

This aside, Iain McGilchrist's crusade against brain unilateralism results in a brilliantly written book that valiantly addresses the effect hemispheric asymmetry has had on Western civilization. And while the author quotes Ramachandran and Heidegger more frequently than Freud and Bleuler, *The Master and His Emissary* is still certainly a relevant book for any psychiatrist (and any neuroscientist or philosopher for that matter).

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How Genes Influence Behavior, by Jonathan Flint, Ralph J. Greenspan, and Kenneth S. Kendler. New York, Oxford University Press, 2010, 304 pp., \$52.95.

A man, a rat, and a fruit fly enter a laboratory—it's the classic setup for a joke. Perhaps you can see where this is going: the strange threesome exchanging puns with a harried lab tech or principal investigator, the awkward silence and polite laughter that will accompany the punch line. But in this case, the punch line is a new book, *How Genes Influence Behavior*, which presents the story of behavioral genetics research in the context of these three seemingly discordant yet related creatures, and our response is one of commendation and, yes, the occasional laugh.

It is appropriate to harp on humor in this review because *How Genes Influence Behavior* is a textbook that aims to both educate and amuse. The authors, the celebrated geneticists Jonathan Flint, Ralph J. Greenspan, and Kenneth S. Kendler, pepper their facts with jokes, parenthetical anecdotes, and an honest cynicism toward academia. Take the following confession, for example: "There are molecular biologists, who redesign the genomes of mice and speak a newly minted language, which only they understand, and behavioral neuroscientists who test mice...and use the vocabulary of learning theory (which personally I think is equally impenetrable). The two groups do speak to each other but, it has to be said, not much" (p. 201). These stylistic touches can sometimes seem a bit too pointed, but when combined with the book's clarity of language and lack of jargon, the overall effect is one of accessibility. Rather than causing readers to throw their hands up in frustration at the onslaught of dense passages, this is a book that takes difficult concepts and describes them in ways that are clear and easy to understand.

Indeed, these titans of research have crafted a helpful introduction to the relationship between genes and behavior, an introduction that is also unique for its interdisciplinary approach to genetic questions. By combining their expertise, Flint, Greenspan, and Kendler are able to trace the historical innovations and most recent findings of genetic research across species, detailing how studies in humans, rodents, flies, and worms all work together to teach us about the complex relationship between genetics and behavior. This approach illustrates a basic principle of research and knowledge

acquisition in that it shows how we must understand what seems simple (e.g., flies and worms) before we can ever begin to comprehend that which is complex (e.g., humans). But more importantly, it offers readers a survey of what are often very disconnected branches of behavioral genetics research. After all, the authors are correct when they joke about molecular biologists and behavioral neuroscientists not speaking to each other much. Thus, as researchers who spend our days solving genetic puzzles about participants who can at least marginally respond to questions about their behavior, we found the overview on qualitative trait loci in rodents, for example, quite interesting. This kind of broad overview gives one a sense of appreciation for the complexity of studying each organism.

However, before purchasing *How Genes Influence Behavior* and jumping headlong into its discussion of behavioral genetics, it is perhaps beneficial to take heed of some words the authors share in their introduction. They explain, "We're not relating a story, so you can, if you like, read at random (relatively speaking at least)" (p. 4), and unfortunately there were times where we felt ready to embrace this advice. The book's organization sometimes feels counterintuitive (though certainly not *random*) because rather than keeping similar kinds of chapters together or presenting the methods listed in the appendix sequentially, the text seems instead to roam about. For example, the book begins with an in-depth look at schizophrenia, moves into the next chapter to discuss linkage analyses, and then just as readers might be settling into a consideration of the *methods* associated with human studies, it returns to a discussion of human phenotypes, only to yank readers back again to a discussion of the various kinds of association analyses in the subsequent chapters. Moreover, an entire chapter is spent on schizophrenia, whereas other kinds of human behavior only receive a few pages of explicit attention (e.g., alcoholism, depression, personality disorders), and some kinds of human behavior are only mentioned in passing (e.g., childhood disorders such as autism). In their defense, though, schizophrenia is perhaps the most interesting psychiatric illness to the casual reader, and it does make for an interesting gateway to discussing twin and family studies.

Another noteworthy feature of *How Genes Influence Behavior* is the appendix, which provides an introduction to various molecular genetics methods—DNA sequencing, single nucleotide polymorphism genotyping, fly mutagenizing, et cetera—so that the casual reader can understand the basics of these techniques. These pages are by no means a how-to guide or a suitable reference for molecular geneticists, but like the rest of the book, they offer a good synopsis of the tools available to researchers. Elsewhere, when speaking about the application of linkage analyses to gene discovery in psychiatric disorders, the authors mention the quickly changing nature of genetic methods, and this would have been a valuable caveat to include in the appendix as well. Given that technology is advancing so rapidly, technological advances often drive the research methods rather than the methods driving the technology, and readers should be informed that while this has led to gene discovery, the guidelines of matching particular technologies and methods to particular genetic disorders are still in flux.

Because of its general focus and casual style, *How Genes Influence Behavior* seems especially suited for beginning gradu-

ate students who are looking for supplementary reading on the basic concepts and methods of genetics, for something to whet their appetite as far as research is concerned. The book does its best to make the material easy to navigate. Throughout the chapters, the authors have included references to significant or landmark peer-reviewed articles and books, although, given the authors' own prolific repertoire of studies and manuscripts, a fair number of these references are to their own work, and each chapter concludes with helpful summaries of the most important points. Indeed, all joking aside, *How Genes Influence Behavior* is an excellent primer for

anyone with a hankering to discover more about what happens when man, rat, and fruit fly find themselves in the lab.

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