

BOOK REVIEWS

A Classical Handbook in Spanish

Manual de Neuropsicología Humana [Handbook of Human Neuropsychology],
by José León-Carrión. 1995. Mexico City/Madrid: Siglo Veintiuno Editores. 557 pp., \$38.

Reviewed by MARCEL O. PONTÓN, PhD, *Assistant Clinical Professor, Department of Psychiatry,
UCLA School of Medicine, Los Angeles, CA 90509.*

Is there room for yet another handbook of neuropsychology? The answer is an unequivocal “yes,” when such a handbook is among the first original works in the Spanish language. The book is not a compilation of neuropsychological norms with Spanish-speaking populations. Neither is it a resource of lists of tests available in the Spanish language. Rather it is a solid, theory-driven book that emphasizes the scientific aspects of the discipline with a strong clinical perspective. The clinical data presented by the author is the product of years of research at the *Laboratorio de Neuropsicología Humana* (University of Seville) as well as a thorough and commanding review of the literature worldwide. The statistics of the book are simple enough: 557 pages, 17 chapters, 64 pages of references, 50 charts, 90 illustrations. The presentation of the book is very appealing: it has black-and-white as well as color pictures, photographs, plates and drawings. Every chapter has charts that summarize information in a concise and helpful manner. All the illustrations and charts are well indexed. Names and subject are also indexed. Tests are indexed in the subject section, but not separately.

The author seems to divide the book into four sections. The first section deals with the question of what makes neuropsychology unique (five chapters). It covers the historical roots of the discipline, current developments, its theoretical framework, basic neuroanatomy, and a general overview of major neurological problems. The next five chapters comprise the second section, which covers methodological issues, answering the question of how is neuropsychology practiced: general methodological issues, assessment fundamentals, quantitative and qualitative modes of assessment and the role of neuroimaging in neuropsychological assessment. The next section deals with various domains of functioning (What do deficits mean?): attention, memory, language, problem-solving (executive functions) and visuospatial functioning. The last two chapters are somewhat disjointed. While treatment of brain injury/neuropsychological problems follows logically, the impact of drugs on cognitive functioning

does not. Rather, the last chapter could have been placed better right after “*Trastornos neurológicos*”—Chapter 5.

Who is the audience of this book? The book is obviously targeted to graduate students and clinicians alike in the Spanish-speaking world. It is an obvious choice for the academician teaching at the graduate and postgraduate level. However, it is also a valuable addition to the bilingual neuropsychologist’s library. Its comprehensiveness and concern for detail make it a must have reference work. A clear advantage for bilingual clinicians and researchers involved in cross-cultural or international work is that the book becomes a lexicon of formal neuropsychological terminology in Spanish. Although, there are some awkward translations of certain concepts (e.g., *memoria procedimental* for procedural memory), which are inevitable when dealing with technical vocabulary.

The *Manual* has its weaknesses. For instance, the author does not discuss in any detail the assessment tools he presents or why he chose them as representative measures of cognition in Spanish. However, León-Carrión’s emphasis is not psychometric as much as it is process oriented. Tests are discussed briefly as aids in the assessment of domains of functioning. Luria is prominent throughout the methodological section, revealing the author’s background. Strongly Eurocentric, the book neglects to cover neuropsychology in the Spanish-speaking world at large.

The *Manual* also lacks a coherent discussion of intelligence assessment. Having exerted great effort in attempting to provide a comprehensive picture of the discipline, it is doubtful that the author carelessly ignored this crucial domain. Thus, he leaves three questions unanswered: (a) Is intelligence an important domain in the author’s approach to assessment?, (b) Is the literature on intelligence available in Spanish robust enough to be included in a handbook?, and by corollary, (c) Are there appropriate measures of intelligence in Spanish?

