# TOWARDS AN EXPANDED HISTORY OF ENVIRONMENTAL JUSTICE IN AMERICA: ELLEN SWALLOW RICHARDS AND HUMAN ECOLOGY

ELLEN BURKE

**Ellen Burke** is associate professor in the Department of Landscape Architecture at Cal Poly San Luis Obispo. She teaches and writes on resilience and regeneration in urban contexts, including food systems, designed ecology, landscape performance, and community-based environmental justice projects. She has published in *Landscape Research*, *Avery Review*, *Bracket One* and the collection *Food Waste Management: Solving the Wicked Problem* (Palgrave Macmillan) and her research investigations have been funded by ArtPlace America and the Landscape Architecture Foundation. She holds a Bachelor of Arts from Vassar College and a Master of Landscape Architecture from Harvard University Graduate School of Design.



## ABSTRACT

The environmental justice (EJ) movement in the United States emerged in the same era as the civil rights movement, addressing issues of race, human rights, and the environment, and protesting with non-violent engagement tactics. But the core focus of the movement—concern with human health in the lived environment—can be found as early as the mid-1800s in the sanitary reform (SR) movement in England and the United States. While the SR movement had different aims and goals than contemporary EJ activism, both connect two important concepts: the effects of environmental modification on human health and the inequitable distribution of risk and harm. Both movements also challenge traditional ideas of environmentalism that focus on "pristine wilderness".

As EJ grows, expanding the theoretical history of the movement is important to situate it in a longer dialogue about human health and the environment. This paper examines the ways that advocates for environmental health have framed their arguments relative to larger social contexts, and the long-term consequences of that framing on human health in urban environments, with a particular focus on comparing the work of Ellen Swallow Richards, a pioneering female chemist, and the modern environmental justice movement.

## INTRODUCTION

Histories of environmental justice (EJ) in the United States situate its founding in the late 20th century, in grass-roots activism to address environmental harms such as pollution in inhabited places, including urban neighborhoods and rural communities. EJ is described as challenging traditional ideas of environmentalism in the US that focus on "pristine wilderness" and endangered species, and scholars of the movement have noted the ways that race and gender intersect with differing approaches to defining environmentalism.[1,2] Early leaders in traditional environmentalism were largely white men, writers like John Muir and Henry Thoreau (Figure 1). In contrast, early leaders of the EJ movement were largely women, and often poor women of color. Their focus was on links between human and environmental health, and on calls for self-determination in the quality of one's immediate, lived environment (Figure 2).

In 1982, residents of Warren County, North Carolina challenged the siting of a toxic-waste landfill facility in their community with six weeks of marches and protests, including blockading trucks arriving at the landfill. This organized action, while not the first of its kind, is often identified as the beginning of the EJ movement.[3] Other histories locate the movement's beginnings in 1968 with Dr. Martin Luther King's support of striking sanitation workers in Memphis, Tennessee, or the 1969 grape boycott organized by United Farm Workers.[4] Each of these events are direct actions taken to protect human health and recognize that burdens of pollution are inequitably distributed based on race and class. Gordon Walker's seven characteristics of the EJ movement are evident in these early actions, including emphasis on the politics of race, a focus on justice to people in the environment, and demands for participatory justice.[5] EJ is often described as an extension of the civil rights movement, as early organizers aligned with civil rights leaders, used similar methods for non-violent engagement, and addressed issues of race and human rights. But the core focus of the movement—concern with human health in the lived environment and a recognition that environmental harms are inequitably distributed—can also be

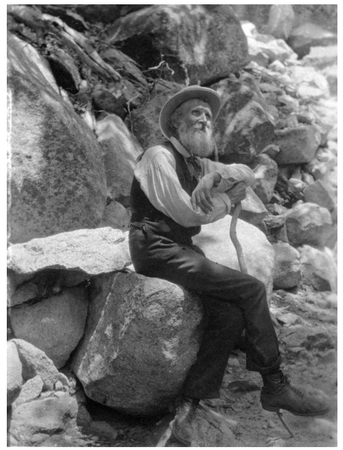

Figure 1: Portrait of John Muir. Francis M. Fritz, John Muir, 1907, Public domain, via Wikimedia Commons

