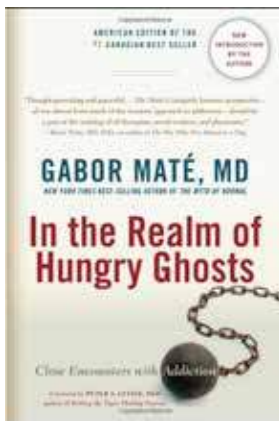


Book reviews

Jack Coulehan, MD, MPH and Raymond Barfield, MD, PhD, Book Review Editors



In the Realm of Hungry Ghosts: Close Encounters with Addiction

Gabor Maté, MD
Berkeley (CA): North Atlantic Books
U.S. Edition, 2020, 536 pages

Reviewed by Raymond Barfield, MD, PhD (AQA, Duke University School of Medicine, 2017, Faculty)

While I was reading Gabor Maté's book, *In the Realm of Hungry Ghosts*, I was taking care of a young woman who was addicted to heroin and fentanyl, among other things. About a year before I met her, she had developed endocarditis that damaged her mitral and tricuspid valves so severely they had to be replaced. She received outstanding care for her endocarditis and valve replacement, but she did not receive treatment for her addiction, and she was discharged without a formal plan for community support of her recovery. Unsurprisingly, she quickly returned to intravenous drug use and her endocarditis recurred damaging her bioprosthetic valves and causing severe tricuspid stenosis. She was critically ill for the month I was involved in her care. I found a cardiac surgeon who agreed to evaluate her for a second valve repair in parallel with robust treatment of her addiction if she survived long enough to have the surgery, or even be evaluated by the surgeon.

Maté's book illuminated many aspects of my experience with this patient. The complex stories of the addicted people he met while working at Vancouver's Downtown Eastside clinic are interwoven with an extensively documented review of the social and neurobiological factors influencing addiction.

His overall conclusion is that addiction is not a choice, moral failure, weakness of character, or inherited brain disease, but it starts with a human being's attempt to escape suffering.

Maté argues that it is not just dependence on a substance such as heroin or alcohol that constitutes addiction, but includes a range of behaviors—addiction to work, sports, or consumerism—that are viewed as acceptable or even applauded. But in all cases, he says that addiction cannot be understood unless we ask questions

about what relief the addict finds, or hopes to find, in the drug or addictive behavior.

Early in the book Maté explicitly states his mantra: The first question is not “Why the addiction?” but “Why the pain?”^{ppxxiii}

The stories that make up the first part of the book, and that illustrate subsequent parts of the book, are stories of people in very advanced stages of self-destruction. Maté chose these stories to show the arc of harm that originates in trauma and suffering, and that is perpetuated less by character flaws than by social gaps and defects. As stark as he is in his portrayal of how profound the harmfulness of addictive behaviors can be, he is equally bold in his evidence-based arguments that, given the right conditions, people suffering from addiction can heal. Moralizing and promoting forced abstinence as the only path to healing is ineffective.^{p386} No strategy based on arbitrary lines that allow some people to be scapegoated as criminals will bring our culture closer to meaningfully addressing this problem. The later parts of his book dig down to the sources of addictive behavior of all kinds.

To a fault, many might reasonably conclude, Maté emphasizes early childhood neglect or some painful experience as the instigating factor leading to addictive behavior. But even if a complete understanding of addiction requires going beyond Maté's account, he nonetheless illuminates one very important source of this wide-spread affliction. He identifies several traits that make one prone to addiction in response to trauma and pain: poor self-regulation, impaired impulse control, a lack of ability to hold on to a healthy sense of oneself, and the experience of deficient emptiness in which one believes, “I am not enough.” But these individual traits are amplified and made more destructive by one of the primary social factors Maté identifies in addiction—dislocation. The people who are most vulnerable to dislocation are most vulnerable to addiction.

