

Sites Unseen: Uncovering Hidden Hazards in American Cities

By Scott Frickel and James R. Elliott

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Sites Unseen: Uncovering Hidden Hazards in American Cities reads almost like a detective story. And as with all good mysteries, the authors—sociologists Scott Frickel and James R. Elliott—open with a series of provocative and unanswered questions. How many former hazardous industrial sites—often home to what they refer to as “relic wastes”—exist in the urban areas of the United States? Given the lack of a robust inventory of such former sites and the loose or non-existent regulation many of them operated under, how can residents and community leaders understand the scope of hazardous industrial siting over time and across place? Which populations are most exposed to these residual or lingering wastes? How do formerly toxic sites become lost or concealed as they are eventually replaced by other types of land uses?

In their efforts to understand and reveal the generation and spread of industrial hazards in four US cities across four states—Philadelphia, Pennsylvania; Minneapolis, Minnesota; Portland, Oregon; and New Orleans, Louisiana—Frickel and Elliott transgress the boundaries of environmental and urban sociology by engaging other disciplinary realms, including geography, urban planning, industrial ecology, and history. *Sites Unseen* is deeply compelling. It is the type of book that opens the line of vision, questions assumptions about environmental inequalities and injustices, and invites new and different perspectives. The book is powerful because it makes the invisible visible. Through the careful, systematic analysis of relic wastes, *Sites Unseen* renders the mostly forgotten industrial past a part of the present moment. And with that, the authors introduce the possibility to address the injuries that these hidden hazards might cause.

Frickel and Elliott build the core arguments in the book around a process they call “socioenvironmental succession,” which underscores the ways that social and environmental forces work in tandem to manifest the “gradual but ongoing contamination of urban lands by industrial hazardous waste” (p. 7) through a variety

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of urban-ecological transformations. Building on classic theories of succession by integrating scholarship on urbanization, risk, and environmental justice, the authors offer unique insights about processes related to what they term industrial churning, residential churning, and risk containment.

In the opening chapter, the authors offer an overview of their argument and the core concepts driving their work. The premise is clear at the outset: the spread of industrial hazards over time and across geographies can be understood as socially produced. They establish a roadmap with three intersecting pathways that describe how hazardous manufacturing facilities and locally unwanted land uses become “sites unseen.”

First, there is *industrial churning*, which the authors define as the “how, when, and where” of industrial practices that transform urban environments (p. 6). Here they mean the “ongoing temporal and spatial changes in a city’s active hazardous manufacturing facilities as those facilities go in and out of business or move from one location to another” (p. 6). These industries use and discard hazardous substances on-site and move from site to site in response to market forces (p. 24).

Second, and simultaneous to the first process, there is *residential churning*, or the growth and change of human populations whereby “urban residents come and go, entering and exiting cities or moving from one neighborhood to another” (p. 6). Residential churning occurs through migration and as a consequence of “urban renewal, disinvestment, and gentrification,” which “reflect and reproduce patterns of economic and racial segregation at the city level” (p. 27). One of many outcomes of this neighborhood turnover and demographic change is the loss of public memory of past industrial activities and the hazardous wastes these industries may have left behind.

Third is the idea of *risk containment*, or the “broad patchwork of local, state, and federal environmental regulatory rules and practices adopted over recent decades to address potential risks posed by hazardous industrial waste on active and relic sites throughout the country” (pp. 28–29). Risk containment is “patterned through policies and practices that focus regulatory attention on publicly visible (and often clearly dangerous) facilities and blighted urban lots and waterways, ignoring far more numerous sites that have since converted to other nonindustrial or less hazardous uses” (pp. 6–7).

To put it simply, hazardous industries turn over, people move, and the government risk containment apparatus is not designed to handle the sheer number of small industrial polluters that exist. The outcome, then, is that the vast majority of hazardous sites simply fade into the landscape as they are built on, paved over, or otherwise reused for non-hazardous purposes. Imagine that your favorite local coffee shop was formerly home to a gas station, or that your child’s playground was placed

atop an old plastic manufacturing plant. One of the many startling findings in this book is that “more than 90 percent of sites where hazardous industry has operated over the past half-century—in sectors known to release toxic chemicals and heavy metals on-site—have become lost, hidden from view by less risky land uses” (p. 3). Frickel and Elliott assert that the public should be concerned about relic industrial waste precisely because it is both hazardous *and* hidden. These sites, overlaid with a thin veneer of everything from strip malls to schools, hold within them a multitude of unknown potential hazards for those who live, work, and play on the land today. Furthermore, the ongoing churn and the lack of regulatory oversight contributes to the “relic wastes of tomorrow” (p. 15).

