

## BOOK REVIEWS

### Update on Anomia

*Anomia: Neuroanatomical and Cognitive Correlates*, H. Goodglass and A. Wingfield (Eds.). 1997. San Diego, CA: Academic Press. 224 pp., \$64.95.

Reviewed by CYNTHIA OCHIPA, Ph.D., *Audiology and Speech Pathology, James A. Haley Veterans' Hospital and Department of Communication Sciences and Disorders, University of South Florida, Tampa, FL.*

Of all the symptoms associated with aphasia, anomia may be the most pervasive. Virtually all individuals with aphasia have some degree of word-finding difficulty. Even when an individual experiences significant recovery in aphasia, anomic deficits typically remain, resulting in frustration for the anomic individual, their communication partners, and the clinicians attempting to treat them. This volume in the Foundations of Neuropsychology Series, devoted entirely to naming and its disorders, provides a welcome review incorporating current clinical findings and theoretical viewpoints.

The editors begin with a highly readable overview of word-finding deficits in aphasia. Numerous examples are provided to illustrate the manifestations of anomia in the context of various aphasic syndromes. Error patterns, error types, and typical lesion sites are reviewed. The editors conclude their introductory chapter with a discussion of anatomic and cognitive serial stage models and the clinical and experimental data that do not fully support these explanatory models.

In chapter 2, B. Gordon reviews cognitive models of the naming process with descriptions of the major processing subcomponents of these models and their postulated interconnections. Current issues of controversy regarding how information travels through the processing system are explained in a comprehensible manner. The nature of representations within stages of processing and underlying neural mechanisms are also nicely discussed.

In chapter 3, D. Tranel, H. Damasio, and A.R. Damasio present evidence from lesion studies as well as functional imaging studies to support the existence of separate neural systems involved in the naming of nonunique concrete entities (e.g., animals, tools), unique concrete entities (e.g., persons, places), and actions. Interestingly, the identified lesion sites differ from those proposed in classical anatomic models of naming. The authors caution that the neural sites

identified are not to be thought of as “centers” of name storage, but rather “clusters of neuron ensembles that hold dispositional records for the transient reconstruction of word forms” (p. 85).

Chapters 4 and 5 describe dissociations of naming performance within individuals. R. De Blesser describes modality-specific lexical dissociations. The chapter begins with a review of the classical aphasiology literature with regard to models of object naming and proceeds to descriptions of modality-specific disorders explained by models in contemporary cognitive neuropsychology. Focusing on optic aphasia, De Blesser discusses the controversy of unitary *versus* multiple semantic systems as addressed by sequential stage and connectionist models of naming. C. Semenza provides a discussion of recent literature reporting the relative sparing or impairment of the ability to retrieve proper names *versus* common names.

Chapters 6 and 7 deal with naming and its disorders across the life span. P. Menyuk provides a very nice review of lexical acquisition in normally developing children. A review of the literature on the effects of lesion site, lesion size, and age of lesion onset on lexical development follows. Menyuk describes the word-finding difficulty among specifically language-impaired children and their similarity to children with known lesions. M. Nicholas, C. Barth, L.K. Obler, R. Au, and M.L. Albert begin their chapter with a description of the changes in word-retrieval ability associated with the normal aging process. Next, they review lexical impairments in dementia of the Alzheimer's type, and question whether the naming problems associated with Alzheimer's disease result from a loss of information from semantic memory.

Finally, N. Helm-Estabrooks discusses treatment of aphasic naming problems. After justifiably dismissing cuing and extended drills in naming rehabilitation, selected treatments based on functional reorganization and deblock-

ing as well as cognitive-theory-driven approaches are reviewed.

Overall, this reviewer found this volume to be well written and highly informative. A strength is its integration of

clinical and theoretical, anatomic, and cognitive perspectives. This book should be useful to readers across many disciplines who have an interest in language and brain-behavior relationships.

## Unusual Cases of Memory Loss

*Case Studies in the Neuropsychology of Memory*, Alan J. Parkin (Ed.). 1997. Hove, UK: Psychology Press. 240 pp., \$44.95.

