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BOOK REVIEWS

Current Status of the Neurobiology of Alzheimer's Disease and the Importance of Early Diagnosis

Early Diagnosis of Alzheimer's Disease. L.F.M. Scinto and K.R. Daffner (Eds.). 2000. Totowa, NJ: Humana Press. 359 pp., $99.50.

Review by EDITH V. SULLIVAN, Ph.D. *Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA.*

Alzheimer's disease—occurring upward of 15% of individuals age 65 and older—is the most prevalent age-related dementia. Since the late 1970s, neuropsychologists have been instrumental in identifying patterns of sparing and impairment of cognitive, sensory, and motor functions and rates of declines in selective functions. Anyone who has engaged in longitudinal study of AD and anyone of that large segment of the population with relatives suffering with AD has witnessed first-hand the relentless, irreversible demise of function and ultimate loss of dignity characteristic of AD's course. The approach of Scinto and Daffner's edited book, *Early Diagnosis of Alzheimer's Disease*, avoids rehashing the already established descriptions of AD and provides firm, scientific rationale for the meaningfulness of early and accurate diagnosis of AD despite its current dire prognosis and lack of effective medical treatment.

The editors assembled a set of 12 useful and informative chapters, written by experts representing a cross-section of neurobiological research on AD. Most chapters are well-referenced, although some seemed to have avoided controversial findings. Areas included are neuropathology, pathophysiology, genetic testing, structural and functional brain imaging, and therapeutic approaches taken in AD. Each chapter centers on a specific area of study and was written by primary researchers in that area. For the most part, the chapter authors were careful in defining and explaining central concepts of their respective areas, thus enabling the reader to have access and at least an initial understanding of research outside their own expertise but clearly relevant to a holistic approach for investigating AD.

A goal in any quest for early diagnosis is the discovery of a reliable biological marker of the primary disease. Two chapters are devoted toward this goal and another provides more cursory coverage of such markers. Many chapters include estimates of diagnostic sensitivity and specificity tradeoffs from the perspective of their area of study. The chapters on AD neuropathology, pathophysiology, and genetics should be required reading for any clinical or research neuropsychologist interested in AD of the worthy research update they offer. The relatively lengthy chapter devoted solely to evidence for pupillary response as a possible marker for AD seemed disproportionately focused on a single test. This surprising focus is especially notable when one recognizes the absence of a chapter or a thorough discussion on the selective component processes of memory disrupted by AD. After all, these impaired processes define the hallmark feature and often emerge as the earliest signs of the disease. Although only one chapter centered on early diagnosis using neuropsychological tests, in fairness to the scope of material covered, the information presented is clinically relevant and serves as an appropriate reminder of the central role neuropsychologists play in the diagnosis and tracking of AD. Perhaps one of the most helpful chapters included a review of pharmacological therapies tried in AD. In addition to clear descriptions of each drug, the authors present the rationale for its development, the original findings suggestive of benefit, and the current status of each drug's safety and efficacy.

The book's value as a single volume is carried by the diversity of material covered and the compendium of references for each chapter, all taken from the point of view of the importance of early diagnosis. Also handy is the appendix, which is a reprinted version of the "Consensus Report of the Working Group on: 'Molecular and Biochemical Markers of Alzheimer's Disease'" issued by the Reagan Research Institute and the National Institute on Aging Working Group.

A cover-to-cover reading of this volume provides a comprehensible introduction and overview of progress and concepts of the principal neurobiological areas of research that have converged toward the discovery of the biological and molecular mechanisms underlying this dread disease. The rigor of arguments for early diagnosis should lend a refreshed light onto the difficult job of the neuropsychologist when making a diagnosis of AD and should broaden the understanding of the behaviorist in ongoing basic research and drug therapy development for AD.

One-Stop Shopping?

Neuropsychological Assessment in Clinical Practice. G. Groth-Marnat (Ed.). 2000. New York: John Wiley & Sons. 653 pp., $65.00.

