GERIATRIC PSYCHIATRY

Dementia: Management of Behavioural and Psychological Symptoms, edited by Clive G. Ballard, John O'Brien, Ian James, and Alan Swann. New York, Oxford University Press, 2001, 316 pp., \$45.00.

On November 25, 1901, Auguste D. Alzheimer's now famous first case was admitted to a hospital in Frankfurt. Her presenting problem wasn't cognitive deficit but a cluster of psychiatric symptoms that included unpredictable and challenging behavior, auditory hallucinations, and paranoia. Over the following century, psychiatrists and neurologists with an interest in Alzheimer's disease somehow fostered a preoccupation with the neuropathology, neurochemistry, and molecular biology of impaired cognition that pushed study of the more psychological and psychopathological aspects of the disorder into the background. Most recently, the advent of the cholinesterase inhibitors has led to an unfortunate increase in the categorization of individuals with dementia in terms of their Mini-Mental State Examination (MMSE) score. For example, in the United Kingdom, access to these drugs is currently rationed on the basis of "guidance" from a government body that recommends stopping prescription when the MMSE score drops below 12.

Through all of this, a huge, invisible army of Alzheimer's disease patients and their informal and professional caregivers have struggled with problems that are often only indirectly related to cognitive deficit. What makes life difficult for the caregivers isn't the fact that their husband or father can't remember the date or the names of grandchildren. Rather, it is the problems that are considered by this book. Psychosis, depression, and aspects of behavior that arise out of agitation would probably be the simplest way to describe what the authors call behavioral and psychological symptoms.

The book begins with an explanation of the methodologies used to identify and measure such symptoms in patients with dementia. The most widely used scales are reproduced in full in the text, there are helpful pointers toward which instrument to use for a particular target behavior or patient group, and the coverage of scales is comprehensive. Reading about some of the less well-known of these scales taught me an important lesson. To name a scale the Caretaker Obstreperous Behavior Rating Assessment shows just how dangerous the attraction of a catchy acronym can be. You can see why they did it—but Drachman and colleagues must flinch every time they see their adjective in print.

This book provides a comprehensive and authoritative but, above all, balanced account of the strategies that have been used to manage distressing and challenging behaviors in dementia together with pertinent reviews of the evidence base for each. Strategically, the chapters considering pharmacological management are placed at the end of the book. To reach them, the reader has to pass accounts of behavioral and psychological therapies, interventions aimed at and delivered through caregivers, and alternative therapies. My guess is that the book will work for different readers in a variety of ways. Colleagues already open to the use of nondrug interventions in the first line of management of these problems will be delighted to find everything they could possibly want to know presented in a convincing and readable format within a single volume. More narrow-minded practitioners who rely solely on psychopharmacology to sort out their patients' problems will find the information they need to minimize iatrogenic damage. (The secret is to start with the lowest available dose and not go above 1 mg/day of risperidone or 5 mg/day of olanzapine.) I hope that even hardened prescribers will dip into some of the earlier chapters and at least examine the evidence for the efficacy of the alternatives.

It would be good to see a copy of this book in the office of every care facility with resident dementia patients. Even if they don't read it from cover to cover, nursing and occupational therapy staff as well as family caregivers would find useful reference information here. Everyone in old age psychiatry knows of the Newcastle group's reputation for research excellence. Here is a rather special example of how such a command of the research field can lead to clear guidance on how we can provide what is really most likely to help our patients and their caregivers. I predict classic status.

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Alzheimer's Disease and Related Disorders Annual 2001, edited by Serge Gauthier, M.D., F.R.C.P.(C), and Jeffrey L. Cummings, M.D. London, Martin Dunitz, 2001, 272 pp., \$69.95.

The pace of research in Alzheimer's disease is accelerating. Particularly on the basic science front, each day there are reports that seem to bring new insights and challenges to our understanding of not only what Alzheimer's disease is but how the brain works. With this breakneck pace, how can one keep up? The editors of this work offer one answer, an annual that seeks to "bridge basic sciences and clinical practice in the realm of dementia." Although this would seem to be a fairly daunting task, the editors have largely succeeded in this goal by assembling a slim, focused review of 10 key subjects in Alzheimer's disease research.

The first two chapters address amyloid processing in Alzheimer's disease and cerebral amyloid angiopathy, two critical and quickly evolving basic science topics. In both cases, the authors are able to provide an update in our understanding of the basic science of these areas while maintaining a link to clinical practice. The remaining eight chapters address clinical topics that weave together clinical and basic science data where possible. Chapters are devoted to the clinical use of neuroimaging in evaluating dementia and clinical trials in mild cognitive impairment. Several chapters focus on treatment of the cognitive and behavioral symptoms of Alzheimer's disease. These chapters address the role of muscarinic agonists, depression in dementia, depression in other neurodegenerative disorders, and the use of antipsychotic drugs. Final chapters on assessing patient competency and management of late-stage dementia complete the work.

I found the chapter on management of patients with severe dementia particularly valuable. This is a group of patients for whom many geriatric psychiatrists have less direct responsibility, since it is a stage of the illness during which our general medical colleagues often provide direct care. However, it is essential to stay current in this area so we can best advise our patients, their families, and our physician colleagues. The last decade has seen a shift away from the use of invasive procedures to supply nutrition and hydration to patients with advanced dementia as the lack of benefit of these well-meant interventions has been recognized. We need to continue the struggle to understand how best to provide comfort and dignified care to these patients and their families as they work through their "long goodbye."

This is a very nicely made book printed on high-quality paper with excellent illustrations. Overall the writing is clear and accessible, and there is minimal content overlap among the chapters. Although the book is too focused to serve as an introduction to Alzheimer's disease, it will be of value to anyone with an interest in dementia and is written at a level to be appreciated by those new to the field as well as those who work in it.

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Stroke Syndromes, 2nd ed., edited by Julien Bogousslavsky and Louis Caplan. New York, Cambridge University Press, 2001, 770 pp., \$240.00.

Uncommon Causes of Stroke, edited by Julien Bogousslavsky and Louis Caplan. New York, Cambridge University Press, 2001, 391 pp., \$240.00 (two-volume set, \$450.00).

Including both of these newly published books in a single review is appropriate, since in essence they represent the twovolume, expanded second edition of the first edition of *Stroke Syndromes*, published in 1995. Although envisioned by the editors as a complementary set, either volume can stand alone without compromise. The new *Stroke Syndromes*, designed to be a comprehensive guide to stroke patterns and syndromes for the non-stroke-specialist, is divided into two parts. The first section is organized into chapters by cerebrovascular symptom; the second part discusses strokes according to the involved vascular anatomy and brain structures. The material has been expanded considerably from the first two sections of the first edition, which covered the same general topics.