This is, without a doubt, a much needed publication. Its information packed chapters can teach the student and serve

as reference for the clinician and researcher alike. *Manual de Neuropsicología Humana* provides a systematic, thorough, and up-to-date description of the discipline of neuropsychology in the Spanish language. It is not a translation, nor a compilation of existing publications. It is an original handbook which has great potential of becoming the classic

in Spanish that *Neuropsychological Assessment* has become in the Anglophone world. The book can be obtained from Siglo Veintiuno Editores [Fax (+ +34 5) 759-4557] or from the National Brain Injury Foundation [Fax (202) 296-8850].

What Is Consciousness?

Ten Problems of Consciousness. A Representational Theory of the Phenomenal Mind, by Michael Tye. 1995. Cambridge, MA: MIT Press. 248 pp., \$32.50.

Reviewed by MARIANNE REGARD, PhD, *Lecturer and Head of the Neuropsychology Unit, University Hospital, Zurich CH-8091 Switzerland.*

Consciousness, the great mystery of our existence, has occupied thinking and sensing minds all along. With the advancements of the neurosciences, new ways to look at it and to explore it became available. However, until now, knowledge of the physical mechanisms of the brain seemed insufficient to grasp the very nature of consciousness. As a rule, an open question is easily recognized in the number of arguments and theories it generates; but this one is especially *en vogue*. Probably the “Decade of the Brain” explains this new wave of articles and books and the serious attempts of “pop neuroscience” to involve neuroscientists and philosophers in a dialogue. Although their viewpoints are not necessarily exclusive, arguments from one side are often (mis)used to reason for the other. Rarely, an author is an expert on both sides or able to integrate the jargons in a manner that laymen can follow.

Michael Tye is a philosopher. To illustrate representational forms of subjective experience, he offers 10 problems. Each is introduced by an example (and even a cartoon) that either constitutes a selected subjective experience (e.g., pain) or an observable neuropsychological disorder (e.g., neglect). Before developing his own theory (called PANIC for “poised abstract nonconceptual intentional content”), the author discusses the problems from various philosophical perspectives. For a layperson in this field it is difficult to follow the arguments, but nonetheless exciting to be con-

fronted with a solution at the end. As a neuropsychologist, however, I missed some of the essential notions of our field, for example, facts about the topical organization of the CNS, and the fact that most of its actions are verbally unaware (not necessarily “uncontrollable”). As neither field has not as yet come up with comprehensive definitions of such psychological constructs as “consciousness” or “emotions,” any phenomenal and/or neurophysiological explanation is a challenge, including the one offered in this book. A mutually satisfying solution to the problem, however, may probably fit a too-narrowly chosen definition, and rather stand for things we call “suggestion” or “approximation.”

As a refreshment to those who may be intrigued by some of the author’s conceptions (e.g., of emotional processing, of the visual system, of what is considered “normal” and “abnormal”), I recommend R.L. Gregory’s *Even Odder Perceptions*. Since we cannot escape thinking about “consciousness” and cannot stop wondering whether the subjective experience has one, several, or no objective counterpart, or whether a solution will be somewhere in the middle of physics, neurobiology, psychology, or philosophy—or on one end, at least we can relax knowing that the brain has limited capacities and the evolutionary changes are slow. Michael Tye offers a very interesting theory in a compact book. It is critically written and deserves to be read in a similar fashion.

Theory of Mind

Mindblindness: An Essay on Autism and Theory of Mind, by Simon Baron-Cohen. 1995. Cambridge, MA: MIT Press. 171 pp., \$22.50.

Reviewed by NANCY J. MINSHEW, MD, *Associate Professor of Psychiatry, University of Pittsburgh Medical Center, Pittsburgh, PA 15213.*

This is the 15th in a distinguished series of monographs dedicated to presenting evolving, innovative research on human cognitive development and abilities. Baron-Cohen

describes the research findings that have led to the identification in humans of cognitive abilities responsible for the capacity for making inferences about the physical, affec-

tive, and cognitive perspectives of others. The capacity for correctly inferring what others see, think, and feel is central and critical to the capacity for human social interactions. These inferences guide social interactions, much as vision, hearing, insight, and judgment guide the driver of a car. Without such cognitive abilities and clues, efforts to interact with others result in “social collisions,” as the “mindblind” individual fails to negotiate first one and then another turn in the social passageway.

