

Risk, Remediation and the Stigma of a Technological Accident in an African-American Community

Theresa A. Satterfield

Decision Research
1201 Oak Street
Eugene, OR 97401 USA¹

Abstract

Technological stigma — the tainting of products or places as dangerous due to associated fears about health — is gaining prominence in the social and policy sciences as a theoretical construct. The consequences of this new stigma is defined primarily in economic terms such as the devaluation of real property nearest a technological hazard or the demise of a product's value (e.g., British "Mad Cow" beef) in the wake of fears about contaminants. This paper argues that a preoccupation with market or economic impacts obscures the profound social and psychological repercussions for those exposed to technological hazards, of their inward reflections and outward responses to a world that has projected its fears and its lethal byproducts upon them. It will detail the physical, psychological and sociopolitical experience of living in a contaminated African-American community and in so doing paint a decidedly noneconomic portrait of the stigmatization of body and place.

Keywords: *stigma, contaminated communities, African Americans and the environment, community studies of risk, social and environmental impact, environmental justice*

Introduction

This paper documents the experience of contamination in an African American community in rural Georgia.² It begins with a description of the setting in which events took place. This is succeeded by a brief discussion of the theoretical construct: technological stigma. Thereafter, it is argued that this new construct need properly explore and incorporate the social, psychological and bodily consequences of exposure and thus recognize the relationship between technological stigma, social stigma and the contamination experience. The approach taken herein relies on both quantitative and qualitative findings with the ultimate goal of speaking to and of experience rather than data per se. Consistently, the paper's discursive format is part narrative in that it tells an image-laden story, and part expository in that it presents some quantitative evidence for its central points.

Context

Marshall, Georgia, situated in Pecan County in southern Georgia, hosts an historically Black college, a population of 5,000, and a very limited stock of inexpensive housing. Railroad tracks and a major thoroughfare separate the Alouette Chemical Works plant and an adjacent African-American neighborhood from the town's more prosperous residential and commercial center. The Alouette Company began operating in 1910 as a lime-sulfur plant, later (1927) becoming a supplier of arsenic-based pesticides for agricultural, lawn and garden markets (Hillsman and Krafter 1996). Locals refer to the plant as "the dust house," a designation that invokes the particulate matter that once permeated neighborhood air and life. A ditch carrying untreated waste from the plant traveled through the adjacent neighborhood until it was covered in the late 1970s. Adult residents of the neighborhood recall playing in the ditch as children while their parents were said to have waded across the ditch to avoid the longer walk to the plank bridges at the ends of each block.

For most of its history, the plant was owned and operated by a prominent local White family; it was sold to a corporate chemical manufacturer in 1985. In 1986 the state Department of Environmental Quality requested that the company clean contaminated areas within the commercial facility where arsenic had adhered to the soil on plant property. Nothing was said to the predominantly African-American residents living nearest the plant at that time.³ In 1990 the site was recommended to the U.S. Environmental Protection Agency (EPA) for listing on the National Priority or "Superfund" list. Three years passed before the EPA notified affected citizens and issued cleanup orders to the plant.

Beginning in 1993, residents of the plant neighborhood learned that several probable carcinogens, in particular arsenical compounds, had permeated the soil in neighborhood yards and the dust inside local homes. Testing in 1994 through 1997 on the plant property and throughout the adjacent neighborhood indicated dust- and soil-based arsenic levels of 15 to 800 parts per million despite the cessation of arsenic production during the mid-1980s. The plant grounds include hot spots of up to 30,000 parts per million (ppm).

The background level for arsenic in comparable geographic regimes was judged to be about 7 ppm. Chronic arsenic exposure has been associated with skin, lung, liver, bladder, kidney, and colon cancers (ATSDR, 1990); arsenic is also believed to be a cancer “progressor” as is benzene and asbestos (Steingraber 1997, 244). A 1996 study conducted in Marshall, Georgia by the Federal Agency for Toxic Substances and Disease Registry (ATSDR) concluded that significant dangerous exposures had occurred in the past, but that current post-remediation levels of exposure were not dangerous to residents (ATSDR).

Theoretical Framework

Risk scholars recognize that physical harm results from exposure to chemicals, heavy metals, and/or radioactive isotopes, and that the social and psychological experience of that harm is both fully rational and central to the risk experience (Slovic 1987, 1992; Edelman 1987; Erikson 1994; Kasperson 1992). A prominent extension of risk work involves the study of technological stigmas as first defined by Edelman (1987) and later spelled out by Gregory, Flynn and Slovic (1995) in the periodical, *American Scientist*. Technological stigma occurs when certain products, places, or technologies are identified by the public as dangerous and subject to avoidance given their affiliation with health risks (Gregory, Flynn and Slovic 1995). Stigma targets are generally affiliated with risks the public views as dreaded, potentially fatal; involuntarily imposed, or regarded as beyond individual control (Slovic 1987).

The primary evidence for technological stigmas is the co-existence of negative cognitions about a place, product, or technology — negative word associations, imagery, affective descriptors, and perceived risks — with detrimental changes in consumer behavior (Flynn, Kasperson, Kunreuther and Slovic 1997; Flynn, Peters, Mertz and Slovic 1998). Ultimately the stigmatized object becomes an epicenter from which severe economic impacts emanate. The millions in lost revenues incurred by Johnson and Johnson in the wake of fear about further Tylenol poisonings, the collapse of the British beef industry in the face of reports about Creutzfeldt-Jakob or “Mad Cow” disease, the decline in land values near nuclear facilities or chemical plants, and the devaluation of real property alongside electromagnetic fields are classic cases of (respectively) product, place and technological stigma (Mitchell 1989; MacGregor, Slovic and Morgan 1994; Slovic, Layman and Flynn 1990).