One example of philosophically motivated social policy that has contributed dramatically to the worsening of the problem of addiction is the so-called “war on drugs.” Maté discusses the demographics of the tens of thousands of otherwise non-criminal Americans incarcerated for decades, after which their history of imprisonment devastates their future opportunities. He reviews the ways the international campaign against narcotics led to the unintended consequence that many in the underdeveloped world do not have access to opiates for relief of severe physical pain.

The war on drugs, which criminalizes people struggling with addiction, worsens the cultural problem of addiction by deepening the isolation, loss of control, uncertainty, and conflict in the lives of these people. This, in turn, triggers overwhelming stress that reinforces addiction and relapse.

This nearly 500-page analysis is inadequate, but the aim of the critique Maté constructs is not to lay blame on policy-makers, caregivers, or anyone else involved in the effort to respond to this complex human tragedy. The aim is to provoke us into awareness of how sensitive we are to our emotional and social environment, and how crucial this awareness is to the construction of a more effective approach to this problem.

Maté proposes a detailed set of evidence-based suggestions to divert resources from a war on drugs toward prevention strategies; social supports for parents; changes in the ways adolescent drug users are treated; changes in responses to adult addicts; and harm reduction for addicts. He encourages physicians to develop compassionate curiosity, and self-compassion. He is rightly concerned that physicians cutting themselves off from self-compassion is one of the greatest impairments they can suffer.

In the end, he insists that this is a spiritual endeavor in which we not only try to understand our brains, shaped both by neurochemistry and by the many influences around us, but also come to understand the lived experience of people suffering from addiction that cannot be reduced to the chemistry of the brain. This is the only way a patient recovers that moment of freedom in which they can reclaim the ability to allow or deny their impulses.

Though I found a surgeon who was interested in helping my patient with her physical heart and her metaphorical heart, she entered a decline from which she could not escape. I quietly sat with her as she moved toward the end of life. When the social worker on my team came to her room, I left to continue the day's work. Before I was off the unit, the social worker ran after me and said my patient had woken up a bit and wanted to tell me something. I went back to her room and sat down next to her bed. I asked what she wanted to tell me. She opened her eyes, looked at me, and said, "I want to tell you a story."

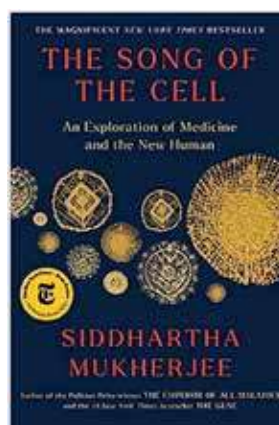
This was what I had been waiting for—the chance to hear the answer to the question Maté had presented.

I waited. She closed her eyes, fell back asleep, and said nothing more.

A lot of work remains to be done beyond what Maté has discovered and written about. But because of his

book, and because of this patient, I hope to grow in compassionate curiosity as I hear the stories of the human beings suffering from addiction who ask me to be their doctor. I recommend that all care providers read this book, as it is not about "them," because there is no "them," the book is about us.

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The Song of the Cell: An Exploration of Medicine and the New Human

By Siddhartha Mukherjee
Scribner; First Edition
October 25, 2022, 496 pages

Reviewed by Lara Hazelton,
MD, Med, FRCPC

Among the number of physician writers with varying degrees of ability and achievement, there are some who have enjoyed remarkable success in combining literary output with scientific endeavours. Siddhartha Mukherjee is a recent example. Born in India, and an associate professor of medicine at Columbia University, Mukherjee is the author of *The Emperor of All Maladies: A Biography of Cancer* for which he received the Pulitzer Prize in 2011. Since then, he has gone on to write *The Laws of Medicine: Field Notes from an Uncertain Science* (2015), and *The Gene: An Intimate History* (2016). Mukherjee's books have been bestsellers, won accolades, and been made into documentaries.

Mukherjee's most recent book is *The Song of the Cell: An Exploration of Medicine and the New Human*. Published in 2022, *The Song of the Cell* is a comprehensive overview of cells. As we know, cells are all around us, and indeed, are us. As in Wallace Stevens' poem, *Thirteen Ways of Looking at a Blackbird* (quoted in the final chapter), there are many ways to look at a cell. It would be challenging to decide on one, and Mukherjee's solution is to employ multiple approaches, zooming in and out among levels of complexity.

