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David Kaiser and W. Patrick McCray eds. *Groovy Science: Knowledge, Innovation and American Counterculture*. Chicago: University of Chicago Press, 2016. 466 pp. \$27. 9780226372914 (paperback)

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Anthologies are well-suited to bring together diverse analyses in understudied fields. At their strongest, they unsettle standard storylines, and cohere enough to mark a direction for new scholarship. This is certainly the case in the unique anthology *Groovy Science*, compiled by heavy-hitting historians of science and technology David Kaiser and W. Patrick McCray. In *Groovy Science*, Kaiser and McCray acknowledge that the American counterculture in the 1970s was not antiscience, as the countercultural icon Theodore Roszak opined, but were enamoured with certain kinds of science and technology—what they call the *groovy* kind. The editors clearly define what groovy science is not: it is neither militarized mainframes and missiles built in the large-scale government programs and corporate research lab, nor is it the pursuit of “sterile technocracy” and impersonal “Big Science” (2). *Groovy Science* reveals how the American counterculture not only embraced small-scale, everyday science and technology, but remade what it meant to do science and technology in America after the 1970s in the process.

The book consists of twelve chapters divided into four thematic sections. Kaiser and McCray’s introduction does a helpful job of bringing together the disparate chapters, and positioning them (sometimes cursorily) against Roszak’s portrayal. The best chapters in

the book come from larger manuscripts, and are thoroughly researched and richly footnoted. The conclusion, by American historians David Farber and Beth Bailey, does more to congratulate historians of science and technology for getting the 1970s ‘right,’ than it does to mobilize ‘mainstream’ American historians to think about the scientific worldviews of the American counterculture.

The first section, “Conversion,” traces the transformations in science and technology practices from Pentagon-backed research, when endless cash enabled the expansion of unwieldy government science programs, to more uncharted scientific ventures. Historian of science D. Graham Burnett shows how former military psychologist John C. Lilly’s qualms with his sensory-deprivation research haunted his work on interspecies communication, and eventually, consciousness. Historians Peter Neushul and Peter Westwick chart how Southern Californian aerospace engineers used their knowledge of space-age industrial materials to launch the revolution in “backyard-craftsman” surfboards. In one of the more informative chapters, historian of science Cyrus Mody pinpoints how the economic realities of the Vietnam War forced the Santa Barbara physics department to adapt low-budget curriculum, and develop civilian environmental applications and parapsychology.

The second section, “Seeking,” surveys the spiritual quests of countercultural scientists. Historian of psychology Nadine Weidman explains how humanistic psychologist Abraham Maslow’s revolutionary

theory of human nature appealed to the hippies *and* the Establishment. Though their aims were different, both were drawn to the scientific validity and legitimacy in the study of values and subjective experience. Historian of science Henry Trim identifies the contradictory nature of countercultural scientist John Todd's technologically backed environmentalism. Historian of medicine Wendy Kline documents how the classic midwifery text *Spiritual Midwifery* blended indigenous and medical knowledge, popularizing home birth as a radical alternative to hospital births.

The third section, "Personae," focuses on the gurus of groovy science, those that straddle the divide between scientific experts and countercultural rebel. Historian of science Michael Gordin presents the "antiestablishment science" (210) of the unlikely guru Immanuel Velikovsky, his disapproval by Establishment scientists, and his optimistic embrace by countercultural youth. Historian of science, and editor of the volume, W. Patrick McCray defines Timothy Leary's extravagant transhumanism as a blend of technological utopianism and personal improvement. Historian of science Erika Milam explores how *Playboy's* Hugh Hefner looked to ethology to understand the biological basis of masculinity outside of the family of man, and broadcasted it over the pages of *Playboy*.

The fourth section, "Legacies," identifies the roots of many countercultural ideals that have been absorbed by mainstream practices. Environmental historian Andrew Kirk argues that contemporary sustainability

and architectural design grew out of the experiments of a small group of countercultural designers inspired by Buckminster Fuller. Historian of technology Matthew Wisnioski examines how entrepreneurial journalism defined the virtues of scientific entrepreneurs, helping to remake struggling American engineers into hip experts of innovation.

Anthropologist Heather Paxton shows how countercultural goat farmers, and their unconventional blend of scientific knowledge and craft practices, once statements against mass consumerism, became mainstream.

While meticulous when it comes to the nuances in the different strands of American counterculture and science, unfortunately, McCray and Kaiser's efforts reify *who* can be a groovy scientist. Most chapters still feature white, male (apart from Kline's midwives and Paxton's cheese producers), counterculture scientists. Largely absent are the diverse stories that could help historians of science and technology effectively grapple with the significant changes in scientific practice in the 1970s. There are the numerous scholarly examples set in 1970s that might unsettle the caricatures of the Establishment scientist, including: Alondra Nelson's important work, *Body and Soul*, on the Black Panther party and free medical clinics; Michelle Murphy's more recent work on California feminists and reproductive technologies, *Seizing the Means of Reproduction*; or, even Steve Epstein's older classic, *Impure Science*, on AIDS activists in the 1980s and medical clinical trials. Adding these accounts to this volume would

allow two things: it would identify the tensions and struggles at work within the countercultures, helping to shed the fears of 'lumping' the editors stipulate in the introduction. It would also serve to expand the experiences that count in the history of science, galvanizing larger discussions between science and counterculture(s) that the editors hope for. Nevertheless, this anthology is an

important move towards understanding the changes in science and technology in the long 1970s.

*Groovy Science* will interest American historians and historians of science, technology, and medicine, as well as a general audience concerned with countercultural experiments or cultural histories of scientific practice.

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