Reviewed by ELIZABETH L. GLISKY, Ph.D., *Department of Psychology, University of Arizona, Tucson, AZ.*

In recent years, edited books presenting unusual case studies of neuropsychological disorders have appeared in the literature with increasing frequency. In general, I have found these books to be fascinating, illustrating the seemingly endless variety of ways in which damage to the nervous system can affect the cognitive functioning and the day-to-day lives of previously normal individuals. These volumes, which focus on the uniqueness or specificity of an individual neuropsychological deficit rather than on the commonality of dysfunction across individuals, always include at least some cases that are unlike any that I have previously encountered and almost always present some real surprises—cases that seem to defy easy explanation in terms of existing theories. In these respects, *Case Studies in the Neuropsychology of Memory*, edited by Alan Parkin, is no exception. The descriptions of the cases reported in the 10 chapters of this book are unique and intriguing. They are presented as stand-alone case studies without any cross-referencing to other cases in the book, which highlights their uniqueness. There is little in the way of editorial intrusion. A brief introduction tells us what to expect, provides some rationale for the selection of cases that appear in the book, and includes a sentence or two of the accepted theory that may be challenged by the reported case studies.

However, much is left for the individual reader to figure out, and although this may be satisfying for the experienced reader, it may be much more difficult for the student or less-experienced reader. For example, how do these cases relate to each other? Are there theories that might accommodate all or most of the cases? How should existing theories be modified in order to handle these unique findings? What exactly does it mean to have uncovered an exception to a general pattern? Is there really a commonality among these cases if we just knew where to look? How can we reconcile two seemingly contradictory findings from two different cases? And ultimately, how has reading these cases led us to a new level of understanding of memory, of memory disorders, or of the brain mechanisms involved in memory?

One wishes in the present volume that the editor had made the reader's task just a little easier. There are natural sub-groupings of cases for which the editor could have provided editorial epilogues or summary overviews, explicitly noting the comparisons among a group of cases and indicating their combined contribution to theory. For example, chapters 3 and 4, titled "Autobiographical Memory" and "Focal Retrograde Amnesia," respectively, present cases that are behaviorally similar but associated with different brain pathology. The cases presented in chapter 3 by Kapur have the more typical pathology of the temporal lobes whereas the case described by Hunkin in chapter 4 has lesions in occipital and parietal cortex. In the "Introduction" in chapter 1, Parkin notes the discrepancies, gives us a hint of his theoretical interpretation of the Kapur findings, but offers little reason for the discrepant case reported by Hunkin. Although this may not be an editorial necessity, the brief notes of comparison presented in the introduction would have been more meaningful if placed after the chapters in question so that the reader, having just studied the chapters, would be more able to evaluate them. This is true in other parts of the book as well where cases presented later in the book resemble in some ways cases presented earlier, and the reader is left wondering how they relate. Editorial help in these instances would have been welcomed.

Nevertheless, the cases to a large extent speak for themselves, and they held my interest throughout. Mayes and Montaldi present two cases with Papez circuit lesions, one with a left fornix lesion and one with bilateral damage to the thalamus. The memory impairment profile of these cases, particularly the former, showed many points of comparison with cases presented later by Hanley and Davies ("Impaired Recall and Preserved Recognition") and by Parkin ("Twelve Years of Frontal Amnesia"), both of which had lesions caused by aneurysms to the anterior communicating artery that caused damage to the left thalamus, caudate, and frontal lobes. These three chapters seemed in many ways to form a natural grouping, and it was here that I found myself

flipping back and forth trying to discern the similarities and differences among these cases. Although the authors each make compelling theoretical arguments based on their individual cases and others in the literature, it remains to a large extent unclear how they would accommodate each others' findings.

Also included in the volume are cases examining deficits of semantic and remote memory: a chapter by Graham, Becker, Patterson, and Hodges, "Lost for Words: A Case of Primary Progressive Aphasia," and the aforementioned cases of autobiographical and retrograde amnesia, all of which involve loss of memory for previously known information. Two psychiatric cases associated with memory loss are also reported, one by McKenna and Laws, describing a patient with schizophrenia who presents a range of memory and executive function deficits, and an unusual case, described by Leafhead and Kopelman, of a patient with Cotard delusion, who has impaired memory for faces associated with a

face processing deficit that, when combined with depression, may contribute to the feelings of unreality and the maintenance of the delusion that one is dead. Finally, there are two reports of successful rehabilitation of amnesic patients, one with a highly intelligent individual who was able to devise his own compensatory memory system and one with a patient who, despite resisting most intervention attempts, was able to learn to use a notebook through an errorless learning system.

