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Realities of environmental toxicity and their ramifications for community engagement

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ABSTRACT

Research on community responses to environmental toxicity has richly described the struggles of citizens to identify unrecognized toxins, collect their own environmental health facts, and use them to lobby authorities for recognition and remediation. Much of this literature is based on an empiricist premise: it is concerned with exploring differences in how laypeople and experts perceive what is presumed to be a singular toxic reality that preexists these varying perspectives. Here, we seek to reexamine this topic by shifting the focus from facts to facticity—that is, by exploring the many types of knowledge that communities develop about toxicity and how these knowledges articulate with the ideas of scientific and governmental authorities about what kinds of information are valid bases for policymaking. In making this shift, we are influenced by work in semiotic anthropology and science and technology studies (STS), which emphasizes that lived experience generates distinct realities rather than different perceptions of the same underlying state. Using this framework, we present an analysis of oral history interviews conducted in 2013–14 in the small American town of Ambler, Pennsylvania. Part of Ambler's legacy as a nineteenth- and twentieth-century center of asbestos manufacture is that it is home to two massive asbestos-containing waste sites, one of which was being remediated by the Environmental Protection Agency (EPA) at the time of this study. Our interviews demonstrate that even asbestos, a toxin with a well-established public narrative, is a fundamentally different object for different members of the Ambler community. For many of these individuals, the epistemology and practices of the EPA are incongruent with or tangential to their toxicity-related experiences and their consequent concerns for the future. As such, our findings suggest caution in framing the community engagement efforts of environmental health agencies primarily as facilitations of citizen science; this approach does not acknowledge the multiplicity of toxic realities.

1. Introduction

Community response to environmental toxicity has been the subject of richly detailed ethnographic study (Allen, 2003; Auyero and Swistun, 2009; Brown, 1992; Checker, 2005; Edelstein, 2004; Fortun, 2001; Levine, 1982; Little, 2014). Often this work describes residents engaging in citizen science: positing a relationship between the local incidence of illness and an environmental hazard, forming activist organizations, carrying out 'shoe-leather' epidemiology, developing alliances with likeminded scientific experts, and pressuring authorities for official recognition and remediation. As such, a central theme of this vein of research has been a problematization of the division between the roles of layperson and expert in recognizing and acting upon toxicity.

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Indeed, in commenting on the significance of this body of ethnography, leading authors (Brown, 2003, 2007; Edelstein, 2004; Hoover et al., 2015) have stressed its ability to demonstrate that environmental knowledge generated by laypeople should not be seen as less valid than that of experts. Operating in a domain characterized by intense uncertainty and trained in the powerful but limited tools of bioscience and epidemiology, experts are often unable to identify and effectively mitigate instances of toxicity; residents, living out their lives amidst their local surroundings, develop intricate understandings of this environment that can help fill the gaps inherent to risk assessment.

In describing the efforts of citizens to negotiate the arenas of science and policymaking, an important contribution of this literature has been its intent to describe the sociocultural construction of toxicity, health, risk, and expertise. This constructivist emphasis ostensibly sets it apart from 'technoscientific' (Lupton, 2013) work that adheres to the notion of environmental toxicity as a reality that can be represented with greater or lesser accuracy. (A clear example of the latter is the psychometric risk perception paradigm (Slovic, 2000, 2010), with its focus on identifying cognitive tendencies that bias the perception of environmental risk.) Yet there is often an uneasiness to the constructivist bent of ethnographic work on environmental health, an undercurrent of empiricism running beneath the general attempt to explore how ideas are grounded in everyday realities. This subtle internal contradiction has several causes. For one, as Joshua Reno (2011) has observed, the above-described motive of this work to emphasize the ambiguities inherent to environmental health science while celebrating instances of laypeople using their own data to successfully draw awareness to local toxicity remains premised on the disposition that there are "good and bad ways of knowing" (Reno, 2011, p. 517). Second, many social scientists researching communities impacted by environmental toxins, thoroughly immersed in the plight of residents, themselves become activists dedicated to making residents' voices heard through existing channels of authority as part of the effort to initiate or intensify cleanup. Making change through these technocratic channels, as will be explored further below, requires an empiricist orientation. Third, the seminal ideas of Ulrich Beck (1992) and Anthony Giddens (1991) on environmental risk continue to inflect work in this area. In their assertion that the contemporary individual is increasingly concerned with the effects of the environmental damage associated with economic growth and distrustful of the ability of experts to gauge and remedy these effects, Beck and Giddens retain a focus on risk assessment and its accuracy.