I think the practicing clinician who occasionally encounters patients with manifestations of cerebrovascular disease will be well served by *Stroke Syndromes*. The chapter authors are a remarkably international and distinguished group of stroke experts, reflecting the backgrounds of the editors themselves (one European, the other American). The illustrations in many of the chapters are outstanding. Students and residents will especially appreciate the large, clear illustrations of brain pathways, vascular territories, and vascular anatomy. Individual symptoms and syndromes are treated in great detail, and bibliographies are comprehensive and upto-date. Of particular interest to mental health professionals, cognitive, psychiatric, and behavioral manifestations of cerebrovascular disease are well covered. Chapters discuss poststroke mood disturbances, delirium and agitation, and visual and auditory hallucinations in addition to the more "neurologic" behavioral phenomena such as neglect, agnosia, and dementia. Both the symptom-based and anatomy-based organization of the book and an extensive index make *Stroke Syndromes* a useful reference. I have used chapters from the first edition in conjunction with a series of "board review" lectures on cerebrovascular topics for neurology residents and anticipate that corresponding sections of the new edition will remain at least as useful.

As in any volume with multiple authors, a few of the chapters are not as clearly written as the majority. Although the organization by symptom and anatomy offers many advantages, certain topics are not as well served by this structure. For example, although brain images are incorporated into many of the chapters, there is no unified discussion of the neuroimaging of cerebrovascular disease or of the laboratory workup of stroke patients. Therapy and secondary prevention also are not conveniently incorporated into this framework. For these reasons, Stroke Syndromes will not replace other tomes as a comprehensive textbook on stroke; nor was this the editors' intent. I also have some concern that the nonspecialist, finding a patient's symptoms described in this comprehensive volume, may rush to the conclusion that they arise from a rare cerebrovascular condition rather than explore a more common, nonvascular cause. However, these are minor issues relative to the overall excellence of the book.

The new title, Uncommon Causes of Stroke, which replaces and expands on the final section of the first edition of Stroke Syndromes, will probably appeal more to the consultant neurologist or stroke specialist than the psychiatrist or generalist. The chapters do a commendable job of discussing less common conditions related to stroke, some only recently recognized. Sections describing stroke complications of nonneurologic systemic diseases are especially strong, although I was disappointed not to find a chapter on HIV-related cerebrovascular disease. Focusing on rare disorders that, when they occur, often produce stroke rather than on rare cerebrovascular complications of common medical conditions also skews the coverage somewhat. For example, whole chapters are devoted to uncommon genetic disorders such as CADASIL (cerebral autosomal dominant arteriopathy with subcortical infarcts and leukoencephalopathy) and the MELAS (mitochondrial myopathy, encephalopathy, lactic acidosis, and stroke) syndrome, whereas the rare (and slightly controversial) association of stroke with common conditions such as migraine headache or hormonal contraceptive therapy is barely mentioned. Still, Uncommon Causes of Stroke compares favorably with other reference works on this topic and will be a useful addition to the libraries of physicians in a referral cerebrovascular practice.

> GLENN D. GRAHAM, M.D., PH.D. Albuquerque, N.M.

Cognitive Rehabilitation in Old Age, edited by Robert D. Hill, Lars Bäckman, and Anna Stigsdotter-Neely. New York, Oxford University Press, 2000, 299 pp., \$55.00.

As the proportion of old and very old people in industrialized societies steadily increases, the impact on health care systems of the cognitive losses associated with normal and pathological aging grows greater as well. In this brief volume, the editors and authors review the current possibilities for ameliorating these deficits.

The book is organized into four parts. Part 1 considers theoretical and methodological issues in research on cognitive rehabilitation in the elderly. Part 2 reviews research on memory training in normal aging. Part 3 reports the influences of lifestyle factors on cognitive rehabilitation in the elderly, including chapters on the impact of physical exercise, smoking, depression, and loss of executive function. Part 4 contains three chapters on the assessment and rehabilitation of cognitive and psychosocial problems in dementia and one concerned with cognitive rehabilitation after stroke.

Parts 1 and 2 will probably be of interest to memory researchers and gerontologists, but less so to readers seeking more practical guidance. The authors of these chapters detail (with a fair amount of redundancy) several strategies employed to enhance memory in the normal elderly, which, if they work at all, rarely generalize beyond the specific conditions of practice. Furthermore, many of the studies used mnemonic techniques that were literally invented by the ancient Greek orators. These techniques require considerable practice to learn and a fair amount of cognitive capacity to deploy successfully. Not only do the elderly fail to make use of these procedures outside the laboratory, neither do the memory researchers themselves.

As an outsider to the field, I was struck by one author's description of "the contrast between high performance in daily life and less than optimal performance in the laboratory" of the normal elderly participants in his research. Clearly, much research in this area has assumed practical consequences of laboratory-based "deficits" in the elderly that may not exist. Researchers have sought the causes of every age-related deficit, apparently in a Ponce de Léon–like quest to restore cognitive youth. Evidently, little if any attention has been directed at teaching the elderly basic skills required for everyday living, such as money management.

The four chapters on lifestyle influences are more useful. The chapter on smoking presents the physician's predicament well. Smoking is bad for health, but it is a difficult habit to break, even for the young. Furthermore, nicotine is a cognitive stimulant. Should an elderly person with marginal cognitive function attempt to quit? The other chapters in this section are well done except for two problems. There is almost no consideration of the impact of medications in general and psychiatric medications in particular on cognitive function. This is a glaring weakness, because the elderly are major consumers of prescription and over-the-counter medications. A second omission is the failure to consider the impact of mentally stimulating leisure activities on cognitive aging. In fairness, most of this work appeared after the present volume went to press.

The final section considers psychological and environmental treatments for dementia and stroke. Remarkably, there is no mention of cholinesterase inhibitor therapy for memory impairment in Alzheimer's disease. There is some useful information in the chapters on psychosocial rehabilitation of dementia patients and the treatment of stroke. In summary, this volume will not be very useful to psychiatrists and geriatricians, although it may be valuable to geropsychologists.

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BIOPSYCHOSOCIAL PSYCHIATRY

Models of the Mind: A Framework for Biopsychosocial Psychiatry, by Stephen L. Dilts, Jr., M.D. New York, Brunner-Routledge, 2001, 326 pp., \$29.95 (paper).

When George Engel bestowed the biopsychosocial model on medicine and psychiatry in 1980 (1), he injected a powerful theme into professional discourse, one that still reverberates strongly. This model serves primarily to guide comprehensive physician-patient interviews and treatment. It also recognizes that biological, psychological, and sociocultural factors all interact and bear on the pathogenesis and course of most disorders in medicine. Because the biopsychosocial ideal focuses on holism and captures the multifaceted nature of illness and disease in a single word, the model and the term continue to enjoy broad appeal. As knowledge about biological and psychological development, sociocultural factors, and their interactions grows, so too does the model's evidence base. Many educators rally around it to fend off attempts to define psychiatry more reductionistically as a specialty almost exclusively confined to biomedicine and neuroscience.

This volume intends to offer medical students a brief textbook emphasizing the importance of biopsychosocial thinking. Although the goals are laudable, their execution unfortunately falls short. The book begins and ends with good chapters, with case examples to describe basic concepts, and a brief biopsychosocially oriented interview with a depressed patient. But the author undermines his basic goals by the manner in which he organizes and presents material between these points. Part 2, Biological Models, contains chapters briefly describing psychotic disorders, mood disorders, anxiety disorders, substance abuse disorders, and personality disorders and their biological treatment. Part 3, Psychological Models, doesn't address the disorders per se but includes chapters on Freud, the ego, object relations theory, the self, and several learning and cognitive theories. Part 4 contains chapters on the individual in society, stringing together short sections on diverse topics such as attachment, stress, interpersonal psychology and violence, group psychology, and ethical and legal considerations. However, it only lightly touches on family issues and other major social determinants.

