

Book Reviews

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

perversity or something to celebrate? Struggles and arguments on this question reverberate throughout modern society. In the midst, Christians often stand bewildered, wondering how to respond. Knee jerk, oversimplified reactions abound in both the secular and Christian media, and those who experience gender dysphoria can be deeply hurt in the crossfire.

While there are plenty of excellent (and not-so-excellent) books and other resources to help Christians think through issues of sexuality and sexual orientation, gender dysphoria has received far less attention. In *Understanding Gender Dysphoria: Navigating Transgender Issues in a Changing Culture*, professor, clinical psychologist, and evangelical Christian Mark Yarhouse has provided a much-needed, thoughtful, serviceable resource for Christian families, churches, and communities. In the midst of a cacophony of competing perspectives, his voice stands out as compassionate, wise, balanced, and sane. Yarhouse acknowledges the complexity of people's experiences of gender dysphoria, accurately outlines the current state of the research, and situates both in the context of evangelical Christian theology. What he does not do is take seriously the possibility that traditional conservative evangelical theology might have something to learn from those who challenge the reality and appropriateness of a binary view of gender. However, by refusing that challenge he has created a "safe space" for evangelical Christians within which he presents a different challenge: To get comfortable with the complexity and lack of knowledge around gender dysphoria and to focus on humility, listening, and being in relationship with those who struggle with dysphoria.

Yarhouse begins with two chapters introducing readers to the complexity of sex and gender and an outline of evangelical Christian perspectives on these topics. The next three chapters summarize the scientific and clinical dimensions of gender dysphoria, from potential causes to prevalence to prevention and treatment. In the final two chapters, he provides concrete suggestions for Christian individuals and institutions as they wonder how to respond. Throughout, he emphasizes the complexity of gender diversity, the many as-yet-unanswered questions about cause, and the importance of recognizing that people do not choose to be gender dysphoric. Stories of real people dealing with gender dysphoria in the context of their Christian faith and faith communities put an important face on the issue, and give life to the theories. The writing is conversational but also academic in style. The book could have used more careful copy-editing to catch errors and awkward sentences; however, the overall points get through despite these distractions. Some readers may struggle

with the technical language in the three chapters on cause, prevalence, and treatment; however, each chapter has a concluding section that summarizes the main points in a more accessible manner.

I have followed Yarhouse's work for many years, and find this to be one of his most nuanced. While continuing to hold to the traditional evangelical perspective that God's intention for creation is a clear female-male binary, he gently scolds the many Christian communities who send a message of exclusion and sinfulness to those who are dealing with a complex issue that has no simple solutions. Particularly helpful is his identification of three different lenses through which people consider gender issues—integrity, disability, and diversity—and showing how each has value and limitations for the Christian. He also clearly lays out how to use these lenses when dealing with real people in their real struggles. His clinical experience, wisdom, and compassion shine through as a guide and a model for humility, grace, and relationality.

One of the most moving and powerful moments in this book, for me, is a quotation from a friend of Yarhouse's who deals with gender dysphoria. It captures the spirit of the book well. She says,

This central paradox in Christianity allows us to love our own brokenness precisely because it is through that brokenness that we image the broken body of our God—and the highest expression of divine love ... It's also always struck me as particularly fitting and beautiful that when Christ is resurrected, his body is not returned to a state of perfection ... but rather it still bears the marks of his suffering and death—and indeed that it is precisely through these marks that he is known by Thomas. (pp. 59–60)

Some readers may be disappointed that Yarhouse does not provide clear, strong answers about what is "right" and "wrong" about expressions of gender diversity and various approaches to its treatment. His challenge to get comfortable with the messiness may be strong meat to some. Others may be disappointed at his unwillingness to consider that traditional evangelical Christian theology around sex and gender might well need some revision in the light of current knowledge and understanding. He outright rejects any consideration of transgender experience as something to celebrate and learn from. His dismissive attitude toward those who hold what he calls the "strong form" of the diversity lens, those who suggest that we need to deconstruct and challenge the sex/gender binary, seems oddly closed-minded given the open tone of the rest of the book. There is some excellent, thoughtful work by deeply committed Christian scholars that actively engages the