Over the course of the book, the reader examines cells through time, through the microscope, and in the mirror. We follow the cell through the history of medicine, encountering famous characters such as Virchow, and hordes of obscure ones that are nonetheless given credit where credit is due. We enter the cell like tourists exploring the catacombs of Paris, carefully examining our surroundings. It's a long and winding road.

The popularity of this book suggests that it is appropriate for a general reader with basic scientific knowledge. However, it is not a light read. There are carefully researched facts, neat diagrams, and pages of endnotes. I would guess that very few bestsellers have figures illustrating the activation and inactivation of cell cycle transitioning protein. At times, I felt like I was back in my undergraduate degree, struggling to memorize the stages of meiosis.

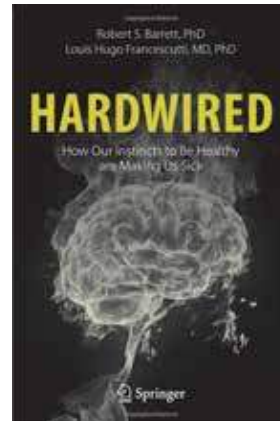
As a psychiatrist, I found the sections on neurology and psychiatry (*The Contemplating Cell*) the most accessible and enjoyable because I already had a framework on which to scaffold new information. The other sections I especially enjoyed were those that looked at cells from a public health perspective, such as cholera epidemics, AIDS, and thalidomide.

For the English majors, there is the use of metaphor (the songs of the cell) and thought-provoking quotations from writers such as Robert Burns and Pablo Neruda at the beginning of each chapter.

In addition to the wealth of historical and scientific information, the author draws upon his personal experience in research and clinical work as a hematologist-oncologist, including narratives of patients and stories about exciting discoveries in his lab. Mukherjee is clearly passionate about cells. His admiration of T-cells reminds me of how my daughter feels about Taylor Swift.

It took me a few chapters to remember how little interest I have in cells, which is a testament to Mukherjee's skill as a writer. It's good that there are those people who are excited by cells. Just as the body needs different types of cells, medicine needs all kinds of physicians; to explore, to synthesize, to heal, and to communicate. In this latest offering, Mukherjee shows us that he is one of those rare ones who seems to be capable of singing multiple songs.

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Hardwired: How Our Instincts to Be Healthy are Making Us Sick

Robert S. Barrett, PhD, and Louis Hugo Franciscutti, MD, PhD
Copernicus;
1st ed. 2021 edition, October 31, 2020, 190 pp.

Reviewed by Jack Coulehan, MD, MPH (ΑΩΑ, University of Pittsburgh, 1969)

Chronic disease is responsible for most of the morbidity, and 90 percent of the mortality, in the United States and similar nations. Lifestyle factors like smoking, obesity, lack of exercise, chronic excessive stress, and drug use are causes of chronic disease. Other factors, like trauma, alienation, dislocation, poverty, and lack of social supports are also significant contributors to morbidity and mortality. In *Hardwired*, Robert Barrett and Louis Hugo Franciscutti (ΑΩΑ, University of Alberta Faculty of Medicine and Dentistry, 1987) have provided a detailed and comprehensive summary of current research linking behavior and contemporary social environment with poor health.

The authors take an additional step by linking pathogenic lifestyles with so-called “hardwired” evolutionary features of the human brain. Their subtitle, *How Our Instincts to Be Healthy are Making Us Sick*, derives from the concept that the human brain evolved to maximize survival under social and environmental conditions that no longer pertain. Rapid cultural evolution has far outstripped biological evolution, so that now instincts once valuable for survival actually promote disease.

The most straightforward example of this is in Chapter 2, “Why Do We Crave Bad Things?” In this chapter, the authors write, “Today added sugar in our food and drink is literally killing us.”^{p31}

They briefly describe the neural network by which dopamine, released when we engage in rewarding activities, initiates a cascade of brain events that result in reinforcing that behavior, eventually leading to addiction. This positive feedback cycle is perhaps most obvious in opioid dependence, but it also applies to other pleasurable experiences like eating, especially sweetened food.