Figure 2: A citizen is removed forcibly by law enforcement agents during the 1982 Warren County protests which mark the beginnings of the environmental justice movement. Ricky Stilley, Warren County, 1982, Courtesy of R. Stilley

connected to a longer history. The understanding that environmental harm is harmful to human health can be found as early as the mid-1800s in the sanitary reform (SR) movement in England and the United States. While the SR movement had different aims and goals than contemporary EJ activism, both connect two important concepts: the effects of environmental modification on human health and the inequitable distribution of risk and harm. For example, an early pioneer of the SR movement, Edwin Chadwick, identified patterns of mortality related to social class in mid-1800s London in his study *General Report on the Sanitary Conditions of the Labouring Population of Great Britain.*

As EJ grows to become a global movement with a wide array of concerns, expanding the theoretical history of the movement is important to situate it in a longer dialogue about human health and the environment.[6] Doing so can help to identify entrenched patterns of ill-health, urban form, and socio-economic class and race beyond the relatively short history of the existing EJ movement, and can provide scholars and advocates with a longer-range vision of root causes, and identify potential strategies for action. This paper examines the ways that some advocates for environmental health, across two time periods, have framed their arguments relative to larger social contexts, and the long-term consequences of that framing on human health in urban environments, with a particular focus on comparing the work of Ellen Swallow Richards and the modern environmental justice movement.

## ELLEN SWALLOW RICHARDS, *OEKOLOGY*, AND ENVIRONMENTAL JUSTICE

Ellen Swallow Richards was a leader in the SR movement in the late 1800s, and is notable for her accomplishments within the field, as well as her many firsts as a woman, including being the first woman to graduate from the all-male Massachusetts Institute of Technology (MIT) in 1873 and the first woman to work for MIT on the teaching and research staff of the chemistry department (Figure 3). Richards focused on environment as an inhabited place, adopting the term *oekology*, which today describes the scientific study of relationships between living organisms and their environment but which she described as "the science of the conditions of the health and well-being of everyday human life."[7]

Coined in 1875 by German zoologist Ernst Haeckel, *oekology* was derived from ancient Greek *oikoc*, meaning "house" or "dwelling," and was introduced in the United States by Richards in 1892 (after correspondence with Haeckel). She described environment as consisting of natural features like climate, as well as those produced by human activity, such as "noise, dust, poisonous vapors ... dirty water and unclean air."[8] Similarly, EJ activists understand environment as an inhabited place, defining it in complex, interrelated terms. As Robert Bullard summarizes the position, "the environmental justice movement ... basically says that the environment is every-thing: where we live, work, play, go to school, as well as the physical and natural world. And so we can't separate the physical environment from the cultural environment."[9]

The focus on the daily, inhabited environment contrasts with the work of traditional environmentalists such as John Muir, which focuses on preservation of areas understood as untouched by human inhabitation. A contemporary of Richards, Muir focused on wilderness[10] preservation in Yosemite Valley, California, helping to draw up the proposed boundary for the national park in 1889. In some ways, both focused on health. Muir framed wilderness as a tonic for the spiritual ills of society at his time, a place to heal the soul through contact with fresh air and beauty.[11] He spent time hiking and living in wilderness areas, and through his writings advocated for the transcendent qualities of places as yet visually untouched by modern human inhabitation. Richards' interest was in the very places of ill health that Muir's writings excoriated—cities and industrial areas—but sought instead to understand the relationship between pollution and human health and to develop means of improving these conditions.

