Smith-Howard, Kendra: *Pure and Modern Milk. An Environmental History Since* 1900. New York: Oxford University Press 2013. ISBN: 978-0-19-989912-8: 240 S.

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Kendra Smith-Howard accomplishes what many environmental historians fail to do. Instead of positing the natural world and human technology as oppositional forces, she frames her story of milk as one of human interaction 'in' and 'of' the environment. She uses the dairy food and industrial commodity to illustrate the sometimes confusing results when people try to shape nature for their own purposes. "Pure and Modern Milk: An Environmental History Since 1900" is, thus, an exploration of the paradox encapsulated in the title: can milk be both pure (i.e., of nature) and modern (i.e., of human technology)? Yes, asserts Smith-Howard, and in this way, the story of milk tells us much about the human role in the environment.

Smith-Howard's story of milk covers a century of changing priorities and goals, which can be broadly summed up as reform, modernization, production, and re-examination. The book begins with the urgency of the Progressive Era to repair new-found challenges of the industrial era, starting with providing the growing populations of the nation's cities with plentiful and healthful food. Milk, a perishable food subject to contamination, exemplified the difficulty of feeding those who no longer lived on farms and who relied on strangers to provide them with food. In the background of debates about the types of regulations and technologies that would ensure milk's safety, grew an image of milk that would persist to the present day and elevate the commodity over other foods. Smith-Howard describes how milk's growing association as the food for infants, especially with the decline of breast feeding, created more anxiety about making sure that it was natural and pure. Corollary to this image that milk was uniquely qualified as the food for babies was the idea that milk represented a connection to the pre-industrial world, apparently untainted by human manipulations. SmithHoward writes, "in advertising images, cows grazed on verdant pastures or drank peacefully along meandering streams. Milkmaids toted pails of milk through the pasture [...]" (p. 19). Such romanticizing of milk's simple agricultural origins persisted and spread to other foods by the end of the twentieth century as consumers sought to reclaim their ties to the natural world; food writer Michael Pollan has dubbed these recent rhetorical flourishes "supermarket pastoral."

Once the technologies of pasteurization and the systems of farm inspection became wellestablished by the end of the Progressive Era, new industrial and mass production possibilities for milk beckoned. Smith-Howard devotes the next two chapters to the challenges of breaking down milk into various components (e.g., butter, casein, and skim milk) and figuring out how best to use them in foods and other manufacturing. In this way, the production, distribution, and use of milk became increasingly industrialized. Smith-Howard provides numerous examples of how individual farm families worked to fit into these new systems, sometimes with greater or less success. Yet, even as "Pure and Modern Milk" lays out a trend of growth and consolidation on dairy farms (as was true of twentieth century agriculture in general), the book also details how "local farming and industrialized mass production often overlapped and coexisted" (p. 38).

In addition to the transformation of how dairy farmers made a living, the intensive industrialization of milk in the interwar and mid-century period had other important effects on the environment and on food consumption. The consolidation into ever-larger dairy operations led to byproducts fouling streams near plants, sometimes with dramatic consequences: "When too much waste flowed into the waterways near dairy plants, a heavy, black sludge coated them. thetically unpleasant and odiferous, putrefying dairy waste depleted oxygen in streams and diminished fish populations." (p. Such a description of pollution illustrates the paradox that animates Smith-Howard's book, in this case, the "disconnect - between the changed and modernizing nature sought by those on the dairy farm and the imagined vision of the farm held dear by consumers" (p. 97).

Another side of this paradox emphasized by Smith-Howard is both the celebration of industrialized food and the reluctance of consumers to relinquish the idea that pure food tied them to an idealized agricultural past. The paradox is seen in the rise of prepackaged, branded butter - a modern, convenience found in self-service grocery stores in the 1920s - whose advertisements and labels described the bucolic countryside where it originated. Self-service grocery stores blossomed into supermarkets after World War II where consumers were enticed into buying foods in brightly colored packages advertising industrial modernity. Milk products were reflected in this food transformation as consumers stocked their pantries with boxes of "nonfat dry milk solids." Beyond such mundane items, though, Smith-Howard argues that burgeoning sales of ice cream, moving the food from special-occasion-homemadetreat to weekly, even daily, snack or dessert, exemplified the integration of milk into industrial food systems and the idea that modern Americans were food consumers not creators.

While some Americans may have been uncomfortable with the idea of losing connection to the land and natural world due to massproduced food, the greater worry in the middle of the twentieth century was that modern food was contaminated by industrialization itself, specifically through radioactive, antibiotic, and pesticide residues. Although the first of these residues stemmed from Cold War weapons' testing, and the latter two came directly from the mass production of food, all three raised alarm as unseen threats which the ordinary person could not detect on her own. Farm families, not just consumers, perceived these residues as threats; for example, Smith-Howard notes that farmers could not always prevent chemical contamination of feed they received or block the aerial drift of chemicals from neighbors, thus, "concerns about pesticides blurred the line between food consumers and farm producers" (p. 138).

In the Epilogue, Smith-Howard discusses the post 1970s period and circles back to the debate woven throughout the book: the paradox between pure and modern, the tension between what is natural and what is human made. She uses the backlash against recombinant growth hormone (rBGH) to illustrate these persistent tensions. For farmers, the use of rBGH exemplified the ultimate problems of abundance, as cheap, plentiful milk flattened prices, squeezed out individual farmers, and weakened small towns. Consumers, additionally, worried about knowing the origins of their food. At a time when neo-liberalism was on the rise, Smith-Howard argues that consumer pressures mainly pushed for labeling the milk produced, not to eliminate the technology. Thus, as seen in the debate over rBGH, the majority of Americans found new ways to live with the tension between what is natural and what is industrial.

The value of "Pure and Modern Milk: An Environmental History Since 1900" lies in Kendra Smith-Howard's ability to describe "the murky and ever-changing lines between nature and technology [that] have inspired many of the changes to milk and the dairy farm over the course of the twentieth century" (p. 165). But beyond the story of milk, Smith-Howard helps us better understand environmental history by examining the human urge to both manipulate the natural world and to celebrate its existence beyond our control.

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