Defining technological stigma in terms of market impacts is logical to the extent that economic viability and

public acceptance are necessary for the commercial development of modern technologies. An emphasis on economic impacts may also be driven by tort laws that permit citizens to sue for damages when real property is devalued due to its proximity to a hazardous facility. Regardless, a focus on pecuniary impacts sustains a model of stigma that implicitly narrows the definition of impact to altered purchase habits or fluctuating market values. This reduces the position of human proponents to one of consumers whose spending drops to *avoid* suspect pain killers (Tylenol) or buyers whose worries prompt them to *think negatively about* housing purchases; in so doing something of the “complex interplay of psychological, social and political forces” that fall within the web cast by technological stigmas is lost (Gregory, Flynn and Slovic 1995, 222).

In contrast, a model that recognizes the full social expression of stigma has the potential to accommodate the important association between the stigmatizing of a technology or place by external society and the adverse effects on the people most immediately impacted. The relationship becomes more pertinent in light of recent speculation about the disproportionate presence of technological hazards in socially stigmatized especially minority communities (Bullard 1990; Szasz 1994; Johnston 1994, 1997; Lee 1987).⁴ Those historically subject to social stigmas — defamation due to race, class, or economic status — might also be those contemporarily subject to technological hazards, and thus in some circumstances, technological stigmas.

Hereafter, this paper seeks to demonstrate the noneconomic effects of stigma on one community subjected to the experience of contamination. Research conducted in Marshall shows that the experience of living in a contaminated and stigmatized place includes both physical and psychological invasions. Neighborhoods are structurally altered; domestic routines are profoundly disrupted and long-time residents come to be haunted by the inversion of home as a safe haven, an inversion that insinuates itself into thoughts about health and leads to the nagging fear that one’s body has been infected by toxic substances. Residents notably invoke their sociopolitical experiences of racism, of being socially marginalized, to interpret how it is that they are viewed by the outside world, to explain why some citizens are protected from contaminants while others are not, why their concerns go unheard, or how it is that they are blamed for the economic woes of the larger community. This study suggests that these opinions may be tied to the defeating social climate that can accompany the experience of contamination and thus warrant study as symptoms of the link between technological and social stigmas.

Methods

In the spring and summer of 1996, 206 questionnaire-based interviews employing open- and closed-ended questions were administered to 66 past and 140 current residents of the contaminated neighborhood. Interviewees were selected from over 600 past and current residents listed as plaintiffs in litigation pending against the Alouette plant. Plaintiffs included all but a few past and present residents of the plant neighborhood who were (a) traceable, (b) had lived in the neighborhood for at least five years, and (c) were said, by a medical doctor, to have clinical signs of arsenic exposure. Interviewees (all 206) were selected not at random but because they lived or had lived in the houses closest to the plant and/or because their house or yard had already been tested for the presence of arsenic. Only one of the 206 interviewees currently works at the plant and fewer than 10 have ever worked at the plant for more than three months. All but three of those interviewed were African-American, although a larger proportion of the 600 litigants (approximately five percent) were White.⁵

Twenty-six of the 140 people referred to here as current residents moved or were moved in response to the news about contamination. The other 114 (of 140) still live in the neighborhood. The second group of people referred to here as past residents (66) include only those people who left the neighborhood well before (often many years before) the news of contamination broke. Most in this latter subset of interviewees live in comparable though not contaminated communities elsewhere in rural Georgia. They do not otherwise differ from current residents with regard to age, gender, or race: the mean age of past residents is 46.3 years; present residents' mean age is 46.9 years.⁶ Thirty-nine percent of all present residents are male, 61% are female. Thirty-five percent of past residents are male, while 64% are female.

Questionnaire items were developed with reference to the extant literature on social responses to technological hazards, and on the basis of background ethnographic interviews conducted by the author. Questionnaire items were pre-tested and when necessary rewritten for simplicity and ease of administration. The instrument included word-association tasks, affective ratings, reported behaviors, and opinions about remediation procedures. The questionnaire was read aloud to each interviewee and answers were recorded by the interviewer. Questionnaires were administered by nine African-American school teachers, all of whom were trained as interviewers. Many of the teachers had taught in the neighborhood but none of them lived there. After the questionnaires had been completed, approximately 15 follow-up interviews were conducted by the author. This last group of interviews was, again, open-ended.

The Stigmatization of Place: Reconfiguring Home and Environment

Community studies have documented the physical deterioration of contaminated places including the potential for infrastructural, social, and psychological upheaval that follows a disclosure of contamination (Edelstein 1988; Fitchen 1989; Erikson 1994). In Marshall, Georgia, multiple houses on each of the blocks closest to the plant were purchased by the company, torn down and/or encircled with chain-link fences. The *hazardous — keep out* signs that hang on the fencing inform residents that the fractured landscape they occupy is no longer, and perhaps never has been, safe. The soil on the plant-purchased lots remains too contaminated for habitation (the plant is not obligated to clean its purchased properties) which negates the potential for rebuilding the neighborhood's residential infrastructure. Neighborhood gardens, fruit trees, and farm animals (e.g. chickens and some goats) were removed from properties registering 30 ppm of arsenic or greater. Remaining residents see the fences and signs appearing where neighbors once lived and conclude that perhaps their properties are also unsafe; consequently, they cease to garden or trade locally produced fruits and vegetables. The overall inability for neighbors to maintain the quotidian behaviors that typify a comfortable domestic routine — to garden, permit children to play outside, complete yard work, visit neighbors, etcetera — represents a “collective trauma . . . a blow to the basic tissues of social life” that “impairs [any] prevailing sense of communality” (Erikson 1994, 233).