It is important to note that unlike EJ activists and some of her contemporaries in the SR movement such as Edwin Chadwick, Richards did not recognize how race, ethnicity, and class impacted health outcomes in the environment, and despite her own achievements she largely accepted traditional gender roles in labor divisions. Compared to the Settlement House movement, also contemporary to her time, Richards tended to focus on systemic environmental issues through a scientific (chemical) perspective, rather than a social work perspective, and to seek to reform power rather than individuals. Richards' work has been characterized as somewhat isolated, both from other scientists of her time, because of her gender, and from other social reformers due to her age; she was, for example, a full generation older than the feminist and social worker Jane Addams.[12]

The overlaps and dissonances between Richards' work and the field of environmental justice are discussed here through her major accomplishments:

Figure 3: Ellen Swallow Richards was the first woman to be admitted to MIT and to teach on their faculty. Unknown, MIT Chemistry Staff, date unknown, MIT archives

Figure 4: Richards in the field. Unknown, Ellen Swallow Richards gathering the scum on Jamaica Pond, Boston, Ma., 1901, Courtesy of the Sophia Smith Collection

Figure 5: A view of the Hudson River and adjoining neighborhood that would have been most impacted by sewage from Vassar College prior to Richards intervention. Unknown (Detroit Publishing Co, publisher), Poughkeepsie bridge, 1906, Public domain, via Library of Congress

advocacy for state responsibility to ensure environmental health, pioneering infrastructures of sanitation, and advocacy for the role of women in enacting environmental health through organized participatory action.

*Responsibility of the State*

Richards sought to develop governance over the sources of industrial pollution, describing the potential for "the science of a controllable environment."[13] Her work in this field led to regulations in a number of areas, including the first factory and food inspection laws in the nation. Richards was appointed head of the nation's first public health laboratory (at MIT) and completed the first comprehensive study of drinking water in 1887. Her work led to the establishment of state-mandated water quality standards and state-managed municipal sewage treatment plants, and her research and documentation methods became the model for waste water management for decades (Figure 4).

In outlining a plan towards a healthy urban environment, Richards debated the merits of legislation versus education. She saw the root of the issues differently than EJ activists do. While EJ activists fight against centralized planning powers that inequitably and/or intentionally[14] locate harmful facilities in low-income communities and communities of color, Richards saw crowded conditions, lack of sanitary knowledge, and lack of environmental regulations as the problem. Richards was writing before the existence of environmental laws and planning. She wanted people to collectively protect water and air resources from pollution, arguing for regulation of these resources by the state, describing the state as "a multiplication of its citizens."[15]

She argued for city planning boards, and the need to plan for housing and the sanitary infrastructure to support it. Her writings praise the Garden City model and display a paternalistic attitude perhaps consistent with her time. She envisions "capitalists" investing in developing a healthy urban fabric, one with "habitations decently comfortable, wholly sanitary, and ... over each group an inspector as both agent and teacher."[16] Decades later, arguments about crowding and "filth" in urban conditions would be used by planning boards in the urban renewal period (1930-1970s) to justify clearance and forcible relocation of low-income and minority populations.[17] In this way, Richards' work diverges from EJ tenets due to the ways in which she envisioned and defined the state, and who the state might be composed of and beholden to.

*Infrastructures of Sanitation*

Richards' work, as described above, laid a foundation for regulated sewage treatment and water quality standards. Richards understood that although urban environments do not look natural, they function as ecological systems, and that human modifications impact natural systems such as waterways. She applied her work in Massachusetts to her alma mater of Vassar College, in upstate New York, designing a system to treat their sewage, converting the waste into nutrients for soil management, and replacing the previous system of dumping the college's sewage into the Hudson River (Figure 5).

Richards' nested system of environmental relationships—the family, the community, and then the larger world and its resources—is evident in this project.[18] In discussing the need for social action, Richards outlined a relationship between the individual and the larger community.

> The individual may be wise to his own needs, but powerless by himself to secure the satisfaction of them. Certain concessions to others' needs are always made in family life. The community is only a larger family group, and social consciousness must in time take into account social welfare ... Men band together, therefore, to protect a common water supply, to suppress smoke, dust and foul gases which render the air unfit to breathe. [19]

She described her work at Vassar College as the "right principle in taking care of wastes of an establishment by itself (*family*) instead of fouling a stream to become a menace to the health of others (*community*) ... [it] must be followed up if the land is to remain safely habitable (*larger world and its resources*)."[20] Infrastructure was part of environmental management, and a relational ethic across scales.