Reviewed by A.L. Hess, Ph.D., *Neuropsychology Service, Bangor, ME.*

The aim of this very ambitious volume is to provide information about "the pragmatics of test selection, interpretation, and report writing," "a practitioner's guide to actual test interpretation and integration," and "a comprehensive guide to neuropsychological assessment." Groth-Marnat decries the absence of such "a book," as if he expected that the broad base of neuropsychological knowledge was to be found in a single volume. There was the tacit assumption that the knowledge required for neuropsychological assessment could be adequately and sufficiently obtained from "a book" of this type. This expectation appears quite unrealistic, naïve, and simple-minded. Based on current guidelines in the profession (à la the Houston Conference), it should be expected that most of the knowledge Groth-Marnat seeks in one book can be acquired only with an extended, specialized course of study followed by intense, supervised experience. That is where one should obtain information about test selection, interpretation and integration so that the end product is "a clear, coherent description of the impact that brain dysfunction has had on a person's cognitions, personality, emotions, interpersonal relationships." That type of knowledge, and report-writing skill, is not to be had by reading "a book." Integrating the complexities of test data, and writing effectively, are both exceedingly difficult to teach even in an apprentice situation, and more so through a single volume. This objection thus ventilated, now on to the meat of the book.

Comparison with Lezak's *Neuropsychological Assessment* (1976, 1983, 1995) is inevitable, since it has served as the gold standard of the field for 25 years. In this respect, Groth-Marnat's book comes up quite short with regard to depth, scope, grounding in research and usefulness.

Groth-Marnat does provide an interesting and useful conceptualization of the different applications of neuropsychological assessment: differential diagnosis, treatment planning, rehabilitation, and legal proceedings. His introductory chapter goes on to discuss each of these applications in greater detail. He also advocates for a flexible, creative, problem-oriented approach, one increasingly familiar to professional neuropsychologists. He urges practitioners to have broad knowledge in clinical psychology, neuroanatomy, disability issues, community resources, etc. He supports a functional, domain-centered approach rather than a test-centered one. In all of these, he is certainly in the modern mainstream of neuropsychology.

Several chapters, or sections, all with different authors, are clearly oriented to the naïve graduate student or neuropsychologically unsophisticated psychologist. In the introductory chapter, Groth-Marnat gives a rather simplistic overview of the most widely-used tests and the settings in which they are useful. He provides no research citations to support the applications he recommends. If the book is designed to be an introductory neuropsychology test, it is woefully lacking in systematic, in-depth coverage of the neuroscience underpinnings of the profession. If designed for the professional, it is superficial and over-simplified.

There is a very slim chapter on neurology, which is extremely weak in basic neuroanatomy and has only a cursory review of the relevant diseases. There is a hodge-podge of gross brain anatomy, clinical neurology, neuropsychology, and neuroimaging. His review of the mental status examination, for example, provides a thumb-nail sketch of the standard neuropsychological tests. It also relies on a very simplistic localization perspective rather than fulfilling the purported aim of integrating and organizing the knowledge. This type of single volume certainly could not cover any one of these fields in depth, but the weakness highlights the impossibility of the task he set out for himself in the first place.

The chapter on the assessment interview (Sbordone) offers a superficial but broad discussion of the diseases or mental states that can affect the examination, in general an elaborate discussion of the obvious (e.g., behavioral observations, interviewing the family or using other sources of information to supplement what is provided by the patient). The chapter details minutely the areas of history and behav-

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ior that should be covered in the interview. His review of several questionnaires that are commercially available was quite helpful; unfortunately none of them sounded very useful to an experienced clinician.

The second major section of the book, after the overview and introduction, covers "batteries." It reflects an interesting philosophy in that the Wechsler IQ scales and Wechsler Memory Scales are included as neuropsychological batteries. I found this an odd paradigm shift, since to most practicing neuropsychologists, the IQ and memory measures are only a small part of a comprehensive battery (e.g., Reitan and associates). The discussions of the properties of the tests themselves seem unnecessary duplications of better sources, namely the test manuals. However, Groth-Marnat and chapter co-authors provided an excellent discussion of the interpretation of the various subtests, particularly the breakdown of "specific abilities and traits" on each. His comments draw on respected authors—already widely published—such as Kaufman, Sattler, and others.