From my perspective, the book's major weakness is ironic: it fails to adequately integrate biological, psychological, and social perspectives into holistic discussions of disorderspecific pathogenesis and treatment. Given the book's stated intentions, why are all the psychiatric disorders presented under a biological heading? Furthermore, the book lacks discussion of the more recent biopsychosocial models of the mind that currently excite my students—psychoneurosociodevelopmental models such as those suggested by Antonio Damasio, Gerald Edelman, Howard Gardner, Allan Schore, and others; models derived from evolutionary psychology; and social origins models concerning psychiatric disorders such as those developed by George Harris and his collaborators. These contributions all significantly strengthen biopsychosocial thinking since Engel's initial presentation.

To sum up, the biopsychosocial model seems to be alive and well, but I wish the author had provided a better home for it. The author's valuable concept could be better served by presenting biological, psychological, and social background material at the beginning of the book. Then, specific data from each domain might appear as each disorder is presented, so that discussions could focus on how these factors interact with one another to ultimately contribute to each disorder's appearance and treatment.

Reference

1. Engel GL: The clinical application of the biopsychosocial model. Am J Psychiatry 1980; 137:535–544

JOEL YAGER, M.D. Albuquerque, N.Mex.

PSYCHOPATHOLOGY

Affect Regulation and the Development of Psychopathology, by Susan J. Bradley. New York, Guilford Publications, 2000, 324 pp., \$40.00.

This interesting book on affect regulation and its relationship to psychopathology has a unique style and helps the reader to view psychopathology outside of a strictly DSM-IVtype approach. The author makes the case for the power of negative affects in the development of psychopathology and physiological arousal. The book consists of four sections that focus on the model of affect regulation, the evidence for the model, its relationship to clinical syndromes, and future directions.

In chapter 1 the rationale for the model of affect regulation as a core factor in different types of psychopathology is discussed in great detail. The author defines affect, emotional feeling, and arousal, including general arousal factors and the risk factors of psychopathology. This is followed by a discussion of the brain-mind factors that are involved in affect regulation. The author relates current working models of psychopathology, such as psychoanalysis and its derivatives, cognitive behavior, and interpersonal approaches, to affect regulation. She proposes an integrated model linking mind and brain based on the framework used to explain panic attacks: states of arousal arise in the reticular activating system and are interpreted through limbic-frontal circuits; the amygdala with its multiple links generates a state of arousal when responding to certain stimuli.

The second part of the book provides a comprehensive literature review about affect and its genetic and constitutional factors. The factors that may increase the vulnerability of individuals to environmental stressors are discussed. Insecure attachment is a vulnerability factor for affect dysregulation and may predispose the child to develop a psychiatric disorder. Stress, trauma, and abuse play important roles in psychopathology and are dealt with in considerable detail. The idea that some stressors are normative and necessary for optimal growth and development is well presented. The concept that chronic arousal leads to affect dysregulation resulting in psychiatric disorders is introduced. In chapter 7, the author provides a superb description of the neurobiology of affective regulation. She applies the concepts of behavioral neurology from Mesulam's text (1) to affect regulation in a convincing manner.

Part 3 of the book applies the model to several psychiatric syndromes. The internalizing disorders such as mood and anxiety disorders are discussed in great detail in chapter 9, which includes a review of the literature from animal as well as human studies. In addition, the author pays due attention to genetics as well as twin studies to propose that the shared genetic liability in these disorders is the sensitivity to environmental factors. In chapter 10, she extensively explores child behavior under the concept of externalizing disorders, including the origin of disruptive behaviors in the complex interaction of genetic and environmental factors. The role of affect dysregulation in disorders such as conduct disorder, adult antisocial personality disorder, oppositional defiant disorder, and attention deficit hyperactivity disorder is explored. A separate chapter is devoted to the psychotic disorders, including schizophrenia. The author takes up basic issues of definition, focusing on the disturbances of affect and cognition and exploring the relationship of psychotic disorders to mood disorders. She also deals with neurobiology in considerable detail, discussing the issue of negative and positive symptoms and the current thinking in this regard.

This book is an attempt to provide reasonable understanding of the body-mind relationship using the model of affect regulation as a core factor leading to a variety of psychopathologies. The book is well written and carefully referenced. It is well organized by sections that are linked by common themes. What is even more helpful is that the themes mentioned here are clearly demonstrated in the research. The discussion and justification of the model are very well supported by comprehensive literature reviews. The author has made outstanding efforts to put her clinical experiences into a practical framework of thinking that would contribute to the comprehension and management of psychiatric disorders. The book is highly recommended to professionals in mental health because it would help them conceptualize illness from the perspective of affect regulation.

Reference

1. Mesulam M-M: Principles of Behavioral and Cognitive Neurology, 2nd ed. New York, Oxford University Press, 2000

> SADIQ H. AL-SAMARRAI, M.D. SANJAY GUPTA, M.D. Olean, N.Y.

Comprehensive Handbook of Psychopathology, 3rd ed., edited by Patricia B. Sutker and Henry E. Adams. New York, Kluwer Academic/Plenum, 2001, 970 pp., \$125.00.

Reviewing 32 multiauthored chapters presents difficulties. These chapters are organized into six basic sections: Issues in Psychopathology, Neurotic and Psychotic Disorders, Personality Disorders, Disorders Associated With Social and Situational Problems, Disorders Associated With Physical Trauma and Medical Illness, and Disorders Arising in Specific Life Stages.

In their initial chapter, Henry Adams and associates state that a classification system should be guided by naturalistic and experimental observations rather than theoretical postures. Explanation comes after description. The extensive discussion of dimensions and categories (both conjunctive and disjunctive) culminates with the statement that "the justification of a particular model of classification is determined by how accurately the model facilitates the prediction, control and understanding of the response." This does not seem problematic. Adams and associates carefully distinguish their views from those claiming that abnormal behavior is first and foremost a social judgment. They conclude that the combination of categorization and a dimensional approach may be most meaningful in the long run. This agnostic attitude seems a better framework for scientific studies than a rigid compartmentalization into orthodox and heterodox views.

Sol Garfield's chapter, "Methodological Issues in Clinical Diagnosis," provides pithy reminders of frequent difficulties:

A final point concerns inadequate or apparently biased citing of the relevant research literature. I cannot recall seeing any discussion of this topic in presentations of research on either clinical diagnosis or treatment. Perhaps it is assumed that all investigators are aware of the need to review carefully the existing research on the topic under investigation. Nevertheless, this issue is not mentioned in critiques of research reports or reviews of research....The issue is of some importance where there is conflicting literature on a specific topic and investigators refer primarily to those published reports that support their findings or positions and omit mention of findings that fail to do so. Such a practice violates accepted standards of scholarship, misleads uninformed readers of the research reports and may tend to perpetuate the use of fallible diagnostic techniques.