The human brain evolved over thousands of years during which food was neither consistently nor copiously available, and the hyper-stimulus of artificial sweetening

did not exist. This hypothesis seems reasonable, although it must also be true that our unimaginably complex brain has also evolved the resources we use to modify or suppress overeating and other bad behaviors.

In other chapters, the “hardwired” claim tends to be extremely reductionistic. Chapter 3 deals with the ill effects of raising children on “war, cartoons, and social media.”^{p43} A constant diet of “chronic toxic stress during their very early years,”^{p47} leading to “relentless activation of the (more) primitive amygdala”^{p48} causes physical changes in the brain, e.g., reduction in the size of the hippocampus, as well as possible cognitive dysfunction, behavioral problems, depression, and even substance abuse in later life.^{p49}

The authors correctly argue that the brain’s inherent plasticity allows life experiences to influence its architecture. Barrett and Francescutti imply that neural plasticity itself, as manifested in this case by reactive change in the hippocampus, is an example of the book’s subtitle, *How Our Instincts to Be Healthy are Making Us Sick*.

There are two problems with this claim. First, the authors fail to show that excessive childhood exposure to war, cartoons, and social media has anything to do with the human desire to be healthy. Second, the fact that behavior influences brain physiology and even anatomy does not mean that subsequent behavior is strictly determined by those changes.

It’s no secret that bad habits are difficult to break, and they can often result in morbidity. The complex world of human culture is, of course, the result of an evolutionary process, but this includes hardwiring that allows for a wide array of choices. To focus entirely on specific neural pathways as the cause of the behavior that results in chronic disease reduces human agency (free will) to neuroscience.

However, Barrett and Francescutti are not consistent in that claim, as evidenced in Chapter 1, “Why a Hospital Is the Most Dangerous Place on Earth,” which critiques a serious health problem and suggests solutions, but has only the most general relationship to neuroscience, e.g., the human brain has not evolved capacities required to easily deal with complex organizational systems, like modern health care. The alarmist tone of its title’s hyperbole continues throughout the chapter. On the first page, the authors state, “your chance of dying in an American hospital due to an error committed by hospital staff (is) greater than dying as a soldier in the deadliest year of the Iraq war.”^{p1} As evidence, they compare hospital mortality (1/100) to military mortality (1/200), without mentioning that the soldiers were all healthy young people, while the

inpatients were mostly elderly, and suffering from serious chronic and acute illness.

While the authors cite numerous well-documented studies of preventable error in American hospitals, they fail to mention the extensive programs hospitals have adopted in recent years to address mistakes. The authors claim that hospitals should adopt a “mandatory safety reporting system...a non-punitive tool that is used to record incidents, accidents, errors, or any other safety concerns.”^{p15} How would this differ from the critical incident reporting system in use in American hospitals today? They describe the airline industry’s checklist and team-oriented safety protocols, without mentioning the Joint Commission’s efforts to introduce analogous requirements in accredited hospitals.

Nonetheless, some of their critique is right on target, like the finding based on 96 studies that staff members comply with hand-washing protocols only 36 percent of the time. (I imagine COVID-19 has greatly improved hand-washing compliance.)

Hardwired succeeds in showing that many features of contemporary society, like overeating, addiction, sleep loss, violence, chronic stress, alienation, and complexity of medical care, directly, or indirectly, result in poor health. Moreover, these features are sometimes associated with changes seen in brain imaging studies.

However, *Hardwired* fails to make the case claimed in its subtitle. Granted, the human brain evolved during paleolithic and neolithic times to cope with challenges far different from those prevalent today. Cultural and technological changes have far outpaced natural selection, and continue to accelerate. Given today’s longer lifespans, it is also likely that humans suffer far more from chronic disease than did our paleolithic ancestors. Nonetheless, Barrett and Francescutti haven’t shown that our old-fashioned brains are largely responsible for our up-to-date illness.

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