Overall, the book was a satisfying read and should be of interest to all neuropsychologists, both clinical and academic. I have used three of the cases to supplement readings in my memory disorders course and they have all sparked considerable theoretical discussion. For clinicians, the cases will be of interest for comparison to others they have seen, for help in the interpretation of novel symptom complexes, and for generating ideas about interventions.

## Considering the Relationship Between Biological Aging and Cognitive Aging

*Advances in Cell Aging and Gerontology: The Aging Brain, Volume 2*, Paola S. Timiras and E. Edward Bittar (Eds.). 1997. Greenwich, CT: Jai Press Inc. 368 pp., \$112.50 (HB), \$72.50 (PB).

Reviewed by JUDITH SAXTON, Ph.D., *Department of Psychiatry, University of Pittsburgh, Pittsburgh, PA.*

The psychological and neuropsychological changes of aging and dementia have been a topic of study for decades, if not centuries. It is only more recently, however, that technological changes have allowed the biological processes triggering the changes of aging to be uncovered. The overlap between these two sciences, namely, the relationship between cognitive aging and the study of biological aging, is an emerging area of research. The study of aging, however, is confounded by the close association between aging and the development of particular diseases. Older people are far more likely than young people to suffer from multiple illnesses. Furthermore, older people are far more vulnerable to specific types of diseases such as heart disease, cancer, and dementia. The relationship between the onset of the aging process and the development of dementing disorders such as Alzheimer's disease is of particular interest.

*Advances in Cell Aging and Gerontology: The Aging Brain* may not initially sound like an appealing title for the neuropsychologist. However, it should attract those with an interest in the cognitive changes of aging and the underlying biological processes associated with the aging process and Alzheimer's disease. The book provides a compilation of the current state of understanding of molecular, cellular, and functional changes that occur in normal brain aging. There is a particular emphasis on comparing and contrasting the

changes that occur in neurodegenerative disorders and the relationship between normal aging and abnormal aging.

Several of the chapters use data from cognitive testing in humans and behavioral testing in animals. Chapter 1 by Peter Rapp and Michela Gallagher, for example, offers an excellent discussion of the cognitive neuroscience of normal aging with sections discussing frontal lobe functioning, medial temporal lobe functioning, implicit memory, and attention. The last chapter is also an excellent discussion, this time of the role of growth factors in aging and Alzheimer's disease.

Some of the chapters are a little heavy going for the clinician. However, most begin with a basic explanation or statement of the issue and develop a theory from there. Jack de la Torre provides a comprehensive review of the changes in the cerebrovasculature that occur with aging reviewing the intriguing link between vascular dementia and Alzheimer's disease. Chapters 2 and 3 review the cellular changes of normal aging and AD and offer the encouraging conclusion that AD is not an inevitable consequence of getting old, but is a disease process that is most often manifest in old age. Several chapters raise the issue of antioxidants and estrogen depletion following menopause and conclude that both play a significant role in the aging process, and in AD in particular. Finally, a short but interesting chapter by Caleb

Finch and Todd Morgan discusses the impact of a calorie-restricted diet on the aging process. The book ends with a short discussion of the “use-it-or-lose-it” approach to aging and suggests that this old adage represents one possible anti-aging process and exhorts us all to keep using our brains.

*The Aging Brain* is, at times, challenging but thoroughly absorbing and stimulating. I recommend this book to specialists in aging and those with particular interest in understanding the underlying biological mechanisms of cognitive aging and dementing disorders.

## Grasping the Nettle of Attention

*The Attentive Brain*, Raja Parasuraman (Ed.). 1998. Cambridge, MA: MIT Press. 577 pp. \$65.00.

Reviewed by IAN H. ROBERTSON, Ph.D., *Department of Psychology, Trinity College, Dublin, Ireland.*

It is a testimony to the genius of William James that scarce a lecture on attention passes without the speaker quoting him on the subject. This has, however, also been a cause for concern: do we really understand any more about this amorphous topic now, than we did when James wrote *Principles of Psychology*? It might occur to more jaundiced reviewers that the fact that James abandoned psychology completely after finishing this great book implies that he was beaten by the subject of attention, for, in many senses, the study of attention is at the very heart of the science of psychology. And if the founding genius of psychology could not crack the code of attention, is there any hope for the rest of us?