The importance of achieving remediation of officially unrecognized environmental toxins—and of the role of qualitative research in aiding this goal—should not be underestimated, particularly when lack of attention to these health hazards is the result of race- and poverty-related discrepancies in power (Checker, 2016). However, we suggest here that the richness of ethnographic data on the lived experience of toxicity can be usefully turned in a direction less focused on disputes between citizens and authorities over what is true versus false. Not only can qualitative work describe how laypeople and authorities negotiate the facts of health risks, but it can also examine how facticity itself is constructed in these situations (Jasanoff, 1998). What assumptions underlie scientific and governmental ideas of what constitutes valid information and motives upon which to base environmental health policymaking? How do these deep-seated epistemic frameworks articulate with those of the community members who live each day amidst toxicity? And what does the nature of this articulation tell us about where and how power is exercised in the engagement of authorities with citizens?

In orienting qualitative work on environmental toxicity towards these questions, two bodies of social theory are particularly helpful. We are influenced in part by the recent "ontological turn" in science and technology studies (STS). This framework is stringent in its refusal to explain cultural diversity as differences in 'perspectives' about a singular underlying reality, instead attuned to "forms of difference that cannot be reduced to a disparity of 'worldviews'" (Woolgar and Lezaun, 2013, p. 322). It emphasizes the practices through which objects are brought into being, attending to the performative nature of these practices rather than their representation of some preexisting essential state. In doing so, the ontological turn stresses that multiplicity in practices generates multiplicity in realities (Law and Lien, 2013; Mol, 2002).

A more concrete idea of this multiplicity can be obtained through attention to semiotic anthropology (Mertz, 2007), a field focused on how signs confer meaning within and across communicative encounters. Like the ontological turn in STS, semiotic anthropology is preoccupied with examining the production of realities in context-specific practices. This approach sees the individual as constantly proceeding through semiotic encounters as s/he moves through life (Agha, 2007). These instances socialize him/her to certain conceptions of an object through, for example, the commentary of others characterizing this object in a particular way (Silverstein, 2003). Over time, the manner in which the individual conceives of this object increasingly presupposes his/her previous interactions with it (Wortham, 2005). An individual thus brings a unique biography to each encounter with the object, which shapes his/her construal of its meaning in the present moment (Agha, 2005; Urban, 1991). As applied to the topic at hand, semiotic anthropology demonstrates that environmental toxicity is about far more than toxicity, or risk, or any other singular concept of influence among health researchers or practitioners (a notion also recently articulated by Peter Little (2014, 2016)). The multiplicity of meanings conferred to some component of an environmental health issue—be it the toxin itself, its sites, its health effects—are sedimented over lifetimes of semiotic encounters, instances emplaced in the particular contexts in which people live, that intricately construct the significance of these entities. For a given individual, an environmental hazard may be associated as much with walking to school in the morning, running a business, or raising one's children—along with all of the other factors salient in these daily situations—as with health or disease.

Taken in tandem, these two bodies of theory prevent the analyst from assuming, even if tacitly, that there exists a baseline shared reality that can be calibrated to by disparate parties as they negotiate the facts of environmental toxicity. The intense commitment of these approaches to the notion that all realities are constructed and so inevitably multiple is particularly helpful in unearthing the enactment of behaviors and things that are considered extremely stable and mundane. Here, we present a study of one such entity: asbestos. This ubiquitously useful mineral was one of the twentieth century's most poignant emblems of toxicity. In contrast to newly discovered environmental harms (e.g., vapor intrusion (Little, 2014, 2016)), asbestos' medical narrative is by now well established, and television commercials encouraging suffers of asbestos-related mesothelioma, lung cancer, and lung fibrosis to participate in lawsuits are common.

The American town of Ambler, Pennsylvania was a leading site of asbestos industry in the late nineteenth through late twentieth centuries, leaving it with significant asbestos-containing waste piles still visibly evident in the local landscape today. Through conducting oral history interviews with Ambler residents and with employees of the Environmental Protection Agency (EPA)—which in recent years has done the lion's share of remediation work on the Ambler sites—we seek to demonstrate that, despite the seemingly straightforward nature of asbestos qua toxin, understandings of