The book briefly reviews the classic batteries, Halstead-Reitan (HRB) and Luria-Nebraska (LNNB), including their histories, strengths and weaknesses, and some of the recent research both supporting and criticizing their features. It reviews the debate about the use of demographic corrections for age and education on the HRB. The reviews are generally balanced although they only touch the highlights of each battery, and include passing references to the issue of sensitivity *versus* specificity. Both chapters provide rudimentary interpretive guidelines for each test or scale, for combinations of test performances. The HRB chapter reviews typical patterns observed in several clinical syndromes, but only one case sample is offered for the LNNB. There is too much reliance on "cookbook" or standard interpretations for the comfort of this reviewer, however. Where a given score has several possible interpretations, no effort is made to decide between them; this is undoubtedly where the training and experience of the examiner come into play. The LNNB chapter was far less helpful than the HRB chapter, as the former was much too brief although it covered the highlights.

The third section of the book covers "frequently used tests according to functional domains." There are chapters on learning and memory (limited to Rey Complex Figure and Rey Auditory Verbal Learning Test); language and academic abilities (Boston Naming Test and Controlled Oral Word Association, Woodcock-Johnson, and WRAT–3), and executive functions. These chapters cover a limited selection of tests, but do include excellent literature citations. The executive function assessment proposed by Sbordone (which largely reframes and elaborates on the model first formulated by Lezak in 1983) relies almost entirely on history, interview, and observations rather than formal tests, although he cites several as tapping into those functions).

The chapter on assessment of attention stands head-and-shoulders above the others in quality; Dr. Ponsford's review of basic elements of attention, and the tasks useful in measuring them, is concise but thorough. It includes interaction of many variables with attention, such as depression or motor speed. The in-depth test reviews, however, are limited to the Stroop procedure and PASAT, with more cursory mention of a wide variety of other tests.

Assessment of visuoconstructive abilities showed a distressing lack of sophistication, as it almost exclusively relies on the Bender-Gestalt test to assess this very complex set of cognitive operations, with passing reference to clock drawings, Block Design and Object Assembly from the Wechsler scales. The Bender has certainly been around a long time, but it has not been subjected to the rigorous study typified in modern neuropsychology for the Rey/Taylor Complex Figures. The chapter author, Patricia Lacks, correctly cites the Bender as being one of the assessment tools "most often used . . . by the majority of *clinical* psychologists [italics mine]" (p. 407) but the recent professional neuropsychology literature is not filled with its use. She further states that its widest use "is as a *screening* test of brain dysfunction, administered within a general battery of tests that usually includes the Wechsler intelligence scales" (p. 408). Is it reasonable to use *any* single test to "screen" for brain dysfunction? If this is reasonable, then we are all wasting patients', insurance companies', and our own time by needlessly giving all those other tests. For a professional volume purporting to teach people the complexities of neuropsychological assessment, it is downright irresponsible to allow the perpetuation of the myth that the Bender-Gestalt is anything other than one very limited sampling of one limited cognitive function, or that it can "screen" for brain damage.

The final domain of testing is that of emotional functioning, and relies solely on the MMPI–2. The discussion of the scales, subscales and basic interpretive guidelines was comprehensive, well grounded in research, and practical. Gass reviewed in excellent detail the arguments related to correcting for various types of neurological disease; his comments should elicit caution in the neuropsychologist who would interpret scale elevations in the usual way.

The last major section, "Integration of Test Results," contained one chapter relating neuropsychological assessment to treatment planning, and a final one on report writing. Both are simplistic, obvious, and brief. The treatment chapter tries to list prescriptions for various disorders, such as lack of awareness, attention, or visual–spatial deficits. The report writing recommendations were pleasingly standard, each suggesting that reports for different purposes should have different emphases.

