chapter starkly comparing the Skinnerian vision of education based on control through behavioral engineering to protests from figures such as Freire and Chomsky in the name of freedom, Watters wonders aloud in the concluding chapter whether the quaint teaching machines of yore were just setting us up for a larger-scale loss of freedom in the name of surveillance capitalism, a loss sold under the aegis of the latest reiteration of educational utopia based on individualization.

The book is engaging, well written, and highly readable. Its deconstruction of the popular narratives about technology and education that it targets is persuasive, patient, and useful. For a book that ultimately has some larger points to make, it narrates the history carefully and in a measured tone. The concluding argument about the continuities between Skinnerian teaching machines and the mechanisms of surveillance capitalism rings true, but comes as a bigger leap given that all of the detail is focused on the decades between 1920 and 1970, after which we race somewhat headlong to the present in a welter of telling one-liners from various authors. That there are family resemblances between now and then seems undeniable based on the evidence presented, but detailed lines of descent are less clearly established. One also wonders whether the key opposition of totalitarian control versus radical individual freedom is quite adequate to do justice to the landscape. The closing sections are a little broad-brush, but certainly well worth pondering. The book is recommended reading for anyone interested in technology's relationship to society and education, and for anyone who imagines that educational technologies are just tools for making schools better.

Reviewed by David I. Smith, Professor, Director, Kuyers Institute for Christian Teaching and Learning, Calvin University, Grand Rapids, MI 49546.

SCIENCE FICTION by Sherryl Vint. Cambridge, MA: The MIT Press, 2021. 224 pages. Paperback; $15.95. ISBN: 9780262539999.

Science Fiction is the story of the romance between fiction and science. The goal of the book is not to define the history or essence of science fiction, but rather to explore what it "can do" (p. 3). How does fiction affect scientific progress? How does it influence which innovations we care about? In the opposite direction, what bearing does science have on the stories that are interesting to writers at a point in time? *Science Fiction* references hundreds of books to paint a cultural narrative surrounding science fiction. Throughout the book, Vint refers to the fiction as 'sf' in order to avoid distinctions between science fiction and speculative fiction. The dynamic between science and fiction is a relationship defined by both scientific progress and by forming judgments of the direction of development through a lens of fiction. Fiction is cause and effect; we use fiction to reflect upon changes in the world, and we use fiction to explore making change.

Vint, Professor of Media and Cultural Studies and of English at the University of California, Riverside, gives overviews of different areas of sf. These include some of the most common sf elements, such as utopias and dystopias (chap. 2), as well as relatively recent concerns, such as climate change (chap. 7). Through these questions, she is navigating one question: how does sf engage with the world? It is more complex than the commonly reflected-upon narrative that sf is an inspiration to inventors—it is a relationship moving in both directions and involves value judgments as well as speculation about scientific possibilities.

The book also navigates the attitudes at the root of sf. Vint presents sf as a fundamentally hopeful, perhaps even an optimistic, genre. She describes sf as "equally about frightening nightmares and wondrous dreams" (p. 13). Yet even dystopian stories require hope for a future. Showing the world gone wrong still requires "the seeds of believing that with better choices we might avoid these nightmares" (p. 32). This is certainly true in the discussion of climate change sf. Where nonfiction writing often focuses on the impartial mitigation of disasters, the heart of fiction offers "the possibility to direct continuous change toward an open future that we (re) make" (p. 136).

The most surprising chapter is the penultimate one, focusing on economics (chap. 8). Vint discusses the recent idea of money as a "social technology" (p. 143) and the ways our current economy is increasingly tied to science, including through AI market trading and the rise of Bitcoin. The chapter also focuses on fiction looking at alternative economic systems—how will the presence or absence of scarcity, altered by technology, change the economic system? Answers to this and similar questions have major implications on the stories we tell and the way we seek to structure society.

As Christians, we have stories to help us deal with our experiences in life and our hope for the future. *Science Fiction* discusses sf as the way that our

communities, including the scientific community, process life's challenges and form expectations for the future. We must not only repeat the stories from scripture, but also participate in the formation of the cultural narratives as ambassadors of Christ. While *Science Fiction* does not discuss the role of religion in storytelling, the discussion of our ambitions and expectations for the future is ripe for a Christian discussion.

Vint describes sf as a navigational tool for the rapid changes occurring in the world. *Science Fiction* references many titles that illustrate the different roles sf has played at historical points and that continue to form culture narratives. While some pages can feel like a dense list of titles, it is largely a book expressing excitement about the power and indispensability of sf. I would recommend this book for those who want to think about interactions between fiction, science, and culture, or learn about major themes of sf, as well as those interested in broadening the horizons of their sf reading.

Reviewed by Elizabeth Koning, graduate student in the Department of Computer Science, University of Illinois at Urbana-Champaign, Urbana, IL 61801. ▼

Letter

"Unformed" and "Formed"

In the June 2022 issue of *PSCF*, the editor James C. Peterson noted, in his helpful survey of different views of personhood ("Recognizing the Presence of a Person," *PSCF* 74, no. 2: 106–11), a list of Church Fathers culminating in Aquinas who made the distinction between "unformed" and "formed" (p. 108). One of the reasons these Church Fathers sometimes gave for this distinction was the Septuagint's translation of Exodus 21:22–23.

Exodus 21:22–23 speaks of two cases involving a fight which injures a pregnant mother. The Hebrew text is difficult to interpret. One interpretation (for example, the RSV and NRSV) holds that in the first case, if a miscarriage occurs with no harm to the mother, then monetary compensation is required. In the second case, if the woman is harmed the rule of *lex talionis* is invoked. Some argue that this stereotyped phrase was not to be taken literally, but that the one who hurt the woman had to compensate her husband for the death of either his wife or his baby.

The Hebrew text can also be interpreted, as in the NIV, to mean that in the first case a premature birth of a healthy child occurs with no harm to the mother or child, and that in the second case one of them is harmed.

The Greek translation (the Septuagint) reads quite differently from the Hebrew:

> When men strive together and hurt a woman with child so that the woman miscarries an unformed child (*mē exeikonismenon*), he shall pay according to the husband's account. If the child is formed (*exeikonismenon*), he shall give life for life. (Exod. 21:22–23)

The distinction between an "unformed" and a "formed" child may have been influenced by the views of Aristotle.

Aristotle held that the fetus receives a "vegetative or nutritive soul" at the moment of conception, an "animal or sensitive soul" at a later stage, and a "rational soul" as the moment of birth draws near. In his *History of Animals* 7.3, he expressed the belief that the first movement occurred on the 40th day for males and on the 90th day for females.

Stoics, in general, held that the fetus was merely part of the mother's body, and that its life began with its first breath. Though Augustus passed legislation to promote marriages and procreation, Roman law adopted the Stoic view that the fetus was not yet a person. The emperors Septimius Severus (193–211) and Caracalla (211–217) prescribed banishment for a divorced woman who had an abortion contrary to the will of her former husband, and the death penalty for those who provided an abortion drug which caused the death of the woman.

Augustine, following the Septuagint of Exodus 21:22–23, held that the destruction of an "unformed" fetus, though immoral, was not murder. The codification of the laws under Justinian simply listed abortion as grounds for divorce.

Edwin M. Yamauchi
ASA Fellow ▼