Residents also portray their immediate neighborhood as a “ghost town” of vacant lots and the aesthetic quality of the neighborhood as “concentration-camp like.”⁷ Houses are uneasily occupied, devoid of the intrinsic merits of home as a safe haven from the predicaments of public life. Betty Fields thus prefers to stay late at her job rather than face “going home to my *arsenic house* [where] I can't breathe.” Her neighbor, Helene Johnson, finds only that her home “feels like a trap. . . like there's something hiding in the shadows waiting to jump.” Many feel there is little they can do to protect themselves, a defenselessness articulated by Leroy Roberts as the feeling of “living in a place I'm afraid of, like it's [the contamination] coming in the cracks.” Long-term neighbors regard these insults as historically rooted, a continuation of decades of plant encroachment into residential territory given the meteoric rise of the plant's productive capacity after the second World War.⁸

Individual expressions of “feeling trapped” or feeling “unable to breathe” should not be mistaken as idiosyncratic, indicative only of exemplars of severe impact. Word-association tasks, credited for revealing the content and thought

pattern of the respondents' minds without the complication or burden of discursive language (Szalay and Deese 1978), confirmed that both past and current residents define their environs in extremely negative terms. Respondents were asked to provide image or word associations for context specific prompts (fences, soil, dust, etc.), and subsequently rated their responses using a five-point affective rating scale: very bad (-2); bad (-1); neutral (0); good (+1); or very good (+2). The rating scores for each stimuli and a sampling of the consistently immoderate image content are displayed in Figure 1 below.

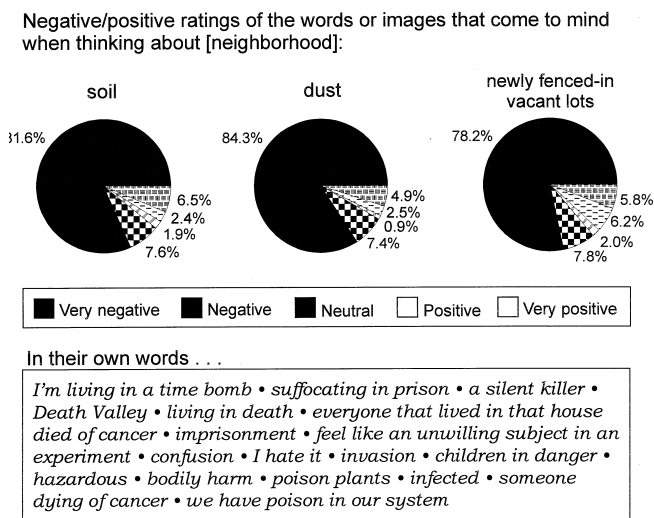


Figure 1. Image/word associations and affect ratings (N = 206).

Seventy-eight percent of respondents rated their associations with the fenced-in areas in the neighborhood as highly negative (“very bad” or “-2” on the affect scale), whereas 81.6% and 84.3% of respondents, respectively, rated images associated with “soil” and “dust” as highly negative. Across all three stimuli, no single item generated a combined very positive, positive, and neutral response in excess of 14.0%. The apparent absence of neutral responses, which usually include synonyms and visual or sensory descriptors (e.g., dimension, color, sound, etc.), is distinctly revealing in that responses of this kind would be expected in circumstances perceived as benign or generally less threatening. The logical coherence to these affective scores is that the stimuli closest to home and thus closest to one’s physical body (dust inside a house and soil immediately outside a house) are rated more negatively than are more distant stimuli (such as fenced-in lots).

Avoidance Behaviors

The decayed sense of safety within and around the homes is confirmed, equally, by parallel efforts of residents to avoid activities that normally comprise the acts of everyday life (Edelstein 1988). Current residents were asked whether they found themselves unable to do some activities given concern about the plant. If the response was affirmative, respondents were then asked if the avoided behaviors were missed a great deal, missed slightly, or not at all missed (“I don’t miss it,” “I miss it slightly,” or “I miss it a great deal”). The majority of residents reported changes in their domestic routines. Residents easily distinguished restrictions that were extremely bothersome from those that were less so. Table 1 demonstrates activity avoidance attributed to the plant, and reports frequency distributions for those who missed the avoided activity “a great deal.”

Table 1. Activity Restrictions: Residents

Percentage who do an activity “less often because of the plant,” who miss the activity “a great deal,” and the percent of total respondents who agreed to both (n = 114).

Activity	“I do it less often because of the plant”	“I miss it a great deal”	Percent of total sample ^a
Opening the windows in your house on a breezy day	79.8%	84.6%	67.5%
Sitting in your yard on a nice day	74.6%	84.7%	63.2%
Yard work	66.7%	64.5%	43.0%
Flower gardening	65.8%	70.7%	46.5%
Allowing children in your care to play in your yard	64.0%	72.6%	46.5%
Investing money or time to improve the quality of your house or fix something that is broken	63.2%	66.7%	42.1%
Allowing children in your care to play in a friend’s or relative’s yard that is near the plant	62.3%	71.8%	44.7%
Walking near the open ditch	54.4%	29.0%	15.8%
Visiting someone whose house or yard is said to have high arsenic levels	50.9%	51.7%	26.3%
Going up in the attic of your house	47.4%	53.7%	25.4%
Going under the house to fix something	44.7%	47.1%	21.1%
Allowing children in your care to play in uncovered ditches	43.0%	34.7%	14.9%

^a Percentage of total sample who do the activity less often because of the plant and reported that they “miss it a great deal.”

Residents were much more likely to avoid ordinary activities like opening a window on a breezy day (79.8%) or

sitting in the yard on a nice day (74.6%) than less frequent or necessary activities such as going under the house to repair something (44.7%), going up into the attic (47.4%), or allowing children to play in exposed ditches at the edge of the neighborhood (43.0%). When asked which activities respondents “miss a great deal,” a similar pattern emerges. Commonplace activities generally associated with a pleasant sense of domestic environment were those most heartily missed. These included opening windows on a breezy day (84.6%), sitting in the yard on a nice day (74.6%), and allowing children to play in the yard (72.6%). Alternately, activities such as walking near the remaining, though distant, open ditches (29.0%), or allowing children to play in those ditches (34.7%) were “missed a lot” by a minority of respondents.

Embodied Stigma

Alterations in household routines signify the inclination of individuals to protect their physical bodies. Worry about bodily harm is often regarded as the defining feature of toxic emergencies: the fear is that contaminants have been absorbed into one’s tissues and perhaps the genetic material of survivors (Erikson 1990, 121; see also Edelman 1988; Oliver-Smith 1996; Kroll-Smith and Floyd 1997). In Marshall, Georgia, residents were forced to interpret these fears while haunted by the image of remediation workers protected from exposure to contaminants, an invading army of cleanup contractors and soil-testing technicians, each of whom benefited from the prophylactic suits used in industrial hygiene. This other-worldly attire seals face, head, body, feet, and hands from external contaminants. Workers also were protected and physically distanced from soil and dust through the use of immense backhoes and hep-o-vacs (backhoes assist the removal of contaminated topsoil, while hep-o-vacs function as powerful dust-extracting vacuum cleaners). Such acts of caution are understandable under the circumstances, yet the symbolic weight of these protected workers lingered in neighborhood residents’ discourse, and helped articulate poignant misgivings. Visually compelling recollections of heavy machinery and “suited knights” seemed to say that the residents ought to have been safeguarded these many years, that the residents’ bodies were already “poisoned” rendering protection futile, or, more cynically, that the residents were a socially disposable population, unworthy of protection in the first place.

Congruent with this symbolically charged backdrop of protected workers versus vulnerable residents, the interview notes reveal the markings of residents’ physical selves. Residents learned to regard the long-familiar patches of atypical skin color and density on different parts of their bodies as evidence that contaminants were systemically present.

Hyperpigmentation, hypopigmentation, and hyperkeratoses manifest as epidermal discolorations and lesions, constitute the primary clinical sign of chronic inorganic arsenic exposure (ATSDR 1990). ATSDR physicians and clinicians examined the health records of 274 current and past residents for signs of exposure. A subset ($n = 75$) of this group showed evidence of simultaneous occurrence of hyperkeratosis, hyperpigmentation, and hypopigmentation. Though clinically associated with exposure, these signs are not expertly defined as health risks unless they progress to cancer (Kess 1996, 3-6). Those diagnosed with skin cancers as well as those merely suspicious about the implications of their symptoms treated their skin discolorations as constant reminders that their physical well-being was potentially amiss. During interviews, individuals would draw attention to their “spots,” point them out, or absentmindedly press upon them as though they were a kind of worry bead, a point of reference that redirected thoughts to the consequences of contamination.

Toxicologists speak of “body burdens,” the sum total or physical history of exposures through all routes of entry (inhalation, ingestion, skin absorption) and through all sources (food, air, water, office building, etc.) (Steingraber 1997, 236). Denizens of the plant neighborhood refer instead to the burden of worry, worry about health, childhood exposures, and especially the heightened expectation of pending disease. Eighty-eight percent and 83% of all respondents defined themselves, respectively, as “worrying a lot” about “birth defects in children” and “the impact of the plant on my health.” Every child with asthma and every virus is thought to be symptomatic of something larger, more foreboding: “Am I going to come down with something in my throat and die?” Individual bodies have become physically inscribed (i.e., marked) in the eyes of the owners; atypical pigmentation, perceived risks, and socially mediated fears about health have, together, gotten under the collective skin of neighborhood residents (Erikson 1994). Residents thus come to regard their lives as “one long lethal injection” or “feel that they are something that will slowly kill” them. These observations are corroborated by the vast majority of respondents reporting a deep sense of dread, “a quality well-documented as central to lay characterizations of toxins” (Slovic 1987) as well as persistent thoughts about the inhalation and ingestion of contaminants. A full 94.2% of past and current neighborhood residents agreed that thinking about the contaminants left them with “a creepy, frightened feeling,” while 90% of current residents agreed with the statement: “When I’m in my house, I often wonder if I’m breathing in something poisonous.”

Older residents carry the additional burden of prior wounds and the unexplained deaths of loved ones. Further, the opportunity to reconsider old griefs in light of recent

knowledge about contamination is, for many, unavoidable. Mary Aimes is in her late 60s. Her first child, a daughter, lived only 20 days — the result of a heart defect. Her disabled adult son died of asphyxiation in 1982, the result of a severe allergic reaction to “something” in the air. Mary’s “bad nerves” began after the release of information about contamination and the concurrent threat that she might be moved from her home.

You don’t worry about it if you don’t know, but once you know it makes you remember everything that happened before. . . . All these things I remember. I have nightmares about them now. Like when [as a child and teenager in the late 1940s and 1950s] men from the plant would knock on doors in the middle of the night and tell me and my family to leave the house immediately. There was a leak at the plant. They had giant gas masks, like creatures from outer space. They would tell us we had to run, and my mother would try to get all of us up; I was the youngest. When they told me I had to move [due to remediation], I woke up one night in the middle of the night, like as if my mother was trying to get me out of the house. I don’t know [Mary stops herself] it’s almost more than a body can stand after a certain age.

Mary’s psychological and bodily peace is greatly disturbed by this recurrent nightmare and anxious ruminations about the premature deaths of both her children. Her fixation on the “middle of the night” memory has a particular capacity to crystallize and recreate a pivotal moment of horror for her, and is indicative of the “intrusive” states that characterize trauma (Herman 1997, 38).

Extreme distress of this kind is unusual though most residents speak at length about their diseased life histories, and typically enumerate kinship ties and deaths-by-cancers in the same breath (“He was my uncle, he died of bladder cancer, and my sister died last year from breast cancer,” and so on). The reporting of physiological expressions of stress was equally common. A majority of current and past residents reported suffering from “nausea,” “feelings of hopelessness,” the “feeling of being trapped,” “nervous/shaky feelings,” and the feeling of being “tense or keyed up.” Over 60% of the subset of respondents who reported being “bothered a lot” by these symptoms attributed their symptoms to the plant. This did not, however, preclude a credible tendency to attribute other symptoms to noncontaminant causes. Only a minority of respondents reporting symptoms of lower back pain, crying easily, or temper outbursts subsequently attributed their sufferings to the plant (Table 2, column 2). Similarly, only one symptom, low energy, was reported by a slim majority of all respondents (50.5%) both as “bothering them a lot” and as

Table 2. Stress-Related Symptoms (N = 206)

Symptom	Symptom “bothers me a lot” ^a	Believe plant is the cause ^b	Percent of total sample ^c
Low energy	85.4%	59.1%	50.5%
Lower back pain	68.4%	41.8%	28.6%
Headaches	68.4%	60.3%	41.3%
Body weakness	65.5%	65.2%	42.7%
Memory trouble	64.1%	50.0%	32.0%
Nervous/shaky feeling	63.6%	62.6%	39.8%
Sore muscles	61.7%	44.9%	27.7%
Trouble getting breath	60.2%	73.4%	44.2%
Tense/keyed up	59.7%	60.2%	35.0%
Heart/chest pains	59.7%	58.5%	35.9%
Heaviness in arms/legs	57.8%	54.6%	31.6%
Depression	53.4%	62.7%	33.5%
Easily annoyed/irritated	52.4%	52.8%	27.7%
Nausea/upset stomach	51.9%	70.1%	36.4%
Trouble concentrating	51.5%	49.1%	25.2%
Heart pounding/racing	51.5%	62.3%	32.0%
Hopelessness	51.0%	74.3%	37.9%
Feeling trapped	49.0%	77.2%	37.9%
Confusion	48.5%	51.0%	24.8%
Faintness/dizziness	48.5%	58.0%	28.2%
Fear	44.2%	64.8%	28.6%
Others do not understand you	43.7%	35.6%	15.5%
Easily hurt feelings	42.7%	38.6%	16.5%
Feeling lonely/alone	41.7%	44.2%	18.4%
Avoidance due to fear	40.8%	67.9%	27.7%
Blaming yourself	37.4%	40.3%	15.0%
Crying easily	33.5%	40.6%	13.6%
Temper outbursts	26.2%	46.3%	12.1%
Critical of others	25.7%	47.2%	12.1%
Poor appetite	22.8%	55.3%	12.6%

^a Percentage who answered “yes” to being bothered a lot by the symptom or problem.

^b Of those who are bothered “a lot,” percentage who believe the plant is the cause.

^c Percent of total sample who are bothered “a lot” and believe the plant is the cause.

“caused by the plant” (Table 2, column 3). Table 2 depicts both the distribution of symptoms and the subset of respondents who thereafter attributed their symptoms to the plant.

Sociopolitical Stigma

Stigma is a discrediting judgment that in turn evokes a response from those stigmatized (Goffman 1963; Jones, Farina, Hastorf, Markus, Miller, Scott and French 1984; Gregory, Flynn and Slovic 1995). In contaminated communities the complex interplay between technological and social stigmas constructs a tangled mass of attributional actions and reactions. That is, we can speak of those “constructing” the stigma versus those managing it, we can speak of the racial

stigmatization that is likely at play in minority communities versus the technologically derived stigma that residents simultaneously project and suffer because of the plant. Some of this complexity is clarified by acknowledging two basic points. The first is that the occupant of a stigmatized environment can suffer damage simply because of association with that place. This “suggests that beyond a direct fear of a stigmatizing condition in its own right, there is a concern that any association with the marked setting may serve to mark oneself” (Edelstein 1987). To this end, residents consciously worry that they are viewed by the outside world as socially contaminated, contagious and therefore unfit as members of the larger human community. Consider by way of example Marvia Lou Smith’s characterization of herself as chaffing under media’s occasionally ghoulish eye.

People come through here now and you see them outside with TV cameras taking pictures and all that. I reckon they said: well what kind of neighborhood is this that has fences and barbed wire. That must be a bad neighborhood. They bad folks that got fences up around here.

Marvia faults both the physical consequences of remediation (fencing, barbed wire) and the media’s amplification of those effects (see Kasperson 1992) for the negative light they cast upon herself and her community.

Troubling reflections of this kind co-exist with a second basic point — that contamination events often involve the stigmatization of the already stigmatized. Exposure to environmental hazards is not random but rather selective of socially and economically vulnerable populations. Risks are not distributed equally across social groups, there is a greater-than-average likelihood that the victims of hazardous technologies will be people of color and/or those occupying the economic margins of society (Bullard 1990; Johnston 1997). At the same time, those living in environmentally degraded contexts are often subject to psychosocial debasement and dehumanizing innuendo (lazy, ignorant, backward) that destroys self-esteem and the motivation of individuals to control their destiny (Appell quoted in Johnston 1994, 10).

In Marshall, this fusion of social stigma and environmental risk engulfs local disputes about the consequences of exposure. To this end all talk about “the plant” is somehow also talk about race. Arguments about the nature of legitimate evidence for injury, the appropriateness of different compensatory actions, or the logic of soil testing were invariably articulated as “concerns that would have been addressed” or events that “never would have happened in a White neighborhood.” These articulations closely follow Capek’s (1993) environmental justice frame, a set of dimensions common to the “claims-making” interactions that characterize most antitoxic movements. The civil rights move-

ment is the shaping historical event with regard to these claims. Community members define their struggle as one in which political access; fair treatment from elected officials, agency (EPA, ATSDR, etc.) representatives, and legal institutions; access to information; and the right to protection and compensation are paramount (Capek 1993, 7-9).

In Marshall, most residents of the contaminated neighborhood believed the plant and the EPA ignored pertinent local input that might have ensured a mutually agreeable plan for the testing of soils and thus cleanup. EPA engineers posited a linear model of contaminant dissemination; properties immediately adjacent to the facility were tested as were those radiating outward from the source. When a safe property was encountered, testing would extend one or two houses further and then cease. It was assumed that all further properties were safe. Locals opposed this model by insisting that wind patterns, the ditch’s history of flooding into some properties and not others, the plant’s trucking routes through the neighborhood, and the historical tendency for employees to carry contaminants into their homes via soiled work clothing had each contributed to an erratic dispersal of contaminants. Widespread discontent of this kind was expressed by survey respondents: 71.8% disagreed with the contention that “EPA experts considered all the important ways in which chemicals traveled from the plant into the neighborhood,” while 74.8% believed that the EPA did a poor job of “testing for contaminants in the neighborhood.” The dismissal of local concerns was eventually tempered by the hiring (on behalf of residents) of outside experts who confirmed a more extensive pattern of contaminant dissemination; the EPA subsequently verified these findings with further testing by their own technical staff.

Racist motives were also attributed to the EPA’s procrastination regarding the distribution of knowledge about contaminants. The time lag between the 1990 Superfund listing and the 1993 official proclamation of exposure (a fact noted earlier in this article) was widely interpreted as an act dismissing Marshall’s African American community as marginal and thereby unworthy of urgent attention. Further, African-American residents cite a late 1980s exodus of White residents from the plant neighborhood’s periphery as evidence that knowledge of contamination was divulged well in advance to White residents. The suspicion is that White residents knew about the contamination early on and thus sold damaged residential properties at “good prices” to unsuspecting African-Americans.

Representatives of Marshall’s White community deny the persistent accusations of racism, and instead accuse (African-American) plant-neighborhood residents of acting against the plant for “easy” economic gain via the several pending litigation efforts. Residents of the plant neighbor-

hood are also censured by more affluent locals (White and some African-American) for denigrating the town's reputation and its commercial prospects through exaggerated and false claims of plant-derived health impacts. Other White residents are not critical per se, but fear the repercussion of voicing support for those in the plant neighborhood and fear being socially isolated because of perceived disloyalty toward their White peers (including the plant's founding family) or for being "too close" to the town's poorest and racialized stigmatized residents.⁹

Local African-Americans' pointed critiques of testing procedures and the racist undertones of interactions between some local citizens and responsible parties can be read as healthy, pro-active signs of resistance to economic and racial stigmatization (Schwab 1994; Szasz 1994). Yet the impressions from (my own) field observations confirm something different. Neighborhood residents often appeared to be overwhelmed by a pervasive mood of hopelessness, a few resilient activist voices aside. The neighborhood's emotional landscape was marred by despair and a resignation not unlike the psychological numbing described in Lifton's (1967) work on radiation poisoning. Similarly, Jones et al. (1984, 4) defined the "essence of the stigmatizing process" as producing "devastating consequences for emotions, thought and behavior." The argument is that marked individuals are often unsuccessful at maintaining positive self-regard when the "evaluations elicited from other people [are] disproportionately negative" (Jones et al. 1984, 111). Other scholars of power and subordination have defined this defeated disposition as a "quiescence" of political participation despite a relatively open political system (Scott 1990, 71).

In order to obtain some indication of the injuries of racism as they apply to political will, Srole's (1965) political alienation questions were modified to fit the Georgia context. The responses produced suggestive results. Compare, especially, responses of current residents with those offered by prior residents. These demographically similar groups differ from one another to the extent that current residents have lived through the full range of consequences of exposure — the parade of suited hygiene experts, exacerbated racial tensions, battles for voice in decisions about remediation, and, most dramatically, the resonating presence of a denuded landscape signified as hazardous — while prior residents have faced these events from a more removed and thus arguably protected position.

Both current residents and prior residents demonstrate an impaired sense of political efficacy. This impaired political efficacy is more prominent among current residents than prior residents on each of four questions, though only one of these differences is statistically significant at greater than .05. Figure 2 demonstrates that current residents are more likely

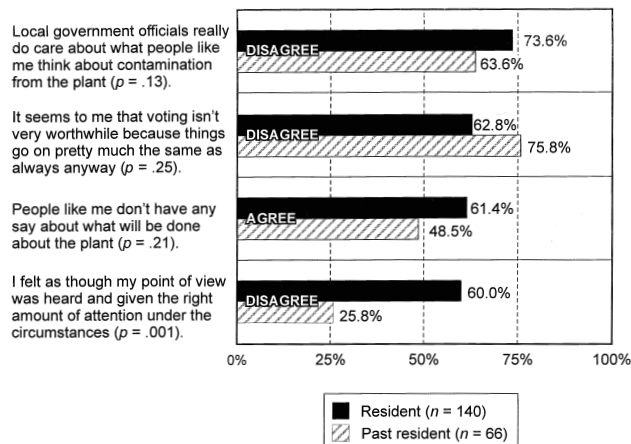


Figure 2. Expressions of political efficacy.

(by 10.0%) than prior residents to disagree that *local officials really do care about what I think*; less likely (by 12.9%) to believe that *people like me have a say about what will be done about the plant*; and much more likely to disagree with the suggestion that their *point of view was heard and attended to* (by 34.2%). Both respondent groups disagreed with the contention that voting was no longer "worthwhile," though prior residents were more supportive of voting (by a margin of 13%) than were current residents. The combined findings capture something of the flat affect about political efficacy expressed by both groups. The between-group differences suggest, however, that current residents share a greater sense of defeat with regard to political processes than do prior residents. Given that the two groups are demographically similar, save for current residents' greater exposure to plant and clean-up specific events, it is likely that remediation procedures have contributed to the loss of democratic control expressed by current residents.

Discussion

This paper began with the contention that the personal trauma of toxic exposure merits a central position in theorizing about technological, product or geographic stigma. An expanded theory of stigma requires an understanding that extends well beyond the measure of market losses or adverse behavior by consumers. Accordingly, we considered the ravaging of home, neighborhood, and individual well-being that characterize Marshall's contamination events. An overwhelming majority of residents adjacent to the chemical plant think only negatively about soil, home, and neighborhood. Individuals change their daily routines, close windows, rest uneasily both inside and outside their homes, and abhor the "concentration camp" aesthetic that has taken over their lives.

Implicit and explicit definitions of home as a place that promises safety for self and family, as an affective anchor in an otherwise chaotic world (Fitchen 1989), are supplanted by the fear of dust in the attic and the feeling that “something will slowly kill me.” The fear among Marshall’s plant-adjacent residents is a state of mind that “gathers force slowly and insidiously, creeping around one’s defenses rather than smashing through them” (Erikson 1994, 21). This insidious “creeping” quality is evident in the psychological recoil that follows the sight of workers in hygiene suits and in individuals’ graphic articulations of invasion (e.g., “My life feels like one long lethal injection”).

Both body and place assist the reflective processes fundamental to human thought. The body is the means by which we experience and apprehend the world (Merleau-Ponty 1962), while place (as in home, neighborhood, environment, etc.) is a basis for direction and self-reflection, for who one is in the larger social world (Basso 1996). In Marshall, Georgia, the physical experience of a contaminated neighborhood and body intersect with disturbing reflections about the self. In this sense, the hazard signs, the emergence of vacant lots, and browning of the neighborhood can be understood as discrete injuries and as vehicles that repeatedly summon, indeed trap residents, in a vacuum of negative reflections. Dramatic changes in the landscape become insistent reminders of the presence of contaminants, forcing those who live there to cognitively register and re-register the possibility of “poison in [their] systems.”

These reflections interact with larger sociopolitical realities. In the contaminated neighborhood studied here, worry about one’s health or the safety of one’s home merged with racial discrimination from some sectors of the town’s White community, with anguished musings about denigrating the portrait of one’s neighborhood and its residents on television, with implications about the “worthiness” of protecting remediation workers but not residents, and with experts’ rejection of local complaints about remediation or the testing of soil. This combination of affronts encourages resignation among residents who define themselves as *not* cared for, listened to, or able to have a say in what will be done about the plant.

Ultimately, the Marshall, Georgia, experience can enhance our understanding of the contamination experience and of stigmas. Much of what is documented here refers to the contamination experience, that is the physical, psychological, and social consequences of exposure. These are direct reactions to hazardous environmental stimuli. Stigmatizing influences consist instead of signals that exacerbate the experience of contamination. The origin of stigmatizing impacts is in part media-fueled, as suggested by Kasperson, Renn, Slovic, Brown, Emel, Goble, Kasperson and Ratick (1988), and as evidenced by one woman’s

response to the presence of camera crews in her neighborhood. More importantly, the Marshall, Georgia, context demonstrates unremittingly that public agency (EPA, ATSDR) efforts to remedy hazards often contribute to the experience of stigmas locally. “Remedies” for protecting exposed communities (e.g., the stripping of vegetation, the removal of contaminated properties, the invasion of “suited knights,” and/or the relabelling of pigmentation patterns as exposure symptoms) can foster the very fears they ought ideally to alleviate.

Finally, in this context one must come to some understanding of the combination of racial and technological stigmatization. We know from Goffman’s (1963) early work that some visible minorities are fully cognizant of and need to actively manage their “spoiled” identities.¹⁰ In minority communities faced with the ramifications of extant hazards, pre-existing experiences of racial stigmatization can constitute a dominant lens through which the new experience of contamination and technological stigma passes. Technological and social stigmas can thus form an ugly loop, where each follows and so intensifies the impact of the other. A more comprehensive, interactive, and socially astute model of technological stigma would acknowledge this interplay and thereby seek to define the links and relationships between social stigmas, technological stigmas and the local experience of contamination.

Endnotes

1. Phone: 541-485-2400 or 604-215-2650 e-mail: satterfd@interchange.ubc.ca
2. All person, place, and company names cited herein have been altered to respect the privacy of those involved.
3. A small White population lived on the periphery of the neighborhood until the late 1980’s. As well, middle-class Whites and African-Americans work and live in the proximate areas across the railroad tracks. It is probable that both groups were exposed to contaminants over the years. Few came forward in the period covered by this research, and almost all avoided litigation efforts (see methods section). Recently, a small handful of this group have become active in a remediation task force led by the mayor.
4. I use the term “speculation” here because the validity of claims of widespread environmental justice are still being examined (see, for example, Zimmerman 1993).
5. Relying on a litigant sample is admittedly problematic. On the one hand, the legal team did not exclude anyone who fit the above criteria and reported to me that only a very few (less than 10) of all traceable past and present residents declined participation. At the same time, current residents refer to an earlier period (see page 197) where more Whites resided on the periphery of the plant neighborhood. This seems to suggest that more Whites should have been included in the litigant list. Regardless, the litigants that make up the sample for this paper are drawn from the areas closest to the plant and include

those with properties designated by EPA and litigant experts as appropriate for contaminant testing. Further, this subset represents neighborhood areas that are currently, and were historically, primarily African-American.

6. Thirty-four percent of the resident group are between 18 and 39 years of age, 43.6% are between 40 and 59, and 20.7% are 60 or older (remaining ages unknown). Thirty-three percent of nonresidents are between 18 and 39 years of age, 39.4% are between 40 and 59, 19.7% are over 60 (remaining ages unknown).
7. All quoted unreferenced speech is derived from word-association tasks and open-ended interview notes.
8. In the United States, the post-1945 production of synthetic organic chemicals accelerated exponentially and by 1955 had captured 90% of the agricultural pesticide market. By the early 1990s there were 860 active pesticidal ingredients registered with the federal government (as compared to 32 ingredients in 1939). They are disbursed into more than 20,000 products (Steingraber 1997, 95).
9. Though I think the above paragraph accurately represents the tenor of racial tensions in the period covered by this paper, I do not mean to deny the presence of White residents working actively toward a better end for those in the plant neighborhood. Two recent events bode well: the replacement of a white EPA site coordinator regarded by many in the plant neighborhood as ill-disposed toward the community and the election of a new mayor who is White but is actively supported by residents of the plant neighborhood, has close ties to the community's African-American churches, and recognizes the continued "clean-up" as a first order priority.
10. I do not mean to ignore subsequent work which argues that minorities do not necessarily have "spoiled" identities or low self-images (e.g., Porter and Washington 1982). I simply mean to state that the evidence here suggests a strong interaction between experiences of discrimination and injustices specific to contamination events (Capek 1993 makes this point as well).

Acknowledgements

This material is based upon work supported by the National Science Foundation under grant SBR-9731533. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

The author would like to thank William Pannell and the Annenberg School for Communication for their support of this work, and to extend particular thanks to Anne Winther, Laurence Stathem, and Beth Mallard for their exemplary help in the field. Finally, the author would like to thank several anonymous reviewers as well as Paul Slovic, Robin Gregory, and James Flynn for their extensive reviews and comments on earlier drafts of this paper.

References

Agency for Toxic Substances and Disease Registry (ATSDR). 1990, June. Case studies in environmental medicine: Arsenic toxicity. Washington, DC: U.S. Department of Health and Human Services.

