

Nancy Langston, *Toxic Bodies: Hormone Disruptors and the Legacy of DES* (New Haven: Yale University Press, 2010), xvii + 233 pp., illus., \$30.00.

Timely, concise, and compelling, *Toxic Bodies* provides a model for showing how important historical knowledge is for present-day policymaking, especially in the contentious field of environmental health. As reformers and political scientists have long recognized, effecting policy change is often most feasible in the wake of a well-publicized crisis, when emotions run high and public demand for action is strong. But the “health and environmental disaster” caused by widespread use of the endocrine-disrupting chemical diethylstilbestrol (DES) took decades to surface (p. x). Moreover, the negative long-term effects of DES and other hormone disruptors remain subject to intense debate due to gaps in scientific knowledge, epistemological differences in interpreting data, and conflicting models of risk calculation. The question of what constitutes an acceptable level of risk is one which U.S. regulators of synthetic chemicals have often addressed in ways more favorable to industry than to environmental health – often, but not always, as Nancy Langston’s important archival detective work reveals.

Despite the book’s generalized title, it deals almost exclusively with the DES story as it unfolded in the United States. As the first synthetic estrogen, DES promised to help women manage menopause, which by the late 1930s was being redefined by medical experts as a problem – a treatable problem – rather than a normal part of aging. Because the Food, Drug, and Cosmetic Act of 1938, one of several New Deal regulatory reforms, required manufacturers to submit evidence of safety for proposed new drugs, DES became a controversial test case of the Food and Drug Administration’s increased power to protect consumer health. Although industry representatives tried to cast doubt on the human applicability of animal experiments linking DES exposure with cancer, FDA leaders refused to approve DES in 1940 due to a lack of sufficient evidence proving its safety. Decades before the “precautionary principle” became a buzzword among environmental and public health activists, it assumed regulatory significance in the U.S.

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However, pharmaceutical companies soon figured out how to evade the government's new precautionary approach, exploiting the absence of evidence of harm to specific women to win approval for DES as a menopausal remedy in 1941. Industry lobbyists subsequently perfected the practice of "manipulating scientific uncertainties and cultural beliefs in order to create a new market for their drug" (p. 53). Assumptions about the possibility of achieving technological control, and cultural blind spots induced by the toxicological axiom that "the dose makes the poison" (a concept violated by hormone disruptors), also led regulatory bureaucrats to adopt a much less cautious attitude than that intended by the 1938 law. After the war FDA officials extended DES approval for pregnant women (1947–1971) as well as for livestock in the form of chicken implants (1947–1959) and cattle feed (1954–1972); usage continued after these dates due to industry pressure. Millions of Americans were thus exposed to a synthetic hormone which many scientists had long suspected of having carcinogenic effects, a link confirmed in 1971.

Langston has a very clear point of view about both the preventable tragedy of DES and the lessons of that tragedy for dealing with other controversial endocrine-disrupting chemicals today. As she persuasively argues, recognizing the ways in which drug companies staved off needed regulations by poo-hooing troublesome animal studies, promoting evidence obtained via questionable research protocols, and otherwise capitalizing on scientific uncertainties about DES is an essential step toward improving environmental decision-making. Historians should play a crucial role in this process, but unlike other professionals who often use observations about past experiences to improve current practice, historians tend to resist working with environmental policymakers for fear of perpetuating presentism, the "cardinal sin" of judging past actions by present-day standards (p. 154). But rather than allowing influential stakeholders to obscure the historical roots of contemporary crises, concludes Langston, "we [as historians] can and should provide counternarratives that push back against these manipulations" (p. 166).

Containing just 166 pages of text, *Toxic Bodies* could have squeezed in a bit more relevant information. There is no mention, for example, of the Stockholm Convention on Persistent Organic Pollutants, the 2001 United Nations treaty designed to end or reduce production of twelve notorious chemical compounds associated with a range of problems including endocrine disruption. International delegates spent years during the 1990s debating the accord, and thus it would have been interesting to hear the author's take on the treaty's connection with

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other recent events discussed so well in the concluding chapters. Along these lines, at least a short analysis of Australian, Canadian, and/or Western European responses to DES would have provided a helpful comparative context for evaluating the lessons of the U.S. regulatory failure, especially with regard to the democratic capitalist challenge of reconciling precaution with industrial innovation.

Despite these omissions, *Toxic Bodies* fulfills a need for students and professionals of many scholarly and applied fields, from the history of science and technology to regulatory policymaking to the agricultural and environmental health sciences. The book's accessibility, succinctness, and affordability – and Langston's passionate yet well-grounded analysis – make it a valuable text for a wide variety of advanced undergraduate and graduate courses, including American studies, biomedical issues, business ethics, clinical research methodologies, environmental studies, political science, science and technology studies, and women's and gender studies. It will likewise inform practitioners of such specialized fields as community health, endocrinology, environmental justice, pharmaceutical socioeconomics, toxicology, veterinary medicine, and of course the history of biology.

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