

Power, Profit and Pollution: The Persistence of Environmental Injustice in a Company Town

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Abstract

In Hayden, a formerly company-owned copper smelter town located in rural Arizona, pollution with toxic heavy metals and acids persisted for 90 years. Despite new environmental laws, the waning economic power of copper, and accumulating epidemiological evidence of health damage, Hayden residents received little help from state regulators. Environmental injustice in Hayden occurred through unequal power relations between copper workers and the multinational corporations that controlled U.S. copper production. Latino workers were subordinated and the labor force divided while corporations were able to mobilize bias and obtain favorable treatment from state government. But by the end of the 20th century, the relative power of copper corporations had declined while public awareness of environmental health and justice issues had increased, leading to a lawsuit by Hayden residents but not a reduction in the mobilization of bias.

Keywords: environmental justice, company town, power

Introduction

Researchers have found that environmental injustice develops in a variety of ways; but most agree that disproportionate numbers of people of color and poor and working-class people live in polluted communities close to extremely hazardous processes or facilities (Bullard 2005; Ringquist 2005; Cole and Foster 2001). In some cases, the hazardous plants began operation when industry was seen only as an economic boon and little was known about how pollutants affect human health (Davis 2002; Mercier 2001). But there have also been cases where ample evidence exists that pollutants are causing harm to nearby populations, yet a protective response from government—shutdown of the hazardous plant, cleanup of contaminants or the relocation of people from the contaminated area—is long delayed, or never takes place at all (Lerner 2005; Phoenix 1993; Schneider and McCumber 2004).

Hayden, Arizona, a rural, predominantly Hispanic, formerly company-owned copper smelter town 84 miles south-

east of Phoenix with approximately 910 residents, exemplifies both situations (U.S. Census Bureau 2004). In a town which in its heyday consisted of 2,500 residents, two copper smelters were built, one by the American Smelting and Refining Company (ASARCO), and one by Kennecott Copper. The smelters caused severe environmental pollution beginning in the early years of the 20th century. Pollution continued even after the passage of environmental laws in the 1970s, the growth of scientific knowledge in environmental health, and the waning of the economic and political power of the copper industry. While in some ways the typical story of an industrial company town, the story of Hayden is also an illustration of the reasons that even shifts in power relationships over time may not be enough to remedy environmental injustice.

In telling the story of Hayden, my standpoint is not that of a value-neutral observer; such a claim would in any case be viewed with skepticism by most social scientists (Buroway 1998). As have other researchers in environmentally contaminated communities, I was inclined to believe local people's claims of environmental harm, and hoped that my research would in some way help the people of Hayden (Brown 2003; Pellow 2002).

Theories of the Development of Environmental Injustice: How to Explain Hayden?

Most theories of environmental injustice focus on urban areas, usually examining one of two things: why unwanted polluting or hazardous facilities were forced on minority and/or low-income communities (Bullard 1993, 2000; Cerrell Associates 1984; Hooks and Smith 2000; Kuletz 1998; Morello-Frosch 2002) or why middle-class whites moved out of polluted industrial areas of the city, leaving them to the disadvantaged (Downey 1998; Greenberg and Schneider 1999). But neither scenario explains the situation in Hayden, where people came to a rural copper smelter town for employment. In Hayden, environmental injustice was instead structured by the "relations of production" and vast power imbalances between ASARCO and Kennecott (the two multinational copper corporations that dominated the town), residents of Hayden, and the Arizona state government. I argue

here that it was the relations of production that systematically structured the powerlessness of Hayden residents (Gaventa 1980). The remoteness of areas where ore bodies were formed created the need for company towns, which increased copper corporations' power over labor while leaving residents with few employment alternatives (Hayter 2000; Sheridan 1998). Copper production began in an era in which the workforce was characterized by a racialized labor system and workforce in the copper industry, reducing the power of Mexican miners to organize for better conditions. As the copper

corporations consolidated their power within the state of Arizona over the decades, they were able to "mobilize bias" and obtain preferential treatment by state government (Gaventa 1980). Poor environmental conditions persisted for decades because this preferential treatment effectively forestalled action by state regulators to clean up Hayden and limit health damage to its residents from smelter pollution (shown by dotted lines in Figure 1).

