

CCC museum at Backbone State Park, which contains a small archive of primary source materials; (2) a 1990 survey of CCC work in Iowa's state parks, which documented approximately 670 CCC-built structures and resulted in several historic district listings on the National Register of Historic Places; and (3) volunteers with the Iowa Department of Natural Resources, who, beginning in 2001, interviewed more than 125 men who worked in the CCC, the transcripts of which are archived on the department's website (www.iowadnr.gov/Places-to-Go/State-Parks/The-CCC-Legacy).

Chemical Lands: Pesticides, Aerial Spraying, and Health in North America's Grasslands Since 1945, by David D. Vail. NeXus: New Histories of Science, Technology, the Environment, Agriculture and Medicine. Tuscaloosa: University of Alabama Press, 2018. xiv, 194 pp. Map, illustrations, notes, bibliography, index. \$39.95 hardcover and ebook.

Reviewer Julie Courtwright is associate professor of history at Iowa State University. She is the author of *Prairie Fire: A Great Plains History* (2011).

David Vail's *Chemical Lands* is an eye-opening treatment of the challenges of twentieth-century agriculture on the Great Plains. Coming out of World War II, farmers faced opportunities and trials associated with the intersection of agriculture, environment, and technology that were unique to the era. Pilots returning from war service could now adapt their airplanes, as well as their skills, to drop pesticides and herbicides onto fields from above, saving farmers the time, money, and aggravation associated with more traditional methods used to control the invasive pests and weeds that continually threatened to overwhelm crops. Farmers *could* use airplanes for weed and pest control, but *should* they? Many Great Plains farmers were hesitant. That is one of the important issues Vail examines in *Chemical Lands*.

Vail's work illuminates how much the publication of Rachel Carson's *Silent Spring* in 1962 has shaped our thinking. Despite the positive impact of Carson's work, she oversimplified the perilous status of aerial spraying in her book, painting a broad and, as Vail shows, at least partially inaccurate picture of ignorant and irresponsible pilots armed with dangerous chemicals and no license to spray. The problem with Carson's perception of aerial spraying is that it lacked regional nuance. *Chemical Lands*, however, examines the practice from a regional point of view and demonstrates, through primary research, that farmers and pilots, as well as extension agents, university professors, aircraft manufacturers, and others, were, in fact, profoundly concerned about the moral and environmental implications of aerial spraying almost 20

years before *Silent Spring* appeared. Great Plains agriculturalists made a serious study of the technology and skills needed to practice pest and weed control via airplane without allowing undesirable effects like “drift” to poison neighboring fields or populations, and they did it *before* the start of the environmental movement.

Vail’s nuanced description of the regional culture that surrounded aerial spraying is his most significant contribution. As he claims in his introduction, *Chemical Lands* adds to the scholarship by “shedding light on the Great Plains story” (5). Where Vail is less convincing is in his claims of Great Plains regional distinctiveness. Throughout the book he argues that agriculturalists of the plains reacted differently to aerial spraying technology than those in other regions of the country. The marketing strategies adopted by chemical companies like Dow and DuPont did not work as well on the plains as they did elsewhere, for example, because the companies did not appreciate the plains farmers’ dedication to safety (63–64). Okay. But *why*? While Vail admirably contributes to the Great Plains agricultural story, he does not adequately explain *why* that story is distinctive from other regions. He does cite Great Plains environmental, climate, and agricultural variability as a potential answer to the “why question” (66) but does not go far enough with his explanation and its connection to aerial chemical spraying.

The difficulty of proving distinctiveness does not, however, detract from the importance of *Chemical Lands*. Vail’s work is a significant contribution to scholarship on the Great Plains and the American West and to environmental and agricultural history. It highlights local experiences and local thinking regarding a critical shift in agricultural technology and practice—a shift that had profound environmental implications. Vail demonstrates that many Great Plains farmers and aerialists were thinking about the long-term consequences of pesticide use even as the technology was still developing. That is not the impression readers received from *Silent Spring* but is revealed by Vail’s research. As the twentieth century continued, the “pioneering efforts” of Great Plains agriculturalists to “manage the benefits and measure the risks” of aerial chemical spraying influenced areas beyond the region itself. *Chemical Lands* tells that story, and Great Plains history is now more enlightened as a result.

Nikita Khrushchev’s Journey into America, by Lawrence J. Nelson and Matthew G. Shoenbachler. Lawrence: University Press of Kansas. 2019. x, 283 pp. Illustrations, notes, bibliographical essay on primary sources, index. \$34.95 hardcover.

Reviewer Stephen J. Frese is a high school science teacher at Marshalltown High School. Many years ago, his paper, “Comrade Khrushchev and Farmer