Book review: Blum, Deborah. 2018. *The Poison Squad: One Chemist's Single-minded Crusade for Food Safety at the Turn of the Twentieth Century.*

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Abstract: *The Poison Squad: One Chemist's Single-minded Crusade for Food Safety at the Turn of the Twentieth Century* is about the passing of the 1906 Pure Food and Drug Act, the work of its primary creator, U.S. Department of Agriculture (USDA) scientist Harvey Wiley, and how this early food purity law influenced consumer protection and led the way to the creation of the FDA. Written by award-winning science journalist Deborah Blum, *The Poison Squad* is a valuable historical contribution to popular science literature, chronicling the often-deadly preservatives that used to be added to food and drink without the requirement for evidence of their safety. The book provides a succinct homage to the unrelenting efforts of a 19th century scientist and consumer advocate and acknowledges the impacts of several powerful women in the Progressive movement. However, *The Poison Squad* offers limited context on the struggles of historical regulators and how these historical struggles relate the modern problems faced by regulators at the Food and Drug Administration and science communicators.

Deborah Blum's book, *The Poison Squad: One Chemist's Single-minded Crusade for Food Safety at the Turn of the Twentieth Century*, both details the history of early American industrial food and drink preservation hallmarked by the passing of the 1906 Pure Food and Drug Act, and the career of this policy's primary advocate, U.S. Department of Agriculture (USDA) scientist Harvey Wiley. Blum, an award-winning science journalist, has made a career out of highlighting historical, somewhat obscure scientific figures. Blum believes that many of these figures' societal contributions, which often came at great personal cost, should not be forgotten and can still provide lessons for the present (Blum 2020). *The Poison Squad* is no different.

Prior to the passing of the 1906 Pure Food and Drug Act there was little to no regulation of food additives and preservatives in the United States. Industrial lobbyists fought hard to keep additives in food and drink to cut costs, despite the lack of scientific evidence regarding their safety. In "*The Poison Squad",* Blum discusses several common food additives that were causing blatant harm: the addition of borax in butter, formaldehyde in milk, and salicylic acid (aspirin) in drinks were common practices, sometimes resulting in the death of children and immune compromised individuals. In 1883, Wiley, a Purdue scientist who made a name for himself uncovering fraudulent foods, was appointed chief chemist at the USDA. Alarmed at how many preservatives were added to food and drink, the obvious connections these additives had to consumer illnesses, and the lack of federal regulation, Wiley rode the wave of the Progressive era's growing public interest in food safety and started the legal crusade

for pure food, drink, and drugs. Drawing from a wide variety of historical sources, including newspapers, trade journals, magazines, and an archive of Wiley's personal correspondences, *The Poison Squad* follows Wiley's quest for and enforcement of a groundbreaking food and drug purity law. Specifically, it profiles his political activism for safe, labeled food through his written science communication and outreach, his scientific endeavors at the USDA in the form of human drug trials, his zealous persecution of unlabeled preservatives, and his exposures of adulterated foods.

Blum's book provides interesting insights into the life of a politically appointed federal scientist in the Progressive era and the contributions of women during this time in American history. Wiley's federal career outlasted several USDA secretaries and Presidents, some of whom supported his cause, and others who antagonized his work. For example, Blum recounts the time Wiley unintentionally insulted President Roosevelt for his use of the artificial sweetener saccharin, resulting in Roosevelt's temporary withdrawal of support for food and drug regulation despite his progressive track record. Further, despite the abundance of men in science and politics at the time, Blum argues that much of the success of the food safety movement is due to women as progressives and political movers primarily through the General Federation of Women's Clubs. Anna Kelton, Wiley's wife who went to jail for suffrage activities, and Alice Lakey, a well-known Progressive activist and head of the National Consumer League who supported Wiley's efforts through writing and activism, are particularly well profiled in the book. Wiley relied heavily on women's groups for political pressure on lawmakers; after his term ended at the USDA he worked at *Good Housekeeping* magazine, primarily read by women, as a writer and head of their Bureau of Foods, Sanitation, and Health. While by no means the only book crediting the women of the Progressive era, *The Poison Squad* is unique in that it positions this work in a scientific context.