With the growth of greater knowledge and concern about environmental pollutants and health, and the development of

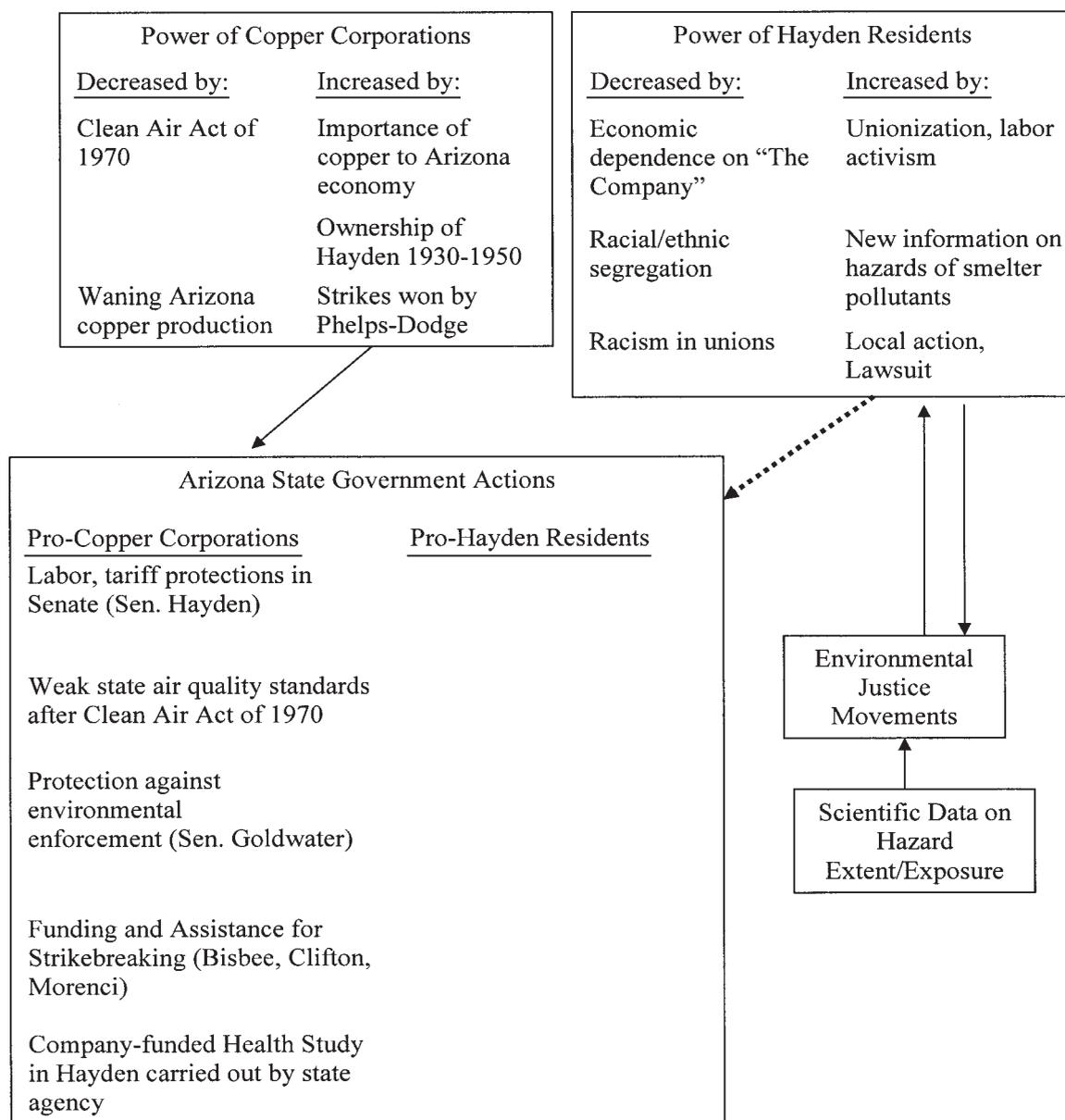


Figure 1. Relative Power, Mobilization of Bias and the State in Hayden, a Company Town

environmental justice movements, power relations between the state, copper corporations and residents shifted in the late 1990s, but still did not result in a reduction in mobilization of bias. Finally, Hayden residents took action on their own behalf, filing a lawsuit against ASARCO.

