

Book Reviews

⁹W. A. Grudem, *Systematic Theology: An Introduction to Biblical Doctrine* (Grand Rapids, MI: Zondervan, 1994).

¹⁰Ibid.

¹¹Ibid.; N. D. Holsteen and M. J. Svigel, *Exploring Christian Theology, Vol. 1: Creation, Fall, and Salvation* (Grand Rapids, MI: Baker Publishing Group, 2014).

¹²B. Greene, *The Fabric of the Cosmos: Space, Time, and the Texture of Reality* (New York: Vintage, 2007).

¹³Grudem, *Systematic Theology*; and Holsteen and Svigel, *Exploring Christian Theology*.

¹⁴J. Slone, *Theological Incorrectness: Why Religious People Believe What They Shouldn't* (New York: Oxford University Press, 2007).

¹⁵Grudem, *Systematic Theology*.

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TECHNOLOGY

MODERN TECHNOLOGY AND THE HUMAN FUTURE: A Christian Appraisal by Craig M. Gay. Downers Grove, IL: InterVarsity Press, 2018. 233 pages plus preface and acknowledgments; includes epilogue and author, subject, and scripture indices. Paperback; \$22.50. ISBN: 9780830852208.

If someone asked me what I regard as the seminal works of the last century or so that critique technology and technological thinking, I would point that person to the works of Max Weber, Lewis Mumford, Jacques Ellul, and Joseph Weizenbaum. But if they asked me to point them to a book that made the best thinking about technology accessible to people who are broadly educated and eager to learn but who are not specialists, I would point them to Craig Gay's book, *Modern Technology and the Human Future*.

Gay has written a very helpful book. It is carefully thought out, well organized, thorough, deals with substantive and critically important ideas—and it is readable!

Gay begins by arguing that there are serious problems with the direction in which modern technological development is heading; he does this by treating a number of important and comprehensible examples. He then analyzes the economic dynamics that drive such development and follows with a clear analysis of the historical and philosophical roots of that development, most notably the mechanistic model of the universe commonly associated with Descartes. He then steps aside for a chapter to discuss the Christian view of human nature, especially “embodied human existence,” through the lens of the creation-fall-redemption-consummation model. The argument culminates with a discussion of what Christians can reasonably do in the face of this situation. He concludes with some personal reflections on technology and employs the concept of the eucha-

rist to tie all of his threads together in a coherent and compelling way.

Gay's book is a tale of two views of the universe: as fundamentally personal or impersonal. From a Christian perspective, everything in the universe is created by a personal God. Thus, it is endowed with qualities given by a person, such as meaning, purpose, and value. It is undergirded by a transcendent moral system. Human beings have a purpose and direction, to be shaped into Christlikeness, and this provides a basis for evaluating the worth of all human endeavors. Our bodies are not prisons for our minds, but temples worthy of honor. Our relationship with the created world ought to be characterized by appreciation and, when appropriate, love.

If, however, the universe is an impersonal machine, governed solely by natural laws with no transcendent meaning, humans are free to master those laws and shape nature to their own ends. Nature's only purposes are those that people give it. Our culture seems to have adopted the perspective of an impersonal universe and the consequences are extensive. There are surface problems that flow from this perspective and that have been widely discussed; for example, algorithms that have replaced human judgment in harmful ways, narrow specialization, the confusion of means and ends, and the loss of skills. But there are deeper problems. Gay argues that automated machine technology is pushing society and culture away from ordinary embodied human existence at considerable speed and we are becoming more machine-like. Furthermore, technology seems to be interfering with our ability to enter into “I-Thou” relationships. In short, given its current trajectory, modern automatic machine technology is more likely to detract from our ordinary embodied experience of the world than it is to enhance it.

The author is no technophobe. Following the last chapter, he includes a personal conclusion in which he discusses his enjoyment of high-performance bicycle technology. However, he identifies a significant problem with the direction contemporary technology is heading and asks why we are so unconcerned. His answer is that western culture has thoroughly assimilated the mechanistic worldview.

