Angelo Baracca; Jürgen Renn; Helge Wendt (Editors). *The History of Physics in Cuba.* (Boston Studies in the Philosophy and History of Science, 304.) xxvi + 446 pp., illus., figs., tables. Dordrecht: Springer, 2014. €137.79 (cloth).

Cuba poses a fascinating case to anyone interested in the social and political relations of science in the twentieth century, particularly during the Cold War. The island's commitment to socialism, its alignment with the Soviet Union, and its half-century-long blockade by the United States created highly specific conditions for the conduct and uses of science. How did they shape physics? And how, if at all, did the physical sciences co-produce Cuban policies?

The History of Physics in Cuba addresses these questions through a comprehensive account of the development of physics in Cuba since the nineteenth century. Its prime mover appears to have been the Italian physicist Angelo Baracca, drawn to the island by his long-standing interest in the social dimension of physics and nuclear technology: he has authored or coauthored five chapters, three of which make up almost half of the volume. After an introductory section that provides an overview of the Cuban research system and a bibliographical guide to Cuban history, the book is in three parts. The first, "Historical Surveys," includes seven chronologically arranged chapters on the development of physics teaching and research. Part 2, "Reflections from the Inside," includes ten far briefer chapters on the experiences of Cuban physicists in their areas of expertise, including space science and superconductivity. Part 3, "Reflections from the Outside," provides the views of physicists from several different countries, including Argentina, the United States, France, Spain, Italy, and the former German Democratic Republic.

The book's strength lies in its firsthand approach. Most authors build on their experience to reflect on the aims and achievements of Cuban physicists and policy makers, as well as on the constraints and opportunities offered by the island's various regimes and institutional settings. A major theme is exceptionality: "[Cuba] represents an exceptional, and perhaps unique, case of *development of an advanced scientific system in a developing country*" (Baracca, p. 12). Cuban physicists would have been especially sensitive to the social uses of the discipline and developed an acute material ingenuity that allowed them to achieve relevant results on meager budgets. Bicycle ball bearings, for instance, were used in the 1990s to study the physics of complex systems (Oscar Sotolongo-Costa, Ch. 16), while a number of advanced instruments and materials, from lasers to NMR tomographs, were devised and produced in precarious conditions.

Many of these insights, particularly those on the material culture and the methodological plasticity of Cuban physics, are presented here for the first time to an international audience, together with lesser-known references. Gathered in a single volume, these reflections invite comparison. Socially minded physicists in other countries may have made similar choices, and, as the island's blockade is lifted, Cuban physicists will probably face similar dilemmas. Indeed, as Jürgen Renn and Helge Wendt point out in the preface, the Cuban case is an instance of the global construction of knowledge and the entanglement of science, politics, and society. However, the book's descriptive character and multiple authorship limit its comparative value and historiographical import. Authors rarely engage with the literature on well-researched issues such as science and politics in the twentieth century, transnational science, or the circulation of knowledge. Moreover, statements such as that "the innovatory movement of the scientific Renaissance that was intensifying in sixteenth-century Europe could not penetrate the closed environments of the first universities in Latin America since Spain rejected the germination of this process" (José Altshuler and Baracca, p. 60) are oblivious to recent work on early modern science in the Iberian world. Attention to the literature could have sharpened the book's argument.

The History of Physics in Cuba adds to our understanding of the development of contemporary physics in specific, if not unique, political circumstances. It offers valuable information and personal insights. More importantly, if tacitly, it relates to current debates concerning international relations, access to scientific knowl-

edge, and the material and social conditions for advanced physical research. Cuba will pose a fascinating case to those interested in the social and political relations of science in the first half of the twenty-first century.

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Naomi Oreskes; John Krige (Editors). *Science and Technology in the Global Cold War.* (Transformations: Studies in the History of Science and Technology.) ix + 456 pp., illus., figs., tables, index. Cambridge, Mass./London: MIT Press, 2014. $25.95 (paper).

Historical writing on the Cold War's influence on scientific and technological developments continues apace as more documents are declassified, providing additional evidence of government patronage and direction as well as of the resulting tensions between scientists, engineers, and their government sponsors. This conference-related volume's essays address the effects of Cold War–driven patronage and societal contexts on postwar scientific and technological work in the United States, the Soviet Union, the People's Republic of China, and France, thus allowing readers to assess similarities and differences among scientific and technological approaches in those four nations.

Coeditor Naomi Oreskes's introduction poses two questions that, she writes, the volume takes up "with vigor": "What did scientists do in the Cold War?" and "Why did they do those things and not other things?" (p. 2). While much of the material—particularly that related to U.S. Cold War science and technology—will not be new to U.S. Cold War scholars, the non-U.S.-centric essays provide a different take on government patronage and influence during this period.

A particular strength of *Science and Technology in the Global Cold War*: it is not just about physics. Yes, physicists' skills were much in demand owing to military weapons development, but they were not the only ones to benefit from monies flowing through America's military-industrial-academic complex. Historians addressing the non-weapons-based scientific and technological efforts include Angela N. H. Creager (the use of radioisotopes in biology and medicine), Oreskes (changing the focus of oceanography from warfare to climate), Matthew Shindell (isotopic chemistry and studies of the age of the earth), Erik M. Conway (NASA's shift to earth-systems science as the Space Race lost urgency), and Benjamin Wilson and David Kaiser (Irwin I. Shapiro's use of a radar apparatus built to track ballistic missiles to verify Einstein's relativity theory). All of these chapters focus on the less obvious part of the Cold War story in the United States: the part that was not dominated by physicists working on a variety of advanced weapons systems as the East-West arms race gained momentum. Therefore, they explore a wider range of contextual influences on the production of discipline-specific knowledge.

Balancing out the U.S.-centric chapters are five chapters focused away from American science and technology. Rather than exploring individual disciplines, the two chapters on China focus on the nature of its scientific undertakings. Sigrid Schmalzer examines the "self-reliant science" of Mao-era China, which enabled the country to "harness the knowledge of China's peasant masses" and thus secure its "liberation from foreign domination" (p. 76)—a move that was strengthened by, but not due to, the Cold War. Zuoyue Wang focuses on how the Cold War reshaped the transnational character of China's scientific efforts, making clear that in this case the Cold War was not a "bipolar U.S.-Soviet competition" but more a series of "triangular U.S.-Soviet-Chinese geopolitical interactions" (p. 343). He argues that science and technology in China were influenced by both the Soviet Union and the United States, thus becoming a "transnational hybrid" (p. 362). Addressing Cold War science in the Soviet Union, Asif Siddiqi takes up the story of the N-1 rocket, which would have boosted Soviet cosmonauts to the moon, and Soviet Big Science; and Sonja D. Schmid examines how choices in nuclear reactor design stemmed from both the structure of Soviet in-