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BOOK REVIEWS

TBI: From Abstinence to Zung and Then Some

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Textbook of Traumatic Brain Injury. Jonathan M. Silver, Thomas W. McAllister, and Stuart C. Yudofsky (Eds.). (2005). Washington, DC: American Psychiatric Publishing. 771 pp., $99.00.

Reviewed by Muriel D. Lezak, Ph.D., ABPP-CN, *Department of Neurology, Oregon Health Sciences University, Portland, Oregon*.

This comprehensive textbook provides both depth and breadth of the current state of knowledge about traumatic brain injury (TBI) with the added advantage that it's all between one set of book covers. The 40 chapters are thoughtfully organized into 7 sections. Section titles announce the scope of the book: Epidemiology and Pathophysiology, Neuropsychiatric Disorders, Special Populations and Issues, Social Issues, Treatment, and Prevention.

The roster of chapter authors (75!) includes some of the most prominent names in the field. Thus, Thomas Gennarelli and David Graham author the well-illustrated chapter on "Neuropathology"; Erin Bigler is the author of "Structural Imaging" (also well-illustrated); the O'Shanicks (Gregory J and Alison Moon) wrote "Personality Disorders"; Nathan D. Zasler is first author on the "Chronic Pain" and "Sexual Dysfunction" chapters; Jeffrey Barth contributed to "Sports Injuries"; D. Nathan Cope is senior author on "Systems of Care"; and Wayne A. Gordon and Mary R. Hibbard are the authors for "Cognitive Rehabilitation." Yet, one important source of creative and instructive knowledge in the field of TBI is missing: non-Americans! Three Canadians (all from Toronto) and one Scotsman are the only "auslanders," although many European neuropsychologists, neurologists, and physiatrists have made important—and for some, ground-breaking—contributions.

Breadth and depth of coverage is evident in chapters on TBI issues that are important but often overlooked or only addressed in passing. Thus, "Fatigue and Sleep Problems," dealing with common but only infrequently noted or studied TBI sequelae, merit 15 (8 × 11, small print, double column) pages; "Balance Problems and Dizziness" are discussed in an 11 page chapter; special problems for "Elderly" TBI patients are treated in a 13 page chapter. "Alcohol and Drug Disorders" begins with a discussion of problems involved in treating the acutely injured drug or alcohol-dependent patient, reviews complications of substance dependency, and offers advice regarding "Intermediate and Long-term Treatment" of these patients.

More commonly considered topics are also dealt with in useful specifics. For example, two chapters treat "Structural Imaging" and "Functional Imaging" separately, each presenting in detail the varieties of available techniques, their applications, and their limitations, and each making some of their more technical material readily accessible with tables and charts. As another example, the Prevention section is also divided into two chapters, one providing current information on pharmacotherapy for acute TBI (i.e., pharmacologic treatments that may reduce the severity of the injury), and one on the behavioral and social aspects of prevention (e.g., use of airbags and seat belts, gun safety, reducing drunken driving, "In 1983, Utah and Oregon were the first two states that lowered the [blood alcohol] level to 0.08 g/DL."). The authors of "Ethical and Clinical Legal Issues" review current thinking and practice requirements for such concerns as informed consent, incompetent patients, the use(fulness) of advance directives, and guardianship. They also discuss both criminal and civil litigation issues—including the hot topic of malingering—as they apply to the TBI patient.

In sum, this book provides coverage in depth for the full gamut of TBI issues and information. The material it contains is sufficiently up-to-date that it can continue to serve for at least four to five years—enough time to allow for a second edition update. Even without adequate representation from overseas it is a "must have" for all professionals who work with TBI patients. Now that I've become acquainted with it I wouldn't want to be without it.

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Confabulation: A Matter of Philosophy of the Mind?

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Brain Fiction: Self-deception and the Riddle of Confabulation, by William Hirstein. (2005). Cambridge, MA: The MIT Press. 289 pp., $35.00.

Reviewed by John DeLuca, Ph.D., ABPP-RP, *UMD–New Jersey Medical School, Newark and Director of Neuroscience Research, Kessler Medical Rehabilitation Research and Education Corporation, West Orange, New Jersey*.