The cognitive capacity for inference-making about the thoughts and perspectives of others has come to be known as “theory of mind,” referring to the awareness that others have a different view or mind set of the world from our own. Research in normal children has demonstrated that this capacity for making inferences about others begins to develop early in childhood, and evolves in complexity with age, resulting in a growing nonconscious awareness and understanding of the complex factors that drive the behavior of other individuals and groups of individuals. Because these cognitive abilities, like many others, proceed automatically without conscious awareness, we have remained unaware of the process by which the brain achieves such computational goals, and thus also of the existence of such processes.

In a superb foreword to this book, Tooby and Cosmides have provided compelling support for the existence of a “vast nonconscious realm of evolved, specialized, computational problem solvers” in the brain that interpret the world. In so doing, they have outlined the future of behavioral neurology and cognitive neuroscience and its efforts to develop an understanding of more complex behavior and the higher order cognitive abilities that subserve it. This next level of understanding of human behavior and brain function requires a new generation of cognitive models and theories about information-processing and problem-solving, the identification of the neuronal organization underlying these highly specialized functional modules, and the genetic and

developmental neurobiologic mechanisms responsible for their development in the human brain.

Here, Simon Baron-Cohen presents and describes the evolution of one such new-generation cognitive model that has been proposed for the information-processing or problem-solving demands required for social interactions. The development of this model has been greatly aided by the study of autism, a neurobiologic disorder with a selective impact on the development of higher-order abilities involved in social interactions, communication, and reasoning. However, the importance of the “theory-of-mind” cognitive model extends far beyond autism. This book is important reading for any clinician, neuroscientist, teacher, or parent attempting to further their understanding of social function, its breakdown in humans, and its development in children. The failure to appropriately and successfully negotiate the social passageways of life and society are at the root of many contemporary societal and child-rearing issues. The “theory-of-mind” model for social interactions presents new ways of understanding human behavior and intervening to address breakdowns in social function in humans.

In an effort to achieve readability for a broad audience, the author adopted an informal style that distracts and detracts from its scientific underpinnings and its contributions to neuroscience. Tooby and Cosmides’ foreword more than compensates for the compromise in the scientific tone introduced by this style. The book concludes with a discussion of the paradox of extraordinary abilities and deficits that confront one well-known individual with autism, Dr. Temple Grandin, who is also the subject of the book and chapter by Oliver Sacks entitled “Anthropologist from Mars.” Without theory of mind and related information-processing abilities, individuals with autism experience the human culture and language as foreign, and must constantly attempt to decipher levels of meaning that will forever elude them.

Biological Approach to Neuropsychology

Clinical Neuropsychology: Behavioral and Brain Science, by John L. Bradshaw and Jason B. Mattingley. 1995. San Diego, CA: Academic Press. 458 pp., \$34.95.

Reviewed by JENNI A. OGDEN, PhD, *Department of Psychology, University of Auckland, Auckland, New Zealand.*

This book is described by the authors as leaning towards the more traditional biological approach to the study of neuropsychology, with less emphasis on the cognitive approach. Thus, this 16-chapter text could be viewed as a biological parallel to cognitive neuropsychology texts such as McCarthy and Warrington’s *Cognitive Neuropsychology: A Clinical Introduction*. Both books cover many of the same

topics, but while I would recommend McCarthy and Warrington’s book for a postgraduate or advanced undergraduate class in cognitive neuropsychology, I would not recommend Bradshaw and Mattingley’s book for classes at an equivalent level in clinical neuropsychology. Rather, I would suggest chapters as supplementary reading for interested students. This is in part because of the book’s uneven cover-

age of topics usually taught in a clinical neuropsychology class and in part because the writing style is unlikely to hold the attention of the average student for very long.