EJ activists often oppose infrastructure, like sewage treatment plants, for the inequitable distributions of facilities that fail to honestly assess the health effects on neighboring communities. While Richards anticipated the need for infrastructure to protect human health, she overlooked or did not foresee how racism and classism would be embedded in decision-making about siting such facilities.

*Role Of Women & Organized Action*

Richards established the American Home Economics Association in 1908. She derived the term home economics from *oekologie* and the "economy" of nature, and for her it described a science of the relationships between human use of the environment and human health.[21] Home economics became a widespread program of study in the US for decades, and addressed issues of health, food and nutrition, and community development, among others.[22] Richards' advocacy for education, and specifically education of women, intended to create possibilities for applied knowledge in the management of individual households, but also organized action to combat communal harms.

Richards' writings describe a collective sense of "subconscious loss of power over things" by women that leads to accepting forms of unhealthy

urbanity, disease, and lack of education for women as normal.[23] She raised the possibility of collective action by women, describing society as having a "great unused force in its army of housewives, teachers, mothers."[24] She also identified examples of successful women leaders, and claimed that because most regulations for health at her time (such as household cleanliness or food preparation guidelines) would be carried out by women, that women would be more appropriate in the role of inspectors or educators than men. Richards here was focused largely on middle-class women, overlooking the "great army" of women who already worked as domestic help in the form of maids, cooks, nannies, or washing-women.

Overlaps between Richards' work and EJ can be seen in the case study of Concerned Citizens of South Central Los Angeles (CCSCLA), a community group that successfully blocked a proposed waste incinerator in their neighborhood. CCSCLA was formed from women living near the proposed incinerator, women with no special knowledge of science or engineering. Activists educated themselves on the health risks of the incinerator and were able to expose risks being denied by city officials.[25] CCSCLA's victory came about through education, engaged citizenry, and organized action, all of which were also advocated for by Richards, who wanted women to be trained to see that environmental harm was not normal but the result of societal constructs and public policy, and thereby become motivated to "agitate for change."[26] In this way, Richards recognized what would later be a core EJ principle: the understanding of the environment as a social practice that can be "engaged to resist the destruction of particular human/environmental relationships."[27] The CCSCLA case study also highlights alignments between Richards and EJ, as opposed to traditional environmentalism. According to CCSCLA organizers, when groups like the Sierra Club were contacted about the incinerator they labelled toxins in the urban environment as a community health issue, not an environmental one, and declined to help.

## CONCLUSION

The work of Ellen Swallow Richards is not directly a precedent for the rise of EJ movements a century later, but significant overlaps exist in the understanding that the most important environment to protect is the one humans live directly in. Richards' nested system of environment, which foregrounds relationship to family and community before the larger world and its resources, is similar to EJ activists' focus on the environment of the immediate (human modified) community environment, rather on distant, pristine environments of traditional environmentalist concern. Both Richards and EJ activists understood the intimate connections between environmental health and human health and advocated for direct action by informed citizens. Significant differences occur, though, in framing the problem. While Richards supported centralized planning and cooperation among neighbors as solutions, she did not critically assess how racist and anti-poverty sentiment might be embedded in the very solutions she proposed. EJ activists a century later clearly saw the need for protection from the very planning boards that Richards called for, and linked attitudes about race and class to the inequitable siting decisions about noxious facilities.

