

Book Reviews

Caneva traces out four factors that were central to Helmholtz's thinking: (1) a conviction that the construction of a perpetuum mobile is impossible, (2) a concern with the nature of heat and the source of animal heat, (3) a belief in the illegitimacy of a vital force, and (4) the application of rational mechanics' principles of vis viva [mv^2] and its conservation. According to Caneva, Kantian philosophical concerns do not dominate, nor does Helmholtz's reliance on industrial mechanical steam-engine considerations or metaphors. Succeeding chapters (2–6) trace out the broader and more immediate contexts, the question of Kantian influence, and what Helmholtz believed he had accomplished.

Chapters 7–9 consider the reception of "The Conservation of Force." In chapter 9, "Helmholtz's Place in the Acceptance of the Conservation of Energy" – by far the longest (pp. 235–428) and most important chapter – Caneva traces how Helmholtz's formulation in his 1847 essay, "The sum of the existing living and tensional forces is thus always constant" (p. 239), has been transformed into a principle of the conservation of energy. How does a paper first rejected by the physics community, yet hoping to find unifying elements in nature, lead finally to the conservation of energy (the first law of thermodynamics)? Even if one looks closely at the phrase, "tensional" forces, one notices that Helmholtz integrates force over distance, that is, force is thought of in terms of the velocity of a body rather than its acceleration. Force, for Helmholtz, is a measure of the quantity of motion rather than a cause of motion. Caneva's goal is to render intelligible Helmholtz's role and significance in the complicated transition to the final expression of the conservation law.

Near the end of the book, in the "Historiographical Excursus," Caneva critically assesses the work of earlier commentators who have written about Helmholtz and the conservation of energy. Thomas Kuhn (Caneva's advisor), Yehuda Elkana, Peter Harman, Norton Wise, all are subject to criticism. Caneva detects anachronistic tendencies, lack of sound textual evidence, and a desire to confirm a preconceived idea that lie at the root of most failed interpretations (p. 499).

The book is not an easy read. Amidst all the intricate detailed analysis and convoluted arguments what can an ASA member profitably learn? First, clarification of concepts can be a long and complicated process. Think just of the historical development of the concept of biological evolution. Secondly, ideas and concepts are shaped by a myriad of causes and influences. The art or skill lies in learning how to weigh the stunning array of causes. In the case of Helmholtz, historians have identified several causes: philosophical, physical, technological, physiological, and even cultural. How to accurately weigh each factor without becoming ahistorical, that is, misreading an author's intent by

reading modern concepts into it and becoming anachronistic, has been Caneva's goal.

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TECHNOLOGY

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ROBOT ETHICS by Mark Coeckelbergh. Cambridge, MA: MIT Press, 2022. 272 pages. Paperback; \$16.95. ISBN: 9780262544092.

Mark Coeckelbergh is Professor of Philosophy of Media and Technology at the University of Vienna. This compact and easy-to-read book is his second on technology-related ethics, following his earlier *AI Ethics* (2020). In *Robot Ethics*, Coeckelbergh surveys situations where robots might be incorporated into daily life, and then explores ethical implications in each.

The book begins by introducing the reader to the field of robot ethics. As a first principle, "a robot cannot and should not be reduced to the material artifact 'robot' but instead must be connected to its use, and its social and cultural contexts" (p. 8). The author then identifies a major stumbling block, namely, that there is no clear definition of the term "robot." To make matters even more problematic this same definition limitation exists for the closely related concept of artificial intelligence (AI). In light of this lack of specificity, Coeckelbergh casts a large net around multiple technologies and machines that he considers related to robots or artificial intelligence.

Coeckelbergh first explores the effect of robots in the workplace and the resulting consequences for employee safety and job security. He then discusses robot companions and how these can be connected to a form of deception. Coeckelbergh provides the following example. Your elderly parent requires more care. You do not have the time to provide said care. You hire or purchase a robot that looks and behaves human-like to help. Do you tell your elderly parent that the companion is a robot? What if you do tell your parent that it is a robot, but your parent insists that it is alive—are there ethical issues with a robot providing care to someone who believes it is alive?

The author then explores the negative side of robot companionship, the ethics of robot abuse. Since robots are objects and the property of its owner, is it ethically permissible for people to be violent or abusive to their robots? Robot companionship leads to special forms of robotic companions, such as healthcare robots and personal assistant robots. When robots begin to replace healthcare workers or other experts, then additional problems arise, such as in quality of service, expertise,

moral agency, and responsibility when things go wrong. If your elderly parent is injured by the robot, who handles your complaint? How much freedom should a robot have to interact with the world on its own?