The authors emphasize the cross-fertilization involved in teaching and research, but do not include clinical practice in their conceptualization of the interactive aspects of clinical neuropsychology. In spite of the interesting case vignettes reproduced to illustrate many of the disorders, the book has little “feel” for the human side of neuropsychology, perhaps because the case vignettes were taken from the literature, and were not of patients known personally by the authors. Rehabilitation and the clinical psychology of neuropsychological practice featured only occasionally, again marking the book as one most appropriate for academically-oriented researchers and students.

Given these readership parameters, the book has much to recommend it. Chapter 1 provides brief views of many of the areas relevant to neuropsychology from historical models of brain functioning to modern neuroimaging techniques, but so briefly that, for example, Luria and his concept of functional systems is not mentioned, although other important neuropsychologists and their models are (e.g., Teuber and double dissociation). Chapters 2 to 16 cover many different disorders, and include biological perspectives on some interesting neuropsychiatric disorders, and schizophrenia. Three chapters deal with language disorders, and one with object recognition and agnosias. Some disorders I had never heard of; for example, “horologagnosia.” Others new to this disorder will have to read the book to discover what it is!

The chapters on split-brain studies and memory were fairly standard, and the memory chapter included a case history from Suzanne Corkin’s delightful 1984 article on that most famous of all neurological subjects, H.M. Although in general the case vignettes added color to the book, at times anomalies arose as a result of using case material from the literature. The authors wrote that “H.M. exhibits severe anterograde amnesia (with no improvement), though little retrograde amnesia” (p. 215); yet H.M. had a well-documented and fairly dense retrograde amnesia for 11 years prior to his surgery. Moreover, some disorders showed up in rather unlikely chapters; for example, brief descriptions of the very important executive “frontal-lobe” disorders appeared in Chapter 10, entitled “Movement Control I.”

The two areas that I found very useful and readable were, not surprisingly, those in which the authors have carried out extensive research. Chapter 6 on unilateral neglect is excellent; not an easy task given the enormous body of literature and many good “overview” chapters already published on this topic. Five chapters concern or are related to movement disorders; again highlighting the authors’ own research interests. These chapters alone make this text a worthwhile addition to student reading lists. The book has ample references, and the subject and author indexes worked well when I tried them out. In conclusion, John Bradshaw and Jason Mattingley have produced an academic text that has been carefully researched and would be a useful addition to the libraries of students interested in neuropsychological theory and research.

Poor Outcome Subsequent to a Severe Traumatic Brain Injury

Catastrophic Brain Injury, H.S. Levin, A.L. Benton, J.P. Muizelaar, and H.M. Eisenberg (Eds.). 1996. New York: Oxford University Press. 267 pp., \$39.95.

Reviewed by RONALD M. RUFF, PhD, *Associate Adjunct Professor of Neurosurgery and Psychiatry, University of California, San Francisco, and Division of Neurorehabilitation, St. Mary’s Medical Center, San Francisco.*

This is the fourth book in which Harvey Levin, as the senior editor, has assembled a first-rate multidisciplinary team to discuss a specific topic associated with traumatic brain injury (TBI). Again, Levin was joined by his former co-editors Benton and Eisenberg, and with new associate, J. Muizelaar, they assembled in 12 solid chapters a state-of-the-art overview of poor outcome following TBI.

It is appropriate that Jennett wrote the first chapter since, as the co-author of the Glasgow Outcome Scale (GOS), he established a framework for the standard classifications of TBI. *Catastrophic Brain Injury* focuses on GOS classifications 2 (*persistent vegetative state*) and 3 (*severe disability*: conscious but dependent on others for daily activities).

In a vegetative state (as opposed to a coma, defined by Jennett as an unarousable state), the patient can be wakeful without self-awareness, unable to obey commands, and without meaningful emotional response. Severe disability results in conscious awareness, but the ability repertoire is limited, and the patient is dependent for self-care and daily activities. Jennett taps into his vast clinical experience and sets the tone for this book with readily applicable schemas of classification.