Methods

This case study was conducted between 1999 and 2003, as part of a larger project that brought me into contact with Arizona environmental justice activists. The case study in Hayden involved several trips to the town, where I acted as participant-observer. While in Hayden, I observed and photographed the town and the smelter, helped distribute flyers warning residents of the dangers of arsenic and lead, and sat in on meetings of townspeople with EPA officials and environmental justice activists. The Hayden residents who had the most involvement in organizing others to bring the class-action lawsuit against the smelter operator were interviewed. Six interviews were conducted, ranging in length from 30 minutes to two hours, and were audiotaped and transcribed. More than a thousand documents were collected, including historical documents from archives, scientific papers containing results of health studies, government documents, and soil and air sampling reports. Sources were triangulated to provide corroboration and additional sources of facts about important events (Yin 1984). Thus, secondary sources were used to corroborate facts from primary documents, and to provide an overview of the historical and political context in which the events in this industrial company town unfolded.

The Company Town in the United States

In general, company towns in the U.S. share these characteristics: (1) The town was financed, built and operated by only one company; (2) the landholder of the town is or was also the primary employer; (3) the architecture of the town reveals a clear hierarchy separating management from labor and reinforcing ethnic segregation; (4) housing was constructed cheaply and with uniformity; and (5) housing was located near the worksite to maximize efficiency (Porteous 1974; Mulrooney 1989).

The earliest U.S. company towns were the New England textile mill towns of the 1820s which were located on power canals to provide access to water power. Lowell and Waltham, Massachusetts were typical of the corporate-owned mill towns, in which vast five-story factories dwarfed all other buildings. These were surrounded by company-built houses for management and skilled workers; unskilled workers were housed in boardinghouses (Candee 1992). Accommodations were ethnically segregated, with separate lodgings

for “the Irish” (Candee 1992).

In the 1920s, U.S. textile production shifted from the Northeast to the South. Labor militancy had increased wages among textile workers in the Northeast, and Southern manufacturers had the advantage of cheaper labor and new technologies that increased efficiency (Crawford 1992; Koistinen 2002). Instead of organizing, Southern mill workers tended to quit in protest over poor working conditions and low pay. Mill owners minimized worker turnover by reserving production jobs for whites and building segregated mill villages with company housing, a company store, churches, schools and baseball fields. Ministers and teachers were employees of the company, and mill owners exercised paternalistic control over workers’ lives (Crawford 1992).

Although residents of textile mill towns faced oppressive and unhealthy work conditions, their environment was relatively bucolic and unpolluted compared with that of rural mining towns (Candee 1992; Crawford 1992; Mulrooney 1989). Machine-powered textile factories caused air pollution, but did not create the tons of hazardous mineral wastes or the volumes of noxious smoke that plagued towns with coke plants, steel mills or smelters. But it could not be said that workers lived in closer proximity to hazardous plants than managers. In coke towns such as Star Junction, Pennsylvania, the fumes and soot from the coke ovens caused pervasive, severe air pollution that invaded the homes of managers as well as workers (Mulrooney 1989).

The rapid industrialization that occurred between 1890 and 1930 demanded the extraction of vast quantities of coal, metal ores, trees and other natural resources, and the problem of housing workers in the remote locations where such resources were located spurred the demand for single-resource company towns (Porteous 1974; Hayter 2000). In the coal mining towns of Western Pennsylvania, housing for miners was cheap and substandard. Coal companies had no need to care about their resale value, and sometimes demolished them to get at the coal seam below. As in textile towns, workers’ homes were segregated by ethnicity and separate from those of management (Mulrooney 1989). If workers went out on strike, they were evicted from company-owned housing so that the company could house strikebreakers. In 1922, miners struck in coal towns all over Pennsylvania, and were forced to spend the bitterly cold winter in tents (Mulrooney 1989).

Hayden: Relations of Production in a Copper Town

Copper towns developed at the same time in history as coal towns, and grew out of mining advances that allowed the recovery of low-grade ore. In Hayden as in other towns, this involved the digging of huge open pits that scarred the land-

scape. If a smelter could be located nearby, this increased profitability by decreasing the amount of raw ore that had to be hauled (Allen 1966). In 1911, the town of Hayden began as a mining camp near the low-grade Ray Mine; ASARCO built a smelter there which opened in 1912 (Allen 1966). At the time, 60% of the world's copper was being produced in the U.S. and Arizona was the top copper producing state (Messner 2001; Richter 1927). Copper corporations reaped benefits from employing Mexicans: immigrants were particularly desirable employees because they tended to be hard-working, difficult for English-speaking union activists to organize, and easy to deport (Parrish 1979). But even U.S.-born workers of Mexican descent were typically paid less than non-Latino whites (Barrera 1979). Accordingly, 60% of Arizona smelter workers in 1912 were of Mexican descent (McWilliams, cited in Barrera 1979). In 1911, Mexican miners began building their own homes in the western part of town, creating a neighborhood called Barrio San Pedro characterized by narrow, winding streets on steep hillsides (see Figure 2).

Although white and Mexican workers were represented by the American Federation of Labor (AFL), as affiliated with

the International Union of Mine, Mill and Smelter Workers (known as Mine-Mill), Mexican workers at the Ray Mine copper camp lived with the constant threat of violence from white miners (Mellinger 1995). Thus, racial discord undermined labor unity, a situation that Kennecott Copper would preserve for decades through continuing racial/ethnic segregation in Hayden. Kennecott was aligned politically with Phelps-Dodge, one of the four large copper corporations that dominated U.S. copper production (Richter 1927; Rosenblum 1998). Phelps-Dodge worked tirelessly to gain enormous influence over Arizona politicians and law enforcement (Byrkit 1982). During a strike at the Lavender Mine in Bisbee in 1917, Phelps-Dodge officials demonstrated their power by arranging for over 1,000 striking miners to be rounded up at gunpoint, loaded into boxcars, and dumped in the desert with the collaboration of state officials (Byrkit 1982).

In the 1930s, the Kennecott Copper Company bought the land in Hayden and built a company town, which they then ran and governed until the 1950s. In the level parts of town, a business district and houses for whites only were built and provided with electric and sanitary services (Strittmatter 2000). But San Pedro remained without electric service. Houses there lacked indoor plumbing, and until the 1960s sewage ran in the streets (General Plan for Hayden-Winkelman 1961; Strittmatter 2000). By 1929, 70% of Arizona mineworkers were Mexican; but they underwent a wave of layoffs with the deepening of the Depression. White workers were first to be rehired: as of 1938, only 5% of the reconstituted mining workforce was Mexican (Rios-Bustamente 1995). Thus, minority mineworkers in Arizona were used as a buffer to take the brunt of economic bad times, a situation indicative of a segmented colonial labor system in the Southwest (Barrera 1979). With the advent of World War II, military production spurred a demand for copper. Good labor relations were essential to sustain war production, strengthening the bargaining position of the AFL. But the AFL was notorious for its racist practices, working together with companies to reserve the better jobs in mining for whites. In 1944, they declined to represent Mexican miners (who were 75-80% of the workforce at Hayden at the time), suggesting they organize their own union. Mine-Mill became affiliated with the Congress of Industrial Organizations (CIO) (Rosenblum 1998). That year, a federal employment official noted Kennecott's role in the pervasive racial and occupational segregation in Hayden:

It is [Kennecott] which enforces segregation in Hayden. This segregation, which is the result of company policy, is reflected in the wage scheme, the upgrading [promotion] practices, and the classification of workmen in force (Maslow, in Rios-Bustamente 1995).

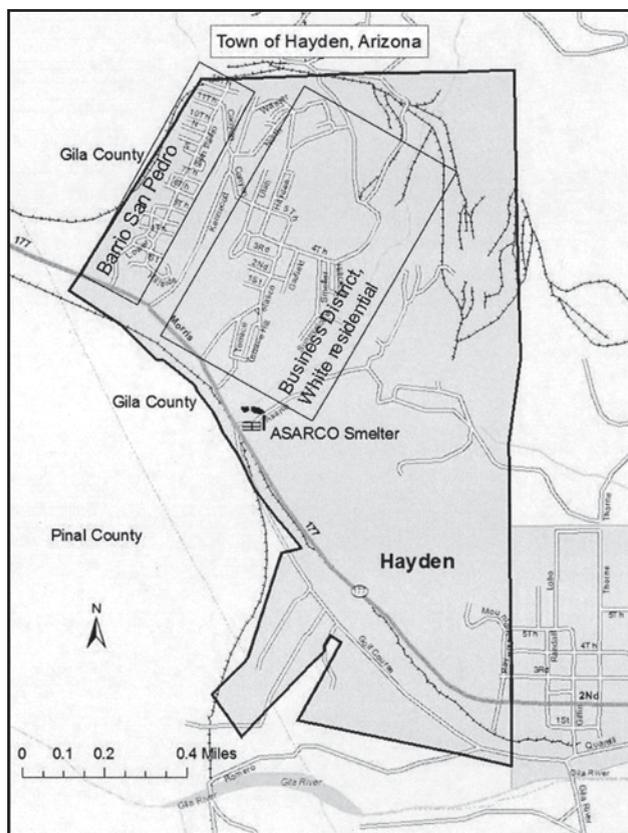


Figure 2. Map of Hayden, Arizona

These practices were common in Arizona's copper towns, where racial tensions tended to undercut class solidarities (Sheridan 1998). It is well-documented that until the 1960s, Mexican workers were paid less than whites for doing the same jobs (Byrkit 1982; Mellinger 1995; Rios-Bustamente 1995; Sheridan 1998).

In addition to lacking the power of class solidarity, single-industry copper towns such as Hayden suffered from a lack of economic alternatives to employment with the company-owner of the town. Most such towns that were developed by a multinational corporation had "plantation" type economies characterized by a weak secondary business sector and lack of economic diversity (Hayter 2000). Economic specialization in one industry renders the townspeople highly dependent upon employment with the company, and on the boom-and-bust cycles characteristic of extractive resources (Hayter 2000). The economic dependence of Hayden residents upon copper intensified when Kennecott built a second smelter in Hayden in 1956. By 1960, only 4.5% of Arizona residents, but 76% of Hayden's 1,760 residents, worked in mining (Arizona Economic Profile 2000; General Plan for Hayden-Winkelman 1961).

In the 1960s and 1970s, Hayden's copper workers finally gained some financial security. The unions raised wages by creating a system of "pattern bargaining," to which Kennecott and ASARCO acquiesced but Phelps-Dodge resisted (Rosenblum 1998). But U.S. copper production was declining; by 1975, the U.S. produced only 17% of the world's share of copper (Messner 2001). In the early 1980s, the costs of copper production rose relative to the cost of exploration in mines overseas. The result was a crisis of overproduction, and 28 U.S. copper mines shut down (Bridge 2000; O'hUallachain and Matthews 1996). Kennecott closed down the smelter in Hayden, and unemployment increased. In 1983, the pattern bargaining system collapsed and the nearby mining towns of Clifton and Morenci embarked on a bitter, three-year strike against Phelps-Dodge (Rosenblum 1998). State resources—including 18 helicopters, state troopers, the Arizona National Guard, and state-funded intelligence agents from the Arizona Criminal Intelligence Systems Agency—were used to break the strike, at a cost of \$1.5 million to Arizona taxpayers (Kingsolver 1983; Rosenblum 1998). A year after the strikers lost, the strikebreakers who replaced them voted to decertify the union, and ASARCO successfully negotiated wage cuts (Rosenblum 1998).

Over the next two decades, Hayden slid into economic decline. The ASARCO smelter was still operating, the shift-change whistle was a familiar sound each afternoon, and "The Company" still dominated the economic and social life of the town. But as of 2000, only 16% of Hayden residents worked in mining (U.S. Census Bureau 2004). Prospects for better

employment were hampered by low educational attainments, as 40% of Hayden's residents aged 25 or older had less than a high school diploma. Median household income for Hayden residents was \$24,293, far below the statewide median of \$40,558 (U.S. Census Bureau 2004). Other single industry company towns in Arizona (such as Bisbee) used local history to reinvent themselves as picturesque destinations for artists and tourists. But Hayden was also too undistinguished and remote, and its streets and town lacked the historic charm of Jerome, Arizona or even Butte, Montana (Wyckoff 1995). With the ASARCO smelter still in operation (and the mineral waste and slag from *two* copper smelters concentrated in such a small area), Hayden was also too polluted.

Environmental and Health Issues in Hayden and Relations of Production

The ASARCO smelter was built with a 1,000 foot smokestack (ASARCO, n.d.). This technology was believed to alleviate pollution by allowing the wind to blow smoke away far above cities (Wirth 2000). From the first day of operation, the smelter caused plumes of smoke, and copious amounts of dust and mineral waste. The smoke and dust contained toxic heavy metals, including arsenic and lead. Sulfur dioxide was also released when the ore was melted down, binding together with water in the air to create acid aerosol mist—fine droplets that were extremely corrosive, and were trapped close to the ground on cloudy, humid days. This was a period in history when few understood the health hazards posed by industrial pollution (Davis 2002). Prior to the expansion of environmental awareness in the 1970s, few lawsuits were filed against smelter operators anywhere in the U.S.; those filed concerned damage to crops or the health of animals rather than human health (Mercier 2001; Wirth 2000). Few laws governed emissions and waste disposal issues, and copper producers could externalize nearly all of the environmental costs associated with production (Bridge 2000).