In 1912, Richards admonished that "The Federal Department of Labor has studied workingmen's houses, but *living in the house* has not been worked up. The housewife has no station to which she may carry her trials, like the experiment stations that have been provided for the farmer."[28] As the fields of architecture and allied professions renew their interest in the links between the built environment and human health and wellbeing, Richards' critique, and the work of EJ advocates, points towards important considerations for designers. Primary among them is the notion of inclusion of the public, of non-experts within the community, not only as advisors but as co-creators. Both Richards' writings and the work of EJ activists describe the power of individuals to make substantive change in their environments, a possibility that is rarely engaged with by design professionals. Richards' description of an experiment station for the housewife suggests a built environment in which community members actively engage with testing and prototyping, and with contributing to the knowledge base of how the built environment functions at multiple levels. This knowledge base would include the design of structures, but also their maintenance; their relationship to infrastructure and services; to social aspects such as family life and culture; and to understandings of race and class issues that result not from academic study but from generational experience. A designed environment informed by lived life, not only the formal and technological considerations of the academy and professions, could take radically different forms than the urbanism that has been developed and critiqued over the past century, and has the potential to reveal new approaches to longstanding issues. ▪

## ENDNOTES

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2. Giovanna Di Chiro, "Nature as Community: The Convergence of Environment and Social Justice." In *Uncommon Ground: Toward Reinventing Nature*, edited by William Cronon, (W.W. Norton & Company, Inc, 1995), 298-303.

3. David E. Newton, *Environmental Justice: A Reference Handbook* (Santa Barbara, CA: ABC-Clio, 1996), 1-2.

4. Robert D. Bullard, Glenn S. Johnson, and Angel O. Torres. *Environmental Health and Racial Equity in the United States: Building Environmentally Just, Sustainable, and Livable Communities* (American Public Health Association, 2011), 82.

5. Gordon Walker, *Environmental Justice: Concepts, Evidence and Politics* (New York, NY: Routledge, 2012), 20-21.

6. See Carl Anthony's description of the roots of the EJ movement as connected to a number of earlier movements in the 17th and 18th centuries in "Regional Equity Goes National" *in Race, Poverty & the Environment, 15:2* (Fall 2008), 33-38.

7. Robert Dyball and Liesel Carlsson. "Ellen Swallow Richards: Mother of Human Ecology?," *Human Ecology Review* 23:2 (December 2017),17-29, 22.

8. Ellen H. Richards, *Sanitation in Daily Life* (Boston, MA: Whitcomb & Barrows, 1907), v.

9. Paul Mohai, David Pellow, and J. Timmons Roberts. "Environmental Justice," *Annual Review of Environment and Resources* 34:1 (November 21, 2009): 405-30, 407.

10. Muir encountered Yosemite as a wilderness empty of people in part because its indigenous inhabitants had been driven from the land in 1851 by the Mariposa Battalion, prior to his arrival.

11. Samuel Hall Young, *Alaska Days with John Muir* (Salt Lake City: Peregrine Smith Books, 1915).

12. Pamela Curtis Swallow, *The Remarkable Life of Ellen Swallow Richards: Pioneer in Science and Technology* (Hoboken, NJ: Wiley-TMS, 2014), 23.

13. Curtis, 95.

14. See P. Mohai, et al, "Environmental Justice" for a review of economic, social, political, and racial explanations for the existence of environmental injustices.

15. Ellen H. Richards, *Euthenics, the Science of Controllable Environment* (Boston, MA: Whitcomb & Barrows, 1912), 44.

16. Richards, *Euthenics*, 50.

17. See for example W.E. Pritchett, *The "Public Menace" of Blight: Urban Renewal and the Private Uses of Eminent Domain* (2003).

18. Elizabeth A. Walsh, "Ellen Swallow Richards and the 'Science of Right Living': 19th Century Foundations for Practice Research Supporting Individual, Social and Ecological Resilience and Environmental Justice," *Journal of Urban Management*, 7:3 (December 2018): 131–40, 134.

19. Richards, *Euthenics*, 40.

20. Swallow, 95, parenthetical statements added.

21. See Dyball and Carlsson for a history of the evolution of the term oeklogie, including implications around race and gender. Richards' use of the term was supplanted by the (male-dominated) field of science in an 1893 article in the *British Journal of Medicine*, and led her to develop home economics as an alternative term.

22. Dyball and Carlsson, 25.

23. Richards, *Euthenics*, 147.

24. Richards, *Euthenics*, 151.

25. Di Chiro.

26. Dyball and Carlsson, 22.

27. Di Chiro.

28. Richards, *Euthenics*, 53.