Further, *The Poison Squad,* demonstrates Wiley's engagement in science diplomacy, or the use of scientific enterprise to build and strengthen international relationships and regulations. In 1907, he was sent to France to serve as a judge in the International Maritime Exposition, which showcased foods that were packaged and shipped overseas. While there, he helped the French government update their food laws. Relatedly, the French had also recently stopped importing American meat products in an outrage over the 1906 publication of Upton Sinclair's *The Jungle*. An iconic novel about a poor meatpacker in Chicago, it was initially conceived to raise the popularity of socialism. Instead it turned into an exposé of the meatpacking industry, disgusting the public due to its depictions of filthy factory floors, unsanitary meat, and poor working conditions. As a result, it was met with much backlash from the US meat industry. Blum's depiction of Wiley's relations in France, and her juxtaposition of the European outcry over *The Jungle* compared to the slow and underwhelming response of the American government, highlight the historical difference in regulatory approach between precautionary Europe and reactive America—the philosophical underpinnings of which have persisted over time.

While Blum excellently contextualizes Wiley's career and activism within the Progressive movement, there are few direct links to modern conditions. For example, this book is void of information regarding the current use of the industrial preservatives described in the book or whether they were ultimately deemed harmful (e.g. borax is banned in food use, while copper sulfate is generally regarded as safe in quantities sufficient for its purpose) (FDA 2019b). Additionally, little attention is given to the fact that many of the difficulties Wiley faced continue to plague scientists who advocate for data-driven policymaking. For example, one can easily compare early 20th century food regulation to the current climate crisis. Wiley faced a USDA staffed with pro-industry lobbyists; it is still a common practice for industry interests to sponsor members to governmental scientific committees and to undermine the use of scientific evidence in regulation, particularly within conservative administrations (Fredrickson et al. 2018). Such has been the case with the Environmental Protection Agency under the Trump administration, which has overseen the rollback of over eighty rules or regulations since 2017 (Popovich, Albeck-Ripka, and Pierre-Louis 2019). Just as in Wiley's time, it seems like the government's lack of support for enhanced regulation in response to the climate crisis is largely

pinned on the personal loyalties of those in power; the public's best interest is at odds with the short-term financial interests of certain private industries.

Other than a few lines in the epilogue, there is little connection in *The Poison Squad* between the passage of the 1906 law and the actions of the current Food & Drug Administration (FDA), which was not officially formed until the passage of the 1938 Federal Food, Drug, and Cosmetic Act (FDA 2015). The 1938 act, and many subsequent laws, gave the government agency greater regulatory teeth than the initial 1906 law. *The Poison Squad* thoroughly chronicles Wiley's struggles to enforce the 1906 law yet misses the opportunity to examine this campaign against the FDA's current barriers to protecting consumers. Current public health threats such as the multitude of noncompliant stem cell clinics, the opioid addiction crisis, and the rapidly advancing vaping crisis share several features in common with Wiley's plight. Some of these commonalities include limited scientific information, even more limited public information, and pushback from executives and legislators with financial stakes in the industries challenging the passage and enforcement of enhanced regulation (Turner and Knoepfler 2016; Goodnough and Sanger-Katz 2019; Thomas and Kaplan 2019).

Though not detrimental to the ultimate quality of the book, there is a noticeable lack of discourse comparing the nature of science communication at the turn of the twentieth century and present day. Wiley was a tireless science communicator. Writing for a variety of audiences such as women's groups, technical pamphlets, and legislators, he was particularly talented at public outreach, a major asset for his advocacy efforts. Wiley consistently communicated his science with integrity, persevering through the age of muckraking and 'yellow' journalism which sometimes sought to undermine or deliberately misrepresent his work. Such was the case with the coverage of Wiley's human trials to test food additive safety, which were covered by the Washington Post journalist George Rothwell Brown. Brown, who coined the name "the Poison Squad," obsessively reported on the studies through a sensational lens and often remarked on the health of the participants with no actual access to study data. While the advent of the internet represents a fundamental shift in modern communication, a common struggle transcends time: public opinion is subject to a sea of information and identifying trustworthy sources can be difficult. One could even argue that misinformation is a greater problem in the twenty-first century as consumers are subject to opportunistic manipulation through algorithms employed to curate public access and exposure to information.

Blum's book offers a unique historical contribution to popular science literature. It is both a succinct homage to the unrelenting efforts of the 19th century scientist and consumer advocate known as the "Father of the Pure Food and Drugs Act," as well as a refreshing acknowledgement of the multifaceted, often underrepresented, impacts of several powerful women in the Progressive movement (FDA 2019a). Perhaps its greatest asset, *The Poison Squad* can be regarded as a case study in grass roots activism, public health, advocacy for science in policy, and science communication and outreach. Wiley employed communication techniques that still hold great relevance today. His legacy provides a masterful example of garnering support for a cause from a given community by tailoring the messaging of that cause to the community's values rather than the advocate's. As Upton Sinclair put it, "I aimed at the public's heart, and by accident I hit it in the stomach." In this regard, current science policy advocates would do well to take a page out of Dr. Wiley's book.

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