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Mary Elizabeth Curran
The University of Montana

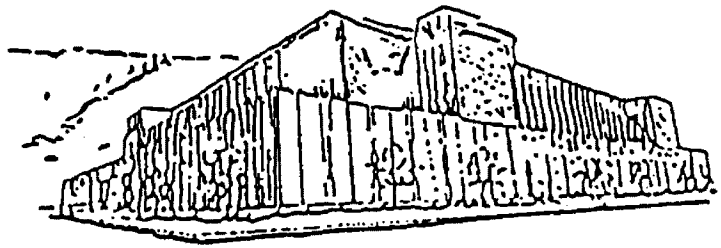
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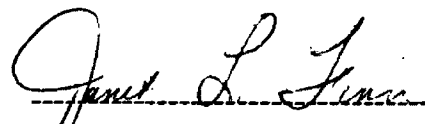
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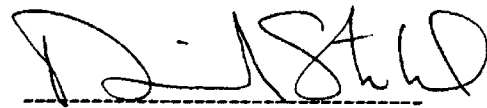
THE CONTESTED TERRAIN OF BUTTE, MONTANA:
Social Landscapes of Risk and Resiliency

by
Mary Elizabeth Curran
B.A. University of Massachusetts - Boston, 1994

Presented in partial fulfillment of the requirements
for the degree of
Master of Science in Environmental Studies
University of Montana
1996

Approved by


Chairperson


Dean, Graduate School

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The Contested Terrain of Butte, Montana: Social Landscapes of Risk and Resiliency (357 pp.)

Chairperson: Janet L. Finn 

This thesis examines some understandings of public health threats posed by contamination in Butte, Montana, which is part of the country's largest Superfund site. The public outcry that has been recorded in other contaminated communities, such as Woburn, MA and Love Canal, NY, has not materialized in Butte. To explain the reasons for what federal and local officials have deemed local "apathy," this analysis uses a theoretical framework of environmental sociology, an interdisciplinary theory that links political economy and local culture, as well as tensions between global economic integration and local subsistence.

People construct their social identities and relationships within context of their physical and social environments, and these social constructions of landscape entail an ongoing relationship with the natural, built, and modified physical environment. The shift from the physical environment as the familiar background of "home" to one of contamination entails renegotiations of relationships with the land which often involve political disagreements, as well as differing discursive frameworks for understanding "the environment." This analysis points to multiple, and often conflicting, landscapes operating in Butte which have been marginalized by technocratic definitions of "contamination," "risk," and "participation." The analysis argues that the technocratic ahistorical perspective does not consider the lessons learned from years of community interaction with the Anaconda Mining Company. Also unconsidered is the real possibility that local history is the locus of community resistance, a way of telling a story very different from that told by the Anaconda Company and captive press in the past, and by the federal government and ARCO, which purchased the Anaconda Company properties, in the present. The tension between the meanings of local history and contamination have been unexplored. This analysis also points to shortcomings in the risk assessment process and to public health information that has not been made available to Butte's people, and argues that this lack of information relegates both local knowledge and community medical problems to personal "troubles" rather than a social problem. It further indicates shortcomings in proposed "institutional controls," developed to protect residents from hazardous waste that will remain when cleanup activities are completed.

TABLE OF CONTENTS

Introduction.....	1
Historical and present perspectives of Butte, study questions, methodology, and organization of thesis.	
Theoretical Landscape.....	17
A review of theories utilized, definitions of key words, and of the literature related to contaminated communities.	
The Contested Terrain of Butte.....	58
The historical forces that shaped both the physical and social landscapes of Butte.	
Superfund and Risk: The limited landscape of technocratic discourse.....	115
Analysis of structural problems in the federal Superfund law and the way in which those constraints surface in Butte, as well as a critique of risk assessment and technocratic discourse, and consideration of public health factors screened out of the EPA definition of risk in Butte.	
Local Newspaper Coverage: The <i>Standardized</i> landscape.....	180
Analysis of the Montana Standard's coverage of environmental issues, particularly as they relate to Superfund and public health in Butte.	
Public Health: Subterranean landscapes.....	218
A review of public health issues historically, analysis of some public health perspectives operating in Butte, and discussion of a 1990 health study, which has not been made available to the people of Butte, as well as other shortcomings in health data on the local, state, and federal levels.	
The Social Landscapes: Diverse terrains.....	256
Analysis of the priorities expressed in some operative social landscapes, and analysis of proposed institutional controls as protection against exposure to contaminants that will remain when cleanup efforts are complete.	
Conclusion: The rough terrain of social change.....	301
Discussions of possible means of social change in Butte, and its position within the state, national and international economy, with consideration of the tension between notions of Montana as the Treasure State and as the Last Best Place.	
Appendices.....	339
Bibliography.....	350

LIST OF TABLES

Listing of contaminants and associated health impacts.....	339
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LIST OF ILLUSTRATIONS

Upper Clark Fork Superfund Sites.....	343
Path of contaminants from Butte to the Milltown Dam	
Silver Bow Creek/Butte Area Superfund Site Operable Units.....	344
Lower Area One.....	345
Montana Pole Site.....	346
National Historic District.....	347
Anonymous Cartoon.....	348
Milltown Reservoir.....	349

INTRODUCTION

Butte, Montana has gained national fame as "The Richest Hill on Earth," "The Gibraltar of Unionism," and the largest Superfund site in the country. In published accounts to date, the larger-than-life history of the famed copper mining town has been told as the story of corporation versus labor, corporation versus state, immigrant versus industrialized America, man versus nature, and miner versus death (Toole, 1959, 1972; Malone, 1995; Malone et al, 1993; Emmons, 1900; Writers' Program of the WPA, 1943). It is also, as anthropologist Janet Finn (1995)¹ reports, a story of community as imagined by the Anaconda Company which, through its control of economic, political, and social structures, created and manipulated symbols of community for popular consumption. And it is a story of how the people of Butte, the consumers of that manufactured community, internalized, elaborated upon, fought against, and created their own notions of community to which they then gave their loyalty (Finn, 1995).

It is all that; it is also a story of how the powerful forces of capitalism and a belief in human mastery of the land shaped both the physical landscape of Butte and the social constructions of landscape through which Butte's people perceived and interacted with that dramatically altered landscape. Like the restless earthquake-prone land they mined, the social constructions of landscape of Butte's people changed through time. This analysis tells a story of socially-constructed landscapes — past and present. It is a story of silences and seeming contradictions within fractures and faults, tremors, dark tunnels in dangerous ground, contested ground.

In 1986 the federal Environmental Protection Agency (EPA) designated

Butte a Superfund site. Agency investigation has uncovered 66 contaminants in Butte's soil, air, and water. Yet there has been no organized public outcry from Butte residents about potential health impacts of the staggering list of toxics. This analysis seeks to explain why the public health outcry that has erupted at other Superfund sites, such as Love Canal, NY (Greider, 1992) and Woburn, MA (Brown, 1991; DiPerna, 1985). EPA employees in Butte (Weinstock, 7/31/95; Fitzgerald, 7/31/95) and county health personnel (Dennehey, 9/21/95) have charged Butte's people with apathy; this analysis argues that this may not be the case. This analysis presents other possible, historically-grounded explanations for the apparent lack of public support for the Citizens' Technical Environmental Committee, the only local environmental activist group in Butte. In developing these alternative explanations, the analysis argues for broader definitions of participation and resistance than used under federal Superfund law. Consideration of broader definitions leads to a different understanding of past and present social landscapes and unearths a story of competing value systems, some operating aboveground; some underground. It discovers many Buttes, often contradictory. I start with the landscape I first saw in autumn 1994.

WELCOME TO BUTTE

An artist might have preserved the November night when the snow geese arrived in Butte as a Christmas card illustration. In the lower left foreground of the card, the large body of water in the Berkeley Pit would shine deep slate blue against the backdrop of the craggy snow-covered peaks of the East Ridge. In the upper right hand corner, atop the mountains, the illuminated statue of Our Lady of the Rockies, arms open, would gleam a white welcome. In the

left upper corner, the shimmering silvery V-shape of the arriving geese would stand out in sharp contrast to the midnight blue Montana sky. The same artist may have been too stunned to paint the scene when the sun rose.

The following morning 342 snow geese were dead. Most of the lifeless birds, their white feathers stained rust from the metals in the Berkeley Pit, floated limply on the water; a few of the geese had managed to fly away, some flew almost 26 miles to Anaconda, before succumbing. Autopsies performed on the geese have yielded conflicting results. Tests conducted at Colorado State University for the owner of the Pit, the Atlantic Richfield Corporation (ARCO), suggested the birds died as the result of ingesting a wheat fungus. Tests conducted at the University of Wyoming and Montana State University for the State of Montana gave very different results, indicating the "caustic materials caused lesions on the skin, while high concentrations of heavy metals damaged some inner organs (*Missoulian*, Dec. 7, 1995)." University of Wyoming veterinary pathologist Beth Williams described damage to the tested "birds' esophagus and trachea as severe...This is the most dramatic I've ever seen (*Missoulian*, Dec. 7, 1995)." If Williams is correct the deaths of the geese were ghastly, the equivalent of a human being ingesting lye and suffering excruciating pain as the caustic substance ate through his gastrointestinal tract.

The Berkeley Pit, a gaping 1,789-foot deep brown and gray tiered vestige of open pit mining which covers 80 acres is part of a cluster of federal Superfund sites in Butte, Montana. Since 1982 when ARCO discontinued mining operations and shut off the deep level pumps, every day an estimated five million gallons of rusty colored toxic water seep into the pit through some 3,500 miles of underground mine tunnels, raising the water level in the pit by

two feet each month (USEPA, 1993). There is no technology known that can permanently remediate the vast toxic lake which is polluted by aluminum, arsenic, cadmium, copper, iron, lead, sulfate and zinc; the best solution available is to pump and treat the water which flows into the pit in perpetuity. If the poisoned water rises to a level at which it meets the groundwater, public health risks would increase dramatically and the impact on the local aquatic ecosystem would be "catastrophic in both nature and extent" (USEPA, 1993: section 7.4). The contamination would follow Silver Bow Creek into the Clark Fork River, then into the Columbia River Basin.

The Clark Fork is Montana's largest river, carrying nearly twice the flow of the Missouri or the Yellowstone. It runs northwestward for 320 miles and supplies over 90 percent of the flow into Lake Pend Oreille, Idaho's largest lake. The Pend Oreille River drains the lake and flows into the Columbia River in Washington. Besides their critical importance for irrigation and drinking water, Lake Pend Oreille, the Pend Oreille River and the Clark Fork support a struggling tourism and recreation industry (Nielsen, 1988:7).

As a graduate student in the Environmental Studies program at the University of Montana, I first saw Butte in September 1994. As a reporter and editor for newspapers in the Northeast I had covered Superfund sites but that experience did not prepare me for the physical reality of Butte. I had never seen a mining landscape, a shocking conglomeration of vast excavated areas, towering piles of debris, uprooted boulders, and barren earth.

I was equally astonished to learn from Butte environmental activist Mary Kay Craig that there was no public outcry about health concerns resulting from the contamination of soil, air, surface and ground water (Craig, 9/14/94). The contaminated communities I had covered as a reporter had very vocal

groups working to connect the illnesses they saw in their communities to exposure to industrial poisons. I had read of similar concerned groups in other contaminated communities — Woburn, Massachusetts (Brown, 1991) and Love Canal, New York (Greider, 1992). This thesis is the result of my attempt to explain why there is no similar action in Butte, where a published health study (Moore and Luoma, 1990) has indicated environmental illness may be a real cause for concern.

Jim Robbins (1994) reports that the Moore-Luoma 1990 study of 3,000 U.S. counties between 1959 and 1972 showed that Silver Bow County, where Butte is located, was among 100 counties with the highest death rates for people aged 35 to 74, and, in another study, Butte had the highest mortality ratio for any county in the nation in 1950-51 and 1959-61, and the fifth highest in 1969-71. Robbins also reports that a National Cancer Institute study of the average mortality rate from lung, trachea, and bronchial cancer showed that in Montana, Idaho, Wyoming, and North Dakota, the rate was 25 per 100,000 people, plus or minus four percent; in Silver Bow County and neighboring Deer Lodge County, where Anaconda, the home to smelting operations, is located, the rate was twice that (J. Robbins, 1994). In search of answers for this lack of public health outcry, I began to traverse Butte's terrain — above ground and below.

Above ground, Butte is startling to a newcomer. Turquoise banners proudly proclaim the historic uptown district which clings to the steep incline of Butte Hill. They flutter from street lights that illuminate rows of rundown brick and stone buildings. Torn-up vacant lots interspersed with the eclectic architecture on every block bring to mind a punchdrunk prize-fighter's rebellious gap-toothed grin. An occasional restored building only serves to

reinforce the general seediness of a town down on its luck. Hundred-foot metal gallows frames strewn across Butte Hill pierce the thin mountain air, a testament to Butte's mining past.

Butte and mining are synonymous. This is important. Mining fathered Butte. Historians, mostly male (Malone, 1995; Malone et al, 1993; Toole, 1959, 1972; Emmons, 1990) have presented Butte as the locus of workingmen's struggles. The histories tell how working men dug out their livelihoods in the form of ore from the depths of Butte Hill. They tell how the Copper Kings and later, the Anaconda Mining Company, turned that ore into vast fortunes. The relationship between Butte laborers and the land was predicated on the extraction and exploitation of natural resources in the earth. The scarred and torn up landscape of Butte which was barely discernible through the miasma of smelter smoke at the turn of the century (Emmons, 1990) was a sign of the immigrant laborers' ability to sustain themselves and their families. The histories indicate that the ravaged earth allowed the laborer to regard himself as a contributing member of American society, it was the source of his self-esteem. And the Anaconda Company, purchased by ARCO in 1977, was the source of economic security (Emmons, 1990). The female voices of Butte in these male histories is muted — when it exists at all.

On Main Street and Broadway, the red-brick Hennessey Building where the Anaconda Company conducted its day-to-day business, still stands. Here "the Company" carved an empire out of the vast copper deposits in the depths of "the Richest Hill on Earth" and burrowed a niche in the history of Butte, the state of Montana, and, ultimately, the national and global economy. Although "the Company" has been gone more than a decade, the Hennessey building is still a well-maintained large presence. Less visible, but likely more

important, the lessons learned from years of interaction with the Company may be present in the way in which Butte residents perceive their landscape and frame their futures today.

Walk a few blocks south to Park Street and turn west toward Montana Tech, the former School of Mines. Small eccentric homes built by miners, who expressed their visions of domesticity and comfort with turrets and splashes of leaded glass, line both sides of the street.

"Old Butte" is a study in architectural ingenuity. The brick and clapboard houses, built barely a hand's width apart, reflect the personality and creativity of their working class owners. The gingerbread trims, odd turrets, occasional stained glass window, and often hodge-podge melding of material and design tell the stories of life-long labours and lives beyond the reach of corporate dictates. They stand in sharp contrast to the rows of tract houses subsidized by the company in more recent times when the search for copper meant the destruction of old neighborhoods. (Finn, 1994:18)

Up the Park Street hill at the entrance to Montana Tech the statue of Marcus Daly, one of the original owners and the most legendary symbol of the Anaconda Mining Company, looks down at the city he helped to build, the city that abruptly stops at the Berkeley Pit. Here and there a green lawn or lilac bush conquers a patch of barren soil.

This is Butte. The Black Heart of Montana. Ugly. Raw. Captive to its mining past. A major part of the country's largest Superfund site. Proud. Economically depressed. Working class. Resonating with the histories of immigrant men and women who, like my great-great-grandparents, fled their European homes with few skills and a fervent belief in possibilities. Defiantly alive.

Butte is a constant flow of people daily researching their family histories at the Silver Bow Archives on Quartz Street. It is the AFL-CIO office in Walkerville. It is a bright green T-shirt that proclaims, "Friends don't let friends go to Butte on St. Patrick's Day." It is a carpenter with a Ph.D. in philosophy. It is the Helsinki Bar and Steam Baths where every March 16 the Finns crown St. Urho who drove the grasshoppers out of Finland. It is the 90-foot high statue of Our Lady of the Rockies, a frail flash of white hope atop the massive gray mountains that frame the Berkeley Pit. It is Sunday morning breakfast at the M&M. It is a home on Platinum Street that has foregone the usual picket fence for rails and mining cars filled with ore.

And this is Butte. Two eight-foot high bookcases in the Butte Environmental Protection Agency office filled with neatly bound white plastic-covered looseleaf notebooks, some four inches thick. These notebooks document the legacy of the Company's mining operations — contamination that has spread out from Butte to an area roughly equal to one-fifth of the state of Rhode Island (J. Robbins, 1994). Four risk assessments examine the possible environmental and public health impacts of a contemporary witch's brew containing lead, arsenic, cadmium, and carcinogenic volatile organic chemicals. Soil, air, and water are contaminated.

Because of its purchase of the company in 1977, ARCO now casts a long shadow over Butte from its local headquarters in nearby Anaconda. As a potentially responsible party under federal Superfund law, the U.S. Environmental Protection Agency is mandating that ARCO finance much of the cleanup of Butte.

Below ground, in the 3,500 miles of mine tunnels, are the forces — geologic, political, and economic — that brought Butte to life and shaped the

physical and cultural character of the place in the process. During my research I often felt myself stumbling about in the labyrinth of tunnels, puzzled by intersections, wondering which tunnel to take, what level to crawl through, surprised by sudden shafts of light. I found the silences of blocked tunnels, the dead ends of caved-in shafts, and the persistence of water, drips and flows, creating new formations in the earth. At times I felt lost in this unfamiliar landscape, and overwhelmed by my own ignorance as an outsider. Stumbling about, I was directed by my own inner landscape, which has been shaped by an Eastern Irish immigrant working class culture, my experiences as a reporter, my love for the land, and, although I cannot say just where or how it surfaces, my gender. Despite my best efforts to attain objectivity, the forces of my own landscape will tend to overlay my research. My hopes for objectivity are also impeded by the deep fascination, respect, and affection I have developed for the place and its people.

The Butte I have found is contradictory, tough, gritty, and toxic. It is home to roughly 33,000 people who daily grapple with the results of this 130-year history – people who walk on contaminated soils, breathe fouled air, and bathe, wash dishes and drink polluted water. They are survivors, people with their own histories and voices, their own concepts of quality of life, which have not been heard. Theirs are complicated stories woven from the past and present, the private and public, and the individual and social. I believe their stories are important for what Butte can tell us about ourselves and our relationship to the land.

STUDY QUESTIONS

The overriding question is why Butte seems so different than other

Superfund sites. Is the public apathetic? From this point, a number of other questions arose. What is considered participation and why is participation considered in the terms established under the federal Superfund law? What is resistance? Does resistance necessarily have to be overt, such as public demonstrations?

Digging deeper, what is contamination? Is it, as the EPA indicates in risk assessments, a chronology of individual contaminants and a summing up of those contaminants to determine possible public health risks? Does contamination have other meanings, and are those possible other meanings more compelling than the actual physical characteristics of the contaminants themselves in shaping people's beliefs about health threats?

How has the contamination been presented to the people of Butte? Why has it been presented as it has? Do the people of Butte have adequate information, and, if they do not, why?

The ultimate question may be: What does it mean when the entire history of a community, its sole reason for being, is intimately tied to current notions of contamination?

METHODOLOGY

Data collection involved both secondary and primary source material. Secondary source material included government documents, local newspaper articles, county archival information, and literature, which will be discussed in the literature review. Individual interviews constitute the primary resource; in addition, I attended two meetings of government officials, Butte and Anaconda residents and Sandy Stash, ARCO's representative.

For the official characterization of risk and the extent of environmental

degradation the study relies upon EPA risk assessments, the state of Montana Natural Resource Damage Claim, and Butte-Silver Bow government agreements with the EPA and ARCO related to lead contamination and the development of institutional controls to ensure protection from contamination that will remain after the cleanup. Federal government census reports provided additional information about education and employment breakdowns.

To determine how the contamination and cleanup have been presented to the public, I turned to the Butte daily newspaper, the *Montana Standard*, coverage. The examination of coverage seemed especially important because the public does not attend public hearings and information sessions (Weinstock, 7/31/95; Dennehey, 9/21/95; Crain, 9/21/95; Fitzgerald, 7/31/95) nor does it seek information from the country public health department (Dennehey, 9/21/95) or the local EPA office (Weinstock, 7/31/95; Fitzgerald, 7/31/95). Additionally, people interviewed referred only to newspaper coverage (with one exception (Ray, 10/24/95), who said that information provided on local cable television was usually erroneous). Therefore, I concluded that the newspaper is a primary source of information for the majority of Butte residents.

I selected the period from January 1, 1990 through December 31, 1993 to examine the environmental coverage for a number of reasons. First, because during this period, many of the risk assessments that are a routine part of newspaper coverage were produced, for example, the Final Preliminary Baseline Risk Assessment for Lower Area One, October 25, 1991; Revised Final Baseline Risk Assessment for the Montana Pole NPL Site, February 10, 1993; and Draft Baseline Risk Assessment for the Mine Flooding Operable

Unit, December 15, 1993. Second, the EPA opened its Butte office in late 1989 which made agency representatives and records easily accessible to Butte people. Third, Sara Weinstock, the EPA remedial project manager, was kind enough to share her file of every environmentally-oriented story run by the paper since the local EPA office opened. As will be indicated by referencing in the study, newspaper coverage for certain specific events was also checked, a task made easier by the Johnson Chronology in the Butte-Silver Bow archives.

Primary health data, which were difficult to access, came from two sources: Emergency Medical Services records from the former Butte-Silver Bow Hospital which were available in the Butte-Silver Bow archives; and Montana Area Health Education Center publications. Reasons for the minimal amount of information from the Montana Department of Health and Montana Tumor Registry will be discussed later in the public health section of the thesis.

Interviews were conducted with federal, state, and local officials to identify both those territories they claimed and the perspective each brought to the cleanup. Butte-Silver Bow Chief Executive Jack Lynch declined to be interviewed but did submit written replies to the questions I asked of all Butte people interviewed. Members of the Citizens' Technical Environmental Committee, which functions through a federal EPA Technical Assistance Grant (TAG) and is the only consistent source of environmental citizen action in Butte, also agreed to be interviewed. To obtain the perspective of organized labor and history, I interviewed Marilyn Maney of the AFL-CIO; for the historical perspective, I interviewed Mark Reavis, the county historical

officer, and Ellen Crain, director of the Butte-Silver Bow archives. Although Kathy Hadley, one of the founders of Citizens for Labor and Environmental Justice, does not live in Butte, I interviewed her because this new group is merging labor and cleanup issues, and because, as one of the founders of the Clark Fork Coalition, she has been involved in the cleanup since the Superfund designation. John T. Shea provided the perspective of both a lifelong worker of the Anaconda Company and current member of the Butte ARCO retirees club. Because the local newspaper presented the cleanup from the perspective of local business and economic boosterism, I did not find it necessary to interview a representative from the Chamber of Commerce to capture this perspective.

The questions asked were designed to determine if, among these few people interviewed, the landscapes of people who spent their childhoods in Butte differed from those of non-natives or late-comers; if landscapes of non-natives were altered with length of residence in Butte and, conversely, if natives who spent time away from Butte returned with an altered sense of landscape. A series of questions focused on perceptions of public health and/or illness in Butte, and possible connections between the contamination and illness. Another series related to issues of trust in county, state, and federal officials. Those interviewed were also asked what they believed would improve life in Butte, whether they believed it was possible to change conditions, and, if they believed they could not affect change, to identify the impediment. Additional questions related to whether the Superfund designation had affected local property values, and to determine support for future mining in Butte and in the state of Montana. The limited scope of

these questions was broadened by many interviewees who were kind enough to expand on the themes under discussion. A list of questions asked is included in the appendix.

ORGANIZATION OF THE THESIS

A social landscape can represent a collective local history, for example, the mining landscape as representative of economic security, economic development and corporate profits, or as the history of Butte, or as a composite of all these things. It can also represent a threat, for example, the EPA classification of Butte as a Superfund site. The social landscape concept is useful for a number of reasons. First, it keeps the focus of the study upon the interactions between the land and the institutions and individuals working and living in Butte. Second, the metaphor of a social landscape has the scope to ground competing visions in the actual physical reality of Butte. And third, it provides an organizational framework for the thesis. Following this introduction, the thesis is organized into chapters, each dealing with a particular type or types of social landscapes.

In Chapter 1, the theoretical landscape, which shapes the questions asked and the nature of analysis brought to bear, is laid out. A literature review section outlines the work, the majority of which is sociological, done in contaminated communities.

In Chapter 2, the history of Butte is presented as The Contested Terrain of Butte. Here the development of Butte and the Anaconda Mining Company are explored within the local, state, national and international political economy. The historical arenas of conflict between labor and management, corporation and state, local, state and federal governments, are grounded in

the changing physical reality of Butte. Historical material is derived from the work of local, state and corporate historians (Emmons, 1990; Malone, 1995; Malone et al, 1993; Toole, 1959, 1972; Marcossen, 1957; W. Robbins, 1994) as well as from oral histories available at Butte-Silver Bow archives. More contemporary history is garnered from interviews, newspaper stories and ARCO's (the Atlantic Richfield Corporation) Superfund publication.

Chapter 3, Superfund and Risk: The limited landscape of technocratic discourse, examines the operative assumptions and conflicts inherent in the federal Superfund law and considers the nature and limitations both of bureaucracy and technocracy. This section also considers the implications of the privileged discourse of science and the way in which that privileging has usurped local knowledge.

Chapter 4, Local Newspaper Coverage: The *Standardized* landscape, analyzes four years of local newspaper coverage of issues related to contamination, examining quantitative and qualitative coverage as well as seeking the messages given about the meaning of the contamination.

Chapter 5, Public Health: Subterranean landscapes, considers the historical politicizing of public health issues, the local knowledge which contradicts health information disseminated by the EPA, and the quality of present health data. Serious shortcomings, both in information presented and scientific information actually available, are indicated.

Chapter 6, The Social Landscapes: Diverse terrains, examines the social landscapes of people interviewed. The chapter considers the different landscapes of non-natives and natives, and draws from the history of Butte to indicate the threads from the past which have become woven into the present.

Chapter 7, "Conclusion: Community and landscapes of change," looks at the contested visions of Butte and considers the potential for social change, as well as possible courses of action, including lay epidemiology, that could empower Butte's people. Because Butte does not exist in a vacuum, this section examines the tension inherent between Montana as the "Treasure State" and the "Last Best Place," as expressed in proposals for both expansions of existing mines and new mines and an initiative to strengthen water quality standards related to mining. Finally, the chapter considers both the relationship of Butte and Montana to the international economy and the implications of that relationship.

¹ Finn's doctoral dissertation compares the differences in community which were consciously fostered by the Anaconda Company in Butte, Montana and Chuquicamata, Chile. Because of the limited scope of this thesis, I will focus upon her findings in Butte only. However, my neglect of her Chilean data does not adequately convey the authority of Finn's work.

THEORETICAL LANDSCAPE

A number of theoretical frameworks, or models, each of which entails its own set of assumptions, questions, and approaches to interpretation, directed the way in which I set about answering the questions I raised in the previous section. The overarching model, into which the others are nested, was developed by environmental sociologists William R. Catton, Jr. and Riley E. Dunlap (1980). They coined the term New Ecological Paradigm (NEP) to reflect a growing awareness among sociologists that humans and their activities are not exempt from ecological constraints. My use of NEP entails four assumptions (Catton and Dunlap, 1980:34):

1. Although human beings have exceptional characteristics, among them culture and technology, they are simultaneously one of many species that are independently involved in the global system;

2. Human affairs are influenced by intricate linkages of cause, effect, and feedback within ecological systems, as well as social and cultural factors, so it is possible for human actions to lead to unintended consequences;

3. Humans live in and depend upon a finite biophysical environment which imposes potent physical and biological restraints on human affairs; and

4. Although the inventiveness of humans and the powers derived from that inventiveness may temporarily seem to deter physical and biological restraints, ecological laws cannot be repealed.

Implicit in this paradigm is a tension between human use and the maintenance of the land. Use of this model in Butte will entail consideration of four broad areas: 1. past and present interactions of people with the land; 2.

the unintended consequences of environmental degradation in the form of contaminated soils, air, and water; 3. the impacts of the contamination upon the peoples' ability to live on and use the land; and 4. consideration of the role that the development of technology has played in mining operations, in current attempts at cleanup, and in shaping peoples' perceptions of health issues. Because these interactions, consequences, impacts, and technological developments occur within context of a local, state, national and international political economy, I am also employing a model called regional political ecology developed by Piers Blaikie and Harold Brookfield (1987). The regional political ecology model places the issue of land degradation in the social arena, and focuses attention on the political and economic processes that shape the use of the land (Blaikie and Brookfield, 1987). This model looks at particulars of the place study and then moves to analysis of the local, regional, national and international political economy as it affects decisions made about local use. Although this model is associated with Third-World studies, it is useful in Montana, which has been portrayed by historians (Toole, 1959, 1972; W. Robbins, 1994) as a resource colony for Eastern and West Coast financial interests. As such, the issues of absentee land owners, decisions based upon considerations other than local interests, and the notion of who bears the costs associated with environmental change, which are common themes in Third-World research (Blaikie and Brookfield, 1987; Bryant, 1992; Peet and Watts, 1993), are relevant to the study of Butte, Montana. The conceptualization of Montana as a resource colony implicitly involves the notion of conflict between local and outside interests which is borne out in many histories of Butte and Montana (Toole, 1959, 1972; Malone et al, 1993; Malone, 1995; Emmons, 1990; W. Robbins, 1994).