Frickel and Elliott do a masterful job of addressing much broader social, environmental, and economic processes as they contextualize their own rich and locally specific work. The authors chose Philadelphia, Minneapolis, Portland, and New Orleans for further analysis because these cities vary in terms of their demography, regional geography, racial and class composition, and local environmental governance. By placing each of these cities on a continuum along those dimensions (e.g., largest to smallest, least to most racially and ethnically diverse, most to least stringent industrial zoning, etc.), the authors move beyond the common, simplistic explanation that depicts cities as driven primarily by market forces. They offer a sociologically informed and complex understanding of urbanization as a “socioenvironmental process of successively interlocking changes in land, neighborhoods, and regulatory policies and practices” (p. 31).

To conduct their analyses in the four focal cities, the authors built, in painstaking detail, a novel dataset they refer to as the Historically Hidden Industrial Database (HHID). Frickel and Elliott, along with a team of their students, used often hard-to-locate state manufacturer directories to “dig more deeply into the questions of where relic industrial sites are located, how long they operated, and what they have become” (p. 36). The strength of the HHID is its ability to capture in granular detail the temporal and spatial dynamics of industrial turnover. This dataset, which starts in the 1950s and runs through the near present, includes information about the products generated at hazardous industrial facilities, the number of employees, and the locations of the facilities within the four case study cities. *Sites Unseen* contains a series of maps that show the number of relic and active sites over time and at varying scales of analysis. In addition, the authors offer an appendix and do-it-yourself user guide for replicating the HHID across community contexts, encouraging readers to address the mysteries of potential hidden hazards in their own communities.

Ultimately, *Sites Unseen* demonstrates that industrial facilities turnover—or churn—nearly continuously. These temporal dynamics operate alongside spatial ones, leading to the expansion and accumulation of hazardous sites. The ways in which this industrial churning intersects with residential churning, or demographic change, is the puzzle at the heart of the book. The authors find that while industrial churning

tends to occur about every 10 years on average, for the most part, residential change is a slower and more gradual process. Through the long lens of our racialized history it is clear that, as various population groups move in and out of the central core of urban spaces, whites as well as people of color have been and are exposed to various forms of industrial wastes.

Another key finding in the book is related to the volume and number of smaller-scale polluters that are simply not captured in the web of most environmental regulatory frameworks, which tend to focus on the most egregious polluters. When we look with a different lens and at a finer spatial resolution, a landscape littered with former industrial sites comes into focus. The ramifications of this insight in terms of environmental justice scholarship indicates that some environmental fractures cut across racial and socioeconomic groups in ways that weren't previously explored empirically. As the authors make clear, environmental justice scholarship is correct in pointing out the disproportionate and often devastating consequences of injustices on communities of color and low-income populations. However, as Frickel and Elliott began to look over a longer-term horizon and carefully examine smaller polluters alongside the bigger environmental violators, they found that a more nuanced portrait needed to be painted. The resulting image is one that shows that, due to gentrification and other forms of residential churn, white and middle-income city dwellers are also widely exposed to hidden hazards from relic industrial sites. In Chapter 6, the authors write about this finding in a thoughtful way:

Not surprisingly, the story our data tell about environmental inequality differs from the story that most researchers, students, and policy makers have become accustomed to hearing. The narrative is not populated with heroes and villains, and our conclusions are not rendered with absolute clarity. Instead, the story is about impersonal processes and institutions, and the conclusions we draw are complicated by nuance and ambiguity. The results do not refute existing accounts [of environmental injustice], but they can sit uneasily on the shelf next to them and may raise discomfiting implications that can be emotionally and ideologically difficult to reconcile, especially to those who are committed to a particular narrative arc and ending ... This discomfort need not be so, however ... These dynamics [that the book reveal] do not mean that minorities and low-income groups are less at risk than earlier studies have indicated; instead our findings show that whites and middle-income groups also face more risk than scholars have previously realized (pp. 104–105).