My overall impression of this book is that it may be useful as an introductory text for a first course in clinical applications of neuropsychology. Traditionally trained clinical psychologists will like it, but it will *not* give them the training in neuropsychology they would need to practice neuropsychology, and may actually be a disservice in giving them the illusion of adequate training. For the well-trained neuropsychologist, the chapters on the Wechsler IQ scales and the MMPI–2 will be useful; the others, well, the limited knowledge therein should already be second nature.

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A Memory Goldmine

The Oxford Handbook of Memory. E. Tulving and F.I.M. Craik (Eds.). (2000). New York: Oxford University Press. 700 pp., $65.00.

Reviewed by NARINDER KAPUR, Ph.D., *Wessex Neurological Centre, Southampton General Hospital, Southampton, UK.*

The *Shorter Oxford Dictionary* defines a handbook as "a book containing concise information on a particular subject: a guidebook." Handbooks come in all shapes and sizes. Often they run into volumes, but occasionally—as in this case—they take the form of a single book. We already have an *Encyclopedia of Memory and Learning* (Squire, 1992), a *Handbook of Memory Disorders* (Baddeley et al., 1995), a *Handbook of Emotion and Memory* (Christianson, 1992), and at least one volume on memory within the *Handbook of Neuropsychology* (Cermak, 2001), but this would appear to be the first dedicated handbook devoted to the cognitive science of memory. When this handbook landed on my desk it struck me as being the "mother of all handbooks," encompassing 700 pages!

When I get a book for the first time, I generally form my impressions from the jacket cover, the preface, and the index. Since authors/editors should be, but seldom are, responsible for all three of these features, it is perhaps unfair to be too critical. The front jacket cover is rather bland, and reminds me of a British summer sky. The back jacket cover has a couple of appealing blurbs—"the standard source book in the field for years to come" (Shallice) and "Everything in life is memory . . . the most important book on the subject ever published" (Gazzaniga). The inside jacket cover perhaps over-ambitiously claims that, "the important new discoveries of the last few years are described, along with their consequences for professionals in the areas of law, engineering, and clinical medicine." In their preface, the editors state that "*The Oxford Handbook of Memory* was put together to summarize the current state of the science of memory. It was meant to inform the reader what this science is all about, how memory has been and is being studied, where the action has been, what the study of memory has achieved in the past, and where we are likely to go from here" (p. *vi*). The authors indicate that they deliberately excluded from the handbook chapters on nonhuman memory, but otherwise attempted to be fairly comprehensive in their coverage of contemporary research in memory. They wanted to call the book "*The Oxford Handbook of the Scientific Study of Memory*" but thought this title too cumbersome. There is a detailed names index, and the subject index is thorough and well-structured. Indices sometimes make interesting reading and tell us about *zeitgeist* changes in terminology—e.g., "levels of processing" and "confabulation" have few entries, but "encoding" and "false memories" have numerous ones. I can see from the names index that "Tulving" and "Schacter" take first and second places respectively in citation counts, and that no one refers to an article that I think should be compulsory reading for every student of memory (Meltzer, 1983).

Certainly, the coverage in this book is extensive. Everything you wanted to know about the various leading-edge fields of human cognitive memory research is here, and written by eminent researchers. The editors themselves note that they had to be selective in their coverage, *viz* the omission of specific chapters on animal studies. I myself would have liked to have seen a general chapter on memory improvement. Although one aspect of this is well covered by Bahrick in his excellent chapter on the long-term maintenance of knowledge, we perhaps owe it to our subjects, of all ages and both able-bodied and disabled, to provide them with more to show that could benefit them in return for 40 years of cognitive memory research in which they have been willing participants. Perhaps the editors would have regarded such a chapter as dealing with memory technology, rather than memory science, but I would have nevertheless given my bottom dollar to discover what memory strategies and memory aids the editors use in their everyday life and in their teaching, how much of this is based on the products of scientific research in the field of memory, and whether we have in fact advanced over the past 100 years on the scholarly advice on memorizing given by William James (1890). One could also remark that memory disorders in neurological and psychiatric conditions should

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have been given more coverage, though there is a dedicated handbook for that field alone (Baddeley et al., 1995) and other books that are not called handbooks but serve the same purpose (e.g., Berrios & Hodges, 2000).

