Featured Review

Rethinking the Seeds of American Agricultural Exceptionalism

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In May 2017, the unexpected flooding of the Svalbard Global Seed Vault near the North Pole (also known as the “Doomsday” seed vault) brought unprecedented attention to the preservation of the world’s seeds. While none of the specimens in the collection were damaged, global media used the threatened site to illustrate the dangers of climate change—both in terms of melting permafrost that led to the flooding and a warning that a warmer future may call upon that seed bank to supply the world with crucial varieties of food plants. For most observers, the event provided a shocking contemporary glimpse into the importance of seed collection and preservation for the security of productive agriculture.

Agricultural historians are aware of the extensive literature on the relationship between plants and human civilization that spans continents and centuries. From Edgar Anderson’s Plants, Man, and Life (1952) to Judith Carney’s Black Rice: The African Origins of Rice Cultivation in the Americas (2001), we are well acquainted with the narratives of global seed, plant, and knowledge exchanges, and the associated roles of labor, technology, capital, and the state. Some of the most recent seed-centric literature includes Johnathan Silvertown’s An Orchard Invisible: A Natural History of Seeds (2009), Carolyn Frey’s Seeds: A Natural History (2016), and Thor Hanson’s The Triumph of Seeds (2016). Historians and general readers, perhaps inspired by the “Doomsday” seed vault crisis, will find all of these interdisciplinary narratives of seed evolution and human discovery accessible.

In The Profit of the Earth, Courtney Fullilove offers something different: an ambitious and creative study that uses the story of seeds to ask readers to rethink the origins of American agricultural exceptionalism. The central narrative examines the nineteenth-century institutions that allowed the nation
to become a major breadbasket of the world. Throughout, the author empha-
sizes how capitalistic and nationalistic frameworks of improvement co-opted
knowledge, seeds, and other technologies from “willing and unwilling” lo-
cal and indigenous sources across the globe—while at the same time creat-
ing monocultures that threaten biodiversity. Fullilove argues that recovering
knowledge systems and landscapes lost during agricultural modernization will
prove imperative in our own era as many across the globe face food scarcity in
the face of climate change. While this book is a fine addition to the history of
seeds, it is also a prompt to learn from more diverse, inclusive, and traditional
systems of agricultural knowledge.

Beyond the theoretical underpinnings of this study (and a series of “Field
Notes” related to the author’s seed collecting efforts as part of the Interna-
tional Center for Agricultural Research in Dry Areas), the narrative describes
the origins of American agricultural modernization. Fullilove begins her story
with the adventures of James Morrow, a South Carolina physician and natu-
ralist who accompanied Commodore Matthew Perry on his antebellum Pa-
cific voyages. Morrow’s nationalistic objective to collect new plants, seeds, and
technologies was at times more difficult than he anticipated, namely because
other cultures were secretive and protective of their agricultural practices, par-
ticularly seed sharing. Fullilove recounts a moment when Morrow struggled
to purchase rice in Japan, where farmers declined to barter for the seeds that
they had laboriously crossbred and otherwise improved from landraces. The
example is the first of many that demonstrates how American agronomists
failed to appreciate the value of many traditional cultures that resisted the sale
of agricultural knowledge.

Despite these challenges, Morrow returned home with scores of new col-
clections. While private seed companies and farmers sought these foreign
exotics for private gain, Morrow donated his seeds to the Patent Office in
Washington, DC, which housed an expansive collection but had no genuine
means of cataloguing or preserving it. The Patent Office served two functions:
first, the institution housed a museum that showcased plants and seeds in a
Linnaean fashion to promote American experiences and progress; second, the
Patent Office acted as distributor of free seeds to farmers across the country,
especially by members of Congress to their constituents. Fullilove notes the
irony that the Patent Office offered “a space for common use in a temple
of private property” (48). Despite that contradiction and its own managerial
problems, volunteers successfully collected and dispersed seeds for many years.
Not all donated seeds proved useful, however, and there were many moments
of promise, such as the case of tea cultivation in the South, that simply never panned out.

Ultimately, Fullilove makes the assertion that the Patent Office helped establish the foundation for modernized agricultural science in the United States by aiding agricultural innovation in the era that preceded the Department of Agriculture, land-grant colleges, agricultural experiment stations, and privatized seed companies. She spends the rest of her book explaining what is left out of that story of seed collection, improvement, dispersal, and preservation, noting the stories of farmers, communities, private agricultural societies, and scientists that lay outside the scope of agricultural research sponsored by the modern state.