Book Reviews

challenge to the sex/gender binary (e.g., Megan DeFranza's *Sex Difference in Christian Theology*, and work by Margaret Farley and Lise Sowle Cahill). That Yarhouse does not even acknowledge this work, yet does choose to cite uncritically the divisive and controversial work of Paul McHugh, is troubling, and also puzzling, given that he acknowledges throughout the book that a rigid adherence to stereotypical expressions of femininity and masculinity is a source of great pain for the gender dysphoric person, something that Christians need to recognize and relinquish.

Given the complexity of gender dysphoria and the rapid changes in knowledge, theories, and recommendations from mental health professional organizations, all of which Yarhouse acknowledges, I expect and hope that this book will be released in a second edition in roughly the next five years.

In writing to Christians about sexuality and gender, it is impossible to please everyone. Yet Yarhouse has produced a book that should be of service to virtually all who are interested, personally or theoretically, in this topic, and are not already foreclosed. I know that I will be recommending it widely.

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TECHNOLOGY

PHILOSOPHY OF TECHNOLOGY: An Introduction for Technology and Business Students by Maarten J. Verkerk, Jan Hoogland, Jan van der Stoep, and Marc J. de Vries. New York: Routledge, 2015. 336 pages, index. Paperback; \$59.95. ISBN: 9781138904392.

This is probably the best book on the philosophy of technology that I have yet come across—best, not only for technology and business students, but also for researchers and reflective practitioners. It is inspired by a Christian philosophy but should be more than acceptable to non-Christians of all kinds, because of the wide range of technology issues it covers well.

This book provides both breadth and depth in a way that is readable and readily understandable. It provides considerable understanding of many issues and challenges that we face today, clearly explained. It is informative and comprehensive, merging philosophical thinking with practical technology development and with responsibility in society, and provides useful insight for communities of practice concerned with each. This broad view

encourages philosophers and developers to be aware of responsibility, developers and media pundits to think philosophically, and philosophers and politicians to remember the realities of development.

It is able to achieve this by basing its discussion of technology on a radically different way of understanding things, which brings theory and practice together and takes meaningfulness seriously. Hence, the book helpfully addresses the issues that most deeply trouble us. This is rooted in a little-known philosophy that has Christian (Calvinistic) roots, that of Herman Dooyeweerd. It seems that each chapter is inspired by a different insight found in Dooyeweerd's thought, but seldom is Dooyeweerd thrust on the reader.

Philosophy of Technology has three parts. Part I, entitled Thinking and Making, has two chapters, which look at the phenomenon of technology from a philosophical perspective. Technology is not just something that happens but has a special meaning or role in the world, which is to disclose deeper meaningfulness for the good of the world.

Part II, entitled Making and Designing, has six chapters, each of which discusses a different aspect of design and development of technology. Chapter 3 discusses complexity that developers face; chapter 4, how technology artifacts should embody diversity in a way that coheres; chapter 5, the function and structure of artifacts; chapter 6, knowledge and the role of the engineer; chapter 7, methodology for development and design; and chapter 8, ensuring that technology does not dehumanize. These chapters will not teach us the details of, for example, computer programming, but rather they provide a perspective, a wisdom, with which computer programmers might operate.

Part III, entitled Designing and Thinking, has six chapters, which discuss technology in the world. Chapter 9 shows how technology is not just a technical but a social activity. Chapter 10 portrays pessimism and optimism about technology: will it lead to destruction and enslavement or open up bright futures? Chapter 11 discusses globalization and cultures, specifically the role technology plays in these. Chapter 12 discusses the cyborg possibility, namely, humans augmented with technology. Chapter 13 discusses responsibilities surrounding technology. The final chapter, 14, discusses expectations for the future, the "secular sacred" and the limits of technology.

The book thus covers not only the two streams of philosophy of technology mentioned by Carl Mitcham,