make the book especially applicable for classroom use. I intend to use it in classroom teaching at my institution.

As the topics above indicate, the book is wide ranging in its scope, and well organized, with a definitive trajectory. It takes the warfare metaphor to pieces and offers a more wholesome perspective in its place, one in which faith and science interact, not just to support one another, but to broaden each other's vision. This book presents a win-win option for science-faith interactions. It is a win for the reader, too.

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TECHNOLOGY

HOW TO FLY A HORSE: The Secret History of Creation, Invention, and Discovery by Kevin Ashton. New York: Doubleday, 2015. 336 pages. Hardcover; $27.95. ISBN: 9780385538596.

During the process of developing the "Internet of Things," Kevin Ashton discovered that much of what he had been led to believe about the creative process was wrong. In *How to Fly a Horse*, Ashton uses several detailed stories from history to help remove the mystery surrounding creativity and to inspire the reader to follow their own passion to make things better by making something new.

In the first few chapters, Ashton challenges commonly held myths surrounding creativity and invention. He makes the case that the ability to create is not a special characteristic possessed by a few, but is rather the essence of what makes each of us human. Inventing is not about having a stroke of genius, but requires hard work driven by a desire to make things better. Ashton asserts, "work is the soul of creation" (p. 24). Using the story of the Wright brothers along with others, he undermines the myth that creating rests on leaps of innovation. According to Ashton, invention is not characterized by leaps, but by methodical stepping, with failure greeting many of those strides. Discovery, we learn, also requires persistence.

Later in the book the author turns his attention to inspiring and instructing the reader in the pursuit of an actively creative lifestyle. Ashton explains that each of us by virtue of our unique heritage of genetics and past experience is positioned to make our own special contribution to the world. While acknowledging the importance of the past, he cautions us to guard against allowing our preconceived notions of the world or the cultural assumptions of those around us to impede our search for the new. He describes fascinating research into the brain's filtering ability, which often allows us to see only what we are expecting to see. Ashton is suspicious of analysis and planning, preferring trial-and-error methods. He tells us that creating is fundamentally about doing. He writes, "There is no creating in meetings. Creation is action, not conversation" (p. 225). Citing research that children are often more openly creative than adults, he maintains that "adults think before acting; children think by acting" (p. 221). As a professor of engineering, I acknowledge that analysis and planning are, at times, used to delay doing and that they can also stifle creativity. However, I believe Ashton is overlooking the fact that while naïve creativity is unencumbered by the past, it is not informed by it either. To abandon analysis and planning is to ignore, to a large degree, communal wisdom, both now and down through the ages.

With urgency in his voice, Ashton reveals his motive for writing the book in the concluding chapter. Looking up from his work, he sees problems looming on the horizon that may eventually threaten modern civilization. He understands that a growing population with an ever-increasing consumptive appetite is not sustainable on a finite planet, and this is leading to a number of significant, multifaceted environmental problems. While I believe Ashton correctly assesses the seriousness of our situation, his solution is troubling. He sees our creative spark as a product of evolution: the only thing that separates us from other species. As a result, he believes that our only hope for a future is found in ourselves: in our ability to create. He hints at this hope earlier in the book when describing the process of invention:

> Creation demands belief beyond reason. Our foothold is faith—in ourselves, in our dream, in our odds of success, and in the cumulative, compound, creative power of work. (p. 66)

Ashton believes that the only way out of our dilemma is that we all should sacrifice ourselves to the all-consuming hard work of creating. "And this is why we need new: Consumption is a crisis because of math; it is not yet a catastrophe because of creation. We beat change with change" (p. 240). By reducing our humanity to our creativity, Ashton is left clinging awkwardly to a blind faith in human ingenuity, free from restraint, which is precisely what has caused our problems in the first place. Ashton attempts to resolve this absurdity by suggesting that we must not be creating enough, fast enough.

