of common as well as less common disorders of white matter. It is surprising to consider how many disorders directly involve white matter pathology, and it becomes clear from Filley's review that white matter integrity and its disturbance plays a critical role in neurobehavioral function. Thus, the reader is provided with a valuable resource of white matter disorders that includes some of their most common clinical characteristics.

Filley's book is well conceived, eminently readable, informative, and timely. Advances in the ever-evolving neurosciences emphasize the importance of a systems-approach to our conceptualization of the brain and mind, and our increased understanding of neural networks and the processes which represent *more than the sum of their parts* will no doubt require a new emphasis on cerebral white matter, as Filley's work suggests. This book represents an excellent step in this direction and should be added to the must-have list for neuropsychologists, neurologists, and students of the clinical neurosciences at all levels.

Cognitive Systems and Systemic Disease: Internal Medicine for the Neuropsychologist

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Medical Neuropsychology, 2nd ed. Ralph E. Tarter, M. Butters, and Sue R. Beers (Eds.). 2001. Hingham, MA: Kluwer Academic/Plenum Publishers. 346 pp., $75.00 (HB).

Reviewed by Ola A. Selnes, Ph.D., *Department of Neurology, Johns Hopkins University School of Medicine, Baltimore, MD.*

This is the second edition of a book originally published in 1988 as part of the series *Critical Issues in Neuropsychology*. The editors describe it as expanding the content and updating the rapidly growing literature on the relationship between cognition and systemic (nonneurological) disease. Although most of the chapter titles remain the same, some of the authors are new. Some of the chapters from the first edition, including those on childhood nutritional disorders and on cancer, have been dropped. New additions include chapters titled "Autoimmune Disorders," "Sleep Disorders," and "Neurobehavioral Complications of HIV Infection." While the contents of the book remain clearly focused on the effects of *systemic* illness on cognition, some chapters, such as the one devoted to neurobehavioral complications of HIV infection, discuss cognitive impairment secondary to presumed primary central nervous system diseases. However, with evolving knowledge of the pathophysiology of HIV-related cognitive impairment, systemic factors are also increasingly being recognized.

In most cases, the diagnosis of a systemic condition, whether thyroid disease, vitamin deficiency, end-stage renal disease or dehydration, will be known to the neuropsychologist at the time the patient is seen. In such cases, the referral question will typically be two-part. First, is there evidence of neuropsychological impairment? and second, is the pattern of the impairment consistent with what might be expected given the nature of the systemic disease? Answers to the first part of the referral question are usually relatively straightforward. The answer to the second part, however, is much more complex, because our understanding of the time course and patterns of cognitive change produced by systemic disease is constantly evolving. This book promises to provide state of the art information regarding the incidence and type of cognitive symptoms typically associated with various systemic medical conditions. Some of the topics, such as disorders of the pancreas or neuropsychological dysfunction secondary to liver disease, are most likely relevant for neuropsychologists practicing in highly specialized medical centers. Other conditions, such as sleep disorders, thyroid disease, and coronary artery disease, will almost certainly be encountered by most neuropsychologists in general practice.

The initial chapters consider, among other conditions, cognitive effects of endocrine and pulmonary disorders, coronary artery disease, and liver disease. The quality of the chapters range from somewhat below average to very good. The chapter entitled "Cognitive Neuroendocrinology," its intriguing title notwithstanding, was to some degree disappointing, because, rather than a didactic overview, it is a summary of previously published findings of two studies of the effect of plasma glucose elevation in patients with Alzheimer's disease. The chapter on the neuropsychological correlates of cardiovascular disease, on the other hand, is both comprehensive and readable. The authors note, in particular, that the nature of the cognitive impairment associated with bypass surgery remains poorly specified. Very few studies have asked the question: which cognitive domains are most vulnerable after bypass surgery? Since this might provide important clues to the etiology of the postoperative cognitive changes, it is disappointing that many studies still focus only on the *degree* rather than *type* of cognitive impairment.

The chapter on autoimmune disorders is very informative and covers both the cognitive symptoms of systemic lupus erythematosus as well as the somewhat less frequently encountered Sjögren's syndrome. The author discusses the important and controversial issue of the relationship of the patient's psychological status to the cognitive findings. There

has been a tendency to attribute cognitive complaints to depression, anxiety, or other psychological stressors often associated with chronic disease. This is a well-known phenomenon in other areas of medicine. For example, the cognitive complaints of patients who had undergone coronary artery bypass surgery were initially dismissed as simply due to depression. Despite numerous studies showing that cognitive impairment as demonstrated by neuropsychological testing cannot be accounted for by depression alone, this perception is still sometimes encountered among cardiac surgeons and others.

The book is relatively comprehensive, with only a few possible omissions. For example, a chapter devoted to delirium, which is perhaps one of the most common cognitive disturbances caused by systemic disease, would have been useful. Symptoms of delirium are still frequently missed by internists and neurologists alike, and neuropsychologists should therefore be trained to recognize such symptoms. Other themes that might have been explored in the context of a text like this would be chapters on nutritional disorders such as vitamin B_{12} and folate, and the mild neurocognitive symptoms that sometimes accompany conditions like chronic fatigue, fibromyalgia, and migraine headaches. Nonetheless, this book still provides the most comprehensive overview of the neurobehavioral symptoms associated with systemic illness currently available in one volume.

There are some drawbacks. Perhaps the biggest concern is that on balance, most chapters contain more medical information than they do neuropsychology. For example, it would have been helpful to include more discussion of the specificity of the patterns of cognitive change that may be associated with various systemic disease. Second, although billed as an updated edition, even a cursory look at the list of references for many of the chapters suggests that more contemporary studies have not been included. The editing is generally speaking very good throughout the book, but with some curious lapses. For example, the legend to Figure 1 on page 33 of the chapter titled "Pulmonary Disorders" states that the CT "shows ventricular enlargement" when in fact what is visible of the lateral ventricles appears normal in size. In Figure 2 (page 35) the legend seems to follow the radiological tradition of reversing left and right when displaying images.

These minor shortcomings notwithstanding, this book is testimony to how the discipline of neuropsychology is increasingly playing an important role in all areas of medicine. It is no longer just about dementia and stroke and closed head injury. It also serves as a reminder that training in neuropsychology should be multidisciplinary. Practitioners of neuropsychology should ideally strive to become well versed in several topics previously thought relevant only to internal medicine.

A Treatise on the Neural, Structural, and Psychological Bases of Declarative and Other Memory Systems

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From Conditioning to Conscious Recollection, by H. Eichenbaum and N.J. Cohen. 2001. New York: Oxford University Press. 583 pp., $65.00 (HB).

Reviewed by Edith V. Sullivan, Ph.D., *Department of Psychiatry and Behavioral Sciences and Neuroscience Program, Stanford University School of Medicine, Stanford, CA 94305-5723.*

This book is a thoughtful treatise, written by two well-respected memory researchers and theorists, on dissociable processes comprising the broad concept of memory. To characterize this work, it is truly a book, not a collection of chapters, not a classroom textbook of facts, and not simply a monograph of personal research. Rather, it is a worthwhile read for all levels of students, teachers, and researchers of memory and offers an interesting perspective on the historical context of the authors' theoretical position.

The book comprises 15 chapters, divided into three parts. "Fundamentals" reviews cellular mechanisms of memory in terms of cortical modification and repair in response to internal and external environmental events. "The Brain System That Mediates Declarative Memory" focuses on hippocampal function and structural underpinnings of this memory system. Evidence for the necessity of the hippocampal system for memory consolidation ranges from animal models of amnesia to the human condition. "Specialized Memory Systems of the Brain" includes findings and concepts on nondeclarative systems supported by extrahippocampal systems and covers emotional memory, habits, skills, procedural memory, and working memory.

The first two chapters are another integral part of the book although not included in the division count. These 50+ pages supply the essential backdrop for the rest of the book. It is a reminder to us who read volumes, oh, so long ago, such as Hilgard and Bower or Postman, of the early memory researchers and theorists, such as Watson, Tolman, Guthrie, Hull, and Thorndike. It is a relevant sampling of the evolution of operational definitions of the central psychological constructs of "knowledge" and "memory" and an exposé of critical divisions between Gestalt psychologists and stimulus–response theorists. We are further reminded of the care the early theorists took in devising rigorous experiments that yielded the basis for creating and operationalizing constructs. Understanding of this back-