Garfield presents clarifying approaches to knowledge generation that should help cut through the fog of ideological controversy. Unfortunately, some encyclopedic attempts in this volume do not live up to Garfield's standards. For instance, meta-analytic conclusions are asserted about the relative merits of pharmacotherapy and psychotherapy, ignoring critiques and reasonable caveats (e.g., direct comparisons of different treatments within the same randomized, controlled independently assessed study are conspicuously rare, and the cited meta-analyses compare effect sizes derived from different studies, subject samples, measures, treatment lengths, etc.). One chapter makes the assertion that "any genetic factors are general to all of the anxiety disorders" but does not cite or discuss studies finding that some anxiety disorders breed true. Such spottiness in a reference work substantiates Garfield's concerns.

A complex edited book is not a single variable; nonetheless, my evaluation is that the average is pretty good but the range is too large.

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Disordered Mind and Brain: The Neural Basis of Mental Symptoms, by Peter F Liddle. London, Gaskell (Royal College of Psychiatrists), 2001, 320 pp., £40.00.

Peter Liddle has carried out a considerable number of brain imaging studies, particularly in schizophrenia, and this book hinges on his concept that there are five principal dimensions of psychopathology. These are reality distortion, disorganization, psychomotor symptoms, abnormalities of mood, and anxiety. Each of these dimensions is associated with a characteristic syndrome and symptom cluster, and the symptom clusters are noted in differing psychiatric illnesses. Classically, the disorganization syndrome is most commonly seen in schizophrenia and the depression syndrome is characteristic of major depressive illness.

From this beginning, Liddle gives a neat overview of neuroanatomy and neurochemistry that is well presented and very up-to-date. He takes a connectionist viewpoint, in particular outlining important associations for the regulation of behavior between the limbic system and the structures of the basal ganglia. He incorporates in this text a clear account of neurochemical principles.

Part 2 of the book reveals the symptom clusters and the evidence for underlying neurochemistry and neuroanatomy relating to those structures. For those interested in an up-todate review of brain imaging in relationship to psychopathology, this text is valuable, but there is a slight worry about how soon it will date because studies in this area are continuing all the time.

The third section of the book deals with the mental diseases themselves, and there are relatively short overviews of disorders from schizophrenia to psychopathy. The attempt is to integrate the findings in those disorders with the previously discussed concepts of the way the brain works in relationship to mental symptoms and the neuroscience findings in the different underlying syndromes.

The text has a central section of color plates showing neuroanatomical principles as well as outlines of some of the brain imaging findings discussed in the book with characteristic statistical parametric maps. Perhaps one criticism of the text is that although these images are clear and helpful, throughout the book there is a dearth of relevant visual material and tables to help the interested reader grasp some of the numerous findings that are relevant to Liddle's ongoing arguments. Clinical descriptions of the different disorders are given, allowing nonclinical specialists to integrate the basic neuroscience with clinical presentations.

Produced by the Royal College of Psychiatrists in-house press, the book is elegant in presentation, and the print style is well laid out and very user friendly. There is a glossary at the end of the text, which allows the neophyte access to some of the terminology that otherwise may make the text more difficult to understand. This is an excellent and timely book that can be recommended to all of those with an interest in the neural basis of mental symptoms.

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MIND AND BRAIN

The Executive Brain: Frontal Lobes and the Civilized Mind, by Elkhonen Goldberg. New York, Oxford University Press, 2001, 251 pp., \$29.95.

The frontal lobes, once a terra incognita, began to seem a promised land for me when I attended a landmark symposium about them at Brown University in 1992 chaired by Salloway, Malloy, and Duffy, who edited an authoritative multiauthor text based on that symposium (1). Not the least of the frontal contributions to behavior I gleaned from that symposium was everything related to compliance with treatments. Frontal lobe buffs will now welcome Elkhonen Goldberg's new book, which continues and advances frontal exploration in the science of mind.

Goldberg is a natural storyteller, so it is fitting that this readable monograph on the frontal lobe has a preface by Oliver Sacks, who places the book with works by Edelman and Damasio in addressing "how nature and culture interact, and how brain and mind produce each other" (p. xiv). Sacks points out that

the inertia of parkinsonism, the impulsiveness of Tourette's syndrome, the distractibility of ADHD, the perseveration of OCD, the lack of empathy or "theory of mind" in autism or chronic schizophrenia, can all be understood, in large part, Goldberg feels, as due to the resonances, the secondary disturbances, in the function of the frontal lobes. (p. x)

Dr. Goldberg, with whom I have viewed anatomy and discussed neural networks, opens with a personal tale of intrigue. While a student of Alexandr Luria, the premier figure of neuropsychology, Goldberg had completed his doctoral thesis work but sabotaged his thesis defense because he wanted to emigrate from the Soviet Union. Had he defended successfully he would have been deemed essential and not allowed to emigrate, and emigrating as a successful student would have discredited his beloved mentor. Playing this intricate and contradictory game, he later explains, is the most intricate example of the chess game he has had to play in his life, employing the crucial frontal lobe insight into other minds (theory of mind) that is necessary in executive processes.

Both language and executive functions emerged late in evolution. The prefrontal cortex is 29% of the human brain, 7% of the dog's, and 3.5% of the cat's. Don't expect much empathy from your household Felidae.

One story is that understanding the prefrontal cortex as the command post of the brain emerged late in the history of neuropsychiatry. Unique among brain structures, it contains a map of the whole cortex. Another story is the ways in which the hemispheres differ, beginning with the Yakovlevian torque of their clockwise rotatory overlap. Goldberg explains that they differ saliently in regard to handling novelty (right) versus routine (left), much as Grossberg has found in artificially constructed neural nets (p. 45) and Gold has shown by hemispheric positron emission tomography scanning of learning tasks (p. 71).

Another story is the front-to-back organization of the frontal lobes, which know coarsely (like the boss who says don't bother me with the details), and the posterior areas of the brain, which are repositories of specific expert knowledge, awaiting activation of their engrams by the frontal lobes for use. The frontal lobes are therefore also a bottleneck. Early dementia especially affects working knowledge, and "inane" (p. 76) actions result. It is adaptive versus veridical decision making, and Goldberg's own cognitive bias task teases this out, unlike the perceptual matching tests typical of traditional neuropsychology and of our entire educational system, which Goldberg sees as overemphasizing veridical decision making. Almost as if they had heeded Goldberg, the Japanese, given excessively to this educational overemphasis, are in the process of trying to implement more adaptive decision making, and the Columbia Psychoanalytic Center has begun courses in critical thinking for future psychoanalysts. As a corollary, it seems there is a politically risky finding of gender differences in the cognitive bias task: males are (surprise! although Goldberg has no reaction) more dependent than females, who are more inflexible, and lesions affect the sexes differently on this dimension. The cognitive bias task also shows more novelty seeking in the left hemisphere (Goldberg is left-handedly "innovative" [p. 102], albeit converted by an "atavistic" Eastern European educational system), although previous attempts to find cognitive correlates of handedness have failed.

Goldberg is also critical of the idea of general intelligence (G factor), but he thinks an S factor (S for smart) does exist and can be seen by freewheeling lay judges, much as physical beauty can be agreed upon. The S factor, or true smarts, is executive talent, and it is the forte of the frontal lobes, as the book's title suggests. It comes down to the theory of mind, and here Goldberg mentions kindly another master scientific storyteller, Julian Jaynes (2), who posited the bicameral mind's emergence in 2000 BC, before which we lived in a time of spirits as unrecognized self-projections.

