

children, and children of psychiatrically ill parents. The section on family transitions is particularly helpful regarding specific interventions for different developmental stages. Chapter 8, Psychopharmacology, describes medication indications and dosage, developmental toxicity, outcome, adherence to treatment, and ethical issues. Unfortunately, any book that addresses psychopharmacological treatment is out of date before it is published, and this is no exception. The current controversy surrounding selective serotonin reuptake inhibitors and antidepressant treatment in children is not addressed because it postdates the book by a couple of years. Again, however, the tables are especially helpful.

Chapter 9, Psychosocial Treatments, provides useful information on methods of engaging children and adolescents to enhance communication and reduce resistance.

Also valuable is information on service delivery as it pertains to a continuum of care, especially emphasizing psychiatric disorders that are not being successfully treated unless the family dynamics and the school environment are considered.

In summary, this handbook provided a readable, succinct overview of child and adolescent psychiatry and covers multiple topics. There are a reasonable number of references for each topic and many useful tables throughout. The main strength of the book lies in its breadth while maintaining its brevity. It provides a quick review for the experienced child psychiatrist and is especially useful for medical students, residents, fellows, and non-child psychiatrists.

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***The Origin of Mind: Evolution of Brain, Cognition, and General Intelligence***, by David C. Geary. Washington, DC. American Psychological Association, 2004, 459 pp, \$59.95.

David Geary's *The Origin of Mind* is a remarkable book. As suggested by its subtitle, it ambitiously addresses many of the oldest questions of science (and society): How does one define intelligence? Is intelligence a biologically meaningful concept? What neurobiological mechanisms underlie not only intelligence but cognition in general? And, ultimately, what (if any) selective pressures shaped the evolution of the human brain? These are profound questions to ask and (to varying degrees in different chapters) Geary's work does an extraordinary job in answering them.

The book is organized around the author's "motivation to control" hypothesis—essentially, that the driving force of human evolution is an individual's ability to maintain control over the immediate environment. After a brief overview of natural and sexual selection, he focuses on the specific pressures likely to have contributed to hominid evolution—the most striking aspect of which is the exponential increase in both brain size and encephalization quotient that has taken place over the past 500,000 years. He argues that climatic forces were unlikely to have played a major role; rather, social pressures prevailed after relative ecological mastery was achieved.

In the next two chapters he delves first into neurodevelopment—with the requisite discussion of genetic versus environmental influences—and then into an overview of different modular domains of the human mind. A key argument he

makes is that different types of information are likely to lead to different types of processing systems: specifically, invariant information in the environment should lead to relatively fixed processing systems (e.g., for recognizing the general features of faces or the sound of a baby crying), whereas variant information necessarily requires a degree of plasticity (e.g., to allow recognition of specific faces or of the sound of one's own baby crying).

Chapters 6 and 7 are an intriguing pairing that expand on this concept and attempt to integrate it with the basic neurobiological modules/systems reviewed in Chapter 5. The first is dedicated to heuristic problem solving—by which Geary means systems that have evolved to address invariant information via "fast, frugal, and implicit mechanism[s]." This type of processing is ideally suited to frequently occurring, invariant aspects of the environment, for which it would be inefficient to devote significant cognitive resources. In contrast, variant information requires greater cognitive resources: "slow, effortful, complex, and explicit/conscious mechanisms." This type of processing involves a "central executive" that is able to direct attention to lower level "slave systems" (e.g., the "visuospatial sketch pad" and the "phonological loop") in response to specific task demands. He presents data consistent with the idea that central executive and attention-directing functions may be performed, respectively, by the prefrontal cortex and the anterior cingulate. He then reviews additional data suggesting that parts of the right prefrontal cortex may underlie the ability to create an auto-noetic mental model, "whereby the individual creates a self-centered mental simulation of the 'perfect world.'" This ability to manipulate lower level information, particularly as it relates to self, corresponds closely with his "motivation to control" model, which he goes on to discuss in the final two chapters.

Geary begins Chapter 8 by discussing historical studies of intelligence, most notably, the concept of *g* or general intelligence—frequently split into *gF* (fluid intelligence) and *gC* (crystal intelligence). In recounting the underlying skills that contribute to *gF*, it is clear that they overlap considerably with those outlined in the "motivation to control" hypothesis and in the neurobiological systems described previously: working memory, attentional control (most significantly, the ability to ignore irrelevant stimuli), and speed of processing. He concludes by discussing the importance of general intelligence in modern society, including apparently independent correlations between measures of intelligence and academic performance, work performance, and income/socioeconomic status. In his conclusion, he also mentions why intelligence may contribute to these various aptitudes, including a fascinating discussion of the process by which a complex task may be learned and differentially translated, based on intelligence, into a heuristic process.

At its best, the book is clear, concise, and convincing. The author is diligent in avoiding controversy, despite the volatile nature of the material. Although the scope is sprawling, he remains meticulously well-grounded throughout and his citations are as current as could reasonably be expected.

That said, the book is dense and it is easy to become bogged down—a problem exacerbated by awkward organization in some chapters and figures that do not match the quality of the text. We found ourselves further slowed by the inherently provocative content of the text, constantly questioning, re-

hashing, and often disagreeing with a myriad of minor details. Although most of these points were small, there were several more substantive problems with the text. We were surprised that he omits any discussion of either punctuated equilibrium (Eldredge and Gould's seminal 1972 paper does not make it into the 74 pages of references) or work from the field of "evo-devo" (i.e., the role of transcriptional regulation in evolution). This is particularly odd given the considerable amount of text devoted to discussing Pasko Rakic's radial unit hypothesis, which Rakic himself has suggested could account for radical changes in brain function/morphology based on minimal changes during development. His overall approach to neurobiological "modules" also resonates poorly: the better we understand the intricacies of neural networks, the more difficult it is to subscribe to simple "module"-based processes (a problem that has been negatively reinforced in popular science sources by the relentless stream of functional imaging studies that make exactly these types of claims). The text also misses a number of opportunities to interface with clinical neuro-

science (e.g., by including as part of his discussion of intrinsic versus extrinsic factors in neurodevelopment a discussion of plasticity in congenitally blind or deaf individuals), and the places where he tries to make these types of connections at times feel strained (e.g., his discussion of postpartum depression as an "emotional-behavioral strategy" (p. 80) to elicit greater social attention for a mother and her child).

Nevertheless, as generally exacting readers, we were surprised to find ourselves relatively untroubled by these comparatively small things. None of them undermined a critical point in the text. Rather, they evoked in us a constant inner dialogue argument with the author. The volume seems ideally suited to a graduate level seminar course, for above all, reading it is an intellectually stimulating (not to mention time-consuming) undertaking. It is the kind of book that you want to immediately discuss with a friend or colleague—as we indeed enjoyed doing as we wrote this review.

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