Until about 15 to 20 years ago, the jaundiced reviewers might have been right. Writings on attention pre-1980 tended to be paradigm-dominated, meticulously executed studies of intricate experimental findings that failed to grasp the nettle of attention. True, there were fundamental breakthroughs early in this period, as for example in John Duncan's demonstration that attention could be divided to a prodigious amount among different features of the same object, but not to the same features when these were distributed between objects. Michael Posner developed chronometric measures of attention during this early period, and researchers such as Hillyard showed how attention could gate primary sensory pathways in the brain.

But attention did not really begin to emerge properly out of this confusion until the appearance of functional imaging studies of attention. Posner and Peterson's seminal review in 1990 made its bravura appearance into the limelight, riding bareback on the tossing rump of the newly completed PET studies of the '80s. These authors impudently sidestepped several decades of cognitive research to propose the existence of three supramodal, neuroanatomically and functionally separable attentional systems in the brain—for selection, alertness, and spatial orientation, respectively.

One virtue of this groundbreaking piece of work was that it didn't sidestep its cognitive antecedents completely. On the contrary, Posner's hunches about attention grew out of his meticulous cognitive studies, but were potentiated by

the flawed beauty of the early PET studies of attention. Neurologists such as Heilman and Mesulam had produced important and elegant findings pertaining to spatial attention and arousal respectively, but the laurels must go to Posner and Peterson for setting out their provocatively simple three-factor model of the brain's attention systems.

And quite right too—for they were right—in the principles if not the detail, at least. For it is this framework for attention that underpins Parasuraman's excellent state-of-the-art book on the attentive brain. In such a vast area as attention, one could have quibbled about what might have been included in this book, and what might have not. But the bald fact is that this is a truly authoritative and unusually accessible book with 23 chapters written by the world's foremost researchers on attention. How comforting to compare this book with Parasuraman's 1984 *Varieties of Attention* and to see—yes—we are making progress.

Of the three parts of this book—methods, varieties of attention and pathologies/development of attention respectively, the methods section is a particular treasure trove. All of the current methods of studying attention—from neuropharmacology to ERP, fMRI to computational approaches—are described lucidly and with textbook accessibility. The chapters on pathologies and development of attention in the final section of the book are also excellent sources in areas as diverse as ADHD and schizophrenia.

Where the book is perhaps at its most vulnerable is in the middle section titled “Varieties of Attention.” Here we see dangerous signs of the old lack of coherence between protagonists of different paradigms, with hardly any crosstalk across the theoretical and paradigmatic barriers. This is, of course, understandable. Getting the leaders of the world to write about their research almost inevitably means that you elicit the expanded introductions to their last grant proposals and with these, an *entrée* into quite egocentric universes.

How nice it would have been if each writer in this section had read and commented on the other chapters, trying to establish or dispel links. But realizing how even William James himself probably could not have cajoled such extra

effort out of such hard-pressed researchers, it remained for Raja Parasuraman himself to step into the breach with a bridging chapter at the end of the book. In this chapter he would have dealt with such things as Corbetta's frank dismissal of the anterior cingulate as the location of "a general purpose mechanism for regulating the access of any target to conscious processing" (p. 15). This position is at odds

with Posner's quasihomuncular homage to the anterior cingulate, 300 pages on. How nice it would have been to have *someone*—if not Posner, then Parasuraman—try to disentangle this one. But Raja Parasuraman's editorial energies were clearly well used elsewhere—in compiling the best current book on attention, a volume that is as scholarly in content as it is accessible in most of its chapters.

## Reflections on the Human Face

*About Face*, by Jonathan Cole. 1999. Cambridge, MA: MIT Press. 224 pp., \$17.50 (PB).

Reviewed by STEVEN Z. RAPCSAK, M.D., *Department of Neurology, University of Arizona, Tucson, AZ, and Neurology Service, VA Medical Center, 3601 South 6th Ave., Tucson, AZ 85723.*

The significance of the human face in social interaction can hardly be overestimated. We rely primarily on facial appearance in discriminating between members of our species, but we also use the face to judge the age and gender of a person and to interpret his or her emotional state. We find certain faces pleasant or attractive, attribute personality characteristics to people such as intelligence or honesty based on physiognomy, and use facial cues to guess people's intentions and predict their behavior toward us. Similarly, we can gauge the effect of our words or actions on others by the feedback we receive from their faces. The face assumes a privileged role in social communication almost immediately after birth, suggesting that the neural systems underlying various facial behaviors are to a large extent innately specified and genetically determined.