Geographers Richard Peet and Michael Watts (1993) suggest that the political ecology framework be supplemented with consideration of power, the role of the state, and differences in discourse and culture. Because land management decisions are made within a context of private (in the case of Butte, corporate) interests and public interests, the thesis will continually refer to assumptions embedded in the structures that shape social organizations and relationships on both private and public levels. Although the concept of "structure" is difficult to define, I am using a definition offered by sociologist William Sewell (1992):

Structures, then, are sets of mutually sustaining schemas and resources that empower and constrain social action and that tend to be reproduced by social action. But their reproduction is never automatic. Structures are at risk, at least to some extent, in all of the social encounters they shape — because structures are multiple and intersecting, because schemas are transposable, and because resources are polysemic [numerous] and accumulate unpredictably (Sewell, 1992:2).

Because no culture is monolithic and because the cultural schema will intersect with individual schemas, there are also tensions involved in the concept of schemas. An individual schema consists of a person's temperament and personality, as well as beliefs and attitudes resulting from such things as family, social status, ethnic, religious and neighborhood values, the type of and duration of education, and workplace experiences. A cultural schema may incorporate social status, ethnic groups, religions, and class issues into the broader notion of "American values." In a capitalistic structure, resources tend to be unequally distributed which makes challenging existing structures difficult for actors with minimal

resources. Where environmental concerns surface, laws and government policies tend to serve as an arena in which unresolved conflict is acted out (Schnaiberg and Gould, 1994; Barnett, 1994; Yeager, 1991). In other words, it is possible to consider the political economy of capitalism as the primary (but not sole) structure of influence in environmental affairs in the United States.

Structures are dual in that they are both the medium and outcome of human action; as such, they are not deterministic. They can both inhibit and encourage human agency, the opportunity for people to act independently of the structure (Sewell, 1992). Any consideration of structure and human agency leads directly to the concept of power. I am working with a definition of power structure developed by sociologist Dennis Wenger (1978):

The patterned differentials between individuals, groups and organizations in access to both authoritative and non-authoritative sources of social power. In this context, social power refers to the ability of a system component to actualize its interests, whether intentionally or unintentionally within the context of asymmetrical control of various social resources or the reputation for such control. These differentials in social power combine with those in prestige and economic status to form the community's system of stratification (Wenger, 1978:22).

The use of this definition in Butte will allow consideration of a broad range and multitude of points of power, those that exist in institutional relationships as well as "everyday forms of resistance (Dirks et al, 1994:5)." Sewell's use of "intentionally or unintentionally," as well as "various social resources," provides for consideration of areas, such as the passionate love of many Butte natives for their local history (Reavis, 11/29/95), as a possible

source of resistance. Equally important, it allows space to speculate upon the way themes of conflict in Butte — labor/management, public/private, acquiescence/resistance, government/citizens; government/corporation; and corporation/culture (Toole, 1959, 1972; Malone et al, 1976; Malone, 1995; Emmons, 1990; Finn, 1995) — may have been internalized in both the culture at large and in individuals. Further, Sewell's use of the phrase "to actualize its interests" is loose enough to apply toward developing an understanding of the lack of public outcry (Weinstock, 7/31/95; Fitzgerald, 7/31/95; Craig, 7/30/95) and participation in cleanup-related activities (Weinstock, 7/31/95; Fitzgerald, 7/31/95; Craig, 7/30/95; Dennehey, 9/21/95) as expressions of different priorities (Maney, 9/22/95).

The notion of discourse, which can be considered as another structure (Peet and Watts, 1993), is helpful when looking at the relationship between government agencies and residents:

A 'discourse' is a particular area of language use related to a certain set of institutions and expressing a particular standpoint. Concerned with a given range of objects, it emphasizes some concepts at the expense of others (Peet and Watts, 1993:228).

To this definition, I add "clusters of non-verbal practices, as these create and maintain distinctions and identities (Greenough and Tsing, 1994:95)."

Knowledge of the environment...is socially constructed in environmental practices, and it is the practical significance of knowledge that makes it already political. The intertwining of knowledge and practice become particularly obvious where multiple frameworks for describing and using a single terrain are in competition.

Discourse creates objects of environmental knowledge and agendas for environmental action. For example, nature is made and unmade,

claimed and unclaimed, through the production and deployment of property rights discourses. Political disagreements about how to live in nature — e.g., those that divide local farmers and national officials, or those that divide environmental activists and timber company spokesmen — involve divergent discursive frameworks for understanding 'the environment' (Greenough and Tsing, 1994:95).

Different discursive frameworks may result from different understandings or assumptions of the meanings of concepts under discussion (Connolly, 1993). The result of this are numerous "essentially contestible concepts (Connolly, 1993:10)." Many of these contestible concepts occur in the use of words such as politics or democracy or participation in which a number of other concepts are nested, e.g., within any notion of politics, democracy or participation there are assumptions about freedom or individual rights, also contestible concepts. Political scientist William Connolly (1993:14) refers to these nested concepts, which are open to a variety of interpretations, as "cluster concepts."

...We often find that various people jointly employing such a cluster concept weight the importance of shared criteria differently; they might also interpret the meaning of particular criteria jointly accepted in subtly different ways; and some persons might find it advantageous to add new criteria to, or drop old criteria from, the established list, while other groups object to such moves...When one or more of these conditions prevail we have the makings of a conceptual dispute. Such disputes have undeniably arisen in contemporary life over the concept of politics...Contests persist over the proper interpretation of the partly shared idea of politics, and we might say that its very characteristic as a cluster concept provides the space within which such contests emerge (Connolly, 1993:14-15).

Often, in the analysis of the discourse of different groups, one group emerges as dominant (Peet and Watts, 1993; Edelstein, 1988; Merchant, 1993;

Schrader-Frechette, 1991). In these instances, the discourse of the dominant group contains claims to superiority, which privileges the dominant group's discourse by portraying the discourse of less dominant groups as inferior or non-legitimate. In the United States, the dominant discourse, often referred to as technocratic discourse, is based on scientific claims to objectivity and rationality (Peet and Watts, 1993; Edelstein, 1988; Merchant, 1992; Schrader-Frechette, 1991).

Inherent in technocratic discourse are assumptions that: 1. nature is composed of particles of matter (atomism); 2. the universe is a natural order; 3. knowledge and information can be abstracted from the natural world (removal of historical context); 4. problems can be analyzed in parts (reductionism); and 5. sense data are discrete (Merchant, 1992). When these assumptions, as incorporated into the scientific method, are applied to real world situations, as is the case with risk assessment, the practitioners of the method claim that resulting decisions are objective, rational, and value-free (Merchant, 1992; Schrader-Frechette, 1991; Edelstein, 1988). However, these claims are increasingly being questioned (Merchant, 1992; Schrader-Frechette, 1991; Edelstein, 1988; Greider, 1992; Brown, 1991). Analysis of the dominant group's claims to a superior rationality often reveals that "reason, in a word, is ideological (Peet and Watts, 1993:229)."

The use of the word "ideological" implies that there is no one superior understanding or rationality; rather, there are groups and individuals who share a range of concepts but share them imperfectly and incompletely (Connolly, 1993:6)." The process of adjustment, extension, resolution, accommodation, and transcendence of differences in these imperfectly and

incompletely shared concepts provides "the space for political interaction (Connolly, 1993:6)."

The language of politics is not a neutral medium that conveys ideas independently formed; it is an institutionalized structure of meanings that channels political thought and action in certain directions...

By the terms of political discourse...I refer first to the vocabulary currently employed in political thought and action; second, to the ways in which the meanings conventionally embodied in that vocabulary set the frame for political reflection by establishing criteria to be met before an event or act can be said to fall within the ambit of a given concept; and third, to the judgments or commitments that are conventionally sanctioned when these criteria are met (Connolly, 1993:1-2).

However, the space in which political interaction is allowed can be constrained when the dominant ideology is used to repress and/or subvert less privileged discourse and, in so doing, discounts the local base of knowledge (Connolly, 1993; Schrader-Frechette, 1991; Edelstein, 1988; Peet and Watts, 1993; Merchant, 1992; Greider, 1992; Bagdikian, 1990). There are "connections between rationality, truth, discourse, and the global system of power relations (Peet and Watts, 1993:229)."

These themes manifest themselves in what Peet and Watts (1993:230) refer to as "regional discursive formations."

Certain modes of thought, logics, themes, styles of expression, and typical metaphors run through the discursive history of a region, appearing in a variety of forms, disappearing occasionally, only to reappear with even greater intensity in new guises. A regional discursive formation is, however, as important for the topics and themes it allows — its absences, silences, repressed ideas, marginalized statements. In a regional discursive formation even competing notions often use the same metaphors, interpret in similar ways, perhaps even think with similar logic...We would argue that regional discursive formations originate in, and display the effects of, certain

physical, political-economic, and institutional settings, but that discursive formations grounded in material, political, or ideological power supremacies demonstrate a continual tendency to extend over spaces with greatly different characteristics and discursive traditions (Peet and Watts, 1993:230-31).

So, in Butte, I am looking at a regional discourse interwoven with often implicit understandings of the political economy of the overarching structure of capitalism¹ (Schnaiberg and Gould, 1994; Barnett, 1994; Yeager, 1991). In this context, it is important to keep in mind the economic assumptions embedded within the structure of capitalism: 1. the individual operates to maximize his utility through the exercise of individual choice (atomism); 2, individuals act after obtaining perfect information (reductionism); 3. the laws of supply and demand will always correct the system when it deviates from its natural equilibrium, the norm (the universe is a natural order); 4. taste is exogenous to the system, e.g., human choices are not influenced by the world about them (removal of context); and 5. constant growth is essential to maintain the system (Hunt, 1990). These assumptions are very similar to those underlying scientific and technocratic activities, a result of historical congruences.

Historian Carolyn Merchant (1992) traces the shift in Western philosophy and scientific thought that transformed views of the earth as alive to a commodity to be bought and sold — a transformation essential to allow large-scale mining, clearing of forests, and dumping of waste from newly constructed factories into waterways, all of which was essential for industrialization. This is not determinism. This shift in thought alone did not preordain industrialization. Other factors converged over time; other outcomes were possible.

Other factors that affirmed the shift in Western thought included the rise of Protestantism, the development of a rationalized body of science and of the scientific method, and the creation of a market economy (Hunt, 1990). The medieval sway of the Catholic Church, which had banned usury and the sale of surpluses for profit, gave way to Protestantism which allowed and encouraged pursuit and accumulation of profit (Hunt, 1990; Farganis, 1993). Currency and political systems supportive of the need for expansion of the new economic base were developed, and newly industrialized societies became characterized by the division between property owners and wage laborers (Hunt, 1990). The assumptions of classical economics, the basis of modern Western economics, were developed (Hunt, 1990).

During the seventeenth century, the socially accepted concept of a living earth was replaced by a view of nature as a machine, and science became the means to master the now-inanimate earth (Merchant, 1992). Science became the means to develop technology² which was needed to increase the new capitalists' ability to amass profits, control their workforce, and create new markets for their products (Hunt, 1990). The New World provided the resources. The Puritan belief that the taming of the wilderness was carrying out the work of God was transformed into the notion of Manifest Destiny, the idea that the new Americans were entitled by divine right to possess the continent by taking and taming the land of Native Americans (Shabecoff, 1993).

The market economy, imported from Europe, demanded surpluses to be sold or traded for other commodities, the technology to clear the land, plant the crops and raise cattle, and the permanence associated with the notion of private property to be passed onto one's heirs (Shabecoff, 1993). Helped by

federal government land grants, and urged on by railroad corporations which had been given huge tracts of land by the federal government, and the newspapers of the time, the new Americans moved west, changing the landscape to conform to the national ideal of progress and civilization (Shabecoff, 1993). These changes in turn necessitated alterations in the way the landscape was perceived by those who lived on and changed it (Shabecoff, 1993).

The economic logic of a commodity-producing system based on competition and economies of scale demanded expanded production, resulting in what sociologists Alan Schnaiberg and Kenneth Alan Gould (1994) refer to as the "treadmill of production." Schnaiberg and Gould (1994) have identified seven characteristics of the treadmill:

1. An increasing accumulation of wealth, through the ownership of economic organizations that successfully use ecological resources to expand production and products.
2. The increasing movement of workers away from self-employment, into positions of employees who must rely on expanded production to gain jobs and wages.
3. Increasing allocations of accumulated wealth to newer technologies to replace labor with physical capital, thereby generating more profits for wealth-holders, in order to sustain and expand their ownership in the face of growing competition from other wealth holders.
4. Increasing activities of governments to facilitate the expanded accumulation of wealth for national development on the one hand and social security on the other.
5. The net result of these processes is the increasing necessity for even

greater ecological withdrawals and additions to sustain a given level of social welfare.

6. The likelihood of ecological disorganization, or environmental degradation, is increased as economic pressures push toward greater extraction of market values from ecosystems.

7. Societies become increasingly vulnerable to socioeconomic disorganization as the ecological "resource base" (Schnaiberg and Gould, 1993:69) becomes more disorganized.

During the exploitation process, social and ecological systems evolve in response to exploitation of the resources, rather than in response to each other, which makes it less likely that, after stock resources are exhausted, ecological and social systems are in a position to "co-evolve" (Norgaard, 1984), to interact positively. These stock-resource exploitive development costs increase dramatically when the extractive process is enhanced by the development of technology. Resource economist Richard B. Norgaard (1984) points to losses that occur because stock resources are unavailable for later investment,³ and losses associated with returning to or accepting a less advantageous development path after the stock resource is depleted — such as the millions of dollars now being spent to clean up Butte and related Superfund sites. Because these losses, which economists refer to as "externalities," are not counted as costs within the framework of production considered by classical economics, stock resources are overused.

Economist James K. Boyce (1994:169) maintains "the extent of an environmentally degrading economic activity is a function of the balance of power between the winners, who derive net benefits from the activity, and

the losers, who bear net costs." He also argues that the greater the inequalities of power and wealth, the greater the environmental degradation. Outcomes are guided by what Boyce (1994:170) refers to as a "power weighted social decision rule," which predicts outcomes based on the winners' marginal benefits and losers' marginal costs.

...greater inequalities of power and wealth lead to more environmental degradation for three reasons: (a) the excess environmental degradation driven by powerful winners is not offset by the environmental degradation prevented by powerful losers; (b) inequality raises the valuation of benefits reaped by rich and powerful winners relative to costs imposed on poor and less powerful losers; and (c) inequality raises the rate of time preference⁴ applied to environmental resources by both the poor and the rich, by increasing their poverty and political insecurity, respectively (1994:178).

In Butte, the regional discourse represents understandings of the local, state, national, and global political economy. To address the global economy, I will use world systems theory which posits a global economy based on a world trade system with an international division of labor between the core, the rich capitalist technology-developing countries that are home to multinational corporations and value-added industries, and the peripheries, poor countries or regions, characterized by low-skill/labor intensive production and export of primary goods (W. Robbins, 1994). However, the core is not monolithic; there are peripheries within the core, for example, the state of Montana's economy occupies a peripheral position to the national core. Montana, as a resource colony, is also the periphery in the context of the global economy. The theory posits that terms of trade which are favorable to the core intensify surplus extraction and the dependence of peripheral

economies and that this economic imbalance is mirrored by a political imbalance.

The division between development and underdevelopment, between center and periphery, between the colonizer and the colonized is therefore complex, existing at several levels: national, regional, local, within segments of the local population itself; and in both intra- and interclass relations. Critical to understanding new bursts of economic growth is recognition of the evolving dialectic between changes in world capitalism and local economies (W. Robbins, 1994:15).

On its own, this theory would imply a somewhat simplistic and deterministic approach. However, when used in tandem with local, state, national, and international politics, history, and cultural understandings, it is useful as a variant of regional political ecology. What is important is that local understandings of capitalism are arrived at by both individuals and organizations in many different ways, and this results in a multitude of understandings expressed as diverse, and often conflicting, priorities. Equally important, is that many of these conflicting priorities have not been explored in Butte where many voices, opinions of people in their own words which operate outside of discursive structures, have not been heard during the cleanup process. There are possible explanations for the lack of Butte voices — among them, tacit agreement with official definitions and solutions of the problem, different priorities (Maney, 9/22/95), lack of understanding (Dennehey, 9/21/95), disinterest (Weinstock, 7/31/95; Fitzgerald, 7/31/95; Craig, 7/30/95), and socialization to a mining culture (Ray, 10/24/95; Waring, 10/21/95).

Local voices, or non-privileged discourse, may be seen as a counter-claim, as an assertion of the legitimacy of discounted forms of knowledge and/or as a form of resistance (Peet and Watts, 1993; Edelstein, 1988; Schrader-Frechette, 1991; Connolly, 1993; Milburn, 1991; Brown, 1991; Stewart, 1990; Finn, 1995). These are the voices of the periphery, voices that are heard in daily interactions. The notions of counter-claims and silences are particularly useful in looking at the process of risk assessment, newspaper presentation of contamination and cleanup, notions of public health, and the importance of local history in Butte. It is possible to consider counter-claims, silences, government agency definitions and actions, newspaper coverage, notions of public health, and visions of Butte as landscapes, as representative of peoples' relationships with the land.

The landscape concept is useful for a number of reasons. First, it keeps the focus of the study upon the interactions between the land and institutions and individuals working and living in Butte. Second, the metaphor of a social landscape has the scope to ground competing visions in the actual physical reality of Butte. And third, it provides an organizational framework. A social landscape can represent a collective local history, e.g., Butte's mining landscape as representative of economic security, economic development and profits, a contested history, or a composite of all these things. It can also represent a threat, e.g., the federal Environmental Protection Agency's (EPA) classification of Butte as a Superfund site. When a landscape is transformed from familiar background to threat, when a hometown is stigmatized as a potential danger, individuals in the community must then renegotiate their beliefs about the place or deny the reasons for the stigma label, thereby denying any risk (Edelstein, 1988; Kroll-Smith and Couch, 1991a).

The material reality of mining-related waste has always been the major constituent of Butte's landscape (Emmons, 1990; Toole, 1959,1972; Writers' Program, 1943). The new material reality, which requires new negotiated meanings, is the EPA's designation of that landscape as toxic. However, inherent in the Superfund label is the question of what that label actually means to individual residents and to the contaminated community at large. What is particularly important is how the meaning of the designation is presented to individuals in the community, e.g., the EPA presents information that quantifies and describes the contaminants, and from that data the agency develops a risk assessment that calculates the probability of illnesses that may result from exposure (Schrader-Frechette, 1991). The media also "play an important role in the social construction of risk and safety (Spencer and Triche, 1994:199)." Research into media constructions of risk and safety suggest:

...the importance of news sources, economic and political power, and a preference for monocausal frames in the social construction of news. Our results also suggest the importance of local cultural world views in defining hazards and risks (Spencer and Triche, 1994:199).

In Butte, the mining contamination has been presented as simply the legacy of the Anaconda Company's mining operations by both the EPA and the *Montana Standard*. This is a limited definition. What goes unquestioned when the contamination is presented in this way is how the Anaconda Company was able both to convey the landscape of Butte as a mining landscape, for example, the fame of Butte as "The Richest Hill on Earth"

(Finn, 1995). Also unquestioned is how the Company historically dealt with health concerns of residents (Emmons, 1990) and the ways in which this may shape health issues in Butte today. Further, this limited definition assumes that all the important implications of contamination have been addressed and put to rest. But that is not the case: what remains unexplored is any consideration of who benefits and who pays from acceptance of this definition of sole cause; and any recognition of the individual and social stresses involved in renegotiation of the landscape. Politically, the larger question this raises is whose landscape is being protected, changed, or exploited, or, as Boyce (1994) suggests, who benefits and who pays. Because the issues raised in contaminated communities may differ in many respects from other landscape changes, such as the siting of business or urban sprawl or protection of wilderness areas, I turn to a review of the literature on contaminated communities.

LANDSCAPES OF CONTAMINATED COMMUNITIES

Environmental sociologists working in communities that have experienced toxic exposures have developed a number of subfields. This research is necessarily broad on scope. It comprises eight general and tightly interwoven themes, which include:

1. structural issues embedded in the federal Superfund law (Barnett, 1994; Yeager, 1991; Greider, 1992) and environmental law in general (Schnaiberg and Gould, 1994);
2. corporate practices (Yeager, 1991; Barnett, 1994; Greider, 1992; Edelstein, 1988; Brown, 1991; Schnaiberg and Gould, 1994);
3. the institutionalized practices of government technocracies (Weber,

1996; Barnett, 1994; Yeager, 1991; Greider, 1992; Lupton, 1993; Schrader-Frechette, 1991; Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988; Freudenburg, 1993; Brown, 1991; Fiorino, 1990);

4. discursive practices (Schrader-Frechette, 1991; Connolly, 1993; Milburn, 1994; Edelman, 1964; Greider, 1992; Greenough and Tsing, 1994; Brown, 1991);

5. public health issues related to contamination (Lappé, 1991; Cortese, 1993; Hu and Kim, 1993; Edelstein, 1988; Brown, 1991; Castleman and Ziem, 1988; National Cancer Institute, 1995; Bates, 1994)

6. class and gender issues in Butte (Finn, 1995), and as they relate both to distribution of toxic exposures (Edelstein, 1988; Schrader-Frechette, 1991; Buttel and Flinn, 1978; Wolensky, 1991) and to the nature of toxic activism (Greider, 1992; Edelstein, 1988; Brown, 1991; Bullard, 1993; Chavis, 1993);

7. economic issues related to community development and natural resource use (Greenough and Tsing, 1994; Freudenburg, 1992; Norgaard, 1984); and

8. media coverage (Spencer and Triche, 1994; Bagdikian, 1990; Greider, 1992).

The following summation of the literature will provide a sense of common issues in American contaminated communities and, most importantly, will provide information to help determine the ways in which Butte is similar and different from other contaminated communities. I am using Edelstein's (1988:6) definition of contaminated community: any residential area located within the identified boundaries for a known exposure to some form of contamination. I supplement Edelstein's definitions with Finn's (1995:18) which captures the notion of process:

community is a location, subject and product of the dynamic interplay of structures and practices.

At the core of this perspective [environmental sociology] is the assumption that people construct their social identities, organize their conduct, and form associations in exchange relationships with their built, modified and biophysical environments. Thus, environmental sociology suggests that the real issue is not the empirical qualities of hazard agents per se or the concept of collective crisis occasions that is of paramount importance, but how the aversive agent, of whatever type, alters the relationship between a community and one or more the three types of environments: built, modified or natural...How, in other words, do aversive agents alter relationships between environments and communities, and how do some of these environment-community changes shape the course of social change? (Kroll-Smith and Couch, 1991b:294-95)

Although not unanimously accepted, many researchers maintain that the dynamics of exposure to toxins are very different than those associated with natural disasters, such as earthquakes, or floods (Davidson and Baum, 1991; Kroll-Smith and Couch, 1990, 1991a, 1991b; Couch and Kroll-Smith, 1991, 1994; Schrader-Frechette, 1991; Edelstein, 1988; Baum et al, 1983; Erickson, 1991).

Why do technological disasters diminish the long-term psychosocial health of victims to a greater extent than natural disasters? Perhaps it is because toxic spills, asbestos decay, or core meltdowns 'contaminate rather than damage...they pollute, befoul, taint, rather than just create wreckage and they scare human beings in new and special ways'...The primordial antipathy to the thought of being poisoned requires little commentary (Kroll-Smith and Couch, 1991a:62).

The anticipatory fears associated with toxic exposure speak to the symbolism of contamination, to the dread of poisoning. Edelman (1964:6)

notes that a symbol, in addition to representing something other than itself, also "evokes an attitude, a set of impressions, or a pattern of events associated through time...which are useful because they help in logical thinking about the situation and in manipulating it." He points to two basic types of symbols: the referential which are "economical ways of referring to the objective elements in objective situations"; and the condensation which "evoke the emotion associated with the situation."

Examples of referential symbols would include statistics, such as those used in risk assessments, and figures used in a cost-benefit analysis. Condensation symbols operate on another level — "a check of the immediate environment is missing (Edelman, 1964:6)." No example of symbol is either solely referential or condensation; however in a situation that entails controversy or conflict, the condensation symbol may take precedence (Edelman, 1964).

Practically every political act that is controversial or regarded as really important is bound to serve in part as a condensation symbol...[which] symbolizes a threat or reassurance...Because the meaning of the act in these cases depends only partly or not at all on its objective consequences, which the mass public cannot know, the meaning can only come from the psychological needs of the respondents; and it can only be known from their response (Edelman, 1964:7).

Equally useful in analyzing how the victims and agencies respond to contamination are Edelman's notions of the symbolic forms of rite and myth:

Ritual is motor activity that involves its participants symbolically in a common enterprise, calling their attention to their relatedness and joint interests in a compelling way. It thereby both promotes conformity and evokes satisfaction and joy in conformity (Edelman, 1964:16).

Although it is difficult to imagine the "joy" of a risk assessor, it is possible to consider the process of risk assessment as a ritual of referential symbol collection in the service of a common enterprise which brings satisfaction, and to think of the mutual acceptance of the meaning of the symbols, as an expression of conformity. The construction and use of myth serves to reinforce the ritual just as the ritual reinforces the myth. In the instance of contaminated communities it is possible, depending upon whose perspective is taken, to consider the technocratic activities involved in remediation as a myth constructed about human independence of the physical environment and the ability of technology to control nature (Catton and Dunlap, 1980). From the perspective of many victims of contamination, protection of human health and the environment may also be a myth (Edelstein, 1988; Greider, 1992; Kroll-Smith and Couch, 1991a, 1991b; Brown, 1991).

Kroll-Smith and Couch (1991:63) have coined the term "chronic technological disaster" to differentiate human-caused disasters from the natural. Among the most important differences between CTDs and natural disasters are those related to cause, duration, uncertainty, the quality of community support, and the nature of relief efforts (Davidson and Baum, 1991; Kroll-Smith and Couch, 1990, 1991a; Couch and Kroll-Smith, 1991, 1994; Schrader-Frechette, 1991; Edelstein, 1988; Baum et al, 1983). Equally important are the "stigma" (Edelstein, 1988), and distributional issues related to the likelihood of exposure. Researchers have found that poor and working class communities are more likely to experience CTDs in their neighborhoods or workplaces than wealthier communities (Buttel and Flinn, 1978; Greider, 1992; Chavis, 1993; Schrader-Frechette, 1991; Edelstein, 1988; Boyce, 1994;

Kroll-Smith and Couch, 1991a; Wolensky, 1991).

CAUSE

The fact that CTDs are caused by human actions, rather than occur as acts of God, colors the way in which victims respond (Davidson and Baum, 1991; Kroll-Smith and Couch, 1990, 1991; Couch and Kroll-Smith, 1991, 1994; Edelstein, 1988; Baum et al, 1983). Natural forces are generally viewed as uncontrollable; technology, controllable (Davidson and Baum, 1991; Kroll-Smith and Couch, 1990, 1991a, 1991b; Couch and Kroll-Smith, 1991, 1994; Edelstein, 1988; Baum et al, 1983).

...technology is supposed to be regulated and managed; there is a common belief that since we created technology, we should be able to control it. Further, technological accidents represent violations of expectations and assumptions about the world, and this may also contribute to a sense of loss of control...

Loss of control created by technological mishaps may have far-reaching implications. Disasters of this sort may have a wide-spread impact on confidence in technological systems in populations not directly touched by such disasters. Society at large may feel more vulnerable and distrustful of authorities who are supposed to protect them. Technological catastrophes may also create dangers which do not quickly abate (Davidson and Baum, 1991:35).

Because CTDs are caused by human action and because people assume that technology is controllable, CTDs also create a potential for long-term stress effects in victims (Davidson and Baum, 1991; Kroll-Smith and Couch, 1990, 1991a; Couch and Kroll-Smith, 1991, 1994; Edelstein, 1988). Two theoretical models suggest that assignment of responsibility for the CTD is important (Davidson and Baum, 1991). The first model posits that by assigning blame the process becomes controllable and, therefore may be averted in the future; the second is based on the notion that peoples' sense of a "just world" is

threatened by "unpredictable or uncontrollable outcomes (Davidson and Baum, 1991:37)." So, the assignment of responsibility, or blame, "may be one way that victims cope with their experiences, explain events, and regulate emotional responses (Davidson and Baum, 1991:37)."

However, research conducted at Three Mile Island up to six years following the 1979 disaster indicates that stress-related symptoms, which often include depression, are more likely to be reduced if victims blame themselves, rather than others. The rationale for the effectiveness of self-blame in stress reduction is that self-blame returns a personal sense of control (Davidson and Baum, 1991). This is problematic because, given the nature of "technological accidents," it is more likely that victims will blame others for their problems, creating social conflict and community dysfunction, and thus continue to suffer from higher levels of stress during the assessment and cleanup which are often long-drawn-out affairs, and for years afterwards (Davidson and Baum, 1991:50).