Why do some patients with brain damage construct seemingly false answers to questions, which they believe are true and accurate? Such confabulation is the topic examined in this book. Not only does Dr. Hirstein integrate the anatomical, neurological, and neuropsychological knowledge accumulated thus far on confabulation, but his training as both a neuroscientist and a philosopher provides a unique perspective on confabulation by integrating issues broadly related to the philosophy of the mind. What is also proposed in this well written book is the notion that elements of confabulation can be seen in healthy individuals and in persons with disorders less overtly neurological in nature than those with clearly documented neurological disorder.

In Chapter 1, the author starts with a detailed analysis of confabulation, provides clinical examples from a range of disorders, and then asks questions that prime the reader about factors to be raised and discussed throughout the remainder of the book. Chapter 2 provides information on basic cognitive neuroscience and brain-behavior relations. It serves as an overview for the professional, but is informative for the novice or student. In Chapters 3 and 4, the author provides an in-depth analysis of confabulation and memory disorders, primarily in patients with Korsakoff's syndrome and those with aneurysm of the anterior communicating artery (ACoA), and includes a review of the major theories of memory confabulation. The chapters are rich with neuroanatomical detail and provide a hint of how such neurobehavioral problems may be seen in a less obvious condition, obsessive-compulsive disorder (OCD). I particularly enjoyed Chapter 5 on confabulation from misidentification syndromes (e.g., Capgras, Fregoli syndromes), confabulatory syndromes more traditionally associated with the psychiatric literature, whereas confabulation among Korsakoff and ACoA patients is more traditionally discussed in the neurological literature. Chapters 6 and 7 provide an excellent review of confabulation associated with representations of the body (e.g., asomatagnosia, Anton's syndrome) and among split-brain patients, respectively.

In these first 7 chapters the author provides an easy to read analysis of the current theory that confabulation requires both a "knowledge deficit" and a deficit in "monitoring" or what he calls "checking" the accuracy of one's responses, collectively described as the "two errors." Regarding knowledge deficits, the author describes the two major categories of confabulation: one involving memory or memory confabulators (e.g., ACoA and Korsakoff's), and the other a specific deficit in perceptual processing, such as Capgras syndrome, Fregoli's syndrome, or reduplicative paramnesia. However, he writes that what is common to both categories of confabulators is the deficit in monitoring (or "checking") that what is being said is accurate, makes sense, or is otherwise logical (e.g., can one really have two of exactly the same person?), while patients simultaneously do not question the veridicality of their confabulation. Dr. Hirstein also shows how these "knowledge deficits" are associated with specific brain regions, and provides a wealth of integrative analysis arguing that the "checking" difficulties are due to orbitofrontal damage.

While much of the information provided in the first 7 chapters is fairly well accepted in the literature, the presentation and description of the "two errors" required for confabulation is rich with examples and well integrated and conceptualized. The most interesting aspect of this book, however, is the attempt to broaden confabulation to other aspects of the mind's operation, even among "healthy" individuals, which is the focus of the remaining 3 chapters. For example, there is an interesting discussion on the relationship between confabulation and self-deception. It is argued that self-deception also requires the "two errors": (1) an ill-grounded thought and (2) the failure to reflect or "check" on the thought. As such, he argues that the primary difference between confabulators and self-deceivers is the degree of "tension" caused by the two errors. It is hypothesized that mechanisms associated with clinical confabulation may be the same or similar to those observed in various other conditions such as obsessive-compulsive disorder, autism, and sociopathology. The difference is that clinical confabulators and sociopaths have very little tension when they make their ill-grounded claims, while on the other end of the continuum, those with obsessive-compulsive disorders have extreme "tension." His thinking and presentation is thoughtful, provocative, and philosophical. However, his ideas clearly require extensive experimental and scientific verification. I felt that in his final chapter (Epilogue), the author could have done a little more to integrate and extend his overall ideas and conclusions in a more focused fashion, although his brief section on "future questions" is indeed provocative.

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Overall, the author's goal in writing this book was to show that studying confabulation in clinical settings is relevant to philosophical questions about knowledge and questions related to self-deception, even among healthy individuals. He was successful in achieving this challenging goal. Confabulation provides an excellent forum to address and integrate questions relevant to both neuroscience and philosophy. *Brain Fiction: Self-deception and the Riddle of Confabulation* provides a detailed and thought-provoking integration of confabulation as part of a philosophy of cognitive science. It deserves a prominent spot on the shelf of every scientist and philosopher interested in the mind and consciousness, both students and professionals alike.