Continuing this theme, the author then explores additional robotic applications, such as self-driving cars, military drones, and other examples to help the reader grasp the breadth of the underlying ethical concerns when autonomous machines intersect with humans. "Robots function as mirrors that show and reflect us—that is, the human being in all its facets, and with all its problems and challenges, including ethical ones" (p. 195).

At this point, the text turns to more futuristic concerns. The book's final chapters consist of three essays. First, what ethical concerns should we consider when robots become androids/cyborgs and start to look and behave like us? People begin to use terminology like "eerie" and "creepy." Second, what happens when we replace soldiers with robots? This takes us into the ethics of automated war. Third, when should we start to be concerned about our own existence? This gives rise to the post-humanist view that idealizes a time when people and technology merge into something new, like cyborgs (merged biology and technology) or uploading our consciousness into a computer (no longer needing our body). Coeckelbergh contrasts the posthuman view with what he thinks is a more useful ethic—environmental ethics. "Instead of being mesmerized by transhumanist science fiction and posthumanist fantasies about cyborgs, we should focus on real and urgent problems with the natural environment and our planet, like climate change" (p. 204). He ends on a positive note with society using robots and artificial intelligence to work for the common good to solve global problems.

I found *Robot Ethics* to be enlightening, providing a clear presentation of many ethical concerns that arise with robots. Coeckelbergh not only introduces us to the implications but also to the leading thinkers. As practitioners and as a society, we do not put enough thought into the effects our creations have on ourselves. Consider, for example, the repercussions that ChatGPT has on school assessment strategies as well as on the writing, acting, and artistic guilds, as seen in recent strikes in these professions. I have already recommended the text to my coworkers working in artificial intelligence and robotics. The text is not a warning to stop advancement in robotics but instead a call to be more reflective. I think the text would also work well in a reading or study group. There are many ideas that could be fruitfully explored in a group.

I found that the text has two minor weaknesses. An inherent problem when casting a wide net is that different subjects can be treated as the same thing. In this case, the author risks mixing standard weaknesses in

engineering or business practice, with robotics, resulting in a less clear understanding of robot ethics. For instance, is ChatGPT inherently harmful, or are the harms associated with ChatGPT a function of the way business introduced it to society? More specifically to robotics, when does smart software evolve into robots? For example, should your dishwasher be considered a robot? If it can be controlled remotely from your cell phone, does it qualify? What if we connect the dishwasher to the internet of things managed by a machine learning program that has figured out when you like to wash? At this point, some would still say that the dishwasher is not a robot, while others might say that it has become that. The internet of things has its own ethical and security problems not related to robotics; however, merging the two in a conversation by calling it all robotics lessens our understanding of robots.

I heard it once said that ethicists are great in analyzing and defining ethical concerns, but not as good in providing answers. This book raises many worthwhile questions, but if you are expecting to find solutions, then you will need to look elsewhere. The author wants us to think about these things so that we do not simply walk into the future without care. Coeckelbergh wants to identify the canaries in the coalmine, as it were. This text is an exploration and introduction to the key questions and people, not a compendium of ethical principles or solutions. I found this approach very useful but felt like I wanted a little more. A small dose of positivity would have been nice, with fewer post-apocalyptic scenarios. Although the text's purpose is more modest, it would have also benefited from some successful integration stories or theoretical integration strategies.

Even though I did not like how the book began its definition of robots (the author acknowledged the limitations of his position), I highly recommend this book as an introduction to the ethical questions and problematic situations associated with robots. Robots are in our future, whether we want them or not, so it is best to be thinking about these sorts of important concepts.

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THE REVOLT AGAINST HUMANITY: Imagining a Future without Us by Adam Kirsch. New York: Columbia Global Reports, 2023. 104 pages. Paperback; \$16.00. ISBN: 9781735913766.

In Eden, the serpent lied to Eve about the forbidden fruit. She was told that disobedience would allow her to "be like God." Already bearing God's image and likeness, Adam and Eve swallowed the serpent's lie, together with the forbidden fruit. Wanting to be more than mere creatures, wanting life on their terms, they sinned against their creator. Likewise, their son Cain