The book is divided into four parts. Part I offers a historical perspective to memory research, and includes discussion of concepts of memory and research methods. Part II, called "Memory in the Laboratory," is itself composed of four sections—"Acts of Memory" that deals with working memory, encoding and retrieval of information, and memory transfer/expertise; "Contents of Memory" covers serial learning, memory for actions, and memory distortion; "Reflections of Memory" includes chapters on memory judgments, source monitoring, and metamemory; "Awareness of Memory" has chapters on the process-dissociation approach, remembering/knowing, and nonconscious forms of memory. Part III is intended to deal with memory in the real world, and covers developmental aspects of memory, normal aging, spatial memory, the long-term maintenance of knowledge, memory for emotional events, memory in the aging brain, and two chapters on memory disorders, one dealing with selective memory disorders and the other concerned with memory in the dementias. The final part, Part IV, includes two main sections. One deals with the neural substrates of memory, covering lesion studies, functional brain imaging studies, and psychopharmacological perspectives; the second section covers theories of memory and includes discussion of connectionist modelling, a review of the current status of memory systems, and a chapter on theories of memory as they relate to consciousness. This part ends with a section entitled "Epilogue," and has a brief contribution from Larry Weiskrantz in which he provides historical reflections on certain topics in the handbook. It is difficult to single out any one chapter, but—as one might expect—Tulving's chapter is a gem.

I have two general reservations about the book, and since these probably apply to most multiauthor volumes, they are not specific to this book and should therefore be regarded as minor rather than major reservations. Assuming that handbooks should have didactic as well as research value, I wonder whether the editors and authors have used all their reserves of psychological knowledge when writing the book. In this age of a nuclear explosion of research and information in most scientific fields—in cognitive science and neuroscience in particular—we are faced with a plethora of books, journal articles, and conferences on memory. Compared to nineteenth century memory researchers, we now have a vast amount of information at our disposal, "a hypersaturated market of edited books," to paraphrase the first editor (Tulving, 2000, p. *xii*)—and this handbook is a further addition to that market. While this state of affairs certainly has its advantages, we have to use our inhibitory systems much more than nineteenth century researchers, and know what to discard. We also have to aim to be Teuber-like synthesizers (Benton, 1994), and be able to condense and categorize information to a greater extent than before. Allowing for the fact that few readers will have time to read the majority of articles in the book, and that for many readers, such as students, the articles will be outside their specialty, it behoves editors and authors to behave like applied psychologists and to make information more readable, more easily assimilated, and more easily retained, since we have limited capacity retrieval systems, even if our storage systems may be vast. Such an exercise is not easy, though not impossible. Ideas that come to mind include the imaginative use of pictures/graphics, and the use of "key" messages in the form of boxes/summary statements, as is evident in some journals (such as the *British Medical Journal*, *British Journal of Psychiatry*) and in some books (e.g., Anderson, 2000a). I have never understood why all journal articles have abstracts, but few book chapters have abstracts. As Anderson has pointed out (Anderson, 2000b), we should apply psychological principles of comprehension and retention to aid those who read what we write.

A further reservation with this handbook is the apparent absence of any synthesis of the large amount of information that is provided, either within each part or for the book as a whole. Books of this volume and respectability need, in my view, to do two things. Firstly, they need to allow us to find the answers to questions that students and researchers may have about particular topics in the area of human memory. This is admirably provided by the chapters in the book. Secondly, and perhaps more importantly, they need to allow us to find the key questions that need answering in the area of human memory, a "guidebook" for the future ("where we are likely to go from here" in the editors' words). It would have been nice if this information had been specifically provided by the editors in an overview chapter, or perhaps by the contributors themselves at the end of their chapters, although a couple of chapters do offer some contributions along these lines (Toth, Anderson, & Craik).