What happens when neurological illness or injury deprives an individual of the ability to use the face in everyday social interaction? Jonathan Cole seeks an answer to this complex and important question in his new book by relating the personal experiences of people afflicted with various disorders of face perception and emotional expression. Through a collection of captivating and poignant first-person narratives and clinical vignettes we learn about the social and emotional difficulties encountered by individuals with blindness and autism, and gain insight into the devastating consequences of the loss of facial mobility and expression in neurological patients suffering from stroke, Möbius syndrome (congenital facial diplegia), Bell's palsy, and Parkinson's disease. A separate chapter deals with the psychological and social problems of individuals coping with the effects of facial disfigurement. Reading these case histories, one is constantly amazed and humbled by the inner strength, courage, and human dignity displayed by ordinary individuals struggling to overcome extraordinary handicaps and painful social isolation. Cole shows convincingly that facial disorders lead not only to a loss of self-esteem but in certain cases also to a gradual dissolution of one's

sense of self and personal identity. Central to the book is the notion that an accurate interpretation of facial behaviors is critical for developing a "theory of mind" that allows us to attribute a variety of mental states to others and make inferences about what people might be thinking or feeling. The capacity to use the face both to communicate our own feelings and to understand what another person is experiencing is a measure of social intelligence and emotional competence.

In addition to the case studies and personal narratives that are the main focus of the book, the author also traces the evolutionary development of the human face and considers the role of facial communication in nonhuman primates. Other topics include the functional neuroanatomy of the facial musculature, the role of facial display behaviors in infant and child development, and the debate over whether emotional expressions are biologically based or culturally determined. In the last chapter of the book, Cole attempts a synthesis of the evidence obtained from diverse sources of inquiry and offers some intriguing speculations about the special significance of the face in human social relationships.

This is an interesting and entertaining book written in an elegant and lucid style. The approach taken by Cole in exploring the role of the face in social behavior is both original and stimulating. While not specifically stated, it appears to me that the book was written primarily for a general audience, although specialists will also find the material engaging and relevant. However, readers looking for a comprehensive coverage of topics related to the cognitive neuropsychology and neurobiology of face recognition and facial emotion processing are likely to be disappointed. Cole makes no attempt to provide a systematic overview of contemporary research on the neural substrates and psychological mechanisms of facial behaviors. The limited scientific information contained in the book is presented in bits and pieces, at times relegated to chapter notes at the end of the volume. The somewhat cursory treatment of the relevant sci-

entific literature is perhaps understandable considering Cole's statement that his primary interest is "not in the disease itself but in its effects on individuals."

Cole is certainly correct in reminding us that the personal narrative of the patient is an important and rich source of information that is often neglected in neuropsychological research. He acknowledges an intellectual debt to psychoanalysis for pointing out the importance of listening to individuals' stories as a means of entering their minds and learning about the psychological processes that govern human behavior in health and disease. However, psychoanalysis has also taught us that relying exclusively on the patient's description of his or her emotional state has its own limitations. Much of mental life is inaccessible to conscious introspection, and whatever material we are able to bring to the surface is subject to various distortions. Individuals vary considerably in their ability and/or willingness to evaluate, reflect upon, and communicate emotional experiences, thus blurring further the distinction between normal and pathological emotional awareness.

The method used to elicit the personal testimony of the patient introduces another potential source of bias. As Freud (1965) put it: "The physician listens, attempts to direct the patient's thought processes, reminds him, forces his attention in certain directions, gives him explanations and observes the reactions of understanding or denial thus evoked." Freud considered and ultimately dismissed charges that the influence of the therapist on the patient could "bring the

objective certainty of our discoveries into doubt"—a concern frequently raised by critics of psychoanalysis. However, even a staunch defender of the psychoanalytic technique like Freud had to concede that there is usually little difficulty in turning the patient into a devoted disciple of any particular psychological theory "thus making it possible for him to share some mistaken belief possibly harbored by the physician." Cole seems to be aware of these dangers and is generally able to maneuver his way through the methodological minefield with considerable skill. Nonetheless, as I read some of the interviews in the book I occasionally felt that he was perhaps asking too many leading questions and was offering interpretations a bit too readily.

As Cole himself points out, looking into other minds is not a precise science. One could even argue that an objective scientific understanding of subjective emotional experience is an unreasonable goal which will forever remain beyond our reach. Given these constraints, the best we can do is to strive for a proper balance between what we can experience and relate to subjectively and what we can observe and test empirically. In Cole's book the scales are tipped in the direction of the former.

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