- Basso, K. H. 1996. *Wisdom sits in places: Landscape and language among the western Apache*. Albuquerque: University of New Mexico.
- Bullard, R. D. 1990. *Dumping in Dixie: Race, Class and Environmental Quality*. Boulder, CO: Westview.
- Capek, S. H. 1993. The "environmental justice" frame: A conceptual discussion and an application. *Social Problems* 40(1), 5-24.
- Edelstein, M. R. 1987. Toward a theory of environmental stigma. In J. Harvey and D. Henning (eds.), *Public Environments*, 21-25. Ottawa, Canada: Environmental Design Research Association.
- Edelstein, M. R. 1988. *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposure*. Boulder, CO: Westview.
- Erikson, K. 1990. Toxic reckoning: Business faces a new kind of fear. *Harvard Business Review* 68(1), 118-126, January-February.
- Erikson, K. 1994. *A New Species of Trouble: The Human Experience of Modern Disasters*. New York: Norton.
- Fitchen, J. M. 1989. When toxic chemicals pollute residential environments: The cultural meanings of home and home ownership. *Human Organization* 48(4), 313-324.
- Flynn, J., R. Kasperson, H. Kunreuther and P. Slovic. 1997. Overcoming tunnel vision: Redirecting the U.S. high-level nuclear waste program. *Environment* 39(3), 6-11, 25-30.
- Flynn, J. E. Peters, C. K. Mertz and P. Slovic. 1998. Risk, media, and stigma at Rocky Flats. *Risk Analysis* 18(6), 715-727.
- Goffman, E. 1963. *Stigma*. Englewood Cliffs, NJ: Prentice-Hall.
- Gregory, R., J. Flynn and P. Slovic. 1995. Technological stigma. *American Scientist* 83, 220-223.
- Herman, J. 1997. *Trauma and Recovery: The Aftermath of Violence from Domestic Abuse to Political Terror* (Revised edition). New York: Basic Books.
- Hillsman, Reverend Morris and Marvin Krafter. 1996. Interview by author at the Shiloh Baptist Church, Marshall, Georgia, 29 July.
- Johnston, B. R. (ed.). 1994. *Who Pays the Price? The Sociocultural Context of Environmental Crisis*. Washington, DC: Island Press.
- Johnston, B. R. (ed.). 1997. *Life and Death Matters: Human Rights and the Environment at the End of the Millennium*. Walnut Creek, CA: AltaMira Press.
- Jones, E. E., A. Farina, A. H. Hastorf, H. Markus, D.T. Miller, R. A. Scott and R. D. French. 1984. *Social Stigma: The Psychology of Marked Relationships*. New York: W. H. Freeman.
- Kasperson, R. E., O. Renn, P. Slovic, H. S. Brown, J. Emel, R. Goble, J. X. Kasperson and S. Ratick. 1988. The social amplification of risk: A conceptual framework. *Risk Analysis* 8, 177-187.
- Kasperson, R. E. 1992. The social amplification of risk: Progress in developing an integrative framework of risk. In S. Krimsky and D. Golding (eds.), *Social Theories of Risk* 153-178. New York: Praeger.
- Kess, S. 1996. Exposure investigation CR #40W1. Atlanta, GA: U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances Disease Registry, Division of Health Assessment and Consultation. March 6.
- Kroll-Smith, J. S. and H. H. Floyd. 1997. *Bodies in Protest: Environmental Illness and the Struggle over Medical Knowledge*. New York: New York University Press.
- Lee, C. 1987. *Toxic Waste and Race in the United States*. New York: United Church of Christ Commission for Racial Justice.

- Lifton, R. J. 1967. *Death in Life: Survivors of Hiroshima*. New York: Random House.
- MacGregor, D., P. Slovic and M. G. Morgan. 1994. Perception of risks from electromagnetic fields: A psychometric evaluation of a risk-communication approach. *Risk Analysis* 14(5), 815-828.
- Merleau-Ponty, M. 1962. *The Phenomenology of Perception*. London: Routledge and Kegan Paul.
- Mitchell, M. L. 1989. The impact of external parties on brand-name capital: The 1982 Tylenol poisonings and subsequent cases. *Economic Inquiry* 27, 601-618.
- Oliver-Smith, A. 1996. Anthropological research on hazards and disasters. *Annual Review of Anthropology*, 25, 303.
- Porter, J. R. and R. E. Washington. 1982. Black identity and self-esteem: A review of studies of black self-concept 1968-1978. In M. Rosenberg and H. B. Kaplan (eds.), *Social Psychology of the Self-Concept*, 224-234. Arlington Heights: Harlan Davidson, Inc.
- Schwab, J. 1994. *Deeper Shades of Green: The Rise of Blue Collar and Minority Environmentalism in America*. San Francisco: Sierra Club Books.
- Scott, J. C. 1990. *Domination and the Arts of Resistance*. New York: Yale University.
- Slovic, P. 1987. Perception of risk. *Science* 236, 280-285.
- Slovic, P. 1992. Perception of risk: Reflections on the psychometric paradigm. In S. Krimsky and D. Golding (eds.), *Social Theories of Risk* 117-152. New York: Praeger.
- Slovic, P., M. Layman and J. Flynn. 1990. What comes to mind when you hear the words "Nuclear waste repository"? A study of 10,000 images (Report No. NWPO-SE-028-90). Carson City, NV: Nevada Agency for Nuclear Projects.
- Srole, L. 1965. Social integration and certain corollaries. *American Sociological Review* 21(6), 709ff.
- Steingraber, S. 1997. *Living Downstream*. New York: Addison-Wesley.
- Szalay, L. B. and J. Deese. 1978. *Subjective Meaning and Culture: An Assessment through Word Associations*. Hillsdale, NJ: Erlbaum.
- Szasz, A. 1994. *Ecopolitism: Toxic waste and the movement for environmental justice in Social Movements, Protest, and Contention*, Volume. 1. Minneapolis, MN: University of Minnesota Press.
- Zimmerman, R. 1993. Social equity and environmental risk. *Risk Analysis* 13(6), 649-666.