We are living in a moment where many people seem desperate to find a bridge to span the expansive divides that seem to grow deeper and wider by the day. Frickel and Elliott may indeed have helped us to find that bridge in some kind of sad and unfortunate way. Their work demonstrates that we are *all* living with these hidden risks. At least those of us in cities that are subject to these industrial and residential churns and the basically non-existent framework for risk containment.

The knowledge of how widespread these risks actually are, and the fact that they don't only affect the most marginalized communities, might provide an opportunity for environmentalists, who are historically from whiter, more affluent communities, to work together with environmental justice scholars and advocates—who are more likely to be drawn from communities of color—to use this knowledge to greater effect.

As with all truly fascinating works of sociology, this book left us thinking about the conclusions long after we finished reading the last page. It also raised new questions that we hope may be taken up by the authors or by others. We introduce a few of those here, not because they made us question the veracity of the findings in *Sites Unseen*, but instead because the book inspired us to want to see more work in this vein.

First, does this model, which focuses mostly on relatively slow churn processes, also allow space for the kind of fast-paced churn that might happen after a rapid-onset disaster? Consider Hurricane Katrina, for instance. In a matter of days, it caused widespread industrial contamination as well as large-scale population displacement. Would the model presented in *Sites Unseen* account for that kind of rapid and large-scale residential and industrial churning?

Second, considering that socioenvironmental succession has ramifications for all facets of urban society, what are the practical implications of the work? If deindustrialization really has not slowed the process of socioenvironmental succession and cities are still experiencing an accumulation of smaller hidden industrial sites, what does that mean for clean-up and remediation, as well as for the economic vitality of communities that are increasingly trying to keep those kinds of small businesses alive? Should smaller polluters, who may be vital to local economies, be more heavily regulated? What would the economic, social, and political implications of increased environmental enforcement across more urban spaces look like?

Third, after reading this book, we questioned how the potential health outcomes of the widespread exposure to hazardous relic sites might be assessed over time, especially in light of ongoing residential churn. In an endnote to Chapter 3, the authors write that “Contact with [even] small amounts of the wrong stuff at the wrong time can—and does—cause plenty of harm regardless of the size of the originating source” (p. 129). Is it possible to accurately trace the public health consequences of these sites, especially in an era where our bodies are increasingly filled, even altered, by toxic substances of all sorts? What kinds of interdisciplinary collaborations and methodological approaches would this sort of work require?

Fourth, Frickel and Elliott write that the book is mostly situated in the “impersonal world of statistics and institutions.” This is true, even though they randomly sampled 100 sites in each of the four case study communities (meaning they visited 400 sites in total) for deeper investigation using a novel field guide (which they also publish in the book). The authors include some truly fascinating snippets that describe the lengths they went to as they drove around these communities seeking to verify the location of sites from the HHID. We were intrigued by these stories, and they left us wanting more community-level ground-truthing of the dataset. Adding a qualitative component to a work like this would have likely led the researchers to ask the residents and owners of businesses, placed atop hazardous sites, whether the new occupants had any idea of what used to lay below their feet and of the toxins that may still lurk underneath. Because this was a book with voices unheard, it was impossible to understand whether the present occupants of these formerly hazardous sites had any idea of the dangers of their surroundings, let alone how much they might care about that if they were informed. We hope that future work in this space will include quantitative as well as qualitative analyses for broader scientific applications.

Sites Unseen makes it abundantly clear just how much more there is to be learned about hidden hazards in urban spaces—and likely suburban and rural spaces, as well. We strongly recommend this book for upper-division undergraduate and graduate courses on environmental sociology, urban sociology, demography, hazards and disasters, and the sociology of risk. We also suggest that faculty who teach research methods consider assigning this book, as it represents the gold standard for those seeking to build and share new datasets that help illuminate our social world. While we are cautious about recommending this book for courses outside our own discipline, it is no stretch to imagine that those who teach human ecology, cultural and human geography, urban planning, and even history might find this book compelling in the classroom.

Ultimately, we hope that readers of this book will be invigorated with a new or renewed sense of urgency to fight for environmental protection and justice. Frickel and Elliott are owed a debt of gratitude for this important contribution to sociology, which shares methodological insights and leaves space for further questions and future work. This book is an enduring and lasting gift to both academic researchers and communities across the nation. May it help create a safer future through a shared vision of sites now seen.

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