In Chapter 2, Higashi reviews multiple studies with relatively large samples of vegetative patients from Japan. TBI is not the only cause for a persistent vegetative state (PVS), as other etiologies make up the 10,000 to 17,000 vegetative

patients living in Japan. Indeed, the ratio of TBI patients among PVS patients has declined in Japan from approximately 48% in 1972 to 12% in 1985. The decline is attributed to the introduction of mandatory motorcycle helmets and other safety interventions. Higashi compares the Japanese data to other data collections and identifies age and bilateral negative pupillary reactions as the key factors that contribute to PVS.

In Chapter 3, Levin and Eisenberg focus on PVS patients in the Traumatic Coma Data Bank (TCDB). According to their analysis, no consistent predictors of recovery of consciousness have been identified. They suggest that 10 to 15% of severe TBI patients are discharged from the acute hospital in a vegetative state, and at least half recover consciousness thereafter, most in the first year. Patients who do not return to consciousness tend to have lower GCS states at intake, pupillary abnormalities, and ages greater than 40 years.

In Chapter 4, a team of Austrian researchers led by Oder discusses neuroimaging techniques as potential predictors. The focus is clearly placed on functional imaging techniques, since structural techniques of CT and MRI have not been found predictive of PVS. Using the functional technique of SPECT, they found that early SPECT diagnosis of a global reduction of cortical blood flow was a reliable predictor of a poor long-term outcome, and that SPECT data correlated with specific psychosocial problems, such as disinhibition, social isolation, and aggressive tendencies. The authors conclude that predictors are most likely to be found with imaging techniques that are sensitive to diffuse axonal injuries and other mechanisms including hypoxic brain damage.

In Chapter 5, Grosswasser describes his clinical approach based on his vast experience working for the designated national service hospital for TBI patients in Israel. This chapter is a treasure, rich with clinical experience juxtaposed with the most pertinent research, and raises essential issues for treating severe TBI patients. Grosswasser is not afraid to delineate the unknowns, and he takes a strong stand in favor of the clinician's common-sense-based decisions. The chapter deals with such practical issues as the agitated or "restless" patient, nutrition and the frequent failure to provide sufficient nutrition, dysphasia, clinical signs of hydrocephalus, and treatments relevant to periarticular new bone formation. It reviews studies pertaining to posttraumatic epilepsy, and describes his attempts to identify low-risk *versus* high-risk patients, rather than prophylactically prescribing anti-seizure medication to all patients. This theme is expanded in Chapter 6 by Wroblewski and Glenn, who must be commended for their even-handed approach to pharmacological treatment. They believe that drugs that affect cognition may block recovery. Thus, pharmacological treatments for posttraumatic seizures, periarticular new bone formation (heterotopic ossification), spasticity, and posttraumatic movement disorder are weighed against cognitive side effects.

Bendixen and Benton summarize in Chapter 7 their pragmatic approach to evaluating cognitive and linguistic func-

tioning in patients with severe TBI. This chapter is written with scholarly thoroughness, and consistently combines research with clinical applications. I was particularly pleased to see the inclusion of gunshot wounds, since we are more frequently seeing these cases in our urban hospitals. A flexible and functional approach is discussed (which goes beyond mini-batteries) that allows for a neuropsychological evaluation of the individual's strengths and weaknesses.

Beresford, in Chapter 8, combines elegance and clarity when describing the moral, ethical, and legal issues raised by catastrophic brain injury. Layer upon layer of complexity was added to achieve the desired sensitivity for each decision that needs to be carefully weighed. Beresford weighs the pros and cons of having the patient's decision reflected, *versus* having the health-care professionals decision integrated, *versus* having the family decide in the patient's best interests. Arguments for and against treatment withdrawals are discussed in the light of legal cases, including the infamous Karen Quinlan case. Pros and cons of various decision models are discussed, since we are basically talking about passive euthanasia, which requires a moral judgment. Who should make the decision becomes the issue.

