xiaodong Feng and Hong-Guang Xie. Boca Raton, Florida: CRC Press (Taylor & Francis Group); 2016. US $129.95 (Hardcover). 294 p. ISBN: 978-1466582675

Applying Pharmacogenomics in Therapeutics introduces the principles of pharmacogenomics and personalized medicine in our new century of omics biotechnolo-