DURATION

Natural disasters generally result in a "brief moment of terror followed by an easily defined sequence of inventory, rescue, remedy, and recovery (Kroll-Smith and Couch, 1991:63)." However, CTDs frequently entail many years of testing, quantifying, and planning before cleanup begins (Kroll-Smith and Couch, 1991a; Erikson, 1991; Edelstein, 1988).

CTDS tend to trap a portion of a population in the warning and threat stages, freezing them in extended periods of apprehension and dread...Long-term exposure to warning and threat, particularly when it is unevenly distributed throughout the population, places severe demands on the coping resources of a population (Kroll-Smith and Couch, 1991a:63).

The longer the duration of the "warning and threat stages" and "the more those stages become institutionalized,...the greater will be the toll on the affected populations (Kroll-Smith and Couch, 1991:63)."

UNCERTAINTY

Unlike natural disasters such as tornados, earthquakes and floods, which leave visible signs of destruction, contamination is often invisible (Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988).

...because the effects of human-caused disaster may not be readily visible, not only is the occurrence subject to differing interpretations, but key decisions (e.g., regarding testing, protective measures, and remediation) may be based on those interpretations. Therefore, consensus about the cause, course, and possibly outcomes of the crisis is less likely than with natural disaster. Furthermore, because there may be no visible damage, each family is forced to make its own determination of the significance of the contamination. The lack of shared beliefs about what has happened opens the way for conflict within the community and between the community and potential helpers...(Edelstein, 1988:7).

The uncertainty about the implications can devastate a community (Kroll-Smith and Couch, 1990, 1991a; Davidson and Baum, 1991; Edelstein, 1988; Brown, 1991) by undercutting any shared notion of an "objective reality" which often results in "different claims about danger (Kroll-Smith and Couch, 1991a:63)."

Subjectivity is related to uncertainty. People facing the threat of chemical contamination or asbestos poisoning live in a chronic threat of contingency loss. The greater the degree of contingency or uncertainty, the greater the need to construct symbolic claims of the scope and the seriousness of the threat...Several studies suggest that these symbolic claims 'may be more important in determining chronic stress and mental health effects than is the actual threat or danger

posed' (Kroll-Smith and Couch, 1991a:63).

It is not unusual to find a contaminated community torn apart by conflicting claims about the nature and extent of the risk presented by toxins (Kroll-Smith and Couch, 1990, 1991a, 1991b; Erickson, 1991; Brown, 1991; Schrader-Frechette, 1991; Edelstein, 1988; Greider, 1992).

THE QUALITY OF COMMUNITY SUPPORT

In addition to conflicts related to uncertainty about the impact of the contamination, the ability of the community to respond is often constrained because the problems related to contamination are so complex that communities must rely upon state or federal agency resources (Kroll-Smith and Couch, 1990). The technical activities begin with an assessment of risk — this is where the uncertainties often result in conflict.

Because appraisal is a subjective analysis, varied interpretations of a given event are likely. While some systems take a threat seriously, others may engage in defensive avoidance. Factors affecting appraisal include the beliefs of the appraiser, the knowledge of the threat, the threat's visibility (e.g., amount and kind of publicity), and the significance of the threat.

Once a threat is perceived as legitimate, the affected system may be forced to continue its existing practices. Thus, for example, most toxic victims remain in their homes despite concerns over risk of continued exposure. Some victims will cope with this imbalance...by engaging in a form of denial (Edelstein, 1988:13).

The divisions in the community related to uncertainty also act to undercut community support for victims. Kroll-Smith and Couch refer to symbolic constructions of danger as "threat belief systems," and note that beliefs "which are internalized" and "located deeper in the psyche than perceptions" are "far less easily modified" than perceptions (1991a:63).

The tenacity of beliefs is explained in part by the fact that they are social phenomena. While perceptions issue from sensory stimuli, beliefs are constructed in conversation, among people who agree that the world or a portion of it is sacred, safe, dangerous, worthy of trust or distrust, and so on...Collective agreement strengthens the hold beliefs have on believers. Perceptions are much more private matters, easier to revise; to violate a belief, however, is to risk censure and disapproval. Thus, embedded in beliefs is a moral claim on believers. They are required to emote and behave in ways consistent with the social reality symbolized by the beliefs (Kroll-Smith and Couch, 1991a:63).

In the uncertainty created by toxic exposure, communities are often divided into "believers," who "are more likely to have had uncommon health problems and other direct experiences that they had related to chemical exposure," and "non-believers," who "had fewer direct impacts from chemicals and relied on their own limited experience and that of close acquaintances (Edelstein, 1988:48)." The clash between believers and non-believers can become intense, as individuals seek out people with similar beliefs to form support networks (Kroll-Smith and Couch, 1990, 1991a; Brown, 1991; Greider, 1992; Edelstein, 1988).

What emerges are competing views of the same local world; it is dangerous and uninhabitable; you should be concerned; no, the environment is safe and habitable; you should get control of yourself.

Phenomenologists refer to this type of cognitive conflict as 'reality disjuncture' and suggest that it can be the source of considerable psychosocial stress...The social validation necessary to affirm the individual's trust that the world is as he or she sees it is transformed into a source of conflict. The very nature of claims-making activity ensures that the conflict is not over whatever verifiable information is available about the hazards. Rather, the dispute is between people who perceive their antagonists as able but unwilling to cooperate in a 'realistic' and 'justifiable' definition of the threat (Kroll-Smith and Couch, 1991a:65).

There is no "painless way out" of toxic exposure situations (Edelstein, 1988:93)

Denial allows for a psychological balance to be maintained but does not address the external risks. Action involves recognizing the risk, a frightening prospect in its own right (Edelstein, 1988:93).

Research indicates there is a narrow latitude in which messages divergent to a person's beliefs may actually act to alter those beliefs, and the more strongly held the belief the narrower the latitude of acceptance for divergent messages (Milburn, 1991). On a community level, that narrow latitude may be further reduced because believers may be viewed as threats to local property values or jobs (Kroll-Smith and Couch, 1991a; Edelstein, 1988). Frequently the corporate polluter "appears to receive less than its share of blame," and, as was the case of Hooker Chemical at Love Canal, the community's "anger and blame may be modified when the polluter is a major source of employment (Edelstein, 1988:80)."

Hooker was also active in trying to minimize public concern over health threats. Interestingly, while efforts by the state health department to allay panic met with public anger, Hooker was not similarly vilified... (Edelstein, 1988:80).

Another principal employer, Dow Chemical in Midland, Michigan, took a similar approach when dioxin contamination was discovered. The company "actively managed public perception of its responsibility," stressing "the minuteness of the quantities of dioxin found," producing a brochure called "The Truth About Dioxin," and maintaining the community "was a better,

healthier place because of the corporation (Edelstein, 1988:80)." Despite indications the corporation previously had lied about dioxin and secretly edited a key EPA report, "many residents firmly backed the corporation (Edelstein, 1988:80)." Corporate ability to deflect public anger can have an adverse affect on government agencies working in the community — although victims may excuse corporate behavior, they view government as the agent to protect them, as the source of accurate information, and as the regulator of corporate behavior (Edelstein, 1988; Greider, 1992). Therefore, the anger in the community is often directed at the government agency that is mandated to help (Edelstein, 1988; Kroll-Smith and Couch, 1991a; Greider, 1992).

THE NATURE OF RELIEF EFFORTS

In a natural disaster relief efforts tend to focus on humanistic activities, e.g., providing shelter, food, and medical supplies for affected citizens; in CTDs relief efforts are technically designed to dispose of the contaminant (Kroll-Smith and Couch, 1991a). The situation is further compounded by the technocratic tendency "to define chronic technological disasters as engineering puzzles rather than as human or social problems, and to assign to technical agencies the lead role in managing the crisis. The engineers and other specialists who staff such agencies are used to tackling technological, not human, problems... (Kroll-Smith and Couch, 1990:29)." Victims, who very understandably have an emotional reaction to their exposures, are not reassured by engineers who are speaking a very different language and addressing a very different set of concerns (Edelstein, 1988; Brown, 1991; Kroll-Smith and Couch, 1991a; Greider, 1992). One of the prime directives of government agencies working in contaminated communities is to avoid

panic (Edelstein, 1988; Kroll-Smith and Couch, 1990, 1991a, 1991b; Brown, 1991; Schrader-Frechette, 1991). The federal Superfund law, CERCLA (the Comprehensive Environmental Response, Compensation and Liability Act of 1980), one of three federal laws that regulate hazardous materials, directs EPA action in contaminated communities.⁵ The EPA defines hazardous waste as "either toxic, corrosive, ignitable, or reactive materials which can be transmitted through all environmental media — air, water, biota, and land (Hird, 1994:5)."

The Superfund law is premised on the notion that the polluter pays. In the language of the law, potentially responsible parties are identified by the federal EPA and ordered to pay for the cleanup of sites the EPA has placed on the National Priorities List. However, there are "limits to the law," (Yeager, 1991) the result of the political economy in which the law operates (Yeager, 1991; Barnett, 1994; Schnaiberg and Gould, 1994). Unresolved is the inherent tension between environmental protection and the needs of an overarching economic system predicated on profit and accumulation (Schnaiberg and Gould, 1994; Yeager, 1991; Barnett, 1994). Social regulation is forged from a conflict between the corporate drive for profit and the public insistence that it be protected from the pollution that results from industrial production (Schnaiberg and Gould, 1994; Yeager, 1991; Barnett, 1994; Greider, 1992). Thus, there is a tension between maintaining the existing social order while, at the same time, maintaining the legitimacy of the state in the eyes of those being governed. To juggle both contradictory goals, regulation is intended to order the inherent conflict and channel it through interactive decision-making bodies: legislature, administrative agencies, and the courts (Barnett, 1994).

Regulation therefore allows a perpetuation of conflict. The resulting system embodies contradictions and promotes neither efficiency nor equity (Barnett, 1994:48).

Within context of the Superfund law, this conflict manifests itself as disputes over who will pay the toxic debt and the impact of this conflict on interdependent funding and enforcement (Barnett, 1994). Because cleanup costs are high, interested parties exercise political and economic power to affect regulatory outcomes. In the case of Superfund, industry can use "significant economic resources" to delay implementation by challenging federal and state agencies in court while simultaneously using "significant political power" to appeal to the White House and influence Congressional oversight (Barnett, 1994:47). When the public agrees that the "polluter pays," but, in reality, the action taken is symbolic and the cost is actually socialized, distributional outcomes must be hidden, so "public perceptions must be manipulated (Barnett, 1994:47)." This manipulation has occurred in the financing of the Superfund program through a feedstock tax, which is actually paid by consumers, and in the arguments that Superfund sites are not a serious threat to human health (Barnett, 1994). Additionally, poor regulatory outcomes are frequently blamed on bureaucratic inefficiency or too aggressive and accommodative regulators, rather than on inadequate funding. However, inadequate funding provides too superficial an explanation of government agencies' activities (Barnett, 1994; Yeager, 1991; Schnaiberg and Gould, 1994).

Agencies, such as the EPA, are caught in the middle of the unresolved private/public conflict (Barnett, 1994; Yeager, 1991; Schnaiberg and Gould, 1994). To negotiate this dangerous territory, agencies minimize the

political opposition of regulated industries by embodying legal mandates into "a series of apparently neutral, technical decisions (Yeager, 1991:40)." The result is that decisions are made on the basis of limits imposed by the law, e.g., amounts of specific substances that trigger action versus amounts of the same contaminant that are viewed "acceptable," as well as technical requirements and feasibility and cost-benefit analysis (Yeager, 1991; Barnett, 1994). The technocratic approach has serious implications: first, it limits discourse about contamination; and second, reliance upon cost-benefit analysis both asserts the importance of private production over the public interest, and places legally prohibited corporate conduct in the realm of moral ambivalence, thereby constraining the condemnation necessary to the deterrent effect of law (Yeager, 1991). This creates additional tensions because many victims of contamination view their plight in a larger context than that used by technocrats and, often, victims' concerns are framed in the language of moral outrage (Kroll-Smith and Couch, 1991a; Edelstein, 1988; Schrader-Frechette, 1991; Greider, 1992; Brown, 1991; Clarke, 1991).

These tensions frequently surface as the conflict between competing belief systems: technocrats believe that the contaminants and their potential impacts are measureable, and that these measurements are sufficient to both identify the risk and design a cleanup, or remediation, plan; victims tend to look to issues of ethics, justice, and the immeasurable implications, such as future illnesses and impacts upon future generations (Edelstein, 1988; Schrader-Frechette, 1991). The Superfund law mandates that the EPA consider long-term effectiveness, reduction of toxicity, mobility, volume of contaminants, short-term effectiveness, implementability and cost; once this is done, the agency must consider state and community acceptance of a

cleanup plan (Hird, 1994). To mediate these often conflicting criteria, the agency relies upon risk assessment which is predicated on the notion that defensible "hard science" will provide an objective basis for decision (Edelstein, 1988; Kroll-Smith and Couch, 1991a, 1991b; Schrader-Frechette, 1991; Lappé, 1991; Greider, 1992; Brown, 1991). However, objectivity is likely impossible because "victims are not the only people who construct their reality socially; we all do, even those of us who call ourselves scientists (Kroll-Smith and Couch, 1991a:65)." The dichotomy between the "objectivity" of the risk assessor and the "subjectivity" of the victim is difficult to justify (Schrader-Frechette, 1991). It "is incompatible with formulation of any scientific theory or analysis to explain causal connections" because during the development of theory or analysis, value judgments must be made, e.g., the process entails the use of normative evaluative criteria in the selection of options (Schrader-Frechette, 1991:43).

The real issue is whether an evaluation is normative in a way that is misleading, incomplete, question begging, or implausible...risk assessment can be objective and testable, but not wholly value free (Schrader-Frechette, 1991:45-46).

Critics of risk assessment typically focus upon the reductionist and exclusionist nature of the risk assessment process, as currently utilized (Edelstein, 1988; Kroll-Smith and Couch, 1991a, 1991b; Schrader-Frechette, 1991; Lappé, 1991; Greider, 1992). There are other grounds for criticism. Risk assessors are inclined to underestimate risk probabilities because many assessments are conducted by assessors closely associated with the technology under evaluation so are sympathetic both to the technology and to those

implementing it, and because it is extremely difficult to identify all the possible risks, assessors generally "assume unidentified risks are zero (Schrader-Frechette, 1991:134)."

In many contaminated communities, the risk assessment process has become the focus of conflict between victims of exposure and government officials (Edelstein, 1988; Kroll-Smith and Couch, 1991a, 1991b; Greider, 1992; Brown, 1991; Clarke, 1991). Victims often question what they see as arbitrary threshold limits, e.g., under legally established threshold limits it is possible that one family's home will be subject to cleanup action while the home of the family next door which may have five parts per billion less of the same contaminant is not (Edelstein, 1988). Victims ask for explanations of illnesses in their neighborhoods that they associate with exposure (Kroll-Smith and Couch, 1991; Brown, 1991; Edelstein, 1988; Greider, 1992). They fear future health effects and the impact on the next generation (Kroll-Smith and Couch, 1991a; Edelstein, 1988; Greider, 1992). However, the EPA, which is oriented toward technical solutions, has few physicians on its staff to address these concerns (Yeager, 1991). So, once the threat has been discovered and disclosed, beyond technical explanations, "government is unable to provide further clarification (Edelstein, 1988:77)." Victims, often angry because their questions are unanswered, may become suspicious of government (Edelstein, 1988; Greider, 1992; Brown, 1991; Kroll-Smith and Couch, 1991a). This suspicion is often intensified by agreements (orders of consent) that government officials reach with polluters, which are viewed as representing the polluter rather than victims (Edelstein, 1988). Accusations that government officials have not remedied the problem, that citizens' concerns have been ignored are frequently the result of these deepening suspicions

(Edelstein, 1988; Schrader-Frechette, 1991).

The result is an "expert-judgement strategy," (Schrader-Frechette, 1991:78) the belief that risk can be reduced to some characteristics which can be determined only by experts or that experts only are capable of distinguishing between "actual" rather than "perceived" risk. The strategy also manifests itself in the assessors' presupposition that a technological risk is defined purely in terms of measureable physical impact even though social impact includes "increased trauma or decreased civil liberties" as part of the risk itself (Schrader-Frechette, 1991:78). The resulting conflict between experts and victims is further intensified because the Superfund law confines public participation to attendance at meetings and comment on government proposals — limitations which often anger victims (Fiorino, 1990; Greider, 1992; Schrader-Frechette, 1991).

There are a host of problems with risk assessment as currently practiced (Lappé, 1991; Schrader-Frechette, 1991; Edelstein, 1988; Brown, 1991). In terms of public health issues related to exposure, the risk assessment process overlooks synergies, relies upon thresholds which imply beneath a certain exposure level there is no health risk, and has insufficient information about many of the chemicals found at Superfund sites (Lappé, 1991). Additionally, final risk assessment figures are probabilities only; not a guarantee of illness or health (Cortese, 1993). Further, research into the historical development of workplace threshold limit values (TLVs), the standards beyond which people should not receive exposure, indicates a questionable level of corporate influence on the development of these standards (Castleman and Ziem, 1988). Also, in their attempt to avoid panic, government officials may withhold information from the public (Brown, 1991; Edelstein, 1988) which only

intensifies victims' suspicion that their plight is more serious than officials are willing to acknowledge.

Even when government agencies determine that contamination poses a public health threat, victims find it difficult to prove their illnesses are related to exposure (Lappé, 1991; Brown, 1991; Cortese, 1993). Statistics may prove that a particular illness is associated with or correlated to a contaminant in the neighborhood, however a correlation does not constitute causality (Bates, 1994).

In terms of the strength of an association, it is true that the stronger it is, the better evidence it provides toward causality. However, such factors as poor exposure measurement..., variability in outcome..., or the fact that we are studying multifactorial disease (such as asthma), all will act to weaken what might otherwise be a strong association. In other words, unless exposure and outcome are well characterized, we cannot dismiss a 'weak' association as necessarily representing reality (Bates, 1994:62).

To victims who see a pattern of illness in their neighborhoods, the distinction between association and causality is arbitrary (Brown, 1991; Greider, 1992). Public skepticism of this sort resulted in the first case of what has since become known as lay or popular epidemiology in Woburn, Massachusetts (Brown, 1991). Popular epidemiology is a "process by which lay persons gather scientific data and other information, and also direct and marshall the knowledge and resources of experts in order to understand the epidemiology of disease (Brown, 1991:135)." Because the public considers public health in a much broader context than experts, popular epidemiology tends to be far more inclusive than professional epidemiology.

Popular epidemiology takes into account social structural factors, involves social movements, utilizes political and judicial approaches to remedies, and challenges basic assumptions of traditional epidemiology, risk assessment, and environmental regulation (Brown, 1991:135).

Popular epidemiology, which consisted of intensive surveying conducted by residents in Woburn, also provides a way to research medical information about possible exposure effects, information which is often difficult for victims to obtain (Edelstein, 1988; Cortese, 1993; Lappé, 1991). Some members of the medical profession (Lappé, 1991; Cortese, 1993) maintain that environmental degradation poses a serious threat to public health.

The physical environment is the most important determinant of public health...[and] protection of the environment and preservation of ecosystems are, in public health terms, the most fundamental steps in preventing human illness (Cortese, 1993:1).

Yet, physicians working in contaminated communities often lack the training to answer their patients' questions about toxic exposure (Cortese, 1993), so victims' concerns are often dismissed by their family physicians (Edelstein, 1988). The victims' medical problems thus become a personal "trouble" rather than a social problem (Edelstein, 1988). The privatization of a public problem results in the failure to acknowledge or address the public problem. Popular epidemiology may provide a basis to to acknowledge that public health impacts of contamination are a public problem and to challenge the official failure to address the issue (Brown, 1991).

STIGMA

However, whatever route victims may take to challenge government

determinations of the problem or cleanup plans, they are bound to encounter some resistance within their communities (Kroll-Smith and Couch, 1991b; Edelstein, 1988). Some of the resistance is the result of the uncertainty of exposure effects which is open to different interpretations (Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988); some is related to the stigma attached to contaminated communities (Edelstein, 1988). The community within the boundaries drawn by government officials is stigmatized by the contamination, it is marked as "deviant, flawed, spoiled, or generally undesirable (Edelstein, 1988:14)."

When the mark is noticed, it changes in a negative and discrediting way how the observer sees the victim, whose identification is now spoiled. And because we tend to assume that people deserve what happens to them, stigma readily invites a tendency to blame the victim (Edelstein, 1988:14).

The contaminated community becomes both a place to avoid and the source of "anticipatory fears (Edelstein, 1988:14)." Thus, victims tend to see themselves differently:

...in part, because they fear dreaded health impacts such as cancers, threats to unborn children, and cross-generational genetic effects. Victims also discover that others see them differently as well. Their homes and neighborhood are downgraded by observers who exhibit 'anticipatory fears' about the place.

Anticipatory fears are perceptions of threat associated with future outcomes that are connected casually to current happenings (Edelstein, 1988:14).

During the process of mobilizing to challenge official definitions of the problem and/or official plans to remedy that problem, activists must take

their concerns into the public arena (Edelstein, 1988; Brown, 1991; Greider, 1992). This often brings them into direct conflict, not only with the government officials they challenge, but with members of their own community (Edelstein, 1988; Brown, 1991). A common result of stigma associated with the label of contaminated community is reduced property value and difficulty in selling property within the boundaries of contamination (Edelstein, 1988).

...real estate agents often aggravated already high tension by reminding residents that it was community-generated publicity that had given Legler its bad name. This was truly a dilemma; without publicity, residents had no means of pressuring government for assistance (Edelstein, 1988:67).

So victims are trapped in a double-bind: to ensure that possible health effects of exposure are addressed they must take their case to the public; yet, in so doing, in addition to exacerbating tensions within their community, the publicity they generate often makes it harder for them to sell their own homes and relocate. Unlike the corporations often responsible for the contamination, most victims do not have the financial means to abandon their property, take a tax loss, and relocate to a presumably safer place (Greider, 1992; Edelstein, 1988). Instead, victims are trapped in a situation they believe to be dangerous to their own and families' health.

DISTRIBUTION

Although not universally accepted, many researchers report that toxic exposures are correlated to income and race: the poorer, and often, less white the community, the more likely it is to be exposed to contamination (Chavis, 1993; Greider, 1992; Bullard, 1993; Buttel and Flinn, 1978; Wolensky, 1991).

Further, many communities with existing pollution may be viewed as good candidates for more polluting industries (Bullard, 1993). The reasoning for this is circular: better to site such an industry in an already contaminated community than to place a pristine community at risk (Bullard, 1993; Greider, 1992; Edelstein, 1988). Also problematic is that communities with pollution may be less sensitive to the impact of additional polluting industries (Bullard, 1993; Greider, 1992; Schrader-Frechette, 1991). Activists in these contaminated communities have become known as the environmental justice movement which consists, primarily, of grassroots groups (Bullard, 1993; Chavis, 1993; Greider, 1992; Freudenburg, 1993). Many of these groups have been accused of suffering from the NIMBY, Not In My Back Yard, syndrome (Bullard, 1993; Greider, 1992; Freudenburg, 1993). Members reply that they are fighting to keep poisons out of everyone's back yard (Bullard, 1993; Greider, 1992). These groups have been the subject of much research, primarily focused upon the risk beliefs of members (Freudenburg, 1993). The majority of the research stemmed from examinations of differences between expert and lay risk judgments, which, experts charged, were the result of lay ignorance and irrationality (Freudenburg, 1993).

However, sociological studies have demonstrated "repeatedly that ignorance and irrationality are not the significant issues," so it is time to consider both the "nature of 'rationality' and the risk-related implications of the social division of labor (Freudenburg, 1993:913)." As technological approaches become more and more elaborate, the very real possibility of risk associated with system failure becomes an issue (Schrader-Frechette, 1991; Freudenburg, 1993). Sociologist William Freudenburg (1993:915) uses the

term "recreancy" to address the possibility that the intricate division of labor in technocratic bureaucracies "may increase societal vulnerability to cases when duties are not carried out properly — whether the 'fault' is one of individual actors or of a broader system in which important responsibilities may fall through the institutional cracks."

Research indicates that technocratic charges that public concerns about toxic waste facilities or other land uses deemed undesirable by a community are based in "ignorance/irrationality or of undesirable selfishness" cannot be supported (Freudenburg, 1993). Research further indicates often citizens, rather than authorities, discovered problems related to contamination (Freudenburg, 1993). Also, studies have shown that citizen activism is generally a response to government inactivity or failure which is an important part of recreancy (Freudenburg, 1993). Much of the literature (Edelstein, 1988; Brown, 1991; Greider, 1992; Freudenburg, 1993) reflects this type of recreancy. The possibility of recreancy could be very important in Butte where controls will be implemented to monitor land use in areas where contamination will remain (Weinstock, 7/31/95; Craig, 7/30/95; ARCO/Butte-Silver Bow, 1993).

Researchers point to the possibility of social change in contaminated communities (Wolensky, 1991; Wenger, 1978; Kroll-Smith and Couch, 1991a; Greider, 1992; Chavis, 1993; Bullard, 1993; Cable and Walsh, 1991; Brown, 1991). The thesis will consider this possibility in Butte.

The following chapters will examine the specifics of Butte in relation to the general themes of the literature, pointing out those instances where Butte differs and the possible implications of those differences.

¹ This paper considers capitalism because that is the structure of the American economy; this is in no way to indicate that contamination does not occur in other economic structures. Clearly, the documented pollution in Eastern Europe indicates that state socialism has been no kinder to the environment or more protective of human health than Western industrialized capitalism. The commonality between the two systems is very likely a belief in the Human Exemptionalist Paradigm (Catton and Dunlap, 1980).

² For the purposes of this thesis, the definition of "technology" will be that of Jacques Ellul (1991): technology is not merely machinery or equipment; it includes the assumptions of rationality and manipulation, as well as a hierarchy of technocrats to ensure both continued development of new technology and proper applications of existing technology.

³ These costs are what economists refer to as "opportunity costs," the net benefit that has been foregone because the resources used can no longer be used for their next beneficial use.

⁴ Boyce (1994) defines time preference in terms of "the willingness to trade present benefits (or costs) for future benefits (or costs). People with a higher rate of time preference place greater weight on the present." (176) Environmentally degrading activities often generate short-term benefits and long-term costs (Boyce, 1994; Greider, 1992; Yeager, 1991; Schnaiberg and Gould, 1994).

⁵ The other two laws are the federal Toxic Substances Control Act, which regulates the introduction and use of new hazardous chemicals, and the federal Resource Conservation and Recovery Act, which regulates disposal of hazardous wastes into the air, water and land, and imposes a system to track all hazardous wastes (Hird, 1994).

THE CONTESTED TERRAIN OF BUTTE

Some 80 to a 100 million years ago, propelled by gigantic shifting plates and vast cauldrons of steaming lava, the Rocky Mountains groaned up through the earth's trembling crust. The massive eruption was followed by the emergence of enormous seas, lakes, and swamps which, two million years ago, disappeared in a frigid flow as boulder-strewn glaciers from Canada crept south, scouring the newly-formed landscape. Four times the ice cap advanced and receded, leaving giant folds of earth, U-shaped valleys and stony cirques, horns, and aretes in its wake. This is Montana – the product of almost incomprehensibly powerful subterranean geologic forces (Malone et al, 1993).

Butte, Montana balances on granite rocks from the Boulder batholith, a massive body of plutonic rock, formed of fire, then cooled. The batholith destroyed and melted much of the structure it invaded, leaving giant fractures and faults, and minerals. In the upper 100 to 200 feet of weathered bedrock it left deposits of copper and other metals — in time, this legacy brought Butte into existence (USEPA, 12/15/93).

Historian K. Ross Toole (1959) maintains that the bounty that resulted from these violent vagaries of nature – huge tracts of conifers populated by fur-bearing animals, seemingly never-ending plains darkened for miles by bison herds, and massive mineral deposits – preordained Montana's development pattern as a "colonial economy."

Nature, not the evil designs of men, decreed that Montana be a place with a colonial economy. The object of men had to be to trap it, mine it, shoot it, and get out. Every one of the salient industries has been extractive, from beaver through beef to copper. The capital required for frantic exploitation, whether of furs, cattle, silver, lumber, or copper, had to come from the East and as Eastern capital flowed westward, control and the bulk of the wealth flowed eastward (Toole, 1959:9).

Although Toole's work chronicles, and is critical of, the state's treatment as a resource colony, he treats Montana as if it were an exception, singled out for its unique characteristics, as a land of promise (W. Robbins, 1994).

Historian William G. Robbins (1994:4) refers to this focus of "attention on the evolution and expansion of the nation-state and on the positioning of the West within an insular ideological context," as an "exceptionalist tendency."

The focus is problematic because it leaves unquestioned the fact that "like other empires before it, the United States has generated a series of legitimizing myths to sanction its push to the western sea," (W. Robbins, 1994:4) leading to the notion that somehow the American culture stands "apart, independent and unique from the experience of other nations (W. Robbins, 1994:5)."

