deepening of their faith. The authors testify over and over to an increased sense of wonder, awe, mystery, and delight in God's creation and were compelled to respond with worship.

Consistent with the emphasis on intellectual humility, the authors do not suggest that they have the issues all solved. They readily admit to having ongoing questions for which they are seeking answers. But they are not afraid of their questions, and in their confidence, they encourage us, as readers, to approach our own questions without fear.

Finally, the authors describe the critical role of mentors, models, and communities in creating safe, nonjudgmental spaces in which they had permission to ask hard questions, disagree, dialogue, and listen.

You will not find the evidence on which the authors depended along their journeys in this book, but you will find references to authors and books in which you can find that evidence for your own journey. In this book, you will find honest stories with which you might identify. You will find safe spaces to ask your questions, and you will be introduced to members of a community working to create those safe spaces. I think that anyone curious about embarking on their own journey to reconcile faith and science, as well as those well along that road, will enjoy and find encouragement in this collection of stories. The essays are short, easy to read, well written, and compelling. I will recommend this book to students who are struggling to reconcile their faith and evolutionary theory as an assurance that it can be done and done well.

This is the first book in a new series, BioLogos Books on Science and Christianity, in a partnership between BioLogos and IVP Academic. I look forward to more.

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Psychology

THE BRAIN'S WAY OF HEALING: Remarkable Discoveries and Recoveries from the Frontiers of Neuroplasticity by Norman Doidge, MD. New York: Viking, 2015. 409 pages. Paperback; $19.95. ISBN: 9780670025503.

Norman Doidge's first book, *The Brain That Changes Itself* (2007), profiled case studies of neurologically impaired patients who were desperate for a cure. It became a *New York Times* bestseller that subsequently spun off as a successful educational film. The book's overarching theme explores the concept of brain plasticity—the notion that the mammalian brain is not fixed but can change both structurally and functionally well into adulthood. While Doidge's first book introduced the reader to the major scientists who challenged previous dogma insisting that the adult brain could not alter its functional characteristics, his new book, *The Brain's Way of Healing*, emphasizes the application of neuroplasticity to treating complex neurological illnesses with behavioral treatments.

The Brain's Way of Healing includes eight chapters featuring compelling stories of people who, through no fault of their own, live with severe neurological impairments. Their ailments include Parkinson's disease, traumatic brain injury, stroke, autism, multiple sclerosis, attention deficit disorder, among others. Each had been told that they would never get better from their illness.

In *The Brain's Way of Healing*, Doidge attempts to categorize different types of neuroplastic healing that can occur and examines the various ways the brain can adapt to overcome injury or disease. As a neuro-clinician who specializes in psychiatry and psychoanalysis, he proposes his own stages for neuroplastic changes. However, traditional neuroscientists who place more emphasis on systematic experimental methodologies might feel that Doidge's description of neuroplastic changes are too broad and lack the precision characteristic of scientific theorizing. For example, Doidge's use of the phrase the "brain is rewiring itself" appears to include instances of axonal or dendritic sprouting, creation of new brain cells through neurogenesis, processes involving the repairing of damaged tissue, as well as the altering of neuropathways that circumvent previously used circuitry. These different types of brain-altering processes could be more clearly nuanced, particularly when Doidge addresses the efficacy of the behavioral treatments described in the case studies.

Doidge believes that neuroplastic healing in the brain occurs by using different forms of energy such as light, sound, touch (including movement), and electricity. These forms of energy can be used to modify patterns of the brain's electrical signals, which, according to Doidge, lead to structural changes in the brain. For example, sensory cortical real estate initially dedicated to one body part, such as the hand, is now taken over by abutting cortical areas in the face after a limb amputation. Research by Michael Merzenich revealed that the lack of sensory input to the brain from an amputated finger resulted in an altered cortical brain map. Doidge explained the change in terms of energy—in this case electrical signaling—that had ceased. The cortical areas

responsible for the motor pathways from the intact fingers increased in size, eventually taking over the brain area that previously controlled the missing finger.