The suggestion that we can do it ourselves is familiar snake oil. It is of the same vintage that Adam and Eve tasted in the garden. However, when we put

our trust in ourselves we are left with nothing but a hand-wringing hope: a restless wishing. Thankfully, our salvation and the fate of humanity does not rest on us and our abilities, but rather, in the sovereign God of the universe and in the redemptive work of Christ, his Son. Humanity's creativity is certainly unique, but ultimately it is God's relationship with us that makes us special. Our human capacities, including our creativity, are gifts from God to be used in response to his call to lovingly serve others and the rest of his creation. Humankind and the selfishness of our sinful hearts have given rise to our problems. It is only by God's grace, through the work of the Holy Spirit, that we can bring healing to this world by redirecting our creative efforts toward the Kingdom of God.

Ashton asks us to rest on our wits, but what we find there is not rest at all, but rather a frantic scramble to save ourselves. Creativity is a gift from God that only brings blessing when used in accordance with His will.

You should read *How to Fly a Horse* for its many insights and interesting stories but do not look to it for ultimate meaning. That meaning can come only from acknowledging that true hope is not found in ourselves but in the God who saves us. As a final note, Andy Crouch's *Culture Making: Recovering Our Creative Calling* (InterVarsity Press, 2013) flows from a biblical worldview and makes a wonderful companion read to Ashton.

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HOW WE GOT TO NOW: Six Innovations That Made the Modern World by Steven Johnson. New York: River Head Books, 2014. 293 pages, index. Hardcover; $30.00. ISBN: 9781594632969.

This best-selling book was created simultaneously with a PBS/BBC television series that had the same name. Steven Johnson is a prominent writer who has written extensively on the intersection of culture, science, and technology. Among his other books are *The Ghost Map, The Invention of Air, Where Good Ideas Come From,* and *Everything Bad Is Good for You*.

He looks at technology's effect on modern society through six broad categories: glass, cold, sound, clean, time, and light. For reasons unknown to me, these categories are in a different order in the television series. This does not really matter as the six main chapters can be read in any order.

This is neither a Christian book nor an anti-Christian book. Johnson does not look at worldview as one of his main topics. He delights in showing how the development of technology has had unusual sources and unanticipated consequences. He writes,

> Innovations usually begin life with an attempt to solve a particular problem, but once they get into circulation, they end up triggering other changes that would have been extremely difficult to predict. (p. 3)

This has implications for Christians in engineering and science research. Frequently we may get bogged down in the details of our research and do not think through the implications and potential applications of it. As Johnson points out many times, technological developments often have a life of their own and lead to results that their creators may never have imagined.

One of the few times he gets into worldview related issues is when he discusses sound. He discusses the problem of sex selection abortions that have been indirectly promoted by technological development.

> This may be one of the most astonishing, and tragic effects in all of twentieth century technology: someone builds a machine to listen to sound waves bouncing off icebergs, and a few generations later, millions of female fetuses are aborted thanks to that very same technology. (p. 123)

He does show a misunderstanding of Christian faith when he writes about radiometric dating of the earth. He writes that this technology is "establishing the most convincing evidence that the biblical story of the earth being six thousand years old is just that: a story, not a fact" (p. 191). He appears to assume that all Christians believe in a young earth. I do not think that many people reading this review will see radiometric dating as contradicting the Bible.

One example of his approach is to show how the sacking of Constantinople in 1204 and development of the movable type printing press in the 1440s ultimately led to the development of the telescope. The fall of Constantinople led to many of its glass makers fleeing to the small Venetian island of Murano. Their work led to Murano becoming what we would today call an innovation hub for glassmakers. The eyeglasses they developed were expensive, but since few people could read there was little demand for them. With Gutenberg's printing press, many things could now be reproduced. This led to a greater interest in reading by the public. Many people then discovered for the first time that they had bad eyesight. This created a surge in demand for spectacles. Johnson writes,

> Thanks to the printing press, the Continent was suddenly populated by people who were experts at manipulating light through slightly convex pieces