Although the exceptionalist theme is recurrent in studies of American history, it is especially and most glaringly obvious in interpretations of the American West...in what has become the great American myth, it was above all the promise of the West that loomed largest; for it was there that people would find the answer to their quest for a better life. Reality, in that special sense, was less important than the symbols through which people perceived a larger design; indeed, in that scheme, symbol and myth passed for reality. In an approach that has been called a "triumphalist literature," the easy virtues of drama served as a substitute for explanation and interpretation.

A more inclusive understanding of Western America rests in the ability to grasp the full meaning of capitalism: the set of values and perceptions associated with that phenomenon, its structural framework as expressed in social and political relations, and its pervasive reach through American life... (W. Robbins, 1994:6-7).

Toole leaves unquestioned how it came to be that Montana was seen as a place to "trap it, mine it, shoot it, and get out." Toole's statement assumes that, given Montana's natural resources, no other development path was

possible; that is not the case. It is true that development patterns in a capitalistic system turned Montana into a resource colony, however Toole presents his history as a struggle for equitable distribution of profits rather than questioning if there were another alternative. He assumes the model of capitalism was inevitable. It is also true that the development path taken assumed that man, as the master of the earth, will control the natural world with new technologies created through applied science (Merchant, 1992). However, mankind did not always look at the earth through that lens of mastery, nor was such a shift in thought an inevitability.

A number of factors — among them, a new vision of the earth as inert (Merchant, 1992), the development of protestantism which encouraged the accumulation of wealth and search for profits (Hunt, 1990), the emergence of a rationalized body of science incorporated into the scientific method which stressed objective, value-free, ahistorical, and reductionist knowledge (Merchant, 1992), and the development of a free-market system of economics (Hunt, 1990) — combined to create a worldview that fostered the creation of Montana as resource colony.

The state's resources were discovered in the mid-nineteenth century. By mid-1862, the gold mines of California, Nevada, and Colorado were in decline, prospectors had made new discoveries along the western slopes of the Rockies in Idaho, and the new Mullan Road provided an established route to the Idaho mines; four years later Montana was the second largest United States gold producer; only California produced more (Malone et al, 1993). Little technology was needed – miners had only to pan along streams to find the placer gold that the combined forces of time, wind, glacial ice, rain and chemicals had eroded from large veins of ore and swept, in the form of

dust, flakes, or nuggets, into streambeds (Malone et al, 1993). After the short-lived placer gold rush, the boomtown of Silver Bow City, was almost deserted — just 241 of its 5,000 people were left (J. Robbins, 1994).

But Butte's future did not rest on gold. Some thought that silver was the key to Butte's future (Malone et al, 1993). Federal government policies, designed to facilitate the "opening up" of the West, greatly enhanced mining in Butte. By 1876, stimulated by the arrival of the railroad in western Montana in the first three years of that decade, and by passage of the 1872 federal Mining Law, silver mines were beginning to produce in Butte. Montana's silver boom drew wealthy investors who began to dominate the scene (Malone et al, 1993).

The federal Mining Act was an open invitation to miners to stake their claims. Among the encouraging provisions: the granting of "a right to mine"; a miner's right to say a claim has been made and tie up the land from further use by other miners, public users, and the United States government; the right of the miner to use the property fully as long as the use is "reasonably incident to mining," which has been interpreted to mean the right to construct a home, cut timber, graze cattle, and divert water; the creation of a constitutionally protected property right that exists from the moment a miner makes a discovery; the inability of the federal government to withdraw lands from mining use unless the government pays a miner with a patented claim the value of the mineral rights and the land; and the lack of a restriction upon the number of claims that can be accumulated by an individual or corporation (Wilkinson, 1992). For \$2.50 a placer miner could stake a claim; for \$5.00, a quartz miner — the fees have never been increased (Wilkinson, 1992).

In 1872 William A. Clark came to Butte (J. Robbins, 1994). Four years later, Marcus Daly arrived to assess silver properties for Salt Lake mining investors (Malone et al, 1993). Daly brought to Butte both the technology to mine silver and the first outside capital and expertise (J. Robbins, 1994). Because quartz mining, unlike placer mining, required corporate organization and capital, it fostered the banking and legal professions (Toole, 1959). And quartz mining created a host of new industries – the mines' need for timber created the timber industry, processing requirements brought forth stamp mills and reduction plants, shipping required roads. In addition to miners, the companies needed support personnel (Toole, 1959).

In 1880, New Yorker Michael Hickey, who had named his Butte company after the giant anaconda snake, sold the property to Daly. In search of desperately needed capital for expansion, men such as William Andrew Clark, Samuel T. Hauser, Marcus Daly, and others regularly visited cities in the East or Far West. More and more, policy decisions were made by investors with no knowledge of Butte or Montana (Toole, 1995). By 1883, the Montana territory was the second largest supplier of silver, a position it held until the mid 1890s. But the global market for silver was unstable, largely because so much of the silver went to the manufacture of coins used as currency. World silver prices rose and fell on government monetary policies (Malone et al, 1993). In 1893 a severe economic depression wreaked havoc on the silver industry. Convinced that the national silver purchase program was the major cause of the depression, President Grover Cleveland prevailed upon Congress to repeal the silver purchase act, ending mandatory government purchase of the metal.¹ The economies of mining states were devastated by falling silver prices (Malone et al, 1993).

Butte, however, had more than silver to mine – it had vast copper deposits. After 1893, copper became the most important product of Butte's mines. The invention of incandescent lights and the telephone created a need for copper wire to criss-cross the rapidly industrializing country. Thomas Edison's pioneer plant alone used 128,793 pounds of copper for wiring and equipment (Marcossen, 1957). In 1881, the Union Pacific railroad tracks arrived in Butte (J. Robbins, 1994). Butte was here to stay.

In addition to large capital investments, copper mining needed a stable work force. Butte promised a fair living and job stability. Miners came in droves. By 1895 Butte's 6,400 miners took home \$640,000 each month for their part in producing more than one-quarter of the world's copper (Emmons, 1990). They worked in the Alice, Glengarry, Mountain Con, Bluebird Trail, Orphan Girl, Anselmo, Original, Lexington, Travona, Neversweat, Nipper, Rarus, "Wake up Jim," and Badger State Mines. They lived in Dublin Gulch, Seldom Seen, Nanny Goat Hill, Chicken Flats, and Dogtown. They drank in The Alley Cat, Open-All-Night, Bucket of Blood, Big Stope, Graveyard, and Pay Day. (Writers' Program, 1943) They answered to Buckets, Paddy the Duck, Goggle-eyed Tom, Danny the Dawg, Two-Bit Billie, and Swede Murphy (Duffy, undated).

These colorful characters created a brawling wide-open anomaly – a city distinctly eastern in its immigration population, Catholicism, politics, and industrialization scrambling up a remote Western mountain. They were serviced by saloons and what was reputedly the largest red-light district in the West (J. Robbins, 1994). Their stories have entered the realm of popular mythology, creating a history that is larger than life (Writers' Program, 1943). As Butte developed, the only commonality between the brash city and the

rural state was found in their weather and newness, historian David Emmons (1990:62) notes:

There was no congruity between the city and the state, little sense of a common past and even less anticipation of a shared future.

Butte would pay a price for its differences with the rest of the state. Perhaps the most immediate price was Butte's isolation from the rest of the state, combined with a largely immigrant population with no firm sense of American social reality, which gave the Anaconda Company and other major mining companies a free hand to construct the type of community most helpful to their interests (Finn, 1995; Emmons, 1990). It was the Irish who acknowledged, and celebrated, their differences from the rest of the state by referring to their home as "Butte, America (Emmons, 1990)." Other difference-related problems would surface later in Butte's history.

Butte was exploding. From the Flats at 5,400 feet above sea level north up the steep incline of Butte Hill to Walkerville at 6,500 ft, tiny miners' homes crept up the hill, huddled together against the cold and wind. On the west end of town, the men who came to be called the "Copper Kings" constructed mansions of brick, stained glass, and turrets in Eastern fashion. The changes were fast and furious. The national need for copper was voracious (Malone, 1995; Emmons, 1990; J. Robbins, 1994).

Marcus Daly's newly formed Anaconda Mining Company was the largest mining operation in Butte. In search of the vast amounts of lumber necessary to fuel the smelters, and timbers to shore up mine tunnels, Daly formed a logging company which, within a few years, illegally denuded the

mountains near Butte (J. Robbins, 1994). The company also began to generate power for its furnaces. It spread into other commercial holdings – real estate, farmland, hotels, railroads, water and electrical companies. By 1895, when Daly reorganized the Anaconda Copper Mining Company as a public company, most Montanans referred to it as "the Company (J. Robbins, 1994)."

The landscape had changed dramatically:

They had roasting heaps down around the smelters. Down in Meaderville and down at Clark's Reduction Works and so on. Boston and Montana smelters, things like that. They put out such a poisonous atmosphere that it killed everything. All the grass, every doggoned thing that grew around Butte. It was the most desert-like area you could imagine. All the trees on Timber Butte. Gee, that used to be covered with beautiful trees, but I never paid too much attention to them because I was too small at the time they were flourishing...whopping big pine trees killed...and all the timber on East Ridge as far as the smoke reached.

Sometimes the smoke was so thick in Butte that they had to put bells on the teams. You couldn't see across the street...Just a bare desert out on the Flat. There was great big desert storms that came up whenever there was a strong wind... (Looking Back on Butte Hill:34).

In the lexicon of the times, this was progress. The copper was used to develop other burgeoning industries. Corporations were making huge profits. The West was being won, reshaped to meet production standards, and the land was dying under the onslaught. Blinded by smelter smoke, and caught up in a fundamental struggle for survival that depended upon meeting production quotas, Butte's immigrant workers settled in (Toole, 1959; Malone, 1995; Robbins, 1994; Emmons, 1990). The environmental degradation was the price to be paid for steady jobs which meant the married miners could put food on the family table and try to ensure their children did not have to go down into the mines (Emmons, 1990). Father Sarsfield

O'Sullivan, a Roman Catholic priest in Butte, watched the immigrant miners adjust to life in Butte:

... The average immigrant, as distinct from the miner from Pennsylvania,...if he didn't manage to get out of the mines himself, he would do anything to get his son out. Even when I was graduating from high school [in Ireland] we were shipping out my generation.. "The immigrants weren't people who thought, 'Oh, isn't mining fun.' Down in dark and dangerous holes... (Oral history transcripts: 1)

Around Butte there is a lot of beautiful nature, but everything is about nine miles away from you. You don't experience nature until Spring when you went for a hike. Kids played on dumps. Butte was in a beautiful setting and yet it was divorced from nature. (Oral History Transcript 5)

Ironically, the deeper the miners dug into the earth, the more disconnected they became from the natural world. The towering gallows frames, mine dumps, and slag heaps on Butte Hill were viewed as the life of the community – both as the economic security that sustained them, and as the triumph of their struggles to survive in the dark and frightening tunnels beneath the Hill (Emmons, 1990). The forces of the natural world, which they daily faced beneath Butte Hill, were justifiably feared because so often they brought death.

Meanwhile the Anaconda Copper Mining Company was burrowing into every facet of the lives of Montana's inhabitants. By 1900, Anaconda employed nearly three-quarters of the state's wage earners (Toole, 1972). With every new miner and every foot deeper into the earth, more capital was invested and alternative development paths less likely to be considered. The miners kept coming. By 1888, smelter smoke had killed trees and vegetation

and a national magazine described the miners' housing as "hovels – untidy, neglected, and oppressive (Emmons, 1990:74)." Three years later, the *Butte Intermountain* reported that 1,134 people lived in 141 houses in the Irish working class Third Ward and, that in this entire area, there was no new vegetation from 1890-1891 (Emmons, 1990).

The vast gulf between the wealth of the Copper Kings and the poverty of the workers was becoming more apparent with every miner's shack constructed on what Finn (1995) refers to as "borrowed land," land that might, in the future, be claimed by the mining companies as they traced the veins of ore through the depths of Butte Hill. Somehow the culture created would have to minimize and offer an acceptable explanation for that uneven distribution of wealth. In the larger culture, the notion of equality was fostered. Writers of the day, like Horatio Alger, popularized the notion that hard work and perseverance would bring success in America. The possibilities were endless. But, in Butte, everyone worked hard – miners worked dangerous jobs and women struggled to hold their families and the new community together. More of a sense of possibilities was needed in this harsh place.

In Butte, the Catholic schools, which serviced a larger area than individual public school districts, brought many children of management and labor together, fostering the notion of a community less bound by class distinctions (Finn, 1995). Their familiarity as children likely also served to mediate some of their inevitable management/labor conflicts when they met in the work force as adults. As the city grew, shared experiences also reinforced a sense of classless community. Gala affairs were held at Columbia

Gardens, the oasis of green W.A. Clark gave to the town, and Anaconda funds helped to maintain (Finn, 1995). Residents shared theater performances, movies, lunch and dinner at restaurants strewn about the city's ethnically-diverse neighborhoods. This rough western city rapidly became a cosmopolitan center (Robbins, 1993; Malone et al, 1993). Under that veneer of culture shared by all, the working class neighborhood and associational groups offered pockets of identity – sometimes offering community strength, and sometimes heightening ethnic and class tensions (Finn, 1995).

Butte's largely Irish Butte Miner's Union, formed as the result of the strike of 1878, had benefited both from Marcus Daly's sympathy, or paternalism, and the ongoing feud between Copper Kings Daly and W.A. Clark, and later, F. Augustus Heinze (Emmons, 1990; Toole, 1959). The Butte Miners' Union's role as the birthplace of western mining unionism, and as the first local of the Western Federation of Miners, had earned Butte the title the "Gibraltar of Unionism (Emmons, 1990)." Buffered by Daly, Butte developed a very different culture than the mining camps in Idaho and Colorado that would soon become the scene of violent labor conflicts (Emmons, 1990). The Butte union was dominated by immigrant Irish who saw the union as a way to maintain the job security that the Irish enclave needed both to survive so far from home, and to work for Ireland's liberation from the British.² Union control was greatly assisted by Daly, whose preferential treatment of the Irish-dominated union, "blurred class distinctions and contributed to worker conservatism (Emmons, 1990:190)."

...the working Irish could never be persuaded that he [Daly] was an evil man. By their cultural standards, to assign evil to Daly was self-proscriptive. It damned them all. (Emmons, 1990:193)

Daly's preference also perpetuated the notion that the Irish were entitled to have some control over the labor force and that they had a say in the way their community developed (Emmons, 1990). Aided by Daly, the Butte Miners' Union won an eight-hour day, demanded, and got, a closed shop (Emmons, 1990). But the degree of cooperation from the more powerful would soon radically change, creating rigid divisions between labor and management, and bringing to light fault lines running through the union's membership.

In 1887, the mining industry was faced with the prospect of losing possible foreign investment, the result of a provision in the federal Alien Land Law which restricted foreign investment in territories. Two years later, the federal Omnibus Bill notified Montanans if they drew up a proper constitution, they would be immediately granted statehood. That same year, 1889, Montana became a state (Malone et al, 1993), open for business.

The Copper Kings sought capital. After the company's 1895 reorganization, Anaconda's stock had found a home in Boston, the copper headquarters of the United States. Boston institutions had purchased the Boston and Montana and the Butte and Boston mines, and, in 1897, consolidated them (Toole, 1959). Also, in 1897, W.A. Clark incorporated his massive holdings, which included a smelter and refining complex in Great Falls, as well as banks, retail stores, lumber properties, coal mines, and street car systems (Robbins, 1994). By 1909, official promotional literature referred to Montana as "The Treasure State." It was — for some.

Across the country, the merger movement gathered momentum after the election of 1896, the first in which corporate money and corporate-owned publications were brought to bear, in this case, against the rapidly growing

Populist Party (Goodwyn, 1978). The merger movement, designed for greater corporate efficiency, also allowed for more corporate control, a fact that caused some concern in Montana where local stockholders were always in the minority (Toole, 1959). Montana's fears led to a legal challenge to consolidations made without minority stockholder consent, a challenge which was upheld by the state's Supreme Court (Toole, 1959). Corporate response took the form of a bill to allow stock transfers without minority consent – Montanans' first indication of the extent to which the executives of the New Jersey-based Standard Oil Trust had tunneled into the state's political economy (Toole, 1959). The group of capitalists intended to buy the Anaconda Company, along with other Butte properties, and consolidate. Montana stood little chance against the combined forces of "a great New York bank, a great railroad, and a great oil company, aligned in concert... (Toole, 1959:165)." The legislature passed the bill over a gubernatorial veto allowing allowing Anaconda, to become the Amalgamated Copper Company, owned and controlled by Standard Oil (Toole, 1959).

The presence of Amalgamated did not end the Daly-Clark war which had already cost the state a seat in the U.S. Senate and a great deal of embarrassment. Amalgamated officials, who had carefully researched the international and national copper market, and the Butte operations, had overlooked the ambitious F. Augustus Heinze who had formed the Montana Ore Purchasing Company in 1893, and later opened a smelter in Meaderville (Toole, 1959, 1972; Malone, 1995; Robbins, 1994). Heinze had discovered he could use both the apex provision in the 1872 Mining Act, and well-paid-off local judges to appropriate Amalgamated's ores (Robbins, 1994; Malone, 1995).

The intersection of a vein at the surface is known as the apex. Under the Mining Act, the physical existence of a vein must be established within the surface boundaries of claim ownership. However, the owner of that claim has a right to follow that vein from the surface downward, even when it leads under the surface holdings of another miner. Because of faults and fractures, the veins often break off into many fine veins, and sometimes are even cut off by a large rock. In the case of veins that are lost near the vertical side walls of a claim, with similar veins of identical ore below or beside it in an adjoining claim, geologists, and the courts, determine whether the vein below or beside the original is a continuation of the original (J. Robbins, 1994; Malone, 1995). Heinze had studied the law, and stacked the local court (J. Robbins, 1994; Malone, 1995).

Cloaked in cash-lined judicial garments, by 1902, Heinze employed 37 lawyers, involved in almost 100 lawsuits on mining property worth close to \$200 million (Toole, 1972). An electric orator, Heinze played on Montana's suspicion of the outsider, Standard Oil, painting himself as a local David fighting an Eastern Goliath (Robbins, 1994; Malone, 1995; Toole, 1972). Unable to win the war of words, Amalgamated acted. On Oct. 22, 1903, the Company announced the shutdown of its Montana operations, except its newspapers which it could use to present its case to the public (Toole, 1959; Malone, 1995). Ten thousand workers were immediately laid off (Toole, 1959). Within a week of the announcement, roughly 80 percent of the state's wage earners were out of work (Toole, 1959). The ground was no longer solid.

Montanans were shocked into the terrifying realization they were totally dependent upon one enormous out-of-state enterprise. Governor Joseph K.

Toole's office was overwhelmed by anti-Amalgamated mail. Heinze fanned the anti-Amalgamated sentiment (Toole, 1959, 1972; Malone, 1995). Many Butte miners, betrayed by the company that, during Daly's tenure, they thought of as benefactor, flocked to Heinze's standard (Toole, 1959, 1972; Malone, 1995).

Nine days after the shutdown announcement, Amalgamated set out its terms on the front page of its newspapers (Toole, 1972; Malone, 1995). Montanans could go back to work if the governor called a special session of the legislature to pass a "fair trials bill" which would allow a change of venue if one of the litigants charged judicial bias (Toole, 1972; Malone, 1995). For a month, while Amalgamated's agents scurried about the state with printed petitions asking the governor to call the special session, the shutdown continued, wearing down the hungry populace (Toole, 1972). Faced with economic ruin, Governor Toole called the special session which convened on Nov. 10, passed the Fair Trials Bill, and adjourned (Toole, 1972). Montanans were employed again.

However, the terrain was different – not only had the Company recreated the landscape of Butte, both above and below ground; it had clearly delineated the boundaries of the new political landscape (Toole, 1972; Malone, 1995). The union, which had operated inside shared boundaries in Daly's time, was now fenced out. The effect of the shutdown on labor was long-lived and deep, setting off years of internal struggle. Even the unions had finally pressured for the special session, belying the strength implied in the title "Gibraltar of Unionism (Toole, 1972:123)."

The shifting terrain led to changes in mine operations, alterations that weakened the Irish ability to control the work force. Amalgamated had

purchased W.A. Clark's holdings (Toole, 1972), and, in 1906, bought Heinze out (Malone et al, 1993). Heinze's departure constituted another betrayal: when Heinze sold out to Amalgamated, the only hope the miners had of escaping the yoke of the New Jersey trust was lost (Toole, 1972). Once its corporate adversaries had been eliminated, Amalgamated saw no need to court the Irish or the workers (Emmons, 1990). Amalgamated's labor policy was formulated in New York — it "was based on an inherent hostility to labor organizations, to strikes, to bargaining (Toole, 1972:126)."

It was a fractured union that confronted the vast power of Amalgamated (Emmons, 1990; Toole, 1972; Malone, 1995). Suspicions ran rampant among union members. Amalgamated began to infiltrate the Butte local to further buttress its position.

As of 1900, Amalgamated began to infiltrate the Butte Miner's Union with its own men, with trained detectives and with others instructed to sow dissension. By the time of the shutdown of 1903, Amalgamated was satisfied that labor would protest feebly at best. Their [sic] appraisal was accurate. (Toole, 1972:126)

Beneath the surface of the company's betrayal of the union, another chasm developed. The company, which in Daly's time was a part of their lives at social events and funerals, was now something apart, mysterious, operating behind closed doors on the sixth floor of the Hennessey Building. Faced with the company's secrecy, the workers struggled to fill in that chasm, using all they had — "myths, truths, and lies. (Finn, 1995:287)."

Anaconda has a number of large black automobiles, with low-numbered license plates; bystanders say 'The Company's out!' much as they might say 'The elephants are loose!' when these leave the Hennessey Building for unknown destinations (Gunther, 1947:169).

So, beneath the surface, the workers created another landscape, scarred by betrayal. And, worse than the company's betrayal, was that which came at the hands of their own, the company's plants. The workers were not naive, they learned quickly that loyalty to the workers played no part in the corporate ethic; but they had expected loyalty from their own (Finn, 1995).

As the more conservative faction led the Butte local to the right; the WFM moved to the left, the result of dire conditions and events in Leadville, Cripple Creek, and Telluride, Colorado; in the Couer d'Alenes; and Goldville, Nevada (Emmons, 1990). Given the need of the Irish enclave for security and the Irish dominance of the Butte union, the union's conservatism was compatible with its mission to guard the jobs that were essential to keep the enclave intact (Emmons, 1990). Recognizing that married men were less volatile than the single hard-drinking miners who originally settled Butte, the Anaconda company carefully fostered a family-oriented community (Finn, 1995). The company was successful. The large Irish family structure, with older children in the labor force and non-working mothers, the 73 percent of Irish miners who owned their own homes, and the 434 widows with 1,117 children in 1910, also dampened labor radicalism in Butte (Emmons, 1990).

Here then was a union – the largest in the United States and potentially one of the most radical – whose leaders had unchallenged control, revealed strong craft biases, bought company stock, permitted hiring officers to retain membership, tolerated company stores and subscription "health plans," favored corporate consolidation, and declared socialism 'a dead issue.' And this is only a partial list of union offenses... (Emmons, 1990: 229).

The union health plan did nothing to help miners suffering from miner's consumption, a debilitating lung disease caused by exposure to silicate dust

(Emmons, 1990). Nor did the Montana Supreme Court when, in 1900, it ruled that companies cannot be considered "negligent," and, although a business must use "reasonable diligence" to provide a safe work area, this could not be continuously required in a mining area where workmen constantly change their work place (Johnson Chronology). Further, agitating for mine safety would have violated the BMU constitution and bylaws because all "politics" were excluded for fear of "dissension and disharmony (Emmons, 1990:229)."

In 1911, the state mine inspector testified he had never received an official BMU complaint (Emmons, 1990). But, lack of official complaints about conditions in the mines, notwithstanding, Butte had more than its share of hazards:

...Mortuary records for 1906-07 list scores of death from acute alcoholism, drug addiction, syphilis, suicide (usually from carbolic acid), and stabbings and gunshot wounds. Add to these typhoid fever and, as additions to the enormous toll among the miners, the deaths of children in falls down abandoned and unmarked mine shafts...

In addition to these hazards, there was the constant threat of tuberculosis and related respiratory diseases. Between 1911 and 1916 Butte's death rate for all forms of TB was 237.45 per 100,000, more than twice the national average... Residence in no other Montana town was remotely as lethal. Butte's mortality rate for all respiratory disease was 513.8 per 100,000; in Missoula, only 120 miles to the west, the rate was 207.7 (Emmons, 1990:72).

Ellen Crain (1996), director of the Butte-Silver Bow Archives, says, "In 1890, mining men in Butte were the highest paid in the nation for that kind of work. One man a day died of TB; one man a week in a mine accident." Life in Butte was risky business, both above and below ground. Given the

imbalances of power between the "Copper Kings" (Malone et al, 1993; Malone, 1995; J. Robbins, 1994) and workers, residents had little choice other than to adapt. And adapt they did, producing a local culture that inadvertently supported the imbalances by priding itself on its toughness and survival skills. Butte's kids handled chores around the house and made money on the side doing odd jobs, selling newspapers, and occasionally pillaging neighborhoods to "pick up" a few things to bring in a little cash from the pawn shops. Butte's kids grew up with a well-chronicled penchant for battles between neighborhood gangs and sometimes breathtakingly dangerous pranks. They were risk-takers and proud of it. Butte was different and so were they (Writers' Program, 1943).

Olga Sontum, born in 1893, remembered the smoke:

You could hardly see to get to school. You couldn't see 20 feet from you and it never hurt any of us. Now they're yelling so much about all that. It's foolish, isn't it? (I-2, Oral History Project)

Later in the interview, Sontum referred to her father, who worked for a time as a solicitor for Montana Power Company. Although he died young, she did not connect his illness or death to the smoke or other potential health problems in Butte:

...But he got sick, he had lung trouble and one thing or another so he couldn't work steadily and he died in 1907 (I-2, Oral History Project).

That was life in Butte where miners who lived into their forties were considered "old," where miners had, on average, a 15-year working life in the mines (Emmons, 1990). Perhaps because they were so aware of how they

differed from the rest of the state, and of the difficulties they encountered in making a home in this harsh steep place, their loyalty to Butte was absolute:

Butte people possess a fierce civic pride, the like of which can be found in few places. They love the camp with such an intense devotion that it blinds them to the physical bleakness and ugliness of the town. When away they are clannish. In Seattle, San Francisco, Los Angeles, Washington, New York, or wherever there are numbers of former Butte residents, one will find them getting together socially. The principal topic of conversation will invariably be happenings in the old camp, current and past (Writers' Program, 1943:24).

That loyalty implies a shared reality, a mutual understanding of meanings and cultural nuances that were not understood outside of Butte. Perhaps, though, that loyalty was not merely a randomly occurring development. Finn (1995) notes, that Anaconda Company officials played a large part in constructing a community that would inspire such loyalty from residents, while simultaneously deflecting attention from the harsh realities:

Butte became known as "The Richest Hill on Earth," a name the community still wears with pride as if the mere evocation could restore its depleted wealth (128).

The hard working, hard drinking miner became the prototype of working class men (Finn, 1995). However, jobs, provided by Anaconda, were essential to maintain this working class pride and to sustain the place Butte families were creating as home. This became more difficult as the union's attempts at control of job assignments in the 1907 contract were quickly undercut both by an anti-labor national political climate and by Amalgamated's assemblage of a disposable work force — migrant laborers (Emmons, 1990).

That addition to the labor force in Butte allowed the mining companies to change to power drills, which were frequently referred to as "widow-makers (Emmons, 1990)." The new drills increased the amount of silicate dust which miners early knew was a cause of miner's consumption, although the mining companies denied the connection. They also eliminated much of the need for craftsmanship by making a miner out of anyone "strong enough to lift one and reckless enough to go underground with it (Emmons, 1990:248)." The migrant laborers, who just wanted to "make enough money to go home" were seen as careless by the settled miners (Emmons, 1990:245). Ironically, the anticipated passage of the state's workmen's compensation law, gave further impetus to hire migrant workers – companies would not have to pay survivors of foreign nationals (Emmons, 1990).

Safety aside, the new miners also threatened to erode both the more settled miners' sense of teamwork and their work as craft:

Work became lonelier and, after the introduction of machine drills, less a function of honed skills and more a test of brute strength...

...New drills meant enforced idleness for the skilled men too old or broken to lift them, a diminished status for those who could lift them. Indeed, there were no real miners left, only workers ranked by the machines they tended rather than the skills they had learned (Emmons, 1990:239).

Demeaned by technology, economic security threatened by the new "disposable" miners, their union beset within by ethnic and political differences and the presence of "company spies," the labor force became increasingly restive (Emmons, 1990). Occasional Socialist party victories in

Butte city elections from 1903 to 1910, and increasing radicalism in the WFM likely fostered Amalgamated's suspicion of labor. Migrant laborers, at least, could not vote in local elections. By 1910, the Anaconda mines' labor force included more than 1,000 new immigrants and less than 1,000 Irish (Emmons, 1990).