Fullilove first recounts the story of Bernard Warkentin, a German Mennonite who fundamentally transformed Kansas wheat farming in the closing decades of the nineteenth century. Warkentin's tale is fraught with displacement and migration, first from Germany to the Russian steppe, and then, because of further political and religious tension, to the American plains. Given the difficulties that other farmers faced with Kansas soil and pests, Warkentin's decision to purchase land and begin farming might have seemed odd. But the Mennonite community possessed a deep knowledge of farming the steppe that translated to success in the similar environment of Kansas. They also brought with them “Turkey Red Wheat,” a drought-resistant hard winter variety that Warkentin identified as ideal for their new home. After introduction in the 1870s, the Mennonites succeeded where other farmers had failed, and indeed, the “Turkey Red Wheat” seeds and Mennonite knowledge transformed the American plains into a breadbasket for the world. Warkentin's success cast him as an expert in wheat farming. He would eventually collaborate with the USDA and travel back and forth for further study in Russia to test new seeds and technologies. As a group, Mennonites contributed to the larger narrative as they continued to study agriculture and offer their expertise.

While this story has been told by others in the past century, Fullilove suggests that Warkentin and the Mennonites are only partly responsible for the rise of “Turkey Red Wheat.” She demonstrates that their success was achieved on the shoulders of Russian farmers who preceded them on the steppe, similar to the long trials of Japanese rice farmers that James Morrow encountered who labored over the generations to improve plants and seeds. Fullilove also emphasizes that Warkentin and his community succeeded where other Kansas farmers did not because of generous land contracts from railroad companies, accumulated investment capital, and a spirit of community. The author,
however, reminds the critical reader that grain monocrops on the plains displaced the diversity of indigenous plant communities and a symbiotic relationship with grazing quadrupeds. Thus, as much as this part of the story is about triumph, it is also about loss.

Fullilove’s final case study further delineates the crises identified at the beginning of the book. The story centers on John Uri Lloyd, an Ohio pharmacist who defied early twentieth-century medical beliefs by embracing indigenous medical knowledge and native plants. Most prominently, in his efforts to produce a pain ointment, he collected Echinacea—the purple flowering plant known in various parts of the country as elk weed, elk root, Kansas snake-root, or “Black Samson.” Unlike Warkentin’s “Turkey Red Wheat,” Echinacea could not be found sprawling by the cultivated acre across the Great Plains. Instead, it had to be carefully collected along field margins by intensive hand labor. In great detail, the author describes the lengths Lloyd had to go to gather enough Echinacea for his business and study. Along with an occasional struggle to determine the local name for Echinacea, he competed with grain farmers for laborers during the harvest season and struggled to acquire permissions to gather plants on private property.

Despite some success, Lloyd’s Echinacea ointment business did not prove lasting. After Congress passed the Pure Food and Drug Act in 1906, it became difficult if not impossible to market Echinacea and other herbs. Lloyd saw this as an assault on his practice, and, indeed, the act further displaced indigenous medicine in American society. Lloyd lamented this scientific trend (most famously in a dystopian novel) and made the connection between lost knowledge systems and lost biodiversity through monocultures on the plains. This case study culminates with a discussion of Lloyd’s disbelief that regimented and standardized science made medicine better.

Overall, The Profit of the Earth makes clear for agricultural historians the pitfalls of modern scientific agriculture even prior to mechanization, the “factory in the field” model, the postwar chemical parade, and GMOs. To some degree the study could have used another case study or two, with perhaps more attention to the details of indigenous plant breeding, the stories of agricultural labor, and gendered agricultural knowledge systems. At times the volume can be a little dense, so it would be best assigned to advanced undergraduates and above. Nevertheless, as a whole, the study succeeds on many levels: for making the connection between the Patent Office and later public and private institutions of agricultural modernization; for making broader global connections to the nineteenth and early twentieth century origins of
the American breadbasket; and for calling into question the disregard of ag-
icultural and medical knowledge that did not fit with American imperialism
and capitalism. All of Fullilove’s stories enrich our broader history of seeds,
while at the same time connecting us to our present and pending future of
agricultural scarcity that unfolds in her collection work for the International
Center for Agricultural Research in Dry Areas and in the recent scare at the
“Doomsday” seed vault.