Lezak, in Chapter 9, breaks new ground in her discussion of family reactions. Stating that the "facts about what happens to spouses, parents, and children of head injured patients . . . are well known and generally available" in the literature, she focuses on the interpretations of these facts that are commonly made by family members. For example, it is not uncommon for neurosurgeons to prepare the family of a patient with severe TBI for the possibility of death. If the patient survives, this can lead to the interpretation that the patient has to fulfill a higher purpose, since his or her time on earth was not yet up! Thus, the second miracle of recovery is anticipated. Moreover, Lezak states, "'recovery' is frequently interpreted by lay persons as a full recuperation to preinjury functioning levels." Specific steps are outlined to assist the family with these types of interpretations.

Hayes, in Chapter 10, reviews the current understanding of the neurochemical changes caused by TBI. This chapter does not specifically focus on catastrophic TBI, but rather delineates the pathophysiology in the excitatory neurotransmitters secondary to TBI. Although the text is clearly written, it does assume a relatively high level of neurochemical understanding. Hayes also summarizes the new resurgence and interest in moderate hypothermia as a model for cerebral protection for global ischemia. Other treatment options of opioid medication, cholinergic medication, as well as lipid antioxidants, are succinctly reviewed.

To individuals not acquainted with recent findings on the advantages of tissue transplantation, Dunnett (in Chapter 11) provides a most readable and insightful analysis. The terminology is introduced, and the mechanisms involved in tissue transplantation are outlined. Dunnett then discusses from a realistic and pragmatic perspective the potential application of transplantation in TBI.

In the final chapter, Muizelaar and Dore-Duffy discuss the experimental research and clinical intervention that can

be expected for the early 21st century. Historically, catastrophic illness was viewed from a rather fatalistic perspective based on the assumption that most of the trauma took place at the moment of impact. In the more recent past a greater emphasis has been placed on the “secondary insults,” with newer treatments provided and anticipated for high intracranial pressure, arterial hypotension, poor arte-

rial oxygenation, seizures, hyponatremia, and infections. The chapter also insightfully highlights the challenges faced in conducting treatment research with TBI patients.

After reading this book I am left with no major criticisms. I have, however, one wish for their future collaborations, and that is to use consistent nomenclature and replace the term “closed-head injury” with TBI.

Movement and Mood

Melancholia: A Disorder of Movement and Mood, Gordon Parker and Dusan Hadzi-Pavlovic (Eds.). 1996. England: Cambridge University Press. 342 pp., \$69.95.

Reviewed by MURIEL D. LEZAK, PhD, *Department of Neurology, L226, Oregon Health Sciences University, 3181 SW Sam Jackson Park Road, Portland, OR 97201.*

This edited book addresses a topic that is peripheral to neuropsychology, and a topic that is germane to the work of many neuropsychologists. *Melancholia*, as one might expect, deals mostly with psychiatric issues, but also includes a “Part Three: The Neurobiology of Melancholia.” Chapter titles for this section are “Melancholia as Neurological Disorder,” “Melancholia and the Ageing Brain,” “Magnetic Resonance Imaging in Primary and Secondary Depression,” and “Functional Neuroimaging in Affective Disorder.” The emphases in these chapters is on the neuropathological findings associated with both primary depression and depressive conditions associated with neurological disease.

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Lifespan Development: Multiple Perspectives

The Lifespan Development of Individuals: Behavioral, Neurobiological, and Psychosocial Perspectives, D. Magnusson (Ed.). 1996. New York: Cambridge University Press. 526 pp., \$95.00.

Reviewed by A. ARDILA, PhD, *Miami Institute of Psychology, 8180 N.W. 36 Street, 2nd Floor, Miami, FL 33166-6612.*

The preface to this book explained that each year the Swedish Nobel Foundation selects, among a number of applications, two or three symposia to be organized as Nobel symposia. This book emanates from the symposium that was held at Sodergarn Conference Center, Stockholm, June 1994. Following an introductory chapter, which puts the rest of the book into an evolutionary perspective, the contributions are organized in six parts, ranging from “Early Development” to “Aging.”