The relations of production that shaped the response of Arizona state government to copper smelter pollutants took place within the context of the copper producers' economic power in Arizona. From the 1920s until at least the 1950s, Arizona's economy rested upon the Five Cs: "Copper, cattle, cotton, citrus and climate" (Udall 1984). Arizona senators such as Carl Hayden, who served on the powerful Senate Appropriations Committee from 1926–1968 helped promote the interests of the copper corporations by enacting legislation protecting them from foreign competition, and ensuring them continued access to Mexican labor (Wirth 2000).

But, although not much was known about the relationship between chronic, low-level environmental exposure to

smelter pollutants containing lead and health damage, Alice Hamilton's 1926 work on occupational lead exposures warned of fatal brain and kidney damage from high-level exposures (Warren 2000). Eventually, it was discovered that smoke and dust containing particles of lead were even more hazardous to children than lead paint chips because lead is more readily absorbed into the bloodstream through the respiratory system than through ingestion (Davis 2002). By 1952, medical researcher Mary Amdur had discovered other smelter pollutants such as sulfur dioxide and acid aerosol mist caused scarring and thickening deep inside the lungs of animals and people, shortening their lives. But her work was suppressed and she was fired by her employer—whose work was funded by ASARCO (Davis 2002, 69-75).

By the late 1980s, the weight of the evidence had convinced cancer researchers that inorganic arsenic was a human carcinogen. Most of this evidence came from studies conducted on cohorts of smelter workers, whose death rate from lung cancer was as much as ten times the rate of people who did not work in smelters (Frumkin and Thun 2001). Nor were smelter workers the only people exposed to arsenic dust. According to the Arizona Department of Environmental Quality (ADEQ), in 1987 the average annual arsenic concentration from air samples outside the Hayden plant was 0.078 ug/m³ (or .078 milligrams of arsenic per cubic liter of air)—concentrations at dangerous levels far exceeding the state's health benchmark of 0.00023 ug/m³ (Williams 1991). Lifelong Hayden resident Jill Corona² described a thick dust that darkened streets and left a metallic taste in the mouth. Hayden residents may not have known how hazardous lead and arsenic were, but they could not escape knowing how polluted their air was. A Hayden resident who grew up to become a smelter worker recalls how smoky the air was in Hayden during the early 1970s:

I remember we used to run to school and run home for lunch in the afternoon. And we were gasping for air . . . [t]he smoke was here all the time. You were always gasping for air, the air that was coming in [at home] was nothing but smoke (Latino Male 1999).

Another Hayden resident who was a child in the 1960s remembered "acid drops"—sulfur dioxide combining with water in the air to produce a rain of acid:

And we would wet down the [clothesline] before we'd actually hang up our clothes. And you'd have to do your laundry very early in the morning . . . because if your clothes stayed up there, we'd get little holes in them. And acid would always fall on the vehicles. That was a constant problem we had (Latina Female 1999).

After the passage of the Clean Air Act of 1970, the federal government turned its attention to the smoke from the two Hayden smelters. The power of the large copper corporations was evident in Arizona and in Montana, where state regulators catered to copper interests by enacting more lenient environmental standards than federal law allowed (Mercier 2001). In 1972 EPA rejected the State Implementation Plan for reducing air pollutants submitted by the Arizona Department of Health Services because it contained no control strategies or regulation for sulfur dioxide (Kreutz 1972). Three years later, Senator Barry Goldwater helped the copper companies evade compliance with regulations by arguing that flawed science guided air quality standards (Wirth 2000). Like other copper companies ASARCO coped with new environmental regulations in three ways: they lobbied state government for permission to continue operating out of compliance; they complained bitterly that the expenses incurred in complying with air quality standards would put them out of business; and they modernized their plants (Mercier 2001; Wirth 2000). Although ASARCO built an acid plant in 1971 to capture sulfur dioxide, the smelter was still not even close to complying with air quality standards. In 1974 average sulfur dioxide concentrations in Hayden as high as 378 micrograms were recorded, far beyond clean-air standards of 50 micrograms (*Arizona Daily Star* 1974). Thus, the pressure on copper producers to internalize environmental costs of production was met by years of delay in improvements to environmental quality.