Doidge clearly shows his biases against contemporary medicine. He believes clinicians have overlooked the body to treat the brain. He also opposes Western medicine's emphasis on using drugs to cure. Doidge prefers behavioral therapies, such as movement or applying some form of energy (e.g., light, sound) to the body as a way of treating the brain. While he does acknowledge the presence of bidirectional communication feedback loops between the brain and the peripheral nervous system, it was disappointing that he failed to mention anything from the new scholarship on the embodied mind. Instead, he promulgates a spurious dichotomy between Western and Eastern views of medicine by making them appear more diametrically opposed than they actually are.

The Brain's Way of Healing reads like a science fiction novel. It captures readers with a riveting narrative style. For example, the book's first chapter describes the case study of a registered nurse who suffered from debilitating chronic pain after she injured her back. Surgeons told her that there was too much damage for surgery to be of any help. She was placed on a steady regimen of opioid medicines to control the pain; even strong painkillers like morphine were not effective. After a decade spent at home and feeling depressed and suicidal, she sought an alternative therapy that involved visualizing the shrinking of brain areas responsible for processing pain. The woman testified that her pain had subsided dramatically within four weeks and eventually disappeared completely, allowing her to return to her normal way of life. Doidge's explanation is that "competitive plasticity" occurred in the brain, disabling the posterior parietal lobe from processing the pain signals as it had in the past.

In this case study, as with the others described in the book, one questions the quality of the evidence Doidge uses to arrive at the conclusion that a particular neuroplastic therapy was responsible for the prophylactic outcomes. Much of the evidence presented is anecdotal and appears to be uncritically accepted as truth. In addition, there is a reliance on retrospective memories without a cautionary eye toward the possible influence of hindsight biases that could alter the patient's narrative. Also, there was no mention of any brain imaging data (i.e., fMRI, PET) that could elucidate or confirm that specific brain areas are supposedly now rewired. Doidge does acknowledge the possibility of a placebo effect causing the pain reduction. However, it is quickly ruled out by his reasoning that the duration of the relief far surpasses what may be credited to only placebo.

It is likely that *PSCF* readers will be disappointed by the paucity of data used to explain how the therapies work. While attempting to understand how a particular therapy might cause brain-based changes through mechanisms of neuroplasticity, Doidge resorts to less credible "evidence" as a substitute for genuine scientific methods. Although *The Brain's Way of Healing* is a stimulating read, it raises more questions than it answers.

From a Christian perspective, *PSCF* readers will note Doidge's nonreductionist approach to clinical neuroscience. The author describes the individuals who comprise the neurologically based case studies from a holistic perspective involving mind, body, and soul. Although Doidge does not attempt to integrate religious constructs with scientific findings explicitly, his writing is infused with implicit musings that could resonate with spiritual and religious communities. For example, personhood is viewed more broadly than the sum of one's intellect (mind) and body. There is an appreciation for the mystery and wonder that is present in all people, whether their brains have been ravaged by disease or are fully intact. In many respects, *The Brain's Way of Healing* is reminiscent of the writings by the late neurologist Oliver Sacks, who was known for his ability to write about the existential qualities of his former patients with a humanizing grace. Sacks never seems to focus on the brokenness of humanity; he unabashedly emphasizes the growth potential of all people, regardless of their challenges. Doidge's writing reflects this same uplifting quality that provides hope for those whom traditional medicine has not been able to help.

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Social Science

UNDERSTANDING GENDER DYSPHORIA: Navigating Transgender Issues in a Changing Culture by Mark A. Yarhouse. Downers Grove, IL: InterVarsity Press, 2015. 191 pages. Paperback; $20.00. ISBN: 9780830828593.

Transgender, gender fluid, gender queer, transsexual: Almost weekly, it seems, new words emerge to describe and express a diversity of gender experience and expression well beyond the traditional female/male, woman/man binaries. Are those who do not fit the traditional gender binaries suffering from a mental disorder, or are they expressing