As the composition of the work force changed, conditions in the mines appeared to become more dangerous (Emmons, 1990). Although it is possible that the mines were more dangerous in 1896, before the non-English speaking workers arrived, from 1910 through 1914, the death rate in Anaconda's mines, excluding deaths from respiratory illnesses, was more than six times that from accidents in British mines (Emmons, 1990). An average of 4.68 men of every thousand working in Anaconda's Butte mines were killed from 1910 through 1914 (Emmons, 1990). North Butte Mining Company records show 15 underground accidents that resulted in injuries and deaths in a work force of 576 in 1907; 70 injuries and deaths in a work force of 714 in 1911; and 291 injuries and deaths in a work force of 769 in 1913 (Emmons, 1990). The BMU and Ancient Order of Hibernians paid out ten times more sick and death benefits in 1910 than they did in 1878 and 1899 – another indication that the mines were more dangerous and the Irish less able to control their work assignments (Emmons, 1990). The numbers of half-brothers and half-sisters attested to the danger of their work, former Anaconda employee John T. Shea says:

There are more half-brothers and sisters in Butte than I ever saw anywhere else — the result of widows remarrying. Such a high rate of accidents here in Butte. The Irish controlled the Con and a few of the other big mines. The Ancient Order of Hibernians had a fund for

widows. It [the sense of community] was great. You didn't call anybody a half-brother (10/24/95).

The associational funds for widows and burials, which were desperately needed in the harsh reality of Butte (Emmons, 1990), inadvertently performed another function: they privatized medical and death benefits, making what may otherwise have become public concerns a personal trouble.

In addition to loss of control over job assignments and an increase in worker accidents, the conservative orientation of union leadership was threatened by the existence of the local Socialist party and growing numbers of Wobblies, members of the radical International Workers of the World (Emmons, 1990). The Socialist party had gained strength rapidly since it first appeared in Montana in 1902 (Emmons, 1990). In 1911, it had joined forces with the International Workers of the World to elect a Socialist city government in Butte (Malone et al, 1993; Emmons, 1990). Founded in 1905 in opposition to capitalism, the IWW advocated conflict, worker solidarity, and the creation of one industrial union to which all workers, skilled and unskilled, would belong. Butte labor leaders had played important roles in organizing the national IWW, which had gained a substantial following in Montana's lumber camps and mining towns (Malone et al, 1993).

The company did not idly sit by as radicals gained in numbers (Emmons, 1990). In 1912, the Anaconda Company fired almost 500 Finnish miners it had identified as socialists (Emmons, 1990). The fired Finns then demanded the BMU avenge them, calling a strike, if necessary, to recover their jobs. BMU membership voted almost four to one against a strike. Many Finns, who had not left Butte, boycotted the BMU, paying only those dues essential

to retain their jobs (Emmons, 1990). Union membership fell dramatically — from 7,000 in February 1913 to less than 4,000 in May 1914, in a work force of 11,000 (Emmons, 1990). Anaconda's "divide and conquer" tactics were effectively further weakening the existing fault lines of ethnic and political differences in the labor force (Emmons, 1990).

The company found an additional way to keep control of job assignments out of union hands in 1912 in the form of the "rustling card" system which required all prospective miners obtain a card to allow them to look for a job (Emmons, 1990). Resentment and fear that the card would be used to blacklist intensified, manifesting itself in June 1914 when more radical BMU members refused to show their cards to BMU representatives at the Black Rock and Speculator Mines (Emmons, 1990). That action led rapidly to other demonstrations of displeasure, including an attack on one of the company-sponsored symbols of community and union power in Butte, the annual Miners' Union Day parade (Finn, 1995). The day after the challenge to the rustling card system, dissidents disrupted the parade that celebrated the founding of the Workingmen's Union in Butte in 1878 (Finn, 1995). However, even some of those marching did not support the union, Cliff Hodges reports:

As a smaller number of the miners than usual lined up for the parade, something seemed to be wrong. The spirit of fun and joviality that always was present at such occasions in the past were sadly lacking and the somber faces of the participants implied that they would not have been there except for the fact that a penalty would be levied against all union members who refused to parade (A-12, Oral History Project).

The rioting continued. A group of BMU progressives formed a new union, the Butte Mine Workers' Union (Malone et al, 1993). Shots were fired and two men killed, as an angry crowd gathered outside the Butte Miners' Hall at the union's June 23 meeting (Malone et al, 1993). A group of men, possibly Wobblies or members of the new union, set off a series of dynamite blasts that levelled the hall after the BMU leaders and police had fled (Malone et al, 1993). The surface terrain was now as threatening as that below ground.

On Aug. 30, 1914, the Parrot Mine hiring office was dynamited (Toole, 1972; Emmons, 1990). The following day, Governor Stewart declared martial law and sent in the National Guard to occupy the city (Emmons, 1990; Malone et al, 1993; Toole, 1972). The new union's leaders were tried and imprisoned, the city's Socialist mayor and sheriff were removed from office after a summary grand jury investigation (Malone et al, 1993). On Sept. 9, Anaconda announced it would not recognize either union (Toole, 1972). The Gibraltar of Unionism was pulverized by the combined forces of corporate and government power and carefully fostered intensification of existing divisions within the labor force (Toole, 1959; Malone et al, 1993).

After the trust had consolidated Clarke's and Heinze's holdings, there was just one major operating subsidiary which rendered the trust "an anachronism." (Malone et al, 1993:273) This, coupled with the federal government's threat to double-tax holding company profits, was likely responsible for the liquidation of the trust in 1915 (Malone et al, 1993). From that date, the Anaconda Copper Mining Company was independent (Malone et al, 1993).

Standard Oil's departure notwithstanding, under the surface, labor's resentments continued to simmer. Farmers, whose Populist Party had been

crushed by corporate money and influence in 1896, were also seething (Malone et al, 1993). By late 1916, the Non-Partisan League, founded in North Dakota, took root in eastern Montana (Malone et al, 1993). In Montana, the league charged that farmers had to support the costs of state government because the Anaconda Company was not paying its fair share of taxes (Malone et al, 1993).

Further contributing to unrest in Butte, many Irish immigrants were adamantly opposed to entering World War I on the side of England (Emmons, 1990). Three days after the national draft registration was ordered, in association with the Finns, and probably the Wobblies, Butte's Irish Pearse-Connolly Club led a large rebellious anti-draft protest march which ended in a "small-scale riot (Emmons, 1990:363)." On June 8, three days after the march, flames roared up the Granite Mountain shaft of the Speculator Mine (Emmons, 1990; Malone et al, 1993; Toole, 1972). The fire, which killed 165 of the 410 men who went to work on that night shift, became the worst disaster in the history of Butte mining (Emmons, 1990). On June 11, the Metal Mine Workers' Union, which had been formed on June 5 in response to the draft registration order, called for a strike against all the mines (Emmons, 1990). The deaths occurred because a state law had never been enforced in Butte (Toole, 1972). Montana law mandated metal bulkheads that could be opened; the Speculator mine used stationary cement bulkheads (Toole, 1972). The trapped miners had no means to escape the roaring flames and poisonous gases:

Many of the dead miners had been found piled against cement bulkheads, their fingers worn to the bone. (Toole, 1972:143)

The company-owned *Butte Post* reported the fire with telling omissions — no mention was made of the cause of the disaster or of improvements that could avoid such future horrors (Toole, 1972). It maintained that Butte had better-than-average working conditions and charged that a strike bulletin referring to "intolerable" working conditions merely represented the Socialist-IWW invective (Toole, 1972:143). The company's representation of the miner had changed from that of a hard worker, to an ungrateful pawn of radicals.

Given the newspaper charges of "German/Irish" antiwar influence, the presence of the IWW and federal troops, this strike which threatened the country's wartime copper supply was likely doomed to failure (Emmons, 1990). However, even without the fire, Butte's workers would have walked out in protest of the use of the rustling card to ensure work crews in the dangerous mines, the seven- and fourteen-day layoff system, inadequate wages, inflation, and tyrannical shift bosses and foremen (Emmons, 1990:366). These work conditions had radicalized many of the older men who had voted against support of the Finns three years previous (Emmons, 1990).

Despite facts to the contrary, the company-owned paper insisted that Butte's workers enjoyed the "highest" pay in the world, better living conditions than any other camp, and few fatalities (Toole, 1972). The facts included (Toole, 1972): a U.S. Department of Labor study that found 80 percent of Butte's wage earners in debt, and the city's cost of living far higher and wages lower than anywhere else in the country; 17 men killed in an Oct. 16, 1915 mine accident; 21 men killed in a Feb. 14, 1916 accident; from 1910 to 1913, in Anaconda-owned mines only, 162 men were killed in work-related accidents, and 5,795 miners lost time as the result of injuries on the job.

Additionally, U.S. Health Service data indicated, in 1917 and 1918, largely as a result of poor ventilation which could have been corrected by technology in existence, "at least 20 percent" of men who had worked underground for five years or more, had miners' consumption. Those figures do not include the deaths that occurred when periodic influenza epidemics occurred in Butte, where residents' lungs were already weakened by exposure to silicates and smoke from processing ores. This is Herb's account:

There was an influenza epidemic came along in 1918 and five of the seven (members of the speaker's family), were stricken. I laid in the front room in the big folding bed and looked out the window. I could see in the Catholic Cemetery, three or four funerals in there at one time. It was really a terrible, terrible situation. The paper was just full of obituaries every day, just a long list of them. (Looking Back from the Hill: 13)

Poor communities, those that are both economically and politically marginalized, often have multiple problems. Butte was, and is, no exception to this synchronicity. Mining and urban-type overcrowding were not the only sources of potential health problems or annoyances in Butte, Ann recalls:

We used to have all that smoke from burning garbage at the dumps. Where Safeway on Front Street is, there was a dump there, and Silver Bow Creek used to run under that. There was a wooden sidewalk there. Talk about stink. There was no garbage collection. Well, there was no garbage, just mostly ashes 'cause you'd burn everything in the stove...and the odors. People had cows. They'd take the manure to the dump. And stink! I know. We had pigs to haul that out there, and, by the time you got there, you were half dead. Oh, and Hansen's Packing, they used to butcher and slaughter. You couldn't breathe in the summertime from the odor. Where we lived over that way, we used

to really get the brunt of it. If there was a wind carrying it, I'm telling you, you had to close all the windows. So we were used to all these high potent odors and dust and everything. Sometimes you wonder how you existed. (Looking back at the Hill: 62)

While denying the brutal reality of Butte, the company-controlled press went on the offensive, calling strikers "cowardly agitators," and "IWWs, Irish zealots, and German sympathizers (Toole, 1972:135)." By June 29, more than 15,000 men were on strike in Butte, Anaconda, and Great Falls (Toole, 1972). Their only voice was the *Butte Bulletin* which evolved from a strike bulletin to a radical labor paper but its circulation was small (Toole, 1972). Although there were industrial workers in Anaconda and Great Falls, Butte, in its physical size and urbanization, was unlike any other place in Montana. Few outside of Butte knew the reality, and few had any sympathy for the strikers (Toole, 1972). Again, the differences between Butte and the rest of the state, worked against Butte. As did the company's control of the press, and the company's spies (Toole, 1972).

To ensure victory, the company, which had first used Pinkerton detectives against labor in 1914, now imported squads of detectives to infiltrate the union:

By late July there were more than 200 detectives in Butte – nearly as many detectives as IWWs. Their fundamental assignment was to harass strike leaders, to work their way into the union, and to report to the Company. To labor they were 'goons' who formed 'goon squads.' They were widely feared (Toole, 1972:147).

On Aug. 1, 1917, Frank Little, an outspoken IWW organizer who had arrived in Butte to convince the newly-formed Metal Mine Workers' Union

to join forces with the Wobblies, was brutally murdered (Toole, 1972; Malone et al, 1993; Emmons, 1990). Six masked vigilantes had dragged him out of his boarding house, beaten him, tied him to the back of their car, and dragged him to the outskirts of town where they hanged him from a railway trestle (Toole, 1972). They left the sign of the vigilantes – "3-7-77" – on Little's maimed body (Toole, 1972; Malone et al, 1993). The numbers referred to the dimensions of a grave: three feet wide; seven feet long; and 77 inches deep (Writers' Program, 1942; Toole, 1972). The murder has never been solved (Toole, 1972; Malone et al, 1993). Today, in what can be construed only as an ambiguous message, Montana's state troopers wear 3-7-77 on their uniform insignias. Three thousand people marched in Little's funeral cortege; along the sidewalks, thousands more watched silently as the largest funeral Butte had ever seen passed by (Malone et al, 1993). That silence indicated dangerous ground beneath which rage festered.

Wartime emotions blazed – Little's anti-war speeches had triggered the equivalent of a witch hunt for German-sympathizers in the state (Malone et al, 1993). Although most of the state's press did not condone Little's murder, coverage continued to fret about the subversives in their midst (Malone et al, 1993). The Montana Council of Defense, the Montana Loyalty League, and other state organizations warred on the IWW and the Non-Partisan League (Malone et al, 1993). On Aug. 11, the federal government sent troops into Butte (Malone et al, 1993). Faced with company-hired detectives, the invective of the company press, anti-union public sentiment, and federal troops, the strike petered out and the MMWU workers returned to work (Malone et al, 1993). The search for traitors continued (Malone et al, 1993). Between September 1914 and April 1920, the national guard and federal

troops occupied Butte six times (Malone et al: 278). Butte's residents were learning an important lesson: even when alliances were made with other laborers – e.g., the Irish and the Finns – the balance of power was weighted heavily against them.

Thirteen days after Little's murder, in response to frantic reports from his constituents, Montana's senator, Henry L. Myers, introduced an anti-sedition bill (Toole, 1972). Although that bill was buried in the Senate's Judiciary Committee, it was passed by the state legislature as the Montana Sedition Law on Feb. 22, 1918 (Toole, 1972). The same bill was later rescued by Montana Senator Thomas Walsh and passed as the federal Sedition Act on May 16, 1918 (Toole, 1972).

Thus a federal law which was probably more restrictive of traditional American freedoms than any legislation since the Alien and Sedition Acts of 1798 was directly traceable to violence and conflict in Montana and the lynching of an IWW agitator in Butte (Toole, 1972:154).

Montana's Sedition Act and Criminal Sedition Act outlawed the IWW, and, more importantly, made labor agitation dangerous business (Toole, 1972). The company profited — not only did it avoid the expense of improving conditions in the mines, it was able to brand all union activity as seditious and unpatriotic (Toole, 1972). Charges of unpatriotic behavior notwithstanding, in 1918, Butte's workers struck again (Toole, 1972).

The *Bulletin*, which had continued to publish after the 1917 strike was broken, called Anaconda Vice-president Cornelius Kelley to account for his refusal to deal with the union and jabbed at the federal troops that had remained in the city until, under the guise of the sedition acts, Butte police

and federal troops raided the *Bulletin* offices as part of an anti-IWW campaign (Toole, 1972). *Bulletin* editor, W.F. Dunne, and his staff were arrested, charged with sedition and turned over for prosecution (Toole, 1972). The strike was broken (Toole, 1972). Dunne was convicted of sedition in 1920, and fined \$5,000, however the Supreme Court subsequently reversed the decision (Toole, 1972).

The federal government needed copper and that required loyal workers to dig it up and process it, as well as continued corporate investment to sustain the national economy. Butte officials knew well the city was dependent upon the company's jobs and tax revenues. All systems were oriented toward development, regardless of impact on workers. The end of the war brought no relief for the worker; fear of Bolshevism replaced fear of the Hun, keeping patriotic sentiments high and anti-union vigilance alive.

Butte continued to simmer and occasionally to boil over, but federal troops were still there and they had become expert strikebreakers. The Company reduced its expenditure on detectives substantially. The press turned its attention from the I.W.W. to the Non-Partisan League (Toole, 1972: 196).

The company press prospered and served the company well in its fight against reform of the state's tax structure which had originally been designed by the mining companies (Toole, 1972). In 1917 and 1918, the company press fought off changes that would have cut into profits (Toole, 1972; Malone et al, 1993). Although the Anaconda Company seemed involved in all aspects of the state, it never left "fingerprints (Toole, 1972:219)." This was the case with the company's purchase, at some point between 1917 and 1920, of the

Missoulian from Joseph Dixon – the date of purchase and other details of the sale were never published (Toole, 1995).

At the close of World War I, Montana's mining and lumber industries, like the rest of the national economy suffered, through the adjustment to a reduced peacetime demand for their products (Malone et al, 1993). However, Montana's economic downturn was even harsher because local agriculture was also suffering from years of drought (Malone et al, 1993). Although the national economy rebounded by 1922, Montana's crisis continued until the rains returned in the mid-1920s (Malone et al, 1993). As a result of the exodus of failed farmers, Montana was the only state to lose population in the 1920s (Malone et al, 1993). This loss had a profound impact on the state's demographics: as younger families left, the state was left with a population of the very young and very old; few young and middle-aged adults remained (Malone et al, 1993).

As prosperity vanished, so did optimism. Montana lost more in the postwar depression than its marginal farmers. To a considerable extent, it also lost its self-confidence and its faith in the future. (Malone et al, 1993:291)

The mood in Montana was conservative – the result of a congruence of interests shared by corporate and associational interests, and voters concerned about "big government, excessive spending, and maintaining the status quo (Malone et al, 1993:291)." For the most part, the state's economy relied upon the Anaconda Company and an assortment of other equally conservative interests – five railroad companies, coal, oil, lumber, and smaller metal-mining firms, bankers, merchants, chambers of commerce, and the

Stockgrowers' and Wool Growers' Associations (Malone et al, 1993).

However, labor was increasingly more restless, and the Montana Labor League joined the Non-Partisan League's demands for reform (Malone et al, 1993). This presented the company with a serious problem – it had no club with which to beat down the desperate farmers (Toole, 1972). Faced with a choice between outspoken Democrat Burton K. Wheeler, who was supported by the Non-Partisan League, and moderate Republican Joseph Dixon, who supported tax reform, the company chose to turn its press against Wheeler in the 1920 gubernatorial election (Toole, 1972). Dixon won and pressed for tax reform (Toole, 1972; Malone et al, 1993). The company lobbyists, often also legislators, went to work against reform:

Lobbying in the Montana legislature was part art, part cold cash, part rubber-hose bludgeoning, and part cajoling, all of which was mixed in a perpetual stag drinking room, prohibition notwithstanding. The Company ran the only legislative information agency that existed, a service rendered gratis to all senators and representatives...They also provided, gratis, a bill-writing service... (Toole, 1972:259)

The company buried Dixon's tax reform bills in committee, introduced extraneous, harmless (to the company) bills, guaranteed to inflame voters' passions and set to work on Company-owned editorial pages, debating, in length and passionately, the fate of their manufactured bills (Toole, 1972). The end result was that the public was completely unaware of economic matters (Toole, 1972). Dixon's reforms failed; the session adjourned (Toole, 1972).

In what had become its standard operating procedure to indicate

displeasure, the company shut down operations for nine months (Toole, 1972). Although copper stocks were high and copper prices low, the company gave no explanation. "It is probably that most Montanans got the message," Toole notes (1972:265). The unemployed in Butte understood all too well what the company's message meant. Closures and strikes meant struggles to meet basic needs and, inevitably, falling behind in the daily business of living:

When there were strikes, we would just about starve... What we used to do was charge the groceries. The grocers would come to your house and take your order and then deliver it the next day. They were independent grocers. They would carry you for maybe five or six months, for the duration of the strike. It was such a hardship to pay that off. It would be maybe a year or two years to get back on their feet. (Looking Back on the Hill: 57-58)

Again, the company did not shut down its press during the closure (Toole, 1972). The invective continued. Dixon took his case to the people, but could not match the audience of company-owned papers (Toole, 1972). His tax reform attempt of 1923 also failed (Toole, 1972; Malone et al, 1993). In 1924, although Dixon lost his bid for re-election, his tax reform initiative passed and, through the next several years increased the state tax base by an additional \$300,000 to \$400,000 annually (Toole, 1972). Additional taxes notwithstanding, the Anaconda Company grew, becoming an international enterprise, and incurring heavy debt in the process (Malone et al, 1993). In 1922, the company, already the world's greatest producer of brass, a copper alloy, became the world-wide leader in copper fabrication with the acquisition of the American Brass Company (Malone et al, 1993). Confronted with high

labor and operating costs in Butte, the company sought new cheaper sources of copper and found it in the Guggenheim family-owned mines in Chile's Andes Mountains. In 1923, Anaconda paid \$77 million for the Chilean mines, which included the vast open pit mine at Chuquicamata (Malone et al, 1993).

"The Richest Hill on Earth" became a minor player overnight, a province in Anaconda's copper empire. "The company was able to create a transnational community of labor while residents were tied to a more circumscribed sense of place (Finn, 1995:128)." In 1928, the company expanded further, buying W.A. Clark's remaining properties (Malone et al, 1993). In 1929, it acquired the Green Cananea Copper Company in northern Mexico and created another fabricating subsidiary, the Anaconda Wire and Cable Company, with plants at Great Falls and outside Montana (Malone et al, 1993).

Until the late 1920s, the Company press attacked the Company's enemies. However, in the early 1930s, the Company press changed tactics: instead of directing vitriol at its enemies, it ignored them. Space on the news and editorial pages was now filled with problems far from Montana, a technique called "Afghanistaning" by journalists (Malone et al, 1993). The journalistic "talent departed with invective (Toole, 1972:273)." No one ever knew what precipitated the decision to change tactics (Toole, 1972). Nor did anyone know, at any given time, how many papers the company owned or controlled (Toole, 1972).

Some tried to find out. Shocked at the state of the press in Montana, in 1919 Upton Sinclair reported that the company owned all but two of the daily papers in the state (Toole, 1972). In 1931, a writer for *The Nation* admitted

there was no way to obtain accurate ownership figures, but felt the Company's influence on the entire press of the state was "pervasive and corrupting. (Toole, 1972:274)." In 1947, John Gunther wrote, "Anaconda, a company aptly named certainly has a constrictorlike grip on much that goes on, and Montana is the nearest to a 'colony' of any American state, Delaware alone possibly excepted (1947:155)." The company's control of the state press "is unique in America (Gunther, 1947:171)." In the early 1950s, a *Time* magazine reporter sent to do an "in-depth" study of this "unique captivity," wired his editors he could not do the story because it was like trying to "get in a solid blow in a battle against feathers (Toole, 1972:275)." In 1952, an amazed *Denver Post* reporter found enough information to write a series in which he referred to Montana as "the last outpost in America of feudal journalism" and charged that not only did the papers not report the news, but "indulged in Afghanistanism." (Toole, 1972:275) Anaconda's control of the press was also criticized by the *New Republic* and the *London Economist* (Toole, 1972). Montanans complained, calling the company papers "monuments of indifference" and "a dedication to the status quo." (Toole, 1972:275)

The Great Depression altered the company-fostered status quo. Because the Montana economy still relied heavily upon copper mining, when the Great Depression devastated the copper industry, the state's mining towns suffered greatly. A Consumer's Council survey of 1934 found that five of every six children in Butte were not sufficiently nourished (Malone et al, 1993). A commerce department survey of the same year, found that 64 percent of Butte's homes needed repair, nearly 20 percent had no indoor toilets, and almost 30 percent had neither baths nor showers (Malone et al, 1993). Butte struggled with poverty until, gradually, the mines began to

produce again. John T. Shea, president of the ARCO Retirees Club, was a child in Butte during the 1934 strike and the depression.

I went through the 1934 strike here. It was horrible, but my dad and the miners got fresh air. He worked for the WPA, two weeks on and two weeks off. We got WPA clothes. Everybody looked alike in those days. We got our meat at city hall in Walkerville. Got beans and canned stuff at Veterans' Hall. We'd go down with the little red wagon (Shea, 10/24/95).

Under Roosevelt's New Deal, encouraged by legislation supportive of unionism, labor movements regained strength across the nation. The International Union of Mine, Mill and Smelter Workers, which succeeded the Western Federation of Miners, led a campaign to waken the Butte Miners Union from its torpor and, within weeks, had 4,500 new members (Malone et al, 1993). On May 8, 1934, over 6,500 Mine Mill and Crafts union members walked off the job. Company guards and labor organizers faced off again (Malone et al, 1993). Four months later, in a major victory, the union won both recognition of the union and a closed shop, two things that Anaconda had denied for 20 years (Malone et al, 1993). Union members also won wage increases and a 40-hour work week. Equally important, faced with the community unease at the possibility of Anaconda's abandonment, they forged an agreement which allowed union workers to maintain the mines during future strikes. This agreement allayed union fears of impending closure of Butte's operations and afforded the company protection from financial losses that might result from equipment damage (Finn, 1995).

Butte's post-depression prosperity was immediately visible to visitors:

When the mine wheels are turning and copper is selling high, Butte goes in for luxuries. A casual visitor is always surprised at the high percentage of bright, large, new-model automobiles driven by the miners. When the shutdown comes, as it always does, the finance companies get them back as they have before...Five out of ten women wear fur coats.

They might be dyed rabbit, but they are fur, and if prosperity perches on the Hill for two or three years in a row the coats will be predominantly mink (Writers' Program, 1943:26).

The community had internalized the concept of mining it and getting out. It had adjusted to the boom and bust. The cars and furs represented symbolic benefits, a "cultural wage," that allowed the workers to identify with the interests of management while still occupying a working class position to power (Ewen, 1988). These trappings of power, available to some of the working class some of the time, fostered further divisions among people who might have otherwise identified with each other (Ewen, 1988). These divisions became a factor in the 1970s after labor had sacrificed its social agenda for pay raises, cost-of-living adjustments and protection for workers with highest seniority (Bluestone and Bluestone, 1992).

Even in prosperity, life in Butte was not easy, John T. Shea says:

The mines were such a hard life. My generation grew up during the Depression. We were raised in tough neighborhoods where you had to take care of yourself. The one thing my father preached was 'Get that education.' We had two choices: get an education and get a job downtown; or go partners with dad in the mines. Dad said if I did that he'd break my neck.

But I was a craftsman, a rope man, and World War II changed things, changed our ways of looking at things. We weren't going to take any grief. We're equal, if not more, because I gave my all. After World War II you don't hold down the masses anymore. You saw the whole world. I was in three countries, saw 33 of the 48 states and I was only a kid. Your whole attitude changes. I was taught I'm just as good as the rest of the guys (Shea, 10/24/95).

Big cars and furs were the norm in Butte during the increased demand for copper in World War II. But, again, the end of the war produced another upheaval in Butte's labor force. Once more, Butte was the scene of violence during the 1946 strike when bands of men, women, and children sacked the homes of non-union scabs (Finn, 1995). Cutbacks cost jobs and nationally a growing anti-communist sentiment gained momentum (Malone et al, 1993). The Congress of Industrial Organizations expelled the Mine, Mill and Smelter Workers Union in 1950, after determining Communists had gained influence over the union's leadership (Malone et al, 1993). Mineworkers, the majority of whom were not communists, but were loyal to the union of their fathers, were not inclined to join the union to which the CIO had given jurisdiction (Malone et al, 1993). It took 17 years for the CIO and the United Steelworkers of America to convince the Butte union to join the steelworkers (Malone et al, 1993). After World War II, mining unions saw steady declines in membership and strikes became a permanent part of the landscape in Butte (Malone et al, 1993). However, the ever-present concern that Anaconda would close its Butte operations was reduced when the company announced the "Greater Butte Project," a cave-block mining plan that indicated the company's commitment to Butte (Malone et al, 1993).

In 1951, the union was again on strike, part of an industry-wide action against the mining giants during the Korean War. From Aug. 27 to Nov. 14, the *Montana Standard* reported the course of the strike: President Harry S. Truman's invocation of the Taft-Hartley Act emergency provisions; his injunction against the 40,000 men still on strike nationally; the court-issued injunction ordering the workers back on the job; the return of the Montana workers on Sept. 7; and the contract, retroactive to June, that was signed on

Nov. 14, giving workers raises from 64 cents to \$2.96 a day.

Also in 1951, the question of how many newspapers the Anaconda Company controlled was finally answered when The Fairmount Company, a wholly owned subsidiary of the Anaconda Company, applied to the Federal Communications Commission to purchase a radio station in Great Falls. To meet with FCC regulations, the company divulged it:

...owned all the stock of the Post Publishing Company (*Butte Daily Post*, evening); Standard Publishing Company (*Montana Standard*, Butte, morning, and *Sentinel*, evening); 72.49 percent of the Montana Record Publishing Company (Helena, *Independent Record*, evening); 33.3 percent of the Western Montana Publishing Company (*Western News*, weekly, Libby); and 90 percent of the Mineral Publishing Co. (weekly, Superior)...total circulation of Company newspapers, 89,934; total circulation of all independent papers in the state, 69,552. (Toole, 1972:277)

Only one daily newspaper in the state — the *Great Falls Tribune* — was not owned by the company (Toole, 1972). The other independent papers were weeklies with small circulation, which only added to the authority of Anaconda's papers. The captivity theorists were correct — for all intents and purposes, Anaconda controlled the state's press, doled out information as it saw fit (Toole, 1972).