Goldberg elaborately describes the dorsolateral frontal damage syndrome that leaves patients like Newtonian objects: prisoners of inertia, they cannot initiate or terminate. This is typical of his memorable metaphors. He states that the tangentiality and loose associations of schizophrenia are "more than a coincidence. Schizophrenia today is regarded as a form of frontal lobe disease" (p. 129). Yes, well, in part, but the emotional midline structures and thalamus contribute. The anterior cingulate, a medial frontal structure, provides the kind of instantaneous good or bad decisions that patients with schizophrenia desperately lack in their inability to establish hierarchy (3). Dorsolateral damage leads to a loss of mental flexibility, and more right hemisphere damage involves lack of insight or general anosognosia, because only language-mediated cognition is available for introspection, a language-based process.

The orbitofrontal (stigmatized as "pseudosociopathic") syndrome of euphoria and loss of control of impulses shows that the capacity for volitional behavior and observation of moral codes is in the frontal lobes. Examining Alexander the Great, who was 20 when he invaded Persia, Goldberg notes that frontal lobe maturity occurs at 18 and wonders if the environment can pressure people to assume adult roles early. Goldberg's contribution of the reticulofrontal disconnection, based on the Geschwind concept of disconnection syndromes, shows how brainstem damage can cause frontal lobe dysfunction. This diagnosis was established in a successful executive who developed a ventral tegmental area lesion from a fall from a horse. Goldberg's argument that "whereas moral and criminal codes are extracranial, moral and criminal cognition and behaviors are not" (p. 150) has forensic legs. In contrast with these "fateful disconnections" (p. 157), schizophrenia is conceptualized as "a connection that was never made" (p. 163), reversing the expected hyperfrontality of normal subjects to a hypofrontality attributable to a mesolimbicmesocortical maldevelopment.

Higher-order cognitive impairments may be a "public blind-spot" (p. 155), traumatic brain injury a "silent epidemic" (p. 167), but attention deficit hyperactivity disorder, characterized by "a fragile connection" (p. 168), is "the disease of the decade" (p. 168). Goldberg offers a flashlight metaphor for the frontal lobes and suggests that hyperactivity may be more orbitofrontal than dorsolateral. Goldberg is critical of the American idea that everything can be fixed by a pill and describes an Australian friend who "conquered" ADHD in a support group.

Goldberg breaks down the frontal lobe syndromes into the dorsolateral syndrome of affectless pseudodepression and the orbitofrontal syndrome of impulsiveness and unconcern. The frontal poles, most appropriately, are still mysteriously elusive, even as we gain understanding of frontal and prefrontal functions. Frontal lobe patients are unable to initiate and then unable to stop (perseverative). We meet Vladimir, who endlessly elaborates a short narrative he is asked to repeat. Goldberg explains the failed Stroop Test and other afrontal behavior by contrasting a dog's out-of-sight, out-of-mind behavior with the gibbon's success at turning back to an object of curiosity after distraction, like the healthy human frontal ability to stay on track. In schizophrenia this abilitiy is lacking, Goldberg avers, because there are problams with the frontal lobe. Not exclusively; there are also problems with attachment of affects and valuations to cognitions, probably involving thalamic function and the hippocampus (4). Goldstein has a firm grip on the trunk of the elephant.

Following Sacks (5), Goldberg breaks down cases of Tourette's syndrome into "stereotypic" and "phantasmagoric" subtypes, the latter requiring exploration of every incidental object. Valuable subjective descriptions from affected individuals describe a "tactile curiosity" (p. 185) and wanting to "wear the environment like clothes" (p. 188). A brief section mentions possible frontal lobe cognotropic drugs, but Goldberg believes in "jogging the brain" (p. 197) by mental exercise and, despite problems in generalizing cognitive retraining, says he is developing a program in "cognitive fitness" for everyone.

Evolution of the brain is considered throughout, but Goldberg's solution to why the problem of the heavily interconnected cortical net of simple interactive elements is necessary for greater computational freedom borrows from neural network theory, which he discovered in a Moscow library when he was 19. The frontal lobes were needed, Goldberg argues, to provide constraint at any given time on the free process. Similarly, Davidson (6), reviewing recent studies, has suggested that the prefrontal cortex, in reciprocal connection with the amygdala, modulates the time course of emotional responding. In the biggest conceptual leap of the book, Goldberg proposes that

strong similarities exist between the evolution of the brain, society and man-made computational systems. Each is characterized by a transition from the modular principle of organization to the distributed, gradiental principle. At a highly evolved stage of this process, a system of "executive" control emerges, to help rein in the prospect of anarchy and chaos, which paradoxically increases with the increase of any system's complexity. (p. 226)

Instead of applying metaphors (hydraulic, computational) to the brain, Goldberg suggests that a brain science now coming of age "may be ready to offer its own heuristic metaphors to shed light on other complex systems, including society" (p. 228). Now that is biopsychosocial!

Although the book tackles sophisticated and speculative topics, it is so accessibly written it would interest students, lawyers, and readers of the current *Scientific American*.

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DAVID V. FORREST, M.D. New York, N.Y.

The Unbalanced Mind, by Julian Leff. New York, Columbia University Press, 2001, 168 pp., \$23.95.

This book addresses the question of whether the human mind, and in particular the disordered mind, can be entirely explained through the emerging insights of molecular genetics. Its main aim is to "temper this Orwellian view of the future." Leff, who is eminently well placed to challenge a biologically driven reductionist's view of the human mind, presents a series of findings on psychological, social, and cultural factors underlying mental illness. Leff discusses successively most of his own studies and findings on the role of stress and life events in mental illness, the introduction of the Present State Examination, the International Pilot Study of Schizophrenia, the expressed emotion concept, and the role of the family system in schizophrenia patients. This latter is one of Leff's most important contributions and rightfully is the focus of a substantial portion of this book.

Other noteworthy chapters deal with the role of traditional healers, the toxic effect of cities, and the effects of cultural factors in schizophrenia. There is also a clear critical message for American mental health professionals when Leff talks about diagnostic practices that are formulated under political pressure or attain wide endorsement due to the power of commercial forces and health reimbursement dollars. The most evident shortcomings in this book are the examples given of biological findings. Most are outdated and at times incorrect. A good example is on page 38, where Leff talks about newer antipsychotics having "little or no blocking action against dopamine." If he refers here to the atypical antipsychotics, he is obviously wrong. He uses this argument to challenge the dopamine theory of schizophrenia, stating that this theory "as yet has not been replaced by an alternative theory." However, one significant alternative theory, which has been extensively explored, is the N-methyl-D-aspartic acid theory of schizophrenia (1). Another example of incomplete data use is on page 145, where the author reports on findings from longitudinal cohort studies investigating precursors of later schizophrenia. While the author mentions that lower sociability is found in children who later develop schizophrenia as adults, he does not mention other, more recent findings, such as later development of speech and other cognitive deficits (2), which all contribute to lower sociability and may be more biologically rooted.

The different findings are well presented, but it is not clear whom this book is addressing. If it addresses readers who are not in the field of mental health, the content may be too complex; if it addresses mental health professionals, and in particular psychiatrists, its style is too simplistic.

In presenting many of his findings in social and cultural psychiatry in a cogent and very readable fashion, the author unfortunately often creates a straw man out of outdated and incomplete biological findings in order to better demonstrate their shortcomings. In addition, he brings the reader back to the simplistic dichotomy of nature versus nurture, which is not helpful as an explanatory model for the causes underlying mental illness. Although the account in this book of the social and cultural factors underlying mental illness is laudable and interesting for the novice in the field, it fails to break any new ground or vision in explaining the unbalanced mind.

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JEAN-PIERRE LINDENMAYER, M.D. New York, N.Y.

Synaptic Self: How Our Brains Become Who We Are, by Joseph LeDoux. New York, Viking Press, 2002, 406 pp., \$29.95.

A scientific book aimed primarily toward a lay audience is always difficult to write, and this one is no exception. Depending on background, orientation, and the part of the book being read at a given time, it may either engage you, enrage you, or possibly even bore you. The book's basic premise is that understanding synapses is the key to understanding who we are. "You are your synapses," and synapses represent the channels of communication between brain cells, which is the means by which the brain does its work. I was put off when I read this premise in the acknowledgments and fully expected to be taken on a superficial and reductionistic journey that could not begin to capture the richness of self and personality. However, as I read further I found an abundance of educational material regarding how the brain develops and how genes and experience interact to affect brain structure and function and thereby memory and "personality."

The description of brain anatomy is masterful and clear wherever it occurs throughout the book. The relationship of different brain circuits to certain emotions is by now wellknown and based in important ways on the author's own pioneering research. This research builds on and expands generations of earlier research on this and related topics concerning the brain and emotions. It provides a platform for further progress rather than being some kind of end point. Chapter 10 ("Synaptic Sickness") will be of special interest to psychiatrists, and although there may be little new data in this chapter, the conceptual models provided are well presented and consistent with other integrated views of mental illness. The author argues convincingly against a "soup model"-chemical imbalances-in favor of a more synaptic model, though the reality is that some combination is more likely involved. He provides a very stimulating discussion of how drugs and psychotherapy singly or in combination might work to alter the functioning of circuits rather than just "correcting chemical imbalances."

On the positive side, this is a wonderful, very readable summary of elegant neuroscience, including its linkage with certain emotional states. However, it is coupled with an overly simplistic presentation of what is "self," a topic that, although debated for centuries, is obviously more complex than a collection of synapses. The writing in this book is clear, and many of the titles of chapters and sections within chapters are quite cleverly done, although perhaps "off-putting" for some. All in all I highly recommend it as a "good read" for psychiatrists, but be prepared to be provoked as the author describes the richness of human life in synaptic terms.

> WILLIAM T. McKINNEY, M.D. Chicago, III.

Image, Language, Brain, edited by Alec Marantz, Yasushi Miyashita, and Wayne O'Neil. Cambridge, Mass., MIT Press, 2000, 270 pp., \$55.00.

This book originated from papers first presented in Tokyo, November 1998, at the first Mind Articulation Project Symposium, the goal of which was to examine, among other things, attempts to unify the linguistic theory and brain science, as has been attempted previously in the study of the visual system.

In addition to the introduction, "Mind Articulation," there are 12 chapters, the titles of which present a succinct summary of the book's subject matter: "Linguistics and Brain Science," "Cognitive Neuroscience of Speech Processing," "How Infants Acquire Language: Some Preliminary Observations," "The Speaking Mind/Brain: Where Do Spoken Words Come From?" "The Dependency Locality Theory: A Distance-Based Theory of Linguistic Complexity," "The Neuronal Dynamics of Auditory Language Comprehension," "Neural Control of Cognition and Language," "Imaging Neuroscience: System-Level Studies of the Physiology and Anatomy of Human Cognition," "Central Control of Voluntary Movement as Studied by Multidisciplinary Noninvasive Approaches," "Neuromagnetic Inverse Modeling: Application of Eigenstructure-Based Approaches to Extracting Cortical Activities From MEG Data," "Competitive Mechanisms Subserve Selective Visual Attention," and "Origin of Visual Imagery: Its Neurophysiological Basis."

There is no substitute for reading the book. A book review 10 times the length of this one could not do justice to its complex subject matter. However, I can mention a few areas that made a special impression. For example, it was exciting to see how experimental paradigms and imaging techniques allowed the researchers to use linguistics to study "computation in the brain." I also found it fascinating that newborns can differentiate between languages. Apparently infants can pick up on differences in rhythm, for example, in the speech of the mother.

It was nice to see a diagrammatic illustration summarizing the brain areas activated by different core processes in word production. It shows that the network subserving word production is almost completely left lateralized with the exception of sensorimotor regions involved in phonetic encoding and/or articulation and bilateral cerebellar involvement in overt word production. Throughout the book there are a number of glossy plates depicting, for example, brain imaging of regions activated by the core processes in word production.

In the chapter on imaging neuroscience, Richard Frackowiak describes how attention results in altered patterns of neuronal activation in the prefrontal cortex and other languagerelated areas. Repetition and increased familiarity with the activity lead to alteration of this pattern of activation, which is once again reversed if new challenges are introduced to the task.

In the chapter dealing with central control of voluntary movement, I found it of interest to note that the answer to the questions, "Where in the brain and when does the will to move occur?" and, "Where in the brain and when does the will to stop movement occur?" is that essentially the same cortical structures come into play, with the caveat that precise mechanisms warrant further study.

In the last chapter, which deals with the origin of visual imagery, Yashushi Miyashita describes a number of experiments using monkeys to examine the neuromechanisms underlying memory retrieval and the consolidation process. He devised a visual pair association type of task that required the monkey to encode associates of relations between individual objects and to retrieve the high-level internal representation ("image") of the paired associate according to a core stimulus. Miyashita also notes that in human beings imagery is more flexible in necessitating another subsystem that uses association memory and that constructs local representation on the basis of a global top-down attentional shift. He hypothesizes that the subsystem is located in the dorsolateral prefrontal cortex but warns that evidence is still scanty. He ends this chapter with the statement that "characterization and neurophysiological analysis of this subsystem would provide further insight into the neural basis of imagery and its conscience activation."

Each chapter is followed by a copious reference list, indicative of the wide body of research that has already begun in the different fields with which the authors included in this work are concerned. In my opinion, this book will be of particular interest for those interested or working in the areas of linguistics and neuroscience. A product of the first Mind Articulation Project Symposium, in addition to the valuable contribution it makes in its own right, this book lays valuable groundwork for a second symposium in the not too distant future, devoted to essentially the same aim as the first—further unification of linguistic theory and brain science.

> FREDERICK E. WHISKIN, M.D. *Tryon, N.C.*

SPIRITUALITY

Faith, Healing, and Miracles, by Frederic Flach, M.D., KHS. Long Island, N.Y., Hatherleigh Press, 2000, 227 pp., \$22.95.

Scratch any priest and you will find a physician. Scratch any physician and you will find a priest.

—Anonymous

A small child lay moribund in a poor 1930s neighborhood rooming house. The general practitioner who was called to the house could not make a diagnosis or offer treatment. That evening at the local hospital an otolaryngologist overheard the physician discussing the case with another general practitioner. The specialist, who never made house calls, asked for the child's name and address. He dropped by that evening and immediately made the diagnosis of a diphtheritic membrane slowly closing off the child's windpipe. His on-the-spot tracheotomy saved the child's life. Was this a miracle? Dr. Flach would define it as one; the child's grateful and desperate parents believed that it was and so incorporated it into the family's lore. I still have the words of countless retellings and the tracheotomy scar to remind me. My experience in listening to patients and friends suggests that such otherwise inexplicable intervention experiences, miracles if you please, are quite common and that people who have had such experiences will constitute a natural audience for Dr. Flach's essay.

The existential psychiatry "movement" growing out of the experience and writing of World War II survivors, especially psychiatrist Viktor Frankl, and their emphasis on the human "essence," began American psychiatry's move away from Freudian pomposities about religion. Today it is "in" for psychiatrists to consider the spiritual in the lives and treatment of their patients. Dr. Flach is a well-known psychiatric clinician and educator, past editor of the Directions in Psychiatry series, and an early proponent of spirituality's role in medicine and psychiatry. This six-part, 20-chapter opus is a narration of his beliefs in religious miracles and the impact of these events and convictions on his own life, his practice, his patients, and, above all, the many people whose experiences he cites.

Dr. Flach begins by reviewing his many years of interest and research into these matters and explains what he means by the terms "extraordinary miracles" (events exceptional to the natural order of things) and "ordinary miracles" (events not impossible but improbable), which are the focus of this volume.

BOOK FORUM

Drawing on his own personal and professional experiences as well as Biblical, medical, scientific, and literary references, biographies, and media reports, Dr. Flach surveys the phenomena of miracles and faith and seeks to substantiate his assertion of their validity and the value of faith in our lives and practices. Although Dr. Flach clearly intends to convey his own beliefs, the tone is ultimately neither evangelical nor overbearing. The titles of the six parts of the book (The Nature of Miracles, Extraordinary Miracles, Miracles in Every Day Life, Healing and Prayer, Miracles of Discovery, Faith and Resilience) give a structured indication to the approach Dr. Flach will take in the 20 chapters. In chapter 1, he recounts his own miraculous cure of pneumonia by the then newly discovered wonder drug, penicillin, and augments this personal example with numerous other instances of what he sees as miraculous cures in others. He proceeds to some of the extraordinary miracles of the Biblical chronicles, the wellpublicized Marian apparitions, and the phenomenon of Lourdes. The latter is examined, interestingly, with a focus on the experiences of a skeptic: French physician and Nobel Laureate scientist Alexis Carrel, who made numerous visits and observations of the miraculous cures at the shrine. Although initially a disbeliever, toward the end of his life Carrel ultimately accepted a miraculous interpretation for some of the more dramatic events he had observed, commenting that a "miracle is...an extreme acceleration of the processes of organic repair."

In the following chapters Dr. Flach reviews vignetted histories of patients, his own and others, and therapists who have experienced "Providence" and "miracles" in their lives and practices. He reminds the reader that "I use the word 'miracle' not to describe something that involves an exception to the natural order of things, but rather something that is highly improbable." The author's observations on prayer include testaments to its healing power and comments on scientific experiments attempting to elucidate its role in recovery from disease and injury. Within the section titled Miracles of Discovery, Dr. Flach evaluates the advances and discoveries of medicine, science, and psychiatry through the prism of a believer. Whether that prism sharpens or diffuses these matters will be decided by the individual reader. In the final three chapters, "Overcoming Helplessness," "Physical and Psychological Resilience," and "Spiritual Resilience: Healing the Soul," Dr. Flach enumerates how faith and spirituality may be applied to solutions for problems commonly encountered in our clinical practices (and lives). Proper and full explications of these subjects would require book-length treatment, but these presentations are nonetheless frustratingly brief. An expansion of them would have increased the book's utility and more fully met its implicit aim to serve as a guide for the lay and professional reader.

The practice of medicine has always stood at the juncture of science and faith. As practitioners, we have largely become creatures of statistics and probabilities in the understanding and application of our knowledge. Those who have never experienced such inexplicable events may find little of interest here. For readers seeking to confirm their belief that religious faith plays a role in therapy, Dr. Flach's small treatise will serve them well.

> WILLIAM EDWIN FANN, M.D. Houston, Tex.

Handbook of Religion and Health, by Harold G. Koenig, M.D., Michael E. McCullough, Ph.D., and David B. Larson, M.D. New York, Oxford University Press, 2001, 712 pp., \$65.00.

Several colleagues, seeing the title, eagerly questioned me about this more than 700-page "handbook" as I lugged it around with me for a couple of weeks. For themselves and their students, they had been looking for a good source to address the conjunction of these two vast realms in daily clinical work. How might a skeptical physician best approach a deeply religious patient (or the converse)? How can practitioners respectfully enlist the power of prayer or usefully attend to the religious implications of psychosis? What if patient and physician come from mutually hostile religious backgrounds? These are the sorts of practical questions the word "handbook" seems to imply.

I had to disappoint my colleagues. This *Handbook* is really a reference volume on the state of academic research on the correlations between religious practice and illness prevention or disease outcome. Case presentations are rare. Occasional sensitive discussions on subjects such as the adjustment to terminal cancer, which clearly reflect the religious sensibilities of the authors, are embedded in exhaustive literature reviews.

After a promising introduction and discussion of "definitions"—for me, the most interesting part of the book—we get chapter after chapter arranged by disease category, i.e., heart disease, cancer, schizophrenia, and so on. The aggregate of the results is always suggestive, and more research is always needed.

As anything other than a reference volume, the book founders on its own assumptions. Early on, "spirituality" is defined as "the personal quest for understanding answers to ultimate questions about life, about meaning, and...the sacred" and thus essentially defined as undefinable from a scientific standpoint. "Religion," by contrast, "is an organized system of beliefs, practices, rituals, and symbols" that fosters "responsibility to others in living together in a community." This builds in a confounding variable—a community of shared values and mutual social support. Research on the secular community, such as David Spiegel's work on group therapy and breast cancer outcomes, has clearly shown how strong a confounding variable community might be in such discussions.

More troubling to me, as a religious person, is that these authors regret that "higher levels of religious practice among sicker individuals," a persistent finding across the board, "may obscure the benefits of religious practice on outcome." This is true, of course, but misses a major point about the relationship between illness and religion. Religion is not an instrument for preventing or curing illness. Illness, on the other hand, frequently leads people to religion. Nonreligious people see this as a defense mechanism. People of faith see it as the result of a process of searching for transcendent meaning triggered by the end of the ego's illusions of perpetual security, comfort, immortality, and omnipotence.

This brings me to the biggest problem, in my view, with the line of reasoning represented by this book. "Health" is the ego's agenda. It should not be conflated with concepts such as doing God's will or taking one's proper place in a divine pattern. Our imperfect attempts to do these things may indeed promote better health outcomes, at times. At other times, as Jung was fond of pointing out, such attempts may lead to crucifixion.

The secular history of religion is a story of the assimilation, dilution, and normalization of a radical message once expressed as, "My Kingdom is not of this world." A cultural product of present-day American behavioral science, this book renders unto the Caesar of controlled studies. In this era of meditation rooms for tired executives and departments of alternative medicine at medical schools, it fits the current pattern of assimilation and loses the Spirit of the message.

> PAUL GENOVA, M.D. Portland, Me.

Quantum Change: When Epiphanies and Sudden Insights Transform Ordinary Lives, by William R. Miller and Janet C'de Baca. New York, Guilford Publications, 2001, 205 pp., \$35.00; \$15.95 (paper).

Quantum Change is arguably the most informative scientific appraisal of spiritual experience since Varieties of Religious Experience by William James (1). A difference, however, between James and the present authors is that James believed that after age 30 character was "set in plaster," while Quantum Change supports lasting subjective self-change in mature adults. The book discusses a number of vivid, benevolent, yet enduring personal transformations occurring usually over a period of hours. The changes involve relationships, spirituality, and life priorities. Scrooge from Dickens's Christmas Carol is offered as a literary metaphor for the phenomenon. Quantum Change discusses two kinds of inner change. There is an "insight" transformation-a consolidation of psychological processes that may have been building for years-and there is a "mystical" transformation that individuals are quite at a loss to explain.

The book's first author, William Miller, is Distinguished Professor of Psychology and Psychiatry at the University of New Mexico. He received the Jellinek Memorial Award (sometimes called the "Nobel Prize for research in alcoholism") for his meticulous research on cognitive behavior methods for helping alcoholics return to controlled drinking. Yet his own 8year follow-up of these alcoholics revealed that, despite their original behavioral orientation, over the long haul they often turned to abstinence and Alcoholics Anonymous (2). Miller is also a pioneer in the development of motivational interviewing (3). Less well-known, his coauthor is a psychologist Janet C'de Baca, who maintains an interest in cross-cultural issues and behavioral interventions.

Each of their book's case histories, chosen from several dozen quantum change experiences, share many but not all of the following characteristics: ineffability, revelation, transience of the original experience (although the effects last for decades), passivity, unity with the cosmos, transcendence, awe, joy-love-peace, and distinctiveness. Such epiphanies and spiritual insights, of course, are common after mind-altering drugs, evangelical religious conversion, and temporal lobe seizures. They are also common in reports of mystical, "white light," near-death, or "alien abduction" experiences. But the reports cited in *Quantum Change* are different for three reasons. First, unlike the authors of most previous reports, Miller and C'de Baca are atheoretical in their discussion

of the commonalities inherent in such epiphanies. Second, they try to document the profound and lasting effects of such experiences. Third, their 52 reports were gleaned not from a specialized setting (e.g., hospital recovery rooms or lives of saints or epilepsy clinics) but from an advertisement in an Albuquerque newspaper "asking for volunteers who have been transformed in a relatively short period of time—who have had a deep shift in core values, feelings, attitudes or actions" (4, p. 259).

For some of the subjects, changes were much broader than for others, but in all what was changed was "me," the person's sense of self. Unlike many drug and some mystical and epileptiform experiences, the experiences reported by Miller and C'de Baca always convey a sense of the sacred and a sense of responsibility toward others and the world about them. Even if the subjects didn't believe in God (and two-fifths of them did not), they became more spiritual, less materialistic, and more compassionate toward others and themselves. Thus, the book's most provocative finding is the uniform-if admittedly both retrospective and self-reported-decrease in the value placed on "wealth," "attractiveness," "popularity," and "fitting in" and an increase in "spirituality," "personal peace," "forgiveness," and "loving." The schemes of adult social and moral development espoused by Lawrence Kohlberg, Jane Loevinger, James Fowler, and Erik Erikson follow the same trajectory.

A limitation of the book is that not only is its evidence of character change retrospective but the authors also fail to provide corroboration of change by informants. However, since the book purports to be about only subjective experience, this failing is by no means a fatal flaw.

The message of a quantum change comes into consciousness with great force and certitude. As one physician reported, "I can't even try in words to describe what it was like. When you take intravenous morphine you get this sudden euphoric thing...but drugs pale in comparison to what this felt like." The change is also positive and benevolent. A Catholic woman wrote,

I had a feeling of lightness and exhaustion—and tears....I just continued to be more involved in church activities. For example, we regularly go into the Bernalillo county jail for Bible study and to do services....I didn't realize that people living in a situation like prison have so much to give me....I often get more out of it than I think they do....I guess a lot of it had to do with my giving up my own defenses, my intellectualizing about it and letting my emotional side come through.

Like William James, and unlike evangelists, Miller and C'de Baca show us rather than tell us. The authors are very clear that they do not comprehend why quantum change occurs, but they thoughtfully discuss many eclectic possibilities. Their book reminds us that such experiences are common and that it behooves both behavioral scientists and clergy to seek the common, healing ground that unites their two disciplines. After reading their book I, for one, cannot wait for the brain imagers to begin unraveling the relation between spirituality and temporal lobe function. More important, I suspect that everyone who reads this book will be moved by reflections on forces greater than themselves.

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GEORGE E. VAILLANT, M.D. Boston, Mass.

Reprints are not available; however, Book Forum reviews can be downloaded at http://ajp.psychiatryonline.org.

Corrections

In Table 1 on page 840 of the article "Test-Retest Stability of the Repeatable Battery for the Assessment of Neuropsychological Status in Schizophrenia" by Christopher M. Wilk, M.A., et al. (May 2002, pp. 838–844), the column reporting standard deviations for scores on test occasion 2 erroneously is identical to the column reporting standard deviations for change in scores. The table below should replace Table 1 on page 840.

TABLE 1. Scores on the Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) of Schizophrenic Patients and Healthy Comparison Subjects on Two Test Occasions and Test-Retest Change in Scores^a

Group and RBANS Measure	Score on Test Occasion 1		Score on Test Occasion 2		Change	
	Mean	SD	Mean	SD	Mean	SD
Schizophrenic patients (N=181)						
Total scale	71.81	14.92	73.50	15.38	1.69 ^b	8.56
Cognitive index						
Immediate memory	72.18	18.04	76.08	19.14	3.90 ^b	14.62
Visuospatial/constructional ability	80.57	17.92	79.34	18.02	-1.23	13.66
Language	84.73	14.85	88.02	12.86	3.29 ^b	13.41
Attention	75.43	17.44	76.50	18.10	1.07	11.06
Delayed memory	74.00	18.72	74.91	19.61	0.91 ^b	15.22
Healthy comparison subjects (N=99)						
Total scale	106.30	13.84	104.82	13.02	-1.48 ^b	8.97
Cognitive index						
Immediate memory	105.75	12.64	105.77	13.20	0.02 ^b	12.29
Visuospatial/constructional ability	99.42	13.22	100.42	12.94	1.00	12.63
Language	105.69	14.23	101.85	14.90	-3.84 ^b	16.25
Attention	106.32	14.33	108.52	13.32	2.20	9.34
Delayed memory	105.38	13.93	100.95	15.70	-4.43 ^b	13.86

^a Range of test-retest interval=1–134 days.
^b Significant difference between groups (t tests for independent groups, df=278, p<0.05).

There was an error made in the letter "Safety of Vagus Nerve Stimulation With ECT," Am J Psychiatry 2002; 159: 1243, by Mustafa M. Husain, M.D., et al. The fourth sentence should read, "However, in a pivotal randomized contolled trial (press release, Cyberonics, Jan. 22, 2002), vagus nerve stimulation was found not to be efficacious in treating acute depression."