By the mid-1970s, some epidemiological evidence was accumulating that copper smelter pollutants were damaging human health. Researchers from the National Cancer Institute published a study on lung cancer deaths in counties with copper, zinc or lead smelters. Lung cancer mortality rates from 1950 to 1969 for both men and women were found to be significantly higher in smelter counties. They concluded that since few women worked in smelters, and there was no evidence of higher cigarette smoking rates in smelter counties, "[T]he most likely explanation for the increased lung cancer mortality in this study is neighborhood air pollution from industrial sources of inorganic arsenic" (Blot and Fraumeni 1975, 144).

A 1976 study conducted by researchers at the Centers for Disease Control and EPA compared heavy metal levels in children (including Hayden's children) living within five miles of a copper, lead or zinc smelter with those of children living in comparable areas but further from smelters. Although blood lead levels were not significantly different for children near smelters, t-tests showed that levels of arsenic in hair and urine, and arsenic, cadmium and lead in hair were significantly higher for children who lived near a smelter. Hair levels decreased significantly with distance from copper smelters, indicating that it was proximity to smelters that was

exposing children to toxins (Baker et al. 1977).

A study by the Arizona Department of Health Services (ADHS) on lung cancer mortality between 1979 and 1988 indicated that air pollution might be boosting lung cancer death rates in six smelter towns in Gila County. During that period there were eight copper smelters operating in Arizona, five of which (including the Hayden smelters) were located in Gila County (O'hUallachain and Matthews 1996). ADHS researchers found elevated lung cancer death rates among both males and females over 60 years old, but interpreted the results to be inconclusive (Arizona Department of Health Services 1990).

Clinical evidence of lead exposure among some children in Hayden came in 1997, Betty Amparano² was asked to sign a new lease for the home she rented in Hayden. The lease contained a warning that the property was contaminated with toxic and possibly cancer-causing dust from the smelter for which the landlord was not to be held liable (Bagwell 1997). Amparano moved out of the house and took her children to a clinic for blood tests. Her five-year-old's blood lead level was 44 µg/dL (or 44 micrograms of lead per deciliter of blood) and her eight-year-old's 41—four times the CDC's action level for lead exposure of 10 µg/dL (Bagwell 1997). At levels even below 10 µg/dL, researchers had found that children suffered brain damage, losing IQ points (Davis 2002).

A newspaper story about the Amparanos' problems came to the attention of environmental justice activists Steve Brittle and Scott Meyer, founders of the grassroots group Don't Waste Arizona (DWA). With the help of the Amparanos, Jill Corona and other Hayden residents, DWA began organizing meetings in Hayden, and delivering house-to-house flyers warning of the dangers of arsenic and lead. They also put Hayden residents in touch with Howard Shanker, a civil rights lawyer who was willing to organize a class-action lawsuit against ASARCO. By 1999, about a third of Hayden's population had signed on to the lawsuit.

With preparations for a class-action lawsuit against ASARCO going forward, the Arizona Department of Health Services (ADHS) accepted funding from ASARCO to conduct a health study on the people of Hayden. The agency's acceptance of funding from ASARCO was seen as a serious conflict of interest, and few Hayden residents cooperated with researchers. ADHS researchers tested blood lead levels for only six children from Hayden and eight from the adjoining town of Winkelman; urinary arsenic levels were analyzed for 224 people from both towns (Burgess et al. 2000). The resulting report (just five pages long) stated that children's blood lead levels averaged 3.6 µg/dl, ranging from below detectable limits to a high of 9 µg/dl. All were below the CDC action level of 10 µg/dl. Average urinary arsenic levels were 13.7 µg/L; but five people had concentrations of arsenic

above 30 µg/L (the action level for inorganic arsenic) in their urine. The report mentioned home renovations as a contributing factor to the elevated urinary arsenic levels, "[s]ome level of renovation, including painting, had occurred recently in all three households . . . exposure to house dust may have been a contributing factor" (Burgess et al. 2000, 5).

Although it is plausible that lead-based paint may have been used on walls and windowsills in older houses like the ones in Hayden, paints do not contain inorganic arsenic. Although the presence of arsenic in the dust of homes in a smelter town strongly suggests environmental contamination, ADHS researchers offered no explanation as to why household dust might cause elevated levels of arsenic (Burgess et al. 2000). While preparing for the lawsuit against ASARCO, the Hayden plaintiffs' attorney was informed that ASARCO planned to use the results of the health study in their defense.