Part I includes three chapters plus a commentary. In the first chapter (Chapter 2), D.M. O’Leary examines the regional specialization of the developing cortex, with emphasis on developmental plasticity and genetic specification. Chapter 3, by J.C. Loehlin, reviews the interrelationships between genes and environment. Twin studies are especially considered. The author concludes that the genetic contribution to behavioral differences expands during individual

development. O. Reynolds, in Chapter 4, discusses the main causes and outcomes of perinatal brain injury: periventricular hemorrhage, periventricular leucomania, and birth asphyxia. In the commentary section, G. Gottlieb provides a historical review of different interpretations of psychobiological development along with some comments on previous chapters.

Part II (“The Changing Brain”) includes three chapters: “Neurotransmitter Receptors in the Changing Brain” by J.P. Changeux, “Learning, Memory and Synaptic Plasticity” by R.G. Morris, and finally, an analysis of relationships between brain size, behavior, and neural space (D. Purves and colleagues). A commentary section is offered by G.M. Edelman and G. Tononi.

Part III begins with F.E. Weinert and J. Perner’s review of cognitive development and individual differences. In the next chapter, Williams syndrome is considered by U. Bel-

lugi, E.S. Klima, and P.P. Wang in order to illustrate the dissociation between spatial and verbal abilities: here verbal abilities are spared, while spatial abilities are impaired. Finally, W. Klein examines language development. Comments by A. Damasio and H. Damasio at the end of this part present some contemporary issues in cognitive neuroscience, with emphasis in theoretical developments.

In Part IV ("Biology and Socialization"), R.B. Cairns, R.W. Goy, and R.A. Gorski examine socialization, with emphasis in hormonal influence. In Part V, R.A. Hinde, J. Kagan, and M. Rutter analyze social competence. Interrelations between biology and culture are evaluated in the initial chapter, and social behavior and psychopathology are further considered.

The psychology of aging is the topic of P.B. Baltes and P. Graf's initial chapter in the final section. The last two chapters on aging are written by J. Hardy, and D.G. Morgan and

M.N. Gordon respectively. In the commentary section some conclusions about biological and psychological aspects of aging are presented by C.E. Finch.

The book integrates facts and theories about lifespan development. Even though the book emphasizes the genetic and biological aspects of development, neuropsychologists can find Part II's discussion of cognition and development especially interesting. However, a neuropsychological perspective of lifespan development is not presented.

The book is informative and well illustrated. It can be useful as a reference book. The commentary sections at the end of each part are most interesting, even though they are not always well articulated with the rest of the papers. Too many topics are included and, necessarily, the chapters are short and not as detailed as one might wish. However, it has to be kept in mind that this book is a collection of papers presented in a symposium.

OTHER BOOKS OF INTEREST

Calvin, William H. (1996). *The cerebral code: Thinking a thought in the mosaics of the mind*. Cambridge, MA: The MIT Press. 256 pp., \$22.50.

Daube, J.R. (1996). *Clinical neuropsychology*. Philadelphia: F.A. Davis. 533 pp., \$150.00.

Inui, Toshio & McClelland, James L. (Eds.). (1996). *Attention and performance XVI. Information integration in perception and communication*. Cambridge, MA: The MIT Press. 680 pp., \$65.00.

Passingham, R. [1993, 1995 (paperback)]. *The frontal lobes and voluntary action*. Oxford, England: Oxford University Press. 299 pp., \$28.00.

Rapin, Isabel (Ed.). (1996). *Preschool children with inadequate communication: Developmental language disorder, autism, low IQ*. London: Mac Keith Press (distributed by Cambridge University Press). 299 pp., \$69.95.

Smith, M.S. & Godfrey, H.P.D. (1995). *Family support programs and rehabilitation: A cognitive-behavioral approach to traumatic brain injury*. New York: Plenum Press. 193 pp. (no index), \$34.50.