What can Christians do to respond to a culture that, in its understanding of the nature of the universe, is antithetical to the personal perspective that Christian belief affirms? We intuitively recognize that aspects of our lives—friendship, marriage, family—are not to be surrendered to rationalized techniques based on productivity, efficiency, cost/benefit analysis. Thus, Gay urges taking an inventory of the physical places

where technologies are located in our homes and the roles they play in our lives. He then suggests some practical means we could use to limit those roles appropriately. Moreover, churches, schools, and community organizations—any association whose primary purpose is human formation—should not be surrendered to rationalization. He writes, “... personal ends cannot be achieved through exclusively impersonal means.” On a broader scale, he points out that automated machine technology has developed a momentum of its own that seems immune to critique, driven by powerful economic forces (which Gay discusses with some care). Nevertheless, Gay points to the necessity of a more extensive cultural change, including the need to repent of hubris and the desire for autonomy and to turn from the mechanistic way of enframing the world that reflects that hubris.

Gay is not an alarmist, but he makes a compelling case that modern culture is heading in a dehumanizing direction. He analyzes how that course was set and shows how it needs to change. I heartily recommend this book for perspectival courses on technology in Christian colleges and universities and for anyone whose professional work is in a technological field. But it could be read with profit by anyone concerned with issues of technology and society.

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DEEP MEDICINE: How Artificial Intelligence Can Make Healthcare Human Again by Eric Topol. New York: Basic Books, 2019. 341 pages. Hardcover; \$32.00. ISBN: 9781541644632.

Artificial intelligence (AI) will not be replacing human doctors anytime soon, but it will have profound impacts on the way medicine is practiced. This is according to Eric Topol, MD, the author of *Deep Medicine*. Topol vacillates between the voices of a historian and a prophet as he details the history of AI and its incorporation into the medical field, and then speculates about the future medical roles of AI. This is the author’s third installment in a series of books describing the changing landscape of medicine in a society amid a technological revolution (see also *The Creative Destruction of Medicine* and *The Patient Will See You Now*). As a cardiologist, professor of genetics, and director of the Scripps Translational Science Institute, Topol is well qualified and uniquely positioned to take on the formidable task of translating the fields of AI, genetics, and medicine into prose understandable to the lay reader. He largely succeeds at creating a balance of a comprehensive description

of each topic without overwhelming the reader with too much detail.

In the first two chapters, Topol whets readers’ appetites with anecdotes describing potential ways that AI could improve medicine. He also chronicles some of the shortcomings of “shallow medicine,” which is described as medicine practiced with “insufficient data, insufficient time, insufficient context, and insufficient presence” (p. 31), which he suggests is often the way medicine is currently practiced. Chapter 3 details some of the shortcomings of using AI for diagnoses in the past and describes some of the most promising fields of medicine in which AI is currently improving diagnostic power.

Chapters 4 and 5 take a step back to define what AI is, survey some of the history of its development, and explain how deep-learning algorithms work. Potential problems with AI are also discussed, from designing human bias into learning algorithms to sentient machines turning on humanity. The latter scenario is decidedly unlikely in the near future. Yet AI will undoubtedly change society profoundly, so, Topol cautions, it behooves us to be aware of this and direct its uses to ways that benefit humanity.

The remainder of the book focuses on specific facets of medicine and how AI is being used in each arena. Some of the topics include analyzing images (MRI and X-ray, for example), mental health, drug discovery, personalized diets, and the healthcare system itself. For each of these subjects, Topol offers a realistic description of the current state of AI incorporation and a distinctly optimistic look at how AI will transform that field in the future. However, a common refrain in these chapters is that the use of AI will always be limited by its inability to replace the human and relational aspect of the practice of medicine.

This leads to the last chapter, called “Deep Empathy,” in which Topol offers an impassioned call for a paradigm shift in medicine away from an assembly-line mentality to a focus on developing uniquely human characteristics of medicine for which AI, in his view, will never be a satisfying substitute. He notes that in recent years it is these very characteristics that have been pushed aside as medical professionals are required to spend more time behind a computer screen, care for an increasing number of patients, and spend less time face to face with those in their care. As business interests have taken over medicine, profitability is favored over building relationships with patients. AI, he notes, “could be used in two very different, opposing ways: to make things much better or far worse” (p. 285). We still have the capability