The same year, a toxicologist hired by the plaintiffs' attorney sampled dust in the attics of Hayden homes, and found that it contained 7,988.8 parts per million (ppm) of lead, and 78.4 ppm of arsenic (Name withheld 2000). EPA's soil cleanup level for lead is 400 ppm (ATSDR 2007); the state of Arizona has identified 10 ppm as the residential soil cleanup level for arsenic (Cleanuplevels.com 2001). Thus, concentrations of both metals found in Hayden attic dust presented health hazards for any resident who might come in contact with them.

In March 2008 ASARCO offered to settle the case, and the law firm accepted the offer. ASARCO, having filed for bankruptcy, offered only \$4 million to the approximately 300 plaintiffs (personal communication with Howard Shanker 2008). The money will not be enough for compensation for medical injuries or for medical monitoring to pick up future problems. But it will probably be enough to allow a limited number Hayden residents to leave town and purchase housing in a less contaminated location, an outcome characterized by their lawyer as "probably the best they could hope for" (personal communication with Howard Shanker 2008). The settlement supports the contention of environmental justice researchers that such lawsuits are rarely an adequate substitute for political action or regulatory protection (Cole and Foster 2001; Toffolon-Weiss and Roberts 2004).

Discussion and Conclusion

The story of Hayden is the story of entrenched economic and political corporate power in a company town, and the persistence of environmental hazards even in the face of power shifts spanning nearly a century. For all of that time, Hayden residents suffered proximity to and probable health damage from copper smelter pollutants with little help from state environmental regulators. Although Latino residents

were the majority in Hayden, the pathways to this environmental injustice occurred through the attraction of workers to the smelters for employment, rather than the imposition of a hazard on a minority population.

Hayden was typical of most company towns in that it was segregated and characterized by the overwhelming economic, social and political power of the corporation. It was typical of most mineral mining and refining towns in that residents lived in a polluted environment, conditions also faced by predominantly white workforces in smelter towns such as Anaconda and Butte (Finn 1998; Mercier 2001). But for many decades, prejudice against Mexicans and Mexican-Americans was a key aspect in the power relations between Arizona mine and smelter workers and the copper corporations, increasing corporate power as it divided labor.

Power was also used indirectly by copper corporations, in securing the mobilization of bias (Gaventa 1980). The bias of state government legislators, regulators, health authorities and others was evident in the way in which the interests of copper corporations were addressed while the interests of the citizens of Hayden and other copper towns was ignored. State legislators and regulators saw that copper producers were buffered for as long as possible from environmental enforcement after 1970 when federal environmental laws went into effect. They also spared no expense in devoting state resources to strikebreaking. Multiple health studies conducted by top national research institutes (and by Arizona's own public health researchers) revealed health effects from copper smelting, and were repeatedly ignored. The state accepted funding from ASARCO to conduct a health study; but this one (which found no evidence of health effects), was used to defend ASARCO against Hayden residents' lawsuit.

Although power relations between Hayden residents, the copper corporations, and Arizona state government remained unequal, over time they shifted and changed. A residue of inequality remains; yet by the 1960s, greater racial equality for Latinos had resulted in the elimination of the dual wage system and other vestiges of the colonial labor system. The right of copper corporations to pollute were also curtailed by environmental laws. The decline in the economic importance of the copper corporations to the economy of Arizona also reduced the relative power of the copper corporations. Yet even these power shifts did not give rise to a protective response from the state government, or a reduction in the copper companies' ability to mobilize bias (see Figure 1).

For many years, power shifts did not give rise to any direct action by Hayden residents. But by the late 1990s, their awareness of environmental hazards in Hayden was back-grounded by the growth of greater public concern over the health effects of pollution (Szasz 1994); a body of knowledge about the specific health effects of exposure to dust contain-

ing arsenic and lead, and to sulfuric acid; and by the development of environmental justice movements to help them take action. Hayden residents were no longer constrained by their economic need for smelter work, as by 2000 only a minority of residents were employed at the smelter. The result was a lawsuit that proved an inadequate remedy to the problems, and residents still await environmental cleanup. In this sense, the story of Hayden has proved all too typical.

Endnotes

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2. Real names used at participants' request.

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