Sometimes the company's carefully gathered information failed it. Within three years of its onset, the cave-block plan proved too costly, and the company undertook open-pit mining, a method which had been avoided previously because it meant "blasting away large parts of the city (Malone et al, 1993:324)." Faced with profit losses, Anaconda exercised its right of eminent domain and undertook open pit mining, creating the Berkeley Pit in 1954 (Marcossen). The city which had been born as a result of mining was

now, quite literally, going to be eaten up by it. Local officials, fearful of their workers' positions in a global economy and of the loss of corporate revenues needed to sustain the community, were already overcommitted to maintaining mining operations. There was no going back. Then, an omen perhaps – the earthquake of 1959.

For 25 years, the Pit gobbled up neighborhoods, forcing thousands to accept whatever the company offered for their property, and relocate to the Flat, south of town. Some did not wait for the company as the following *Montana Standard* stories indicate: 17 fires in vacant or abandoned houses and other buildings in Big Butte-Centerville-Walkerville area between May 1 and Dec. 1, 1962; J.C. Penney and 10 other businesses destroyed in a \$3 million fire of unknown origin in December 1972; three uptown shops and the Copper City Chevrolet storage facilities were destroyed in a fire in December 1974; and another unsolved arson in August 1978 prompted the fire chief to direct his staff to enforce fire and building codes more strictly. Insurance policies paid more than the company, so businesses, fearful of the loss they would suffer at the company's hands, opted for larger insurance payments instead, one resident explained.

The Berkeley Pit reshaped the landscape both above and below ground. Above ground, the pit devoured communities, including the long-established neighborhoods of Meaderville and McQueen. Exiled, the former residents of the Hill created new neighborhoods on the level ground of the Flat, which was formerly claimed by the city's cemeteries. Less and less time seemed to come between troubling announcements. Rumors. Rumbblings. Events. Loss.

Community officials sought federal funds to cope with the changes and preserve the city's historic place. After being denied federal Model Cities funding in 1967, the city was successful in 1968 (*Montana Standard*). But that good news was undercut by a 1970 company pamphlet which reported that Pit operations were far from profitable. Although more than 275,000 tons of ore and waste were removed each day from the open pit operations, this was low-grade ore. As a result, five tons of material had to be removed to recover only 10 to 12 pounds of copper ore. This meant to recover approximately \$5 worth of copper, after processing, the company had to blast, load, and transport more than 10,000 pounds of ore and waste and the pit (Anaconda Mining Company, 1970).

New arenas of contested terrain surfaced. The question of where to relocate the Butte uptown business district, which lay in the path of the expanding Pit, became a hotly disputed subject in 1970. Uptown merchants organized to fight for their right to stay on the Hill (*Montana Standard*). The question became more urgent when Woolworth's moved off the Hill, the Finlen Hotel suffered a partial collapse, and the old Metals Bank was sold (*Montana Standard*). Two years later, planning studies had made it painfully clear that Butte must move from the Hill (*Montana Standard*). The company, which had refrained from comment throughout the debate, broke its silence at the end of 1972 when it announced it would mine the Hill and recommended a move southward as being in the city's best interest (*Montana Standard*). However, the company did not suggest a timetable for the move; nor did it commit itself to funding the move (*Montana Standard*).

Faced with the voracious appetite of the pit, residents sought to preserve

the only natural land that remained – the Columbia Gardens. This was the locus of community contact with the natural world as play, celebration, and ritual. Butte's perennial escape from drudgery in the harsh bowels of the earth, from slag-heaped and mine-dumped playgrounds, from dust and dirt ground into clothes and bodies. Alarmed by the company's planned construction of the East Continental Pit, the community sought corporate assurances that the gardens would be spared. On November 12, 1973, Columbia Gardens burned to the ground, the result of a fire of mysterious origin (*Montana Standard*). Although suspicions related to the convenient timing of the fire still rumble under the surface in Butte, no "fingerprints" were found at the blackened scene that once was the source of community pride.

Mary Kay Craig, who was living out of state when the fire occurred, remembers her shock at the loss of Columbia Gardens:

When I was still here they started doing open pit mining. The Pit grew and grew. My friends — a lot of my friends lived out where the Pit is now, in Meaderville and McQueen. I went to Columbia Gardens. That disappeared. I just couldn't believe the people in Butte would let that happen. But I talked to someone recently who said he favored it for jobs, so the mining would go on for years(Craig, 7/30/95).

Also, in 1973, predicting that more employment would result, the company began to dig in the Continental-East Pit, just east of the expanding Berkeley Pit (*Montana Standard*). That same year, the company paid \$800,000 to acquire the Holy Saviour Church and other property in the path of the Berkeley Pit's expansion (*Montana Standard*). On June 30, 1974, parishioners celebrated the final Mass in the 72-year-old Holy Saviour Church in

McQueen. The parish school was later used as a mining research building, the rectory was moved to be used as the Holy Spirit rectory, and the church itself was buried with rock from the Berkeley Pit (*Montana Standard*).

Faith in local officials was likely eroded when former Butte Mayor Tom Powers, who had brought the Model Cities program to Butte, was charged with bribery, offering false evidence, and preparing false evidence in a state workmen's compensation scandal at the close of 1974 (*Montana Standard*).

The Pit continued to grow. The company opened the Kelley mine; closed the remaining underground mines (Malone et al, 1993). The company opened the East Continental Pit. The layoffs continued. The strikes accelerated in frequency and in length— 1954, 1959-60, 1962, and 1967-68, the longest in the state's history (Malone et al, 1993).

Steadily, the expensive underground mines closed down, and the hardrock miners and smeltersmen became a vanishing breed. Open-pit mining is highly automated and requires far fewer employees than underground mining does. Butte, once the economic and political center of the state, saw its population and political power crumble away (Malone et al, 1993:325).

Newspaper headlines proclaimed the erosion of the tax base and devaluation of property. The loss of revenue threatened a loss of community services and local government jobs. The sense of family tradition and continuity that had always provided comfort through the tough times was ripped apart as the grief-struck community watched their younger people leave Butte in search of that now-elusive corporate-produced commodity, a job. From 1980 to 1988, Butte's population dropped from 50,600 to 43,200 (Malone et al, 1993). The older people who stayed in Butte wondered how

they would survive economically. Worried that the devastated community would see an increase in family violence, county Domestic Violence Program employees geared up for an increased demand for their services (Maney, 2/21/95). Marilyn Maney, who served as director of the county Domestic Violence Program, says:

We had anticipated we would see an increase in violence against women; in fact, it stayed pretty level. We did, however, experience an increase in the suicide rate among men...This is not to say the shelter did not have heavy usage. We saw family breakdown but as far as I know there has not really been a detailed study (Maney, 2/21/95).

Because suicide is not considered a crime, the state is unable to break out figures of suicides during that period which would make it difficult, but, given the possibility of local records, not impossible to tally the human costs of the shutdowns. There were fleeting moments of hope. Many hoped the 1971 Chilean government nationalization of Anaconda's Chilean mines (Malone et al, 1993) would restore Butte to its former privileged position in the company's hierarchy. The company was forced to rely more heavily on mines in Montana, Arizona, and Nevada but, because of its untenable financial situation, continued to cut back in Montana (Malone et al, 1993). In the mid-1970s, the company cut more, eliminating 700 to 1,000 jobs in Butte and Anaconda; in February 1975, the company announced 1,500 more layoffs (Malone et al, 1993).

A further glimmer of hope followed the 1976 announcement that the federal Department of Labor was investigating to see whether 1,000 workers laid off by the Anaconda Company would be eligible for trade adjustment

assistance under the federal Trade Act of 1974 which allowed workers who believe they are, or will be, unemployed as a result of increased imports, to petition the secretary of labor for assistance (*Montana Standard*). But the good news was always followed by the bad.

Also, in 1976, as a result of disagreement about where to relocate the business district, the city council rejected the Anaconda Company's offer of \$13 million in cash and in-kind contributions to fund the move (*Montana Standard*). As the dispute about relocation continued, the company's poor financial condition was taking its toll on the community: the county's taxable valuation dropped 26 percent because the company showed no profit in 1975 and was assessed no net proceeds tax in 1976. County officials warned the layoffs and decreased services would likely result from the loss of tax revenue (*Montana Standard*). The following year, the Anaconda Company appealed its tax bill in the middle of the fiscal year, jeopardizing some \$1.4 million of county tax revenue (*Montana Standard*).

In 1977, in reply to residents who continued to fight to save the uptown area, once the scene of bustling commercial activity, the company discouraged a search for investors to revitalize the area:

Anaconda says the uptown has millions of tons of low grade copper and it might want to mine it but is not sure when. The community will have to wait until the company decides whether it can afford to mine the uptown. The Berkeley Pit won't be mined out for 20 years and a dome-shaped deposit beneath the pit must be mined before the uptown. Mining the dome will take 20 to 25 years, the company says. Anaconda discouraged renovation saying it could not afford to buy the uptown if it were redeveloped (*Montana Standard*, 1/1/1978).

In 1977, the Atlantic Richfield Corporation's (ARCO) purchase of the company brought some desperately needed tax dollars to Butte's sagging economy (*Montana Standard*). However, competition from South American and African copper mines, and the development of satellite communications systems and fiber optics which reduced the demand for copper, forced ARCO to continue the already established pattern of layoffs (Malone et al, 1993). As the layoffs and uncertainty continued, in 1982, the community drew on its real natural resource — its people — forming the Butte Community Union, "an organization of people in Butte who lack economic and political power and who organize, educate, and empower people to identify and satisfy their needs through altering power relationships to change an unfair system and give the poor a voice; and to assist all people who are able to seek and find suitable employment (BCU fact sheet, 1989)."

Employment was desperately needed: a 1985 BCU survey of 171 households in Central Butte found that 70 percent were below the low-moderate income level and and 61 percent were below the low income level. By 1989, the group, which had roughly 200 paid members and a mailing list of 500, had been involved in three law suits fighting to retain the General Assistance Program for unemployed people; a fourth law suit forced the state to retain optional Medicaid Services of eyeglasses, hearing aids, and dentures. BCU research and action forced the state to end the "archaic and dehumanizing practice of allowing low-income people to see only one doctor and one dentist (BCU fact sheet, 1989)." The group's General Assistance victory was subsequently undercut by an opposition who changed the state constitution so that the indigent, elderly, and disabled were no longer

guaranteed assistance (O'Sullivan, 3/23/96). "So that sort of backfired," Sister Kathleen O'Sullivan, one of the board members of the group, says.

On the local level, the group forced the school board to reinstate the Elementary Hot Lunch Program, organized to get one more pharmacy to fill prescriptions for people receiving General Relief and Aid to Families with Dependent Children, conducted a comprehensive study of the lowest income neighborhood in town and made suggestions to improve it, and organized a tenant group in a subsidized housing complex. The group also was responsible for the park at the Emma Mine Site (BCU fact sheet, 1989), saved the Fox Hotel, and came a few votes short of increasing the state's minimum wage (O'Sullivan, 3/23/96). O'Sullivan, a Roman Catholic nun who was working in Butte, found herself drafted as a board member and "had to learn a new vocabulary. Through it all I discovered what the Gospel was about." (O'Sullivan, 3/23/96)

It was a powerful group. Bob McCarthy [the first director] knew what he was doing. He was a person with a passion for justice, he instinctively knew, smelled, injustice. We got a [Roman Catholic] Campaign for Human Development grants, plus Presbyterian and other church grants. We were always fundraising and grant writing. Bob had to go on welfare for a while because we were out of money (O'Sullivan, 3/23/96).

The group worked for "jobs and justice" and was not afraid to confront directly when it was necessary. "BCU was looked upon as a sort of threat to the status quo," O'Sullivan (3/23/96) says. By picketing the state secretary of labor's office in Helena the group got the secretary to correct the

unemployment figures he had been using. "Unemployment in Butte was 17 percent, not 7 percent. He was using incorrect figures and wasn't portraying the correct situation (O'Sullivan, 3/23/96)." When the governor visited Butte during the fight to retain General Assistance, the group erected a cardboard house on a vacant lot to illustrate the plight of the poor (O'Sullivan, 3/23/96). In the late 1980s, the group found itself struggling with internal divisions and hired a mediator.

My interpretation was that some people seemed to resent anyone who was not low income on the board. Our mediator was a volunteer who did well, but it didn't work out. A year later the National Campaign for Human Development started to fund — money to hire a mediator — for these situations but ours came a year too soon. We got word we were going to be voted off the board so we resigned. They tried to continue but they couldn't keep it going, they couldn't get funding (O'Sullivan, 3/23/96).

The group left a legacy that includes Montana Family Shares, a state-run charity that exists on donations from workers' paychecks, much like United Fund, and, as important, a continuing tradition of a community that helps itself.

However, the community had to rely on state assistance when, in 1978, environmental concerns surfaced in the form of radon gas. Environmental science researchers found high levels of radiation in slag produced by the Stauffer Chemical plant west of Butte. The slag had been used by Montana Concrete industries during the 1950s for housing, school, hospital and commercial construction in southwest Montana. The company's sales records were turned over to the state and a \$78,000 study was launched to

determine if radon gas emitted from the cement building blocks pose a health hazard. Throughout 1979, the state investigated, eliminating both building blocks and paving as a source of radon contamination, and turning to possible radiation emissions from fractures and fissures in the ground into certain homes as an explanation. The federal Housing and Urban Development agency mandated radon testing on homes in Butte and Anaconda before approval for federal mortgage loans (*Montana Standard*).

As the community fought to save the uptown area, workers protested the loss of their jobs. In 1980, a picketer during the Anaconda Smelter closure carried a sign that read, "We need JOBS, not just clean air," (*Montana Standard*) a testament to corporate ability to equate job loss with environmental regulation rather than corporate practices in the arena of global capitalism (Edelstein, 1988). In 1981 the feared shutdowns began when ARCO closed the Kelley shaft (*Montana Standard*). The following year, the corporation closed the Berkeley Pit operations (*Montana Standard*). Workers and county officials struggled with the loss of the personal and community finances. Butte-Silver Bow Chief Executive Don Peoples estimated that the 1,000 jobs that remained in the Berkeley Pit sustained 2,700 other jobs in Butte (*Montana Standard*).

In 1983, ARCO suspended mining operations in Butte, laying off the remaining 700 employees and shutting off the pumps which allowed metals-contaminated water to flow into the Pit (Malone et al, 1993). The shutoff of the pumps took the community by surprise. Local officials were presented with a done deal, former state Representative Fritz Daily says:

People ask why the people from Butte didn't stop this. At midnight

April 24, 1982 ARCO shut the pumps off and at noon the next day ARCO told the people of Butte they'd put the pumps off. The area was already flooded. (12/8/95)

In another of the ironies that constitute Butte's history, ARCO shut off the pumps on Earth Day (CTEC and Women's Voices for the Earth, 1996). As the Berkeley Pit began to fill, the company gave assurances that the influx of water would drive oxygen out of the mine workings under the Hill, thus preserving timbers and preventing collapse (*Montana Standard*). It also announced that its newly-installed system of wells in the Summit Valley, near the Flat, would detect any encroachment of minewater into the Summit Aquifer (*Montana Standard*). However, the state Bureau of Mines was concerned because the company did not announce plans to monitor either surface water or the effect of increased volume flowing into Silver Bow Creek and waterways downstream (*Montana Standard*). The bureau also questioned if the estimated 70 degree average temperature of the water in the Pit would create a steam and fog problem during cold weather inversions (*Montana Standard*). There was no American precedent for a mine flooding of this scale — even company officials admitted no one knew what would happen (*Montana Standard*).

Suddenly there were new fears: groundwater flow as a source of poisons. Corporate maneuvers continued. The company refused to abrogate its claim to the Hill (*Montana Standard*). If copper prices increased, the mines and pit could be dewatered, company officials announced, therefore, this was not a permanent closure so the company would not pay supplemental benefits to laid-off workers (*Montana Standard*).

More contested ground emerged. In 1982, Butte's religious community and the Roman Catholic Diocese of Western Montana sent representatives to an ARCO shareholders meeting in Los Angeles to ask for fair treatment for those laid off, and for corporate reinvestment of tax write-offs in Butte (*Montana Standard*). A group of laid-off workers formed the Coalition for Benefits to put pressure on ARCO (*Montana Standard*). ARCO resisted. Relief came in the form of a Congressional extension of supplementary compensation — 7,953 claims for the additional four weeks of unemployment benefits were filed in Montana alone (*Montana Standard*).

Another flicker of hope accompanied the announcement of Montana millionaire Dennis Washington's purchase of the old Anaconda/ARCO properties in Butte. Union members, delighted with the prospect of mining jobs, offered to help Washington, the new owner of the East Continental Pit, set up the operation; however, once established no union jobs were forthcoming (Finn, 1995).

Undaunted, the community threw its support behind the dream of a Butte man who had promised if his wife survived her bout with cancer he would build a statue in honor of mothers. In the early 1980s, unemployed workers began to plan the project that would become Our Lady of the Rockies, a 90-foot steel statue. Against all odds they raised the funds to construct the statue and convinced the department of defense to loan them a helicopter to place the statue on the East Ridge, overlooking the Berkeley Pit. To an outsider, the combination of the welcoming open arms of the Lady of the Rockies and the vast toxic lake in the Berkeley Pit is sufficiently incongruous to be startling. Mark Reavis, the county's historic preservation officer, was a newcomer in

Butte when the mines were closed and the community embraced the Lady of the Rockies project. At first, he was baffled, but quickly understood why this 90-foot statue was so important:

This town had a real problem in 1982. It had to make a decision whether to live or die. There was a certain community acknowledgement that we had to build something new. The statue was a sign we were still here, despite all those community controversies. It was a real critical time when they put the statue up there. I saw a real change. The town stopped and took a look at themselves (Reavis, 11/29/95).

John T. Shea, who is still involved with the operation of Our Lady of the Rockies Chapel on Main Street, believes the faith of Butte, as expressed in the construction of statue, gave the embattled community new life:

I worked on Our Lady of the Rockies. I got laid off in 1983 and went to work [on her] in 1984. When they shut the mines down, they said they were going to bury us in that hole down there, the Pit. It was tough. My sister died in 1983, the 14th of July, right after I got laid off on June 30th.

We started the statue in 1984. In January 1986 Washington opened up and brought 300 jobs. We've been going up ever since." (10/24/95)

Yet, more new dangers came to light — arsenic, the evacuation of 14 families at Milltown, cadmium, U.S. Environmental Protection Agency investigations, lead (*Montana Standard*). The 1986 designation of the city as a federal Superfund site initiated what has become almost 10 years of environmental cleanup. Newspaper stories featured new jargon — remediation, operable units, maximum contaminant levels, risk assessment, feasibility studies. News stories about dioxins, volatile organic chemicals, Walkerville, Silver Bow Creek, the Colorado Tailings, and the Montana Pole

Plant (*Montana Standard*). Also in 1986 Chief Executive Don Peoples announced the county anticipated losing over \$800,000 in taxes because of reduced valuations (*Montana Standard*). The reductions were attributable to the already delinquent Port of Montana, Anaconda Minerals now owned by ARCO, and the Safeway Warehouse during fiscal 1986-87, as well as a loss in federal revenue sharing and aid to the transit system, and in rent from the local welfare office which was moving from the courthouse to new quarters (*Montana Standard*). Given the financial straits of individuals and businesses in the county, tax increases to compensate for the \$800,00 loss were not realistic, Peoples said. Instead, the county would have to drop 33 employees from the payroll and decrease the valuation of county property to "an unheard of low" of roughly \$39 million in 1986, compared to \$60 million in 1975. (*Montana Standard*, 1/8/86).

In 1990 the EPA became a permanent presence when it opened a Butte office in the basement of the copper-doored large gray stone courthouse on the corner of Granite and Montana Streets.

This was Butte. A century of different lessons learned in diverse ways. Boom and bust. Illness. Consolidations and divisions. Death. Differences. Trust and betrayal. Giving and taking. Burrowing and tunnelling. Stilled voices. Silences. Rumors. Rumbings. Whispers. Eruptions. Disruptions. Profits. Loss. Changing contours. Grief. New boundaries. Shifting landscapes.

These are the forces that have shaped both Butte's physical landscape, and the way in which Butte's people perceive that landscape. It is a remarkably single-minded history of frontier capitalism and industrialization that extracted every resource practicably possible from both the land and Butte's

people. It is a history of exploitation on a vast scale. It is a history of a place that had just one reason for being, a place that has assumed the status of myth.

This is nothing like you'd expect. The downtown's located on a hill. This is totally based on mining. It has no reason for existing other than that. Most towns are based on things like transportation or water. But everything about Butte is about mining— when they first laid out the original town site, it was related to the mines in operation at the time. You can trace the development to geology, in the frames that follow the arc of the Hill, the track that connects all the headframes. This wasn't a Western mining camp; there was too much of it [the ore] (Reavis, 11/29/95).

Too much ore — enough to inspire wars between powerful men, to attract tens of thousands of immigrants in search of jobs, to spawn a vast international corporation with investors willing to do whatever was necessary to maintain profits, to hold local, state, and federal governments hostage to their share of taxes on those profits, to create a place in which every resource — human and nonhuman — was put to one end only.

That ore had existed for millennia until humans discovered a use for it and developed technology to extract it. It should be kept in mind, when considering Butte, that the presence of the ore was not responsible for human events any more than the chemicals that leach out of the gutted earth are responsible for the toxins in Butte today. The responsibility resides in human assumptions embedded in political and economic institutions, embedded so deeply they remain unquestioned; yet they are the background which shape our relationships with each other and with the land. It is those assumptions that drive the federal law mandating the cleanup of Butte.

¹ Cleveland's actions were the result of an ongoing battle between the proponents of the gold versus the silver standard. The battle was heated because bankers and wealthy elites who had purchased government bonds during the Civil War insisted upon being paid back in gold. Had silver prevailed, they would have had less return on their money. The conflict would come to a head in the election of 1896. For a full discussion, see Goodwyn in works cited.

² Because this thesis is primarily concerned with the socially constructed landscapes of Butte, it does not include references to Emmon's consideration of the immigrant Irish national identity and related issues. Thus, this thesis gives a necessarily oversimplified recapitulation of Emmon's work.

SUPERFUND AND RISK

The Limited Landscape of Technocratic Discourse

The practical quest for a defining "hard science" has mythic qualities and may be as elusive as the proverbial Holy Grail. The EPA has scientists; ARCO has scientists. Claims of "scientific objectivity" notwithstanding, EPA scientists, state of Montana scientists, and ARCO scientists find little common ground. The terrain of "hard science" has become as contested as any other ground in Butte. This thesis argues that the contest has resulted from the allocation of what are unresolved and properly political issues to the realm of science.

In 1986, as Butte struggled with the loss of mining – a loss of both economic base and cultural identity – the Environmental Protection Agency (EPA) designated the city a federal Superfund site, precipitating an influx of technocrats to work in both public and private spheres. Decisions made about the health threat posed by contamination and the extent to which it should be cleaned up will be made by these technocrats; another instance of outsiders making important decisions for Butte natives. The technocratic approach to Butte is not founded in the social realities of the place. Rather, federal agency employees and contracted private sector technocrats are mandated to solve a presumably technical problem with the presumption that their skills can be applied universally (Schrader-Frechette, 1991; Merchant, 1992). Their goal is to measure the contaminants, assess the degree of risk posed by the contaminants, and clean them up to agreed-upon standards, and to develop new technologies to accomplish their tasks (Schrader-Frechette, 1991; Yeager, 1991). This is in no way an assertion that scientific research is unimportant.

The research conducted in Butte is important, both for Butte and other contaminated communities. What is at issue here is not the scientific research itself, rather it is the institutionalized assumptions that determine the definition of the problem and scope of the work (Schrader-Frechette, 1991; Merchant, 1992; Kroll-Smith and Couch 1991a; Brown, 1991). This section will argue that the technocratic approach reduces a complicated social problem to a narrow technical problem, and, in so doing, both camouflages and reinforces the reality of inequalities of wealth and power that produced the contamination (Blaikie and Brookfield, 1987; Peet and Watts, 1993; Boyce, 1994; Schnaiberg and Gould, 1994; Yeager, 1991; Barnett, 1994). Equally important, the technocratic approach leaves little latitude for public participation (Greider, 1992; Schrader-Frechette, 1991).

With the exception of Sara Weinstock, the EPA public affairs officer in Butte, most of the researchers working in Butte are not natives. This fact is important because the newcomers' lack of connection to the place and its history allows them to maintain their belief in the possibility of objective, rational solutions to a seemingly technical problem (Schrader-Frechette, 1991; Kroll-Smith and Couch, 1991a; Greider, 1992). Once social issues, such as the impact of the toxic label which stigmatizes the community, have been factored out, it is possible for researchers to look at the contamination in Butte as another resource to be mined, as a marketable commodity to be sold as an employment and research material. Technologies developed in Butte can be marketed as solutions for future contamination; and, if an officially sanctioned cleanup can be accomplished in Butte, the status quo can be maintained — hierarchical relationships, patterns of discourse, issues of who pays and who benefits will remain unaddressed. Given the federal

government's interest in maintaining economic stability, which is dependent upon tax revenues from continued corporate profits (Schnaiberg and Gould, 1994), it is not surprising to find that federal grant money has been the impetus for much of the high-tech research in Butte. For example, \$3.5 million to develop a Waste Technology Center in Butte (*Montana Standard*, 10/4/1990); \$12 million to develop a process using magnets to upgrade the value of coal which would be very useful to ARCO Coal, the company's division in charge of the Superfund projects (*Montana Standard*, 10/17/1990); and \$15 million for the Berkeley Pit to become a test site both to develop cleanup methods and to extract the metals, that remain in the contaminated water (*Montana Standard*, 12/12/1990). Within context of Butte's history, this is simply another variation of "mine it and get out."

However, there are local economic benefits to this new form of mining, Butte-Silver Bow Chief Executive Jack Lynch points out:

..in a sense they have been a real economic boon to Butte-Silver Bow. The number of engineering, environmental, investigation, and remedial firms currently doing business here as well as the major expenditures on cleanup have proved in many ways beneficial. (Lynch, 10/25/95)

The marketing of contaminants has been a boon for the local economy. The community desperately needed the additional revenues which the newcomers brought in the form of property taxes from businesses and individuals who relocated in Butte and/or purchases from local businesses. "Superfund's doing some good," John T. Shea, president of the ARCO Retirees Club, (10/24/95) says wryly. "It's making millionaires out of two

contractors." The 1990 federal census indicates that Butte-Silver Bow has a higher percentage of managerial and/or professional specialty occupations and of technical, sales and administrative support personnel, 25.6 percent and 32.1 compared to the state which has percentages of 24.1 and 28.2, respectively. Unfortunately, the the economic benefits of remediation have not filtered down through the workforce, Butte-Silver Bow's unemployment rate is still higher than that of the rest of the state. The 1990 census figures post Butte's unemployment at 9.7 percent, compared to a state rate of 7 percent (1994 County and City Data Book).

The cleanup of Butte is governed by CERCLA, the federal Comprehensive Environmental Response, Compensation and Liability Act of 1980, commonly called Superfund. The 1980 Superfund law and the Superfund Amendments and Reauthorization Act of 1986 regulate cleanup of abandoned hazardous waste¹ sites, such as those created by mining operations in the Butte/Anaconda area. The law is premised on the notion that the "polluter pays." In the language of the law, potentially responsible parties (PRPs), identified by the federal EPA, pay for cleanup, often called remediation, of those sites that have been placed on the National Priorities List. The Atlantic Richfield Corporation (ARCO), which bought the Anaconda Company in 1977, has been identified as the primary potentially responsible party for Butte's Superfund sites, which are part of a group referred to as the Clark Fork Complex.

The EPA took control of the contaminated lands surrounding Anaconda and Butte in December 1982 and November 1986, respectively. Cleanup of Butte and the other sites which are part of the Clark Fork Complex is a massive undertaking. (See map of the Upper Clark Fork Superfund Sites in

the appendix.) For the 100 years of mining operations in Butte, mining-related toxins ran down Butte Hill into Silver Bow Creek which recovers discharge from storm drains, secondary effluent from the Butte Sewer Treatment Plant, and groundwater underlying the Butte Reduction Works (USEPA, 1991). After leaving Butte, the creek flows southward where it empties into the Upper Clark Fork River near Warm Springs Pond (USEPA, 1991).

The 340-mile Clark Fork River is one of the Mountain West's largest rivers, with nearly twice as much water as the Missouri and Yellowstone (Nielson, 1988). The Clark Fork watershed drains a 22,000-square mile basin which receives about 33 million acre-feet of water a year from rain and snow — roughly half of this yearly precipitation reaches the Clark Fork River; the rest evaporates or is used by plants (Sarver, 1994). Because groundwater movement through the Clark Fork aquifers is rapid — ranging from three to 60 feet per day — the water is very clean (Sarver, 1994). However, that rapid movement means that contaminants would spread quickly (Sarver, 1994). The entire Superfund site includes 20 square miles of tailings ponds, 175 square miles of soil and plants contaminated by air pollution from smelting operations, 30 square miles of unusable agricultural land, and 150 miles of contaminated river bed along Silver Bow Creek in Butte and the Clark Fork River (*Montana Standard*, 10/15/1991). The geographic area involved is so massive — running from Butte southwest to the Milltown Dam, just 26 miles east of Missoula (see Milltown Reservoir map in the appendix) — that EPA scientists have divided it up into operable units, based on geography and type of contamination (USEPA, 1991). A list of toxins identified at the

operable units referred to in this section and related illnesses is included in the appendix.