Allowing for these minor reservations, the editors are to be congratulated in putting together such a comprehensive and authoritative volume. Most of the book chapters serve as excellent state-of-the-art summaries of their respective fields. I would certainly recommend this handbook as a reference source for students and for those who are actively involved in research or applied work that touches on the cognitive science of human memory.

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The Remaking of a Landmark

Principles of Behavioral and Cognitive Neurology, 2nd ed. M.-Marsel Mesulam (Ed.). 2000. New York: Oxford University Press. 504 pp., $89.95.

Reviewed by Alexandre Castro-Caldas, M.D., *Centro de Estudos Egas Moniz, Hospital de Santa Maria, 1600 Liboa, Portugal.*

Books are landmarks in the history of sciences. Some reflect the views of influential opinion leaders in a certain period—as it was common in the past. Some reflect the state of the art on a particular field reviewed by multiple authors—as became frequent nowadays. Some still reflect a combination of both tendencies collecting the opinion of several authors under the general framework of the leading opinion of an Editor. In this last case the Editor is also an active writer of seminal chapters. This was the case of the first edition of *Principles of Behavioral and Cognitive Neurology*, edited by M.-Marsel Mesulam.

Sometimes the remaking of a project loses the initial strength that germinated the structure and the content of the book and becomes more unfocussed. Although we have to regret the absence of previous coauthors to whose memory the book is dedicated—Frank Benson, Norman Geschwind, and Jean-Louis Signoret—the book is still a fundamental reference for those coming from multiple areas of thought who are interested in brain function.

The leading chapter on "Behavioral Neuroanatomy" (M.-M. Mesulam) reflects the creative mind of an author that throughout his scientific career has extensively published innovative ideas. The brain is presented as a behaving tool in which functional connections and mechanisms are preferred to the classic approach of topographic vicinity. Macroscopic aspects of the normal brain are combined with microscopic ones and with pathological evidence in a harmony that resembles a musical symphony. In my opinion this is indeed one of the best texts (if not the best) in neuroanatomy oriented towards the question of behavior and cognition. It should be an obligatory reading both for students and professionals.

Sandra Weintraub is responsible for the second chapter entitled: "Neuropsychological Assessment of Mental State." Probably highlighted by the first one, this chapter reflects also a creative way of addressing the questions. In 50 pages the author gives us a comprehensive and critical review of tools to be used in clinical evaluation of brain lesioned subjects. However this is not only a reference text in which we can easily find the description of tests, but it is a didactic chapter where we can really learn what to do and how to do it.

The Editor puts again his seal on the third chapter, "Attentional Networks, Confusional States and Neglect Syndromes." We can see the scientist making bridges between diverse sources of evidence and building up interpretative constructions that are useful both to understand clinical findings and to orientate future research.

The chapters that follow are "Memory and Amnesia" (H.J. Markowitsch) and "Aphasia and the Neural Basis of Language" (A. Damasio & H. Damasio). These are short reviews of two of the major topics of behavioral neurology mastered by experienced authors who have published a lot of innovative material in the field. In my opinion these chapters contrast with the comprehensiveness of the preceding ones. There was, maybe, room for the discussion of recent evidence arising from imaging studies in normal subjects that contributes to our understanding of brain/behavior relationships. This seems particularly true in light of the content of the remaining chapters.

"Affective Prosody and the Aprosodias" (E.D. Ross) are discussed in chapter 6. This is a topic in which the author has published pioneering work in the last 20 years. However, it seems to me that this is not a topic that is equal in importance to those discussed in the other chapters of this book.

"Disorders of Complex Visual Processing" (A. Damasio, D. Tranel, & M. Rizzo), chapter 7, focuses on clinical findings. The great variety of disturbances related to visual processing that can be observed in patients are discussed together with the topography of the brain lesions responsible for them. The revision is comprehensive from this point of view.

"Temporolimbic Epilepsy and Behavior" (D.L. Schomer, M. O'Connor, P. Spiers, M. Seeck, M.-M. Mesulam, & D. Bear) and "Neural Substrates of Psychiatric Syndromes" (R.M. Post) are discussed in chapters 8 and 9. It is rather

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unusual to have in textbooks of neurology such a development of these topics but I think that this will be the rule in the near future. They are indeed becoming part of the routine of the neurological way of thinking. Their inclusion in this book reflects the value that the Editor gives to these areas of knowledge as building blocks in a general model of brain function.

Finally, the 10th chapter deals with "Aging, Alzheimer's Disease, and Dementia" and it is also written by Mesulam. Again the clinical and neurobiological perspectives are interlinked in a creative and seminal way. The author's own observations and results—including the fascinating discussion on the linkage between plasticity and neuropathology—are reflected in this authoritative text.

In conclusion, I have compared parts of this book to a symphony. I may say now that the book as a whole has a great *overture* and a fantastic *finale* with some of the movements in between more *presto* and others more *andante*.

From Observation to Theory

Models of Cognitive Aging. T.J. Perfect and E.A. Maylor (Eds.). 2000. New York: Oxford University Press. 310 pp., $19.95.

Reviewed by Holly Tuokko, Ph.D., *Associate Director, Centre on Aging, University of Victoria, Victoria, British Columbia, Canada.*

In the latter half of the 18th century, Samuel Johnson noted that, "there is a wicked inclination in most people to suppose an old man decayed in his intellect. If a young or middle-aged man, when leaving a company, does not recollect where he laid is hat, it is nothing; but if the same inattention is discovered in an old man, people will shrug their shoulders and say 'His memory is going.' "

Cognitive aging has been observed and commented on for centuries and has been the focus of psychological research for nearly one century. It is not surprising then that, after methodological concerns are addressed, differences in many cognitive domains have been demonstrated across the life span. The emphasis in the cognitive aging literature on descriptive studies comparing older and younger adults on certain measures of cognition to determine whether the two populations differ is referred to as "the dull hypothesis" by Perfect and Maylor (2000). In chapter 1 of *Models of Cognitive Aging*, Perfect and Maylor (2000) describe the two kinds of methodology typically used to reject "the dull hypothesis" (i.e., ANOVA and regression) and point out the limitations of these approaches. They link these methodologies to two different theoretical positions in cognitive aging research. The first approach, the global or general view, holds that age-related changes across domains can be explained by a single construct (e.g., processing speed). The second approach (i.e., modular or localist) maintains that age-related changes occur only in some classes of tasks. This approach has used the cognitive-neuropsychological model to detect dissociations or double-dissociations between age and cognitive domain. This, then, sets the stage for the chapters that follow. Many of these chapters address different methodologies to study cognitive aging; all of the chapters stress the importance of an underlying theoretical model to data interpretation and call for clearer theoretical models within which to work.

Chapters 2, 4, 6, and 7 concentrate on the issues of concern from the global or general view of age-related decline. In chapter 2, Timothy Salthouse focuses on three methods for examining whether age-related change across tasks is unique or shared and concludes that a small number of factors can explain the majority of age-related cognitive change. In chapter 4, Fisher, Duffy and Katsikopoulos offer a formal mathematical analysis of the concept of cognitive slowing and argue for two distinct forms of slowing: chronological and chronocentric. Rabbitt, in chapter 6, argues that speed measures are a reflection of the efficiency of the cognitive system. He maintains that single factors are insufficient to explain age-related cognitive changes and continued emphasis on this approach will not lead to a better understanding of the relations between behavior and brain function. In chapter 7, Parkin and Java contrast three of the most commonly proposed constructs for explaining age-related cognitive changes: frontal functioning, processing speed, and fluid intelligence. The results of their empirical investigation are consistent with the global view, with working memory being identified as the central factor.

In contrast to the global or general view, Horn and Masunaga argue in chapter 5 that intelligence is multifactorial. They propose a different way of thinking about intelligence that focuses on expertise (i.e., well-practiced, specialized behavior). It is argued that studies based on standard measures of intelligence are not accurate reflections of the abilities of older adults in their fields of expertise. Older experts show maintenance of their skills. Verhaeghen, in chapter 3, offers a new technique for cognitive aging researchers, time–accuracy methodology. He argues that dissociations with aging can be found but that these dissociations are caused by states of complexity rather than cognitive domain. In this way, he concludes that his approach represents the midway point between the general and modular approaches to cognitive aging.

The final two chapters (8 and 9), respond to the appeal for clearer theoretical models by presenting and testing such new models. In chapter 8, Burke, MacKay, and James present the *node structure theory* in the context of language functioning and test their model against other theoretical positions. In chapter 9, Light, Prull, La Voi and Healy focus on the dual process model of memory and use meta-analysis to examine three theoretical areas of memory functioning: implicit memory, recollection *versus* familiarity-based recognition memory, and intentional *versus* automatic processes. They rigorously test alternative theoretical models to determine whether age-related change in each area is consistent with single- or dual-process models.

Initially when reading this book, it seemed as though this book was not doing justice to the vast amount of cognitive aging research available. However, the intent of this book, as stated in the preface, was not to provide a comprehensive review of cognitive change across many domains, but to get a "comprehensive picture of the theoretical perspectives that researchers in cognitive aging research have adopted." As part of the "Theoretical Debates in Psychology" series, the intent was to provide a unique, theoretical book on aging. It appears that this aim has been met. The emphasis in each chapter is on theory and its relation to methods. A number of chapters addressed single-factor models, modular approaches were discussed in two chapters and two new theoretical models were described and tested in relation to other theoretical positions. A number of the chapters either critique existing methods or present new methods for studying cognitive aging. For those less familiar with mathematical modeling, some chapters are daunting. However, most are clearly written and the reader can follow the argument without "doing the math." Although this book is primarily of interest to cognitive researchers, it is of conceptual interest to clinicians in terms of the underlying theoretical positions described and with respect to issues concerning methods for measuring change. In summary, the book is recommended to all who have an interest in cognitive aging research and those who seek an overview of contemporary theories and methods in this dynamic field.

Other Books of Interest

Amsterdam, J.D., Hornig, M., & Nierenberg (Eds.). (2001). *Treatment-resistant mood disorders*. Cambridge, UK: Cambridge University Press. 535 pp., £65.00 (HB).

Benton, A. (2000). *Exploring the history of neuropsychology: Selected papers*. New York: Oxford University Press. 348 pp., $65.00 (HB).

Berthier, M.L. (1999). *Transcortical aphasias*. Hove, UK: Psychology Press. 272 pp., $54.95 (HB).

Broman, S.H. & Fletcher, J.M. (Eds.). (1999). *The changing nervous system: Neurobehavioral consequences of early brain disorders*. New York: Oxford University Press. 403 pp., $69 (HB).

Gutman, S.A. (2000). *Brain injury and gender role strain: Rebuilding adult lifestyles after injury*. New York: Haworth Press. 155 pp., $24.95 (PB).

Homskaya, E.D. (2001). *Alexander Romanovich Luria: A scientific biography*. New York: Kluwer Academic/Plenum. 184 pp., $49.50 (HB).

Marantz, A., Miyahita, Y., & O'Neil, W. (Eds.). (2001). *Image, language, brain*. Cambridge, MA: The MIT Press. 272 pp., $55 (HB).

Paul, E.F. & Paul, J. (2001). *Why animal experimentation matters: The use of animals in medical research*. Somerset, NJ: Transaction Publishers. 224 pp., $49.95 (HB), $24.95 (PB).

Ron, M.A. & David, A.S. (Eds.). (2000). *Disorders of brain and mind*. New York: Cambridge University Press. 373 pp., $44.95 (PB).

Waxman, S.G. (2001). *Form and function in the brain and spinal cord*. Cambridge, MA: The MIT Press. 502 pp., $39.95 (HB).