Exploring the Developmental Origins of Schizophrenia

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Neurodevelopment in Schizophrenia. Matcheri S. Keshavan, James L. Kennedy, and Robin M. Murray (Eds.). (2004). Cambridge, UK: Cambridge University Press. 506 pp., $150.00.

Reviewed by Bernice A. Marcopulos, Ph.D., ABPP-CN, *Neuropsychology Lab, Western State Hospital, Staunton, VA and Department of Psychiatric Medicine, University of Virginia, Charlottesville, Virginia*.

Liberman and Corrigan stated in a 1992 editorial in the *Journal of Neuropsychiatry and Clinical Neuroscience*, "The question is no longer whether schizophrenia is a brain disease but rather what type of disease underlies its characteristics, symptoms, signs, and associated disabilities" (p. 119). It has been 13 years since Liberman and Corrigan wrote this editorial, and there has been a steady increase in the interest in schizophrenia among neuropsychologists as judged by the quality and quantity of papers presented at professional meetings and published in neuropsychology journals. In the April 2005 issue of *The American Psychologist*, Heinrichs asserted that effect sizes derived from neuropsychological tests of memory, attention, language, and reasoning are twice as large as those obtained from neuroimaging studies on individuals with schizophrenia. He concludes that "schizophrenia is a complex biobehavioral disorder that manifests itself primarily in cognition." (p. 229). However, large effect sizes on neuropsychological tests are considerably "downstream" from the genesis of the disorder, which is widely believed to be neurodevelopmental in nature, rather than neurodegenerative. What is the neuropathological mechanism that underlies this complex cognitive disorder? This book, *Neurodevelopment in Schizophrenia*, is an edited volume that brings together basic and clinical neuroscientists who are trying to answer this question—what is the disease mechanism underlying schizophrenia that derails normal neurodevelopment?

The book is organized into four sections: Basic Concepts, Etiological Factors, Pathophysiology, and Clinical Implications. In Part I, Basic Concepts, normal brain development, including genetics, structure, cognition, and neuronal plasticity are reviewed. Chapter 1 provides a very detailed overview of genes and brain development. There are two neuroimaging chapters in Part I. Chapter 2 is a very brief (7 pages) overview written by Giedd et al. from the NIMH Child Psychiatry Branch project on neuroimaging healthy children and adolescents. Chapter 3 by Luna and Sweeney on functional magnetic resonance imaging and cognitive development in ADHD, dyslexic, and high-risk children of schizophrenic parents was well explained and easy to follow. Chapters 4 and 5 discuss cognitive development in adolescence, and brain plasticity and long-term function after early cerebral insult. These chapters include a discussion of how alterations occurring perinatally can manifest themselves in adolescence, producing schizophrenia. Chapter 4, by Wood et al., covers cognitive development in adolescence, addressing how early lesions may affect executive functions and working memory which usually come "on line" during that time. They propose that those cognitive functions that mature around the same time as when symptoms of schizophrenia begin to emerge are more impaired that those cognitive functions that mature earlier. Allin et al., in Chapter 5, explain why the Kennard principle, which states that the earlier the brain lesion, the less likely disturbed behavior occurs, may not be applicable. They cite evidence from behavioral and cognitive outcome studies of very preterm birth. Behavioral and structural brain abnormalities are detectible in adolescents, challenging the assumptions of plasticity.

Part II, Etiological Factors, is a heterogeneous section covering a broad range of topics, from the molecular, such as the discussion of transcriptomes in Chapter 12 by Lewis, Mirnics, and Levitt, and Pariante and Cotter's review in Chapter 6 of glucocorticoid involvement in major psychiatric disorders, to broad environmental factors such as social class, discussed by Boydell et al. in Chapter 13. In Chapter 7, Eliez and Feinstein cover the velo-cardio-facial syndrome. In this genetic disorder an extremely high percentage of individuals (up to 30%) develop schizophrenia or schizo-

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affective disorder by young adulthood. In Chapter 8, McDonald and Murray use structural MRI to look at putative endophenotypes for schizophrenia. Chapter 9 on nutritional factors was very intriguing. Mahadik describes how essential polyunsaturated fatty acids and antioxidants can improve clinical outcome in schizophrenia patients. Unfortunately, the author never exactly explained which clinical outcome factors improved. Petronis' Chapter 10 on epigenetics and structural abnormalities echoes Heinrichs' recent review, explaining why structural abnormalities seen in neuroimaging are not more helpful from a diagnostic or etiological standpoint. According to Petronis, "From the epigenetic point of view, age- and hormone-dependent neurochemical changes rather than structural changes in the brain are the main disease mechanisms" (p. 187). A particularly excellent and thought-provoking Chapter 13 by Boydell et al. on social factors and development explores a number of adverse environmental factors associated with an increased risk of schizophrenia, such as poor parenting, early parental loss, child abuse, urban *versus* rural upbringing, and ethnic minority status. Chapter 14 by Chen and Murray carefully considers the drug and schizophrenia "chicken and egg" question on how drug abuse interacts with familial and developmental factors in the etiology of schizophrenia. In Chapter 11, Cannon, Dean, and Jones review prenatal and perinatal risk factors for schizophrenia, such as place or time of birth, infection, malnutrition, prenatal stress, and obstetric complications and assign a relative risk or odds ratio for each.

In Part III on Pathophysiology, Grace reviews dysregulation of the dopamine system in Chapter 15 and Benes reviews the interaction between GABA and dopamine in the limbic circuitry as a possible cause for schizophrenia in Chapter 16. Melchitzky and Lewis review thalamocortical circuitry in the pathophysiology of schizophrenia in Chapter 17. Chapter 18 by Craig et al. on X chromosome, estrogen, and brain development is particularly interesting and well written. They review how normal brain development differs for males and females across the lifespan, and how these differences might account for respective differences in prevalence and age of onset in schizophrenia. Chapter 20 by Jarskog et al. reviews the mostly weak evidence for a neurodegenerative as opposed to a neurodevelopment model of schizophrenia. In Chapter 21, Kreipke et al. review the similarities and differences found with neuroimaging in obsessive-compulsive disorder, attention deficit disorder, and schizophrenia, suggesting commonalities between ADHD and schizophrenia. Lawrie (Ch. 19) summarizes the evidence for premorbid structural abnormalities.

Part IV, Clinical Implications, is very brief, with three chapters that only begin to address this topic. Several of the chapters in earlier sections offered ideas on prevention and treatment. In Chapter 22, Kravariti et al. ask the question, "Can one identify preschizophrenia children?" They review the motor and cognitive markers and conclude that one cannot reliably identify children based on these markers. Chapter 23 by Keshavan reviews the methodology of studies of individuals at high risk for developing schizophrenia. This chapter might fit better in the section on etiological factors instead of clinical implications. Finally, Chapter 24 by Keshavan and Cornblatt attempts to integrate the neurodevelopmental, neurodegenerative, and pre- and post-natal data based on a unifying theme involving glutamate. They also review the sparse literature on preventive projects, which are still underway and inconclusive but tremendously important and deserving of more attention. This last chapter did a very nice job of integrating much of the evidence, some of it seemingly contradictory, to implicate glutamate as the unifying factor.

In his forward to the book, Michael Rutter stated that this book "is not light bedtime reading" (p. xv). Indeed it is not. This reviewer needed to invoke her distant knowledge of biochemistry and genetics to appreciate the points made in the first chapter on genes and brain development, as well as other chapters in the book that focused primarily on molecular mechanisms. At great risk of being trite, reading this book reminded this reviewer of the analogy of the three blind men and the elephant. Certainly not because the scientists who have written in this book have single-mindedly argued for their neurodevelopmental theory of how schizophrenia emerges, but rather because this reviewer felt like the blind men after reading each chapter. Each chapter led down a slightly different path, a plausible cause for schizophrenia, but never revealed the "elephant" in its entirety. After reading the book, this reviewer was very intrigued, yet, even more bewildered regarding the pathophysiology and etiology of schizophrenia, one of the most tragic and disabling psychiatric diseases. In part, this reflects the current state of the scientific literature on schizophrenia, in which one may develop via several pathways, both genetic and environmental. However, part of the reason for the sense of discontinuity is that chapters seemed to be written independently and would have benefited from more editorial input for a thematic and organizational perspective with a consistent voice. Some redundancy was apparent (e.g., three chapters on neuroimaging) and, at times, contradictory. One final chapter that reviewed and integrated all of the seemingly disparate findings would have been useful. This would have helped this "blind" reviewer "see" the neuropathogenesis of schizophrenia more coherently, and would have increased the readability of this very impressive volume of work. This book is highly recommended as an addition to the libraries of those professionals involved in clinical care or research with individuals with severe psychiatric disability. It is dense, thought provoking, and worth the effort.

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Recent and Relevant

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Prenatal Testosterone in Mind: Amniotic Fluid Studies, by Simon Baron-Cohen, Svetlana Lutchmaya, and Rebecca Knickmeyer. 2004. Cambridge, MA: The MIT Press, 131 pp., $30.00, (HB).

Prenatal Testosterone in Mind: Amniotic Fluid Studies is a brief but engrossing record of a study of whether prenatal testosterone levels can provide insight into an individual's cognitive and behavioral repertoire. Ethical considerations are addressed directly, followed by succinct discussion of gonadal hormones and sexual differentiation, a brief recapitulation of research on sex differences related to cognition and behavior, the influence of different brain regions, cerebral lateralization theories, and sexual development disorders. After a brief discussion of research strategies, the authors detail their study of "amniocentesized children". The authors studied amniotic fluid samples at 16-weeks gestation and examined the relationship between fetal testosterone levels and eventual behavior and cognition at 1, 2 and 4 years of age, using eye contact as a marker for social development and measures of language development and social relationships. This intriguing volume will be of interest to cognitive neuroscientists, psychologists, endocrinologists, and all who are interested in development, gender, and the relative contributions of "nature and nurture" as determinants of an individual's behavior. Those interested in autism spectrum disorders should certainly become familiar with its content. Regrettably, it is still too early for the authors to inform us about fetal testosterone's association with autism for their sample, but the study is ongoing.

Psychobiology of Personality (Second Edition), by Marvin Zuckerman. 2004. Cambridge: Cambridge University Press, 322 pp., $100.00, (HB); $50.00 (PB).

Many *JINS* readers have a particular interest in psychobiological correlates of personality development, and therefore will find *Psychobiology of Personality* closely allied with, or challenging to, their own theoretical positions. This volume updates the 1991 edition. After initial discussion in Chapter 1 on temperament and personality, and in Chapter 2 on psychobiological methods, the author directs attention to four basic personality dimensions: extraversion/sociability in Chapter 3, neuroticism in Chapter 4, psychoticism, impulsivity, sensation and/or novelty seeking, conscientiousness in Chapter 5, aggression-hostility/agreeableness in Chapter 6. A final Chapter 7, entitled Consilience, emphasizes "that quality of science that combines knowledge across disciplines, to create a common background of explanation" (p. 245). Together, these chapters provide an introductory text that will be of interest to those whose areas of interest bridge the fields of neuropsychology, behavioral genetics, psychopharmacology, and psychophysiology.

Attention, Perception and Memory: An Integrated Introduction, by Elizabeth A. Styles. 2005. Hove, UK: Psychology Press, 368 pp., $21.95, (PB).

Attention, Perception and Memory: An Integrated Introduction is the latest in the Psychology Focus series. A number of contributions to this series may hold interest for *JINS* readers. This book is intended for undergraduate psychology students and for use in cognitive psychology classes. The perspective that it is necessary to integrate these domains of function to best understand their interrelationships and how they depend on each other is both appropriate and worth emphasizing. The naïve reader will benefit from an explanation of terminology and scientific assumptions placed within the context of the cognitive neuroscience literature. The book nicely highlights historical linkages to current research paradigms and guides the reader through increasingly sophisticated content in a very readable way. While offered as an introductory volume it is not too basic and more experienced readers may benefit from the author's interweaving of research and clinical insights. Illustrations, self-assessment questions, a glossary, and highlighted references for further reading add to its readability and usefulness.

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