The operable units in Butte contain a toxic brew of mining-related contaminants — including lead, copper, arsenic, cadmium, and mercury, and dioxin and PCP (pentachlorophenol). (See map of Silver Bow Creek/Butte Area Superfund Site Operable Unit Locations.) To simplify the discussion, this analysis will refer only to the following operable units in Butte: the Mine Flooding Operable Unit, known as the Berkeley Pit; Lower Area One; Area One; and the Montana Pole Treatment site.

THE BERKELEY PIT

The Mine Flooding Operable Unit, also known as the Berkeley Pit, covers 14 square miles, and includes the flooded underground mine workings connected to the Pit, the Yankee Doodles Tailing Pond, The Montana Resources' Concentrator, Silver Bow Creek, and the alluvial groundwater that is connected to the Berkeley Pit and Silver Bow Creek (USEPA, 12/15/1993). The site is bounded to the south by Silver Bow Creek, to the east by the East Ridge/Continental Divide, to the north by the northernmost limits of the Yankee Doodle Tailings Pond, and to the west by Missoula Gulch. Part of the site is within Butte city limits, the remainder is owned by Montana Resources and other mining companies.

The bottom of the Pit was located at elevation 4,265 feet when mining operations ceased in 1982 (USEPA, 12/15/93). The total depth of the Pit, which covers 800 acres, from the bottom to the highest point on the rim is 1,780 feet. The chemicals evaluated for public health risk include: arsenic,

cadmium, lead, sulfate, and zinc. Those evaluated for ecological risk include: aluminum, arsenic, cadmium, copper, iron, lead, zinc, along with hardness and pH. Because scientists have concluded that residents will not be exposed to the chemicals unless the water level in the Pit rises to meet the groundwater level in the East Camp bedrock aquifer, their estimates of public health risk are based on possible scenarios that would result in contaminated water meeting uncontaminated water, or from an overflow of the Pit water. Using a conservative methodology, more protective of human health, scientists assumed that any exposure to the carcinogenic chemicals in this operable unit is to be avoided. Threshold limits, below which exposure is considered safe, are not used for carcinogenic chemicals. For chemicals classified non-carcinogenic, threshold values were used to determine exposure risks.

LOWER AREA ONE

The Lower Area One (LAO) is the downgradient portion of a larger unit, called Area One (USEPA, 1991). LAO, which contains the Priority Soils Operable Unit, is located west of Montana Street to below the Colorado Tailings. (See Lower Area One map in the appendix.) The two primary sources of contamination in this unit are the Colorado Tailings and the Butte Reduction Works. Chemicals identified as posing risk to human health are arsenic, cadmium, chromium, lead, and zinc; chemicals of ecological concern are aluminum, arsenic, cadmium, chromium, copper, iron, lead, silver, and zinc (USEPA, 1991). This contamination, primarily the result of milling activities over the years, has polluted Silver Bow Creek. Further degradation

has resulted from direct discharges of effluent from the Butte Sewage Treatment Plant into Silver Bow Creek.

Unlike the Pit, there is public access to this contamination. Children have been observed playing in the section of Silver Bow Creek adjacent to the test site, and dirt bikes have been observed in the Colorado Tailings area (USEPA, 1991). Within the LAO there is the Butte Sewer Treatment Plant, a livestock stockyard, a city-council asphalt plant, a privately-owned asphalt plant, autobody shop, restaurant and bowling alley. Currently there are currently no homes within the area (USEPA, 1991).

The contaminants are spread by groundwater and surface water flow. The groundwater occurs in fractures and weathered zones but the system is not clearly understood, partially because of the network of underground mine shafts and tunnels in the bedrock under Butte Hill (USEPA, 1991). Surface water flow is the result of Silver Bow Creek, Blacktail Creek, the Metro Storm Drain, Missoula Gulch, and Butte Sewer Treatment Plant discharge (USEPA, 1991). Carcinogenic chemicals on the site include arsenic, lead (which was not considered carcinogenic by the scientists working on the Mine Flooding Unit), and possibly zinc, which has been associated with the growth of tumors (ESEPA, 1991). The greatest incidence of increased cancer as a result of the site is associated with drinking contaminated groundwater, which is unlikely because this is not a residential area (USEPA, 1991).

AREA ONE

The risk assessment for Area One has not been completed, however the agency has completed a Draft Baseline Risk Assessment for Lead in the Priority Soils Operable Unit, which includes Butte and Walkerville, and

extends from the Missoula Gulch eastward to the Berkeley Pit, and from Walkerville south to Timber Butte (USEPA, 2/11/94). The EPA will address risks related to the cadmium and arsenic associated with this area when the risk assessment is prepared. The lead is the result of waste rock dumps, railroad beds constructed of mine waste, mine tailings, smelter emissions, and other mine-related materials associated with mining, milling, and smelting, which ceased in Butte in 1910 (USEPA, 2/11/94). The contamination has been spread by surface runoff and wind. Samples of soil were taken from 142 residential yards of a total 1,604 in this area. Fifty percent of the residences sampled had environmental lead concentrations that result in a predicted 95 percent probability a child would have a blood lead level higher than the EPA limit of 10 micrograms per liter of blood. Children up to age six and pregnant women are most at risk from lead (USEPA, 2/11/94).

MONTANA POLE TREATMENT SITE

The 45-acre Montana Pole Treatment site off West Greenwood Street (see Montana Pole map in the appendix), which operated from 1947 until the company went out of business in 1984, is contaminated with carcinogens, including pentachlorophenol (PCP), dioxins, furans, and over 100 types of polycyclic aromatic hydrocarbons, the result of chemicals used to treat timber products (USEPA, 2/10/93). The Colorado Smelter wastes and mill tailings are located to the west and north of the site, a federal government manganese stockpile site and the former Butte Reduction Works are directly north, and the Montana Power Company's transformer maintenance and storage facility lie to the west and north. A partially reclaimed gravel pit, as well as a blasting and explosive powder company lie to the south of the site, which is

surrounded on the east and west sides by active railroad lines. There are residences within a quarter mile of the site to the east and west.

Although the greatest chance of exposure on the site comes from PCP, the most potent of the cancer-causing chemicals are the dioxins/furans (USEPA, 2/10/93). Other chemicals on the site include arsenic, chromium, copper, lead, other phenols, and zinc. Contaminants are spread by surface water and wind. The risk associated with ingestion of groundwater from this site was estimated as one additional cancer in each 1,000 people. Groundwater is currently being treated to remove the contaminants.

All but a very small part of Butte is a Superfund site. Throughout the city there are three million cubic yards of old mine tailings, rocks, dirt, arsenic, lead, cadmium, and mercury. From 1988 to the summer of 1995, the EPA removed half a million cubic yards of mine waste (Weinstock, 7/31/95). On the EPA's 1,200-site National Priority List, which ranks sites by the threat they produce to human health and the environment, the Silver Bow Creek Unit, which includes the Berkeley Pit, is number 20, and the Montana Pole Plant, number 735 (J. Robbins, 1994).

Yet few people in Butte participate in the cleanup process. And the few who do — primarily members of the Citizens Technical Environmental Committee (CTEC), which was established under an EPA technical assistance grant (TAG) to translate Superfund jargon into recognizable English — cry foul. CTEC's composition has changed over the years, moving from a membership of scientists and mining engineers from Montana Tech, the former school of mines, in Butte, to lay membership, more of the type associated with toxic waste grassroots groups (Brown, 1991; Greider, 1992;

Kroll-Smith and Couch, 1991a; Wolensky, 1991; Edelstein, 1988). Another group, the Clark Fork-Pend Oreille Coalition, based in Missoula, is primarily concerned with the cleanup of the Clark Fork River. The Coalition is a well-established, hierarchically organized group, more representative, in structure, of the large national environmental groups, e.g., the National Audubon Society and the Sierra Club.

Activist complaints, such as those raised by CTEC members, are not unusual. From its passage, Superfund has been the subject of controversy (Barnett, 1991; Yeager, 1991). Public fears of hazardous waste reached a fever point in the 1970s with the publicity related to the Love Canal site in New York (Greider, 1992; Brown, 1991; Hird, 1994; Couch and Kroll-Smith, 1991). And, according to a recent national survey, those fears have not subsided – 66 percent of respondents rated the danger posed by hazardous waste sites as "very serious." (Hird, 1994:5) Concerns about health impacts of hazardous waste were ranked higher than the dangers related to nuclear accident radiation, pesticide residues, contaminated tap water, ozone layer destruction, acid rain, and every other environmental problem listed (Hird, 1994).

Given the political economy of Superfund, and other major environmental laws, conflicts between government agencies and the public are inevitable, some analysts say (Barnett, 1994; Yeager, 1991; Schnaiberg and Gould, 1994). Economist Harold C. Barnett maintains that Superfund has failed because of conflict over who will pay the toxic debt and the impact of this conflict on interdependent funding and enforcement decisions at federal, state, and local levels.² Because of the unresolved conflict between the corporate search for profit and public fear of the health impacts of contamination, interested parties often find it necessary to become involved

in the cleanup process (Edelstein, 1988; Brown, 1991; Greider, 1992). However, the notion of public participation as negotiation put forward by the EPA is misleading (Greider, 1992; Edelstein, 1998; Barnett, 1994). Implicit in the concept of negotiation is an equal distribution of power for all parties. But that is not the case because corporations have far more resources at their disposal than do the citizens affected by corporate practices (Barnett, 1994; Greider, 1992; Brown, 1991; Yeager, 1991). The effectiveness of the law is undercut because the information-driven decision-making system favors those parties with the financial and technical resources necessary to negotiate with agency officials (Yeager, 1991; Greider, 1992). The end result is the disenfranchisement of the concerned public which does not have the resources to participate in the multitude of decisions (Yeager, 1991; Greider, 1991).

In Butte, this unresolved conflict between private and public, manifests itself in relationships between federal, state, and local governments, ARCO, and CTEC members who believe they have been shut out of the debate. It surfaces in disputes over "who pays," "how clean is clean," definitions of risk, and permanent versus impermanent solutions.

WHO PAYS?

The question of who will foot the bill for the reclamation of Butte and related Superfund sites has become an ongoing battle. The Superfund, financed by taxes on petroleum products and 42 chemicals, is used to clean up land-based sites which pose an immediate threat to human health and the environment prior to recovery from responsible parties, and to clean up sites for which there is no responsible party (Barnett, 1994). Because on some sites

it is impossible to identify the responsible party, as in cases of "midnight dumping," or, in other cases, businesses that may be responsible have gone out of business years prior to discovery of the contamination, the government must absorb the cost in some cases. However, when the responsible parties can be identified, under federal and state Superfund laws, those responsible parties must pay.

The EPA and state of Montana maintain that ARCO is the primary responsible party. In June 1989 the EPA filed a lawsuit against ARCO to recover \$6.3 million which the agency had spent to replace the arsenic-contaminated water supply at Milltown, relocate 37 families at Mill Creek, and demolish the Anaconda smelter, each part of the Clark Fork Complex (*Montana Standard*, 2/11/1990). The state of Montana has filed a \$635.4 million lawsuit against ARCO for damage to natural resources (Montana NRDP, 1994). The state charges that 11,590 acre-feet of groundwater has been injured by mining operations in Butte and that contaminated surface water in Silver Bow Creek is a source of hazardous substances to injured aquatic resources downstream (Montana NRDP, 1994). Additional damage has been done to surface water, soil, river sediments, plants, fish, wetlands and wildlife (Montana NRDP, 1994). The dollar amount of the lawsuit is based both on the cost of restoring the environment to a less-than-pristine state and on the lost revenues for tourism and recreation that resulted from the pollution. The state gave ARCO a break when waived its right to collect even more money for damages done to tourism and recreation before the passage of the federal Superfund law (*Montana Standard*, 5/12/1995).

But ARCO claims it has no responsibility for cleaning the Clark Fork River of the pollution that resulted from mining and smelting operations in the

Butte area. In February of 1990, the company asked the court to dismiss the EPA's \$6.3 million lawsuit (*Montana Standard*, 2/11/1990). In 1991, the company listed 46 defenses against liability, including: laying the responsibility on the state because the state "aided and abetted miners for more than a century;" claiming that state and federal Superfund laws are unconstitutional; claiming that the pollution occurred before the Superfund law was created; maintaining that because much of the waste was created during wartime, when the miners worked extra shifts to meet Department of Defense demands for copper, the contamination is the result of "acts of war;" and charging the company cannot be held liable for damages caused by an "act of God (*Montana Standard*, 7/28/91)." ARCO's defenses provoked angry responses from environmentalists. Peter Nielson of the Clark Fork Coalition, said it is absurd for ARCO to blame the state for environmental damages at a time when the mining companies, and especially the Anaconda Company, controlled the state (*Montana Standard*, 7/28/1991).

Also in 1991, ARCO sued Montana millionaire Dennis Washington for "untold millions," claiming that Washington, the owner of Montana Resources which is still mining in the East Continental Pit, and associated mining companies were sending contaminated water into the Berkeley Pit (*Montana Standard*, 10/8/1991). ARCO claimed that 1.5 million gallons of heavily polluted water from MRI's operation has flowed southward into the Berkeley Pit from the Yankee Doodle tailings ponds and precipitation, and that MRI'S polluted water constitutes the primary contaminant of the Pit (*Montana Standard*, 10/8/1991). Two and a half weeks later, ARCO officials announced they would file a lawsuit against two EPA contractors because their "shoddy work" caused 68 percent of the contamination at the site

(*Montana Standard*, 10/25/1991). Sandy Stash of ARCO said the contractors allowed treated water to return to groundwater with a PCP level of 1600 parts per million even though the EPA drinking water standard for PCP is one part per billion (*Montana Standard*, 10/25/1991). ARCO also charged that EPA personnel were aware of the spread of contamination and did nothing about it (*Montana Standard*, 10/25/1991).

These conflicts are inevitable because the imposition of cleanup costs on the corporations deemed responsible for the contamination presents a real threat to the "treadmill of production." (Schnaiberg and Gould, 1994) ARCO's lawsuits and maneuverings are not the result of evil intent; they are directly related to the economic need to grow to survive, to produce profits to compete with other firms for limited expansionary funds (Schnaiberg and Gould, 1994). Millions of dollars spent on cleanup pose a real threat to the profit side of corporate balance sheets. So corporations will go to great lengths to minimize threats. Those lengths include the creation of the Coalition on Superfund, which was created within months of Congressional passage of the reauthorization amendments in 1986, to analyze how Superfund worked and recommend improvements (Greider, 1992). Founding members included General Electric, Dow, Du Pont, Union Carbide, Monsanto, and AT&T, "leading culprits in hazardous waste pollution," and major insurance companies which stood to lose huge amounts if their clients were held responsible for the pollution they created (Greider, 1992:42).

The Superfund Coalition's initial budget, \$840,000 a year, was targeted at obtaining high-quality "research" and building alliances in "industry, Congress, the administration, academia, think tanks, the media and select environmentalists (Greider, 1992:43)." The goal was to convince the public

the law was not working when it came up for reauthorization in five or six years. This type of lobbying is part and parcel of what former journalist William Greider calls "mock democracy," a governmental form that appears to involve "free and open political discourse, but is shaped and guided at a very deep level by the resources of the most powerful interests (1992:43)."

Other participants come and go in the political debate, especially unorganized citizens, who cannot always afford continuous involvement. They are temporarily aroused by an issue, see reforms enacted and then move on to other concerns. But the corporations do not go away from the legislative debate, even in the off-seasons....[they] are always at the table, fighting over the same points year after year. It is their business to be there. Their profits depend on the outcomes (Greider, 1992:43).

Corporate tactics in the late twenty-first century are far more sophisticated than those of the Anaconda Company earlier in the century. ARCO, along with the Chemical Manufacturers Association, the American Petroleum Institute, and the insurance industry have proposed settlement strategies designed to increase the portion of cleanup financed by the Superfund, place greater emphasis on negotiation, and provide more incentives for voluntary settlement – all in the name of efficiency (Barnett, 1994). The corporations argue that these reforms will reduce astronomical amounts currently paid to attorneys and, therefore, free up more of the money now spent on legal costs for cleanup (Barnett, 1994). It may be possible that less money would be spent for lawyers but that is no guarantee that the money saved would go into cleanup rather than corporate profits.

ARCO has suggested that problems created before final Resource

Conservation and Recovery Act (RCRA) hazardous waste regulations were adopted in 1981 be subject to less stringent liability than those created after adoption (Barnett, 1994). Prior to passage of RCRA there were few regulations and no requirements that companies document hazardous materials, so, if ARCO's suggestion were adopted, it would be far more difficult for government to prove corporate responsibility, virtually guaranteeing that taxpayers fund more cleanups (Barnett, 1994). Because the company discontinued mining operations in Butte in 1982, it is conceivable that ARCO's recommended "improvement" of Superfund would virtually let ARCO off the hook for cleanup, leaving taxpayers to pay billions of dollars.

ARCO also is seeking the abandonment of joint and several liability as a basis for negotiation, claiming it discourages settlements and voluntary cleanups and forces companies willing to settle with the EPA to then sue other responsible parties to recover costs (Barnett, 1994). Because in many cases, there are numerous responsible parties for a particular Superfund site, the joint and several liability provision is designed to allow the EPA to target the most financially stable PRP to recover remediation costs (Barnett, 1994; Greider, 1992). That PRP must then initiate legal action to recover costs from other responsible parties (Barnett, 1994; Greider, 1992). ARCO argues, since the courts generally use the same evidence as the EPA, the agency could reduce transaction costs if it apportioned liability prior to negotiation and agreed to fund any balance that may have resulted from the activities of insolvent or unidentified parties (Barnett, 1994). EPA officials disagree (Barnett, 1994).

Because the agency must stay within the budget voted by Congress and cleanup costs are so high, EPA officials argue that cleanup of sites would be

dragged out interminably if the agency had to resort to the courts to determine the proportions paid by each PRP before beginning remediation (Barnett, 1994). Because many sites consist of a mixture of toxins, determining the fair share is complicated, difficult, and time-consuming, so ARCO's "improvement" would "effectively remove such action from Superfund," EPA officials argue (Barnett, 1994:298). State officials support the EPA. In May 1995, Montana's chief deputy attorney general told a Senate subcommittee that Congress would "be ripping off Montanans" by eliminating retroactive liability and limiting damage awards to the cost of cleanup (*Montana Standard*, 5/12/1995:1).

The financial stakes are high in Butte. Cleanup costs may run as high as \$1 billion; the EPA has already spent over \$30 million (J. Robbins, 1994)) and much of the planned cleanup has not yet begun. Cancers and other serious illness may also be an issue (Craig, 7/30/95; Waring, 10/21/95; Brown, 1991; Greider, 1992; Cortese, 1993; Lappé, 1991). Those human costs are far more expensive than currency. And they are far harder to prove (Greider, 1992; Cortese, 1993; Lappé, 1991; Bates, 1994). The thesis will consider these costs in a later section.

While ARCO lobbies to effectively eliminate its liability, it runs full-page advertisements and expensive television ads in Montana, touting its responsible behavior as a "partner" in cleanup, subtly making the point that others should also pay (ARCO, 1995). At the end of its 76-page full-color Environmental Action Plan for the Clark Fork River, ARCO (1993) addressed its complaints with Superfund more directly, criticizing liability provisions under the law. In the company's discussion of the Montana Pole site, it says:

As the result of a \$25 lease by the Anaconda Company several decades ago, ARCO today is implicated in a Superfund site it never operated and faces liability that could run to tens of millions of dollars. Years have now passed since the initial contamination was discovered. Studies have been done, costs are mounting, but final action is still to be decided.

Few can blame American business and industry for protesting the current scheme. Lawyers and consultants profit as private and public resources dwindle. Ultimately the environment loses as substantive cleanup is delayed... (ARCO, 1993:Issues section).

ARCO's publication and its circulars, distributed in the local newspaper, do not mention the profits the company is still reaping from the other properties it obtained from the Anaconda Company (Craig, 7/30/95). Nor do they mention that ARCO itself is responsible for many of the delays, e.g. legal actions (*Montana Standard*), it cites as reason to amend the federal Superfund law. However, ARCO's advertising which has been decried by local activists, has been effective in some quarters. The appeal to simple equity strikes a responsive chord in many. The notion of fair play is deeply imbued in most Americans, especially when contradictory data have been omitted. John T. Shea, president of the ARCO retirees club in Butte, says he and the majority of retirees question the distribution of cleanup costs. The Anaconda Company, not ARCO, was responsible for the pollution (Shea, 10/24/95).

...I grant ARCO has a lot of money. A lot of guys in the club have the same opinion. When you pay \$58 million to clean up...The biggest and foremost worry here is about pensions. I'd hate to lose my ARCO pension. This club (totally funded by ARCO) has been a great thing to these guys and their wives who never went out so much as in the last 10 years. (Shea, 10/24/95)

In this case, ARCO's oversimplified equity argument has connected with a very valid concern – loss of pensions which have been earned, and are

needed to survive and maintain a social life. ARCO is using a common corporate ploy. In 1987, corporations spent \$941 million in print and broadcasting media on image advertising – designed to promote images and political attitudes rather than to sell products (Greider, 1992). Although market research shows the ads do not diminish the public distrust of business in general, it does reduce animosity toward the individual companies that advertise (Greider, 1992). So:

Americans are saturated in 'feel good' messages about the largest business corporations. Dow Chemical, notwithstanding its notorious reputation as a polluter, portrays itself as an old friend of nature. AT&T saves eagles. IBM teaches children in the ghetto... (Greider, 1992:339).

And ARCO, as it works in Washington D.C. to reduce its liability, touts itself as a responsible "partner" in cleanup, and producer of golf courses from toxic tracts (ARCO, 1993, 1995). It is noteworthy that corporations who are supportive of the current Congressional bent to eliminate the social "safety nets" for the marginalized poor, are so insistent upon maintaining them for themselves – the limited liability they espouse falls into a category of "safety net," protecting corporations and their insurance companies from the risks inherent in corporate expansion. While the discussion of how to overhaul Superfund during its upcoming reauthorization is debated, cleanup of Butte suffers delay after delay. Many of the delays to date have been related to the second problem identified by Barnett (1994): enforcement on the federal, state, and local level.

In Butte, the enforcement-related conflict revolves about EPA standards, which determine the maximum "safe" levels of exposure for toxins, and the

process of risk assessment by which the EPA determines if a site should be listed on the National Priorities List (Barnett, 1994). The risk assessment is also part of the health assessment required in the 1986 reauthorization (Barnett, 1994). On a regular basis, corporations challenge the threshold levels, concentrations beyond which exposure is declared harmful, as overprotective (Greider, 1992). Victims of exposure and some medical professionals argue the EPA standards are not protective enough (Greider, 1992; Brown, 1991; Schnaiberg, 1988). The question that is still unanswered is "how clean is clean."

In Butte, this unanswered question manifests itself in debates about cleanup standards, and in conflicts between federal, state, and local government agencies.

HOW CLEAN IS CLEAN?

The federal Superfund law is driven by a mandate to protect public health and the environment while complying with applicable or relevant and appropriate state regulations (Hird, 1994). But does protection mean no risk, no additional risk, or acceptable additional risk? In making its determinations about remediating a given site, the EPA must consider long-term effectiveness, reduction of toxicity, mobility, or volume of contaminants through treatment, short-term effectiveness, implementability, and cost (Hird, 1994). Once this has been accomplished, the agency must consider "modifying criteria," state and community acceptance of a cleanup plan (Hird, 1994:143).

Often these criteria conflict (Hird, 1994). To justify its decisions, the agency relies upon risk assessments, estimations of the probability of

developing cancer or other health problems as the result of exposure to toxins (Schrader-Frechette, 1991; Greider, 1992; Edelstein, 1988). Much of the testing and risk assessment process is based on associations between exposure and disease — the stronger the association, the better the evidence for causality (Schrader-Frechette, 1991; Bates, 1994)). But factors, such as poor exposure measurements, variability in outcome, or the fact that some illnesses, such as asthma, are often the possible result of numerous sources, will weaken the association (Bates, 1994). Therefore, unless exposure and causality are well-characterized, a weak association should not be dismissed (Bates, 1994). Arguably, exposure and causality have not been well-characterized in Butte where, as will be discussed in a later section, health studies, other than for exposure to lead, have not been conducted and reporting of illness is incomplete.

During the risk assessment process, information available on dose and expected response from exposure to a specific chemical or metal, is expressed by standards which are the result of testing, done on animals and, less often, on people (Schrader-Frechette, 1991; Lappé, 1991). In developing an assessment, chemicals and metals and the specific levels found of each are analyzed separately for each pathway of exposure that might exist, e.g., ingestion, dermal contact, inhalation (Bates, 1994; USEPA, 2/10/93, 2/15/93, 2/11/94). By comparisons of the established threshold limits for each chemical through each pathway to the actual amount of the chemical found at the site, risk assessors calculate mathematically the risk posed by each chemical (Bates, 1994; USEPA, 2/10/93, 2/15/93, 2/11/94). The risks are then added up to determine if the site should be cleaned up (Bates, 1994; USEPA, 2/10/93, 2/15/93, 2/11/94).

These calculations are used to justify decisions for action or lack of it. But what do these elaborate calculations really tell anyone? Predictions are complicated by the long period of time it often takes cancer to develop to a stage at which it can be diagnosed, by the fact that some people do not develop cancer even after exposure to a carcinogenic, and by the mobility of people who may be living hundreds or thousands of miles away from where their cancers may have been initiated when the diagnosis is made (Lappé, 1991). There is a large, rapidly-growing body of literature on the subject of risk assessment (Lappé, 1991; Greider, 1992; Schrader-Frechette, 1991; Douglas and Wildavsky, 1983). It is beyond the scope of this thesis to recapitulate the arguments so the thesis will consider only those issues relevant to Butte.

Although scientists are careful to point out the limitations of risk assessment, those limitations – and there are many – are frequently ignored when the assessments are used to justify cleanup policy (Greider, 1992; Brown, 1991; Edelstein, 1988; Schrader-Frechette, 1991). The risk assessment process is predicated on the notion that defensible hard science will provide an objective value-free basis for decision (Schrader-Frechette, 1991; Greider, 1992; Edelstein, 1988). This is rarely the case (Schrader-Frechette, 1991; Greider, 1992; Edelstein, 1988). The concept of risk is a social construct, which entails a consideration of the distribution of risks under discussion; this does not occur in the risk assessment process as currently structured (Schrader-Frechette, 1991; Edelstein, 1988; Greider, 1992; Douglas and Wildavsky, 1983). It is not possible to exclude normative decisions, entailing values, during the formulation of a scientific theory or explanation of causal connections because value judgments are made at every step along the way (Schrader-Frechette, 1991; Greider, 1992; Edelstein, 1988), e.g. what to study, how to study

it, what to exclude from the study, how to determine what constitutes evidence for the theory or for causality. The selection of options to reduce or eliminate risk also involve normative criteria (Schrader-Frechette, 1991; Greider, 1992).

The limitations in the risk assessment process are challenged on a regular basis by victims of exposure to contamination (Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988; Greider, 1991; Brown, 1991; Schrader-Frechette, 1991). Sometimes the limitations are also challenged by corporations (Greider, 1992; Schrader-Frechette, 1991; Brown, 1991). For the past five years, ARCO has challenged both federal and state standards. In March, 1990, ARCO asked an appeals court to strike down the EPA standards for lead contamination of soil, calling the standards "arbitrary and capricious (*Montana Standard*, 3/6/90)." The standards, above which the presence of lead is dangerous, especially to children, were set by the federal Centers for Disease Control (*Montana Standard*, 3/6/90).

In August 1991, ARCO sought to define a number of conditions, "upsets," from which it would not be held liable for failure to meet water quality standards and any associated impact downstream on the Clark Fork River (*Montana Standard*, 8/11/1991). The "upsets" consisted of weather and seasonal conditions which are routine in southwest Montana, including high winds, high water flows in the spring, lack of biological activity in winter, increased biological activity in the summer, and "roll-over" of ponds in the spring and winter (*Montana Standard*, 8/11/1991). Clark Fork Coalition spokesmen charged the corporation with an attempt to avoid accountability for effects of normal and anticipated weather conditions (*Montana Standard*, 8/11/1991).

Also in August of 1991, ARCO announced it no longer planned to clean up residential yards in Butte to the 2,000 parts per million standard to which it had previously agreed (*Montana Standard*, 8/15/1991). ARCO spokesman Sandy Stash said the standard was too low to affect health and that the corporation was pushing the EPA to adopt a new lead standard of 2,500 to 3,000 parts per million for residential yards (*Montana Standard*, 8/15/1991). The EPA had originally set the level at which ARCO had to clean up residential yards at 1,000 parts per million (*Montana Standard*, 8/8/1991). However, after the corporation challenged the standards in court, the agency and corporation negotiated the 2,000 parts per million standard (*Montana Standard*, 8/8/1991). EPA Assistant Director Don Pizzini said the EPA was considering amending the 2,000 ppm level to 2,500 or 3,000 but had not reached a decision (*Montana Standard*, 8/8/1991). In November 1991, EPA Montana Director John Wardell warned Butte-Silver Bow officials that ARCO was becoming even more resistant to cleanup projects and creating further delays (*Montana Standard*, 11/21/1991). The Montana Department of Health and Environmental Science also challenged the EPA lead standards. The state's standard of 1,000 part per million was more protective than that negotiated by ARCO and the EPA (*Montana Standard*, 8/8/1991).

Hard science notwithstanding, there is ample room for disagreement among scientists; clearly there are limits to scientific rationality. Critics of risk assessment question scientific claims to rationality and objectivity, frequently focusing upon the reductionist and exclusionist nature of the risk assessment process (Greider, 1992; Schrader-Frechette, 1991; Brown, 1991). Schrader-Frechette (1991:128-129) reports that "researchers have concluded risk experts typically overlook six common "pathways to disaster":

1. Failure to consider the ways in which human error can cause technological systems to fail, as at Three Mile Island, or with the Geographic Information System which will be used to monitor future use of contaminated land in Butte;
2. Overconfidence in current scientific knowledge, even though such inadequate scientific knowledge caused such catastrophes as the 1976 collapse of the Teton Dam – a complaint often voiced by critics of the plans to clean up the Berkeley Pit;
3. Failure to appreciate how technical systems as a whole function, which will likely be an issue when the institutional controls, which will be discussed in a later section, are implemented in Butte;
4. Failure to take into account chronic, cumulative effects, as in the case of acid rain, or the conglomerate of health risks in Butte;
5. Failure to anticipate inadequate human responses to safety measures, such as the failure of Chernobyl experts to evacuate immediately;
6. Failure to anticipate "common mode" failures simultaneously affecting systems designed to be independent. (Schrader-Frechette, 1991:128-129)

More problematic than what is included in a risk assessment is what is not (Lappé, 1991; Bates, 1994; Schrader-Frechette, 1991). For example, because synergistic effects, the possible interactions of chemicals that produce effects greater than the sum of each individual chemical, are unknown, synergies are omitted. However, at every site in Butte, there are multiple metals and chemicals which may well create more, or less, of a risk together than can be calculated. Exposures are usually multiple and complex, former public health official Marc Lappé (1991) notes. In addition, chemical contaminants in drinking water can act in ways that occupational experience doesn't

adequately anticipate (Lappé, 1991). By passing through the liver before entering the body generally, substances absorbed through the gastro-intestinal tract may be activated by the liver into more hazardous chemical byproducts (Lappé, 1991). This may well be the case with chemicals which are not considered carcinogens or toxins and, therefore, screened out of the assessment (Lappé, 1991).

Further, the concept of thresholds may well be a "red herring" because it implies that below a certain exposure level there is no health risk (Lappé, 1991). This may not be the case. Some toxic chemicals acquire different properties from one dose to another; low doses affect human systems also, especially in the development of organ systems of an embryo or fetus; and even "infinitesimal" doses "can in theory start a cascade of heritable changes in a single cell that lead to cancer (Lappé, 1991:122)." Although EPA does not use thresholds for chemicals that have been classified as cancer-causing, it does use thresholds for chemicals which have not been classified as cancer-causing (USEPA, 1991, 1992, 2/10/93, 12/15/93, 2/11/94).

Testing to determine adverse affects is slow and costly. For that reason, little or nothing is known about health effects of many chemicals found at Superfund sites (Lappé, 1991). However, lack of knowledge is no guarantee that these chemicals do not pose health risks (Lappé, 1991). At the Montana Pole Treatment Plant site — just one of the many contaminated sites in Butte — toxicity values are unavailable for 11 of the chemicals found in groundwater and an additional 13 chemicals were omitted from the risk assessment because they were found at levels below established thresholds in the groundwater (USEPA, 2/10/93). Another 31 chemicals found in the

groundwater were retained for consideration in the risk assessment (USEPA, 2/10/93). Equally numerous lists of chemicals on the Montana Pole site were considered in analyses of surface water, soil and sediments (USEPA, 2/10/93). After screening out chemicals for which there are no toxicity values and which occurred in each medium below threshold level, the risk assessment identified 12 chemicals of concern for soil, 11 for surface water, and three for sediments (USEPA, 2/10/93). Much is not known about the chemicals at the site and, given the numbers of chemicals found, the possibilities for synergistic effects are great at the Montana Pole Plant site. Although PCPs, volatile organic chemicals, dioxins and furans have not been found at the other Superfund sites in Butte, there is still a possibility of synergistic effects between the metals which contaminate soil, air, and water.

Further, research into the historical development of workplace threshold limit values (TLVs), the standards beyond which people should not receive exposure, indicates a questionable level of corporate influence upon development of those standards (Castleman and Ziem, 1988). This is relevant because much of the data used in health and risk assessments has been developed from workplace information because it is so difficult to assess impacts outside of controlled situations (Castleman and Ziem, 1988; Lappé, 1991). Researchers found they could not access unpublished corporate "documentation" for nearly one sixth of the "documented" workplace TLVs, thus precluding scientific scrutiny (Castleman and Ziem, 1988). Researchers expressed great concern that the TLV committee, responsible for setting standards, accepted uncritically industry "assertions based on scant unpublished 'data' (Castleman and Ziem, 1988:554)." Three of the contaminants — copper, manganese and compounds, and silver and

compounds — found in Butte Superfund sites are on the researchers' list of TLVs for which unpublished corporate data was important (Castleman and Ziem, 1988). Government reliance on industry information to establish discharge limits and set standards is problematic, especially in light of the fact that:

Some 65,000 chemicals are manufactured in the United States every year, and for many there is little knowledge of their toxic effects, either alone, or in their myriad combinations (Yeager, 1991:219).

Beyond the possibly questionable practices entailed in setting threshold limits, there are other problems. Risk assessments consider only the risks related to the site under study — they screen out other risks that subject groups may be exposed to simultaneously, such as other Superfund operable units, landfills, and biological contaminants in drinking water. In addition to the Montana Pole site, Butte residents are exposed to other potential public health problems, including:

1. Other contaminated operable units (USEPA, 1991, 1992, 1992, 1994);
2. Possible contaminants from the former town landfill (Craig, 7/30/95).

Although, in June 1995, CTEC filed a request under the Freedom of Information Act for information related to the type and extent of contamination associated with the former town landfill, no response has been forthcoming as of February 1996 (Craig, 7/30/95). However, landfill contamination commonly results in exposure to carcinogenic volatile organic chemicals, the result of the dumping of solvents and other chemical cleaners (Lappé, 1991).

3. Air pollution. Butte is located in an area of the state that exceeds

standards for particulates stipulated under the federal Clean Air Act. These particulates have been associated with respiratory problems (Bates, 1994).

4. Biological contaminants in the water supply. The city has been under a federal order to warn residents to boil water from the tap prior to drinking (*Montana Standard*).

5. Exposure to large amounts of chlorine used to minimize the biological contaminants in the water, which likely created the presence of carcinogenic trihalomethanes which were detected in excess of state standards in Butte water in 1993. Butte-Silver Bow water operations chief Mike Patterson said this was the first time the water supply had exceeded the state standard of 100 parts per billion, and that trihalomethane was dangerous only in long-term exposure (*Montana Standard*, 1/ 6/1994). However, his information on the implications of exposure was faulty.

The two most common trihalomethanes are chloroform and bromoform (Lappé, 1991). Chloroform has been shown to produce liver cancer in all animal assays; bromoform, although less thoroughly tested, has "potent kidney and liver toxicity of its own (Lappé, 1991:220)." The National Academy of Sciences has estimated that at the 100 parts per billion standard, the cancer risk from chloroform (if it were the only chemical ingredient in the trihalomethanes) is one in 100,000 (Lappé, 1991). In 1981, case-control studies showed a clear relationship between exposure to chlorine-treated municipal water supplies and an increased incidence of bladder, rectal, and colon cancer, especially in municipalities that relied on surface or shallow aquifers (Lappé, 1991). Although not all epidemiological studies have found the same cancers, Kenneth Cantor of the National Cancer Institute believes "the chlorinated organic molecules that form in drinking water from

chlorination coupled with those that are unintentionally added combine to create a carcinogenic risk (Lappé: 221)."

...in a penultimate study involving tens of thousands of people at risk from contaminated water systems, Cantor has shown a convincing dose-response relationship between the levels of halogenated contaminants (estimated from the amount of contaminated drinking water ingested) and the occurrence of bladder cancer.

What makes Cantor's findings all the more disturbing is that the communities he studied were all on drinking water that had been treated 'according to the rules,' that is, the water met federal drinking water standards (Lappé, 1991:221).

Equally disturbing, and unmentioned in the *Montana Standard* news story that alerted residents to problems with their drinking water, is the fact that trihalomethanes are often correlated with the presence of carcinogenic volatile organic chemicals, including 1,2-dichloroethane, trichloroethylene, and 1,1-dichloroethylene (Lappé, 1991) — chemicals often found at landfill sites in the United States and which could well be present at Butte's municipal landfill. These three chemicals have been associated with certain cancers of the digestive and urinary tracts. In Woburn, Massachusetts, the presence of trihalomethanes was the first indicator of the volatile organic chemicals that were associated with a cluster of childhood leukemia (Lappé, 1991; Brown, 1991). Another study in New Jersey found females, probably because they were more likely to drink water at home during the day than males who worked outside the home, had higher leukemia risk in regions of the state where high levels of volatile organic chemicals were found (Lappé, 1991).

In addition to omission of other potential sources of public health risks, although the Butte risk assessments mention "sensitive populations," the calculations are done assuming a fairly uniform population. As was the case in the influenza epidemics, when Butte residents whose health was weakened as a result of the environment died in great numbers (Emmons, 1990), the health effects of other sources and kinds of contamination in Butte may well affect how people will respond to the chemicals listed in the risk assessments (Lappé, 1991). Also, poor nutrition, which has historically been problematic in Butte because of poverty (Emmons, 1990), and a lack of medical care, which is often the case when people whose health insurance coverage was supplied by their jobs lose those jobs, create greater health vulnerabilities in people. Yet, such things are not factored into the assessments.

Given the unresolved conflict between economic structure and environmental protection, it is not likely that such real-world issues will ever be incorporated into the process, even in the very unlikely event that policy required such inclusion. The reason, again, is not evil intent, but rather the structure of bureaucracies. To endure over time, the bureaucracy must suppress rivalries, must collectivize decision making so no one person can be held accountable for any given decision (Douglas and Wildavsky, 1983).

Consequently the strategy emerges of compromise, of not pressing problems to the point of defining a single overriding objective, and of creating a complex and obscure tradition in which each subunit can find its place. To keep the subunits from fearing for their sectional interests, the hierarchy avoids adopting a single overriding goal. (Douglas and Wildavsky, 1983:91)

Bureaucrats are apolitical, tend to construct "only closed static systems of thought"...and react to new law or policy changes "as if they were only a further elaboration of the original system (Douglas and Wildavsky, 1983:91)." Most alternatives most of the time are not considered as candidates for adoption. "Only a few ideas – those best known and closest to existing programs – are given attention (Douglas and Wildavsky, 1983:91)." In other words, bureaucracies tend to appropriate reform efforts into their existing perceptions of reality, tend to interpret and administer law and regulations to uphold the status quo. For this reason, Douglas and Wildavsky (1983) report, hierarchical decision-making tends toward the remedial and serial, as the same problems are confronted again and again, confronted, in the case of Superfund, because the fundamental issues of who pays and how clean is clean have not been addressed (Barnett, 1994; Yeager, 1991). The result of this type of decision making is that the ability of the hierarchy to "control the future by planking down its procedures," assures that the hierarchically construed notion of "a rational order" will be fulfilled (Douglas and Wildavsky, 1983:93-94). Above all, that "rational order" must include the continued existence of the bureaucracy (Douglas and Wildavsky, 1983).

Once it is fully established, bureaucracy is among those social structures which are the hardest to destroy. Bureaucracy is the means of carrying 'community action' over into rationally ordered 'societal action.' Therefore, as an instrument for 'societalizing' relations of power, bureaucracy has been and is a power instrument of the first order – for the one who controls the bureaucratic apparatus (Weber, 1996: 119).

Protected by data and buffered by bureaucratic structure, technocratic

agencies can successfully avoid consideration of social issues. This is essential to maintaining their control; if some suffer as a result, so be it (Douglas and Wildavsky, 1983). The bureaucracy represents what Douglas and Wildavsky (1983) refer to as "the center," as opposed to "the border."

...It will also put the maintenance of the whole system above individual survival — this time the system is the bureaucratic organization. It frankly believes in sacrificing the few for the good of the whole. It is smug about its rigid procedures. It is too slow, too blind to new information. It will not believe in new dangers and will often be taken by surprise. It will accept large risks if they appear on a horizon beyond its institutional threshold of concern... (Douglas and Wildavsky, 1983:101).

One of the hallmarks of a successful bureaucracy is that employees internalize the organization's values and goals (Weber, 1996). Internalization goes far deeper than parroting the company line. It means that the employee has adopted the organization's worldview as his own. To this end, the agents of socialization – schools, in particular – are oriented toward inculcating beliefs, values, self-concepts, types of solidarity and fragmentation, as well as modes of personal behavior and development, that will perpetuate, validate, and allow for the smooth operation of economic institutions and bureaucracies to maintain the status quo (Bowles and Gintis, 1976).

Obviously, there are bureaucrats and technocrats who care about people. However, trapped in the "iron cage" (Weber, 1996) of bureaucracy, they must express their concern in the manner of the bureaucracy, which is paternalistic, dispensed according to rules, and technical. It is paternalistic in the sense that it is expressed by the government agency's plan, a plan that is sufficient to ameliorate the problem as the agency defines it, but is not necessarily the

problem that citizens define. It is bureaucratic in the sense that everything goes through agency channels and follows the agency timetable. Government agencies are organized as clearly segmented units, each with its own limited area of responsibility. It is not unusual for one department to be unaware of information another department has on the same site until, at a point in the process which is never entirely clear to an outsider, the different departments meet to share information. The end result is that anyone who seeks a full picture of the status of any project must try to piece together an overview on his or her own. Victims of contamination often feel a sense of urgency (Kroll-Smith and Couch, 1991; Brown, 1991; Edelstein, 1988; Greider, 1992). There is real need to know what they are facing and how it will be resolved. This urgency is not shared by bureaucracies whose timetable is generally defined by law – usually in terms of years.

The caring is technical; that is the agency orientation and that is how it both defines and solves problem. Yet, that is often not what victims need:

The victims' plight is further compounded by the fact that relief efforts aren't humanistic, but are, instead, technical activities designed to eliminate the contaminant (Kroll-Smith & Couch, 1991a:62).

Government agencies, such as the EPA, differ from corporate bureaucracies in that government bureaucrats must deal with inputs from both corporations and the public (Yeager, 1991; Barnett, 1994; Schnaiberg and Gould, 1994). As noted previously, control often lies in the hands of those with the greatest inputs into the system. However, the nature of inputs is not stable over time. It can be argued that, throughout the 25 years of its existence, the EPA, caught in the middle of unresolved environmental

conflicts, has had to heed corporate concerns and, in some cases, internalized those concerns into its operating procedure (Yeager, 1991; Barnett, 1994; Schnaiberg and Gould, 1994). It can also be argued, to a lesser extent, the agency has, especially in the early years when environmental groups were vocal, tried to reflect the concerns of those groups also (Yeager, 1991; Barnett, 1994; Schnaiberg and Gould, 1994). This is the tension between the contradictory demands of maintaining the existing social order while, at the same time, maintaining the legitimacy of the state in the eyes of those governed (Yeager, 1991; Barnett, 1994; Schnaiberg and Gould, 1994).

Further, the EPA is not monolithic. The agency has hired people like Sara Weinstock in Butte who is trying to educate the agency away from its technical stance toward a greater understanding of the communities the agency enters. As a public affairs officer, Weinstock has a very demanding job. It is she who must deal with every party involved in the cleanup. It is she who must explain agency decisions and, given the magnitude of the stakes, emotions often run high when cleanup is discussed. It's Weinstock, a small attractive down-to-earth blonde with a wide grin, who plays the point position in the EPA's Butte office. It's not unusual to find her explaining some facet of Superfund on the phone and signalling to someone else standing by her desk waiting for information, while, in the background, her computer, on which she's trying to complete an agency report, glows. It's also not unusual to find engineers going through reports and talking about the tables clustered in the center of the small room. Weinstock's domain is crowded and, often, hectic. This is no nine to five job; Weinstock also attends frequent night meetings. A Butte native herself, Weinstock is well-equipped to recognize there are emotional issues involved in the cleanup:

When we (the EPA) came in in 1988 our first meeting was in Walkerville. We were closing Alice Baseball Field. People in their 80s said they played on that field — and so did I. I think it's the grieving cycle – denial. You can't send in male engineers to deal with an emotional issue. The engineers say, 'I'm not a psychologist.' That's where we make our mistake. I've been at several conferences pushing the EPA on this. Explain to them [the people of Butte] that it's not their fault their kid was put in this situation and then they can go on.
(7/31/95)

Weinstock's approach would go far to address the complaint that the nature of agency response is so often technical. (She raises issues that will be addressed in a later section.) Her knowledge of Butte is a real asset for the agency. However, given her limited terrain as an agency employee and the structural constraints and unresolved issues cited earlier in this section, Weinstock may well be fighting a losing battle with the agency. But, the battle she fights is important because it is vital that alternative perceptions of the agency role are brought consistently to the table.

In light of the fine line that the EPA must walk between environmental threats (posed by Superfund sites), economic concerns, and conflicting political pressures, it is not irrational that the agency has apparently set internal limits related to the scope of remediation it requires. The nine criteria in SARA to evaluate cleanup remedies are: compliance with standards under federal laws; reduction of toxicity, mobility, or volume; short-term effectiveness; long-term effectiveness and permanence; implementability; cost; community acceptance; state acceptance; and overall protection of human health and the environment (Hird, 1994). After passage of SARA, EPA headquarters "advised the regions to consider effectiveness, ease of implementation, and cost in selecting a remedy and to choose the remedy that provided the best balance among these factors (Barnett, 1994:

240)." From this vague directive with the implication of cost-benefit analysis, the regional offices shifted to a greater awareness of cost, causing a firestorm of criticism (Barnett, 1994).

PERMANENT V. IMPERMANENT SOLUTIONS

A Hazardous Waste Treatment Council/environmental group report, after reviewing 75 of the agency's records of decisions (RODs), found, despite Congressional instructions to use permanent treatment remedies wherever and whenever possible, 68 percent of the remedies the agency selected in 1987 failed to use any treatment on the contaminant (Barnett, 1994). Partial or ineffective treatment options were used in another 24 percent; in only eight percent of the 75 RODs was a permanent treatment used when possible (Barnett, 1994). The report also found the agency "ignored existing environmental standards, set cleanup goals unscientifically, exempted Superfund cleanups from the environmental regulations it imposed upon waste management facilities, and generally ignored the impact of Superfund sites on natural resources (Barnett, 1994:243)."

A follow-up study of the 150 RODs issued in 1988 found at 54 percent of sites cleanup standards had not been established for groundwater, surface water, or soil (Barnett, 1994). Also, at sites where standards were set, the agency relied on risk assessments instead of objective standards and criteria (Barnett, 1994). Further, the risk assessments "often contained suspect and unsubstantiated assumptions," e.g., people would stay away from contamination (Barnett, 1994:244). The follow-up report also found continued reliance on impermanent remedies, and indicated that, often, contaminated groundwater was written off rather than cleaned (Barnett,

1994). When the agency addressed contamination, it often called for alternative water supplies, plugging wells or institutional controls to prevent use (Barnett: 244).

In Butte, CTEC members have consistently, and unsuccessfully, reminded the agency that its remedies should be permanent (*Montana Standard*). They argue that the agency's preference for impermanent solutions has resulted in what appears to be the writing off of the water in the Berkeley Pit (USEPA, 12/15/93), in the agreement signed by Butte-Silver Bow and ARCO that calls for the implementation of institutional controls to protect public health from the contamination that will remain after the cleanup is completed (ARCO/Butte-Silver Bow, 1993), and, to a lesser extent, in the agreement to retain "historic mining waste (ARCO/Butte-Silver Bow, 1993)."

A few Butte residents are involved with the Citizens' Technical Environmental Committee (CTEC). Under the Superfund reauthorization of 1986, the EPA was authorized to give grant money, Technical Assistance Grants (TAGs), to citizen groups in Superfund communities to help the community translate the technical jargon of remedial investigations, feasibility studies, risk assessments, health studies, and records of decision (Barnett, 1994). The grant money can be used for such things as hiring experts and print newsletters to keep members of the community abreast of developments (Barnett, 1994). However, there are real limits on TAG recipient activities, which will be addressed later in this section.

Butte's 28-member CTEC committee originally included 10 Montana Tech officials, several engineers or professors, four Anaconda Company officials, two legislators, two doctors, a health board member, the county sanitarian, a representative of the National Center for Appropriate Technology, and a

member of the Clark Fork Coalition (*Montana Standard*, 2/26/1990). The composition is now more representative of residents, rather than scientists (Craig, 7/30/95). The only sustained and published criticism of EPA plans have emanated from this committee. Montana Environmental Information Center board member John Ray says (10/24/95), "Before May Kay [Craig] got into it, CTEC was ARCO operated."

Even before the shift to a predominantly non-scientist membership, the committee challenged the EPA's decision to allow the Pit to fill to elevation 5,450 feet (Craig, 7/30/95). The EPA had originally set 5,270 feet as the critical point at which the contaminated water in the Pit would reach the groundwater in Butte's alluvial aquifer, but, after negotiations with ARCO, the EPA raised the level³ to 5,450 feet (*Montana Standard*, 2/26/90). The EPA and ARCO maintained the water level in the Pit would not reach the 5,450 feet level until 2009; CTEC members argued that even the original 5,270 feet level was too high because the Pit water could reach the groundwater through the Old Pittsmtom Mine workings at level 4,970 feet (*Montana Standard*, 2/26/90). Nor were CTEC members comfortable with the thought that landslides in the earthquake-prone area could displace enough water to rise the level of the Pit water to a critical point within a matter of minutes (*Montana Standard*, 2/26/1990).

The following May, the committee argued that the EPA should consider draining the Pit and treating the water because the contaminated water in the Pit could hurt Butte-Silver Bow's economy and pollute the area groundwater (*Montana Standard*, 5/25/1990). "The consequences of that are extremely serious," Bill MacGregor said. "We would become the next Mill Creek (*Montana Standard*, 5/25/1990)." Residents of Mill Creek, near Missoula,

were evacuated as one of the first responses to the contamination. Creighton Barry, also a CTEC member, said Butte residents should be asked about what they want left when the reclamation work is complete:

Nobody's ever recognized that maybe we don't want to have a poisonous lake (*Montana Standard*, 5/25/1990).

"If it (the water leaving the Pit) happens, how are we going to plug the dike? We can't plug the dike, it's too late...It's far better to err on the side of safety than on the side of some environmental disaster," Rep. Fritz Daily argued (*Montana Standard*, 5/31/1990). Committee member Floyd Bossard said the group wanted a study on the social and economic effects of leaving the water in the Pit and that the study should be included in the EPA's cleanup plans (*Montana Standard*, 5/31/1990). Their concerns were not just about the probability of a future event – one resident, worried because a swamp near his home becomes damp when the water level in the Travona Mine rises, asked how often he should test his water (*Montana Standard*, 5/31/1990).

Neither the EPA nor ARCO saw the need to adjust the critical level downward. Dailey, frustrated by the lack of official response, ultimately brought and fought unsuccessfully for passage of a bill before the state legislature to establish fines of \$25,000 a day for those who contaminate groundwater with industrial wastes and hazardous substances (*Montana Standard*, 1/31/1991). Passage of the bill would hold ARCO responsible for the contamination caused by flooding the Berkeley Pit, Daily said (*Montana Standard*, 1/31/1991).

CTEC members also questioned why the risk assessment and earthquake report discounted the possibility of seismic activity even though the risk assessment reported, if the contaminated water escaped, human health would be seriously jeopardized (USEPA, 12/15/93). Because risk assessors are prone to what a lay person would call understatement (Brown, 1991; Greider, 1992; Schrader-Frechette, 1991), the unusually strong language used to describe the effects of the release of the contaminated water in the Berkeley Pit into the environment is startling:

The resulting impact to the local aquatic ecosystem...would be catastrophic in both nature and extent (USEPA, 12/15/93:Section 7.4).

Critics' fears of earthquakes were given more credence in June 1995, when a newspaper story reported that state and local officials were surprised to learn that earthquake ratings had been updated seven years previously, in 1988, by the International Conference of Building Officials. As a result of that update, Butte is in a zone of probable major damage (*Missoulian*: 6/ 30/1995). Those who remember the 1959 earthquake are acutely aware that it can happen again, current CTEC president Mary Kay Craig says (7/30/95). Thirty six years after the fact, Craig still can describe vividly the shock of waking to the jolt, of the mirror falling from her wall beside her bed (7/30/95).

Schrader-Frechette calls this divergence of what is considered possible the "expert- judgment strategy" — the belief that risk can be reduced to some characteristics which can be determined only by experts or that experts only are capable of distinguishing "actual" rather than "perceived" risk. The strategy also occurs when assessors presuppose that a technological risk is

defined purely in terms of measurable physical impact; an erroneous supposition because social impact includes "increased trauma or decreased civil liberties" as part of the risk itself (Schrader-Frechette, 1991:78).

Catastrophic potential and the fact that low-probability/high consequence situations are often the product of societally-imposed (as opposed to privately chosen) risks may also explain risk aversion. There is evidence that the psychological trauma (feelings of impotence, depression, rage) associated with the imposition of a particular hazard is greater than that associated with the choice of a private risk of the same probability...people are typically more averse to the low-probability/high consequence situation (Schrader-Frechette, 1991:90).

The failure of risk assessors to assume that public preference, when it is in disagreement with the expert preference, is the "result of misperceived probabilities, not a legitimate value system," goes "hand in hand with assessors' tendencies to define ethical and political issues as merely technical ones... They assume, incorrectly, that agreement about technical matters is sufficient for resolving normative disputes (Schrader-Frechette, 1991:98)."

Psychologist Michael Edelstein notes that, once a government agency makes a decision, it is likely to use a "scientific rationale to legitimate it, dismissing problems with their (citizens') reasoning. Once locked into this position, the agency defends it stubbornly. Thus, what may begin as an open inquiry under the scientific method is transformed into a distorted approach under the guise of science (1988:121)."

There is a synergy that operates in what Edelstein refers to as "Citizen's" and "Regulator's Bind." (1988:124) The more rigidly the agency defends its choices, the angrier the public; the angrier the public, the more rigid the agency defense (Edelstein, 1988). But there are also other constraints. As

angry residents seek to publicize their concerns, they enhance the "stigma" associated with a "contaminated community," often earning the animosity of groups such as realtors and chambers of commerce which want to downplay the existence of contamination (Edelstein, 1988). Also, by seeking answers, the activists increase their own stress levels for frequently protracted periods of time because of the time gap, often up to five years, between definition of the problem and cleanup (Edelstein, 1988).

In contrast, regulators' bind involves the frustration involved with acting, as public servants, to solve a complicated problem while faced with regulatory limits to their actions, political realities, limited resources, and their own individual perspectives toward the task at hand (Edelstein, 1988).

Bureaucratic organization structures create fragmented patterns of work and responsibility that result in dehumanizing practices and make likely overlapping, confusion, gaps in offered response, and poor coordination among different agencies working in the same community. Such regulations may also be subject to regulatory capture in the sense of having a built-in conflict of interest in favor of one side of a controversy, most often corporate, not citizen, interests (Edelstein, 1988:123).

Government officials also confront the difficult task of walking the fine line between actual danger and false claim (Edelstein, 1988). In some cases, there are no clear standards, and, there are often "gray areas" (Edelstein, 1988:123) even when standards exist. Above all, government officials must avoid causing public panic (Edelstein, 1988; Brown, 1991).

...government agencies are typically secretive about environmental health risks. They withhold information on the basis that it will alarm the public, that the public does not understand risks, or that it will harm the business climate...(Brown, 1991:144).

To this end, government officials tend to cloak themselves in the science of risk assessments, which provide both justification for agency actions and an institutional distancing from the actual politics at hand (Schrader-Frechette, 1991; Brown, 1991; Greider, 1992; Edelstein, 1988). This ability to limit discourse – to frame the question and constrain the debate – is a powerful, although subtle means of control (Schrader-Frechette, 1991; Brown, 1991; Greider, 1992; Edelstein, 1988). It is an effective way to assure that issues are dealt with as a technocratically oriented authority wants them to be (Schrader-Frechette, 1991; Brown, 1991; Greider, 1992; Edelstein, 1988). The result is what Edelstein (1988:125) refers to as "constrained communication" – actions by private or government groups to structure and limit public communication, which distorts communication. Among his examples of constrained communication, Edelstein cites "giving of false reassurances, withholding of information, responding slowly, taking inadequate actions, drawing arbitrary boundaries, using insensitive and incomprehensible language, denying citizens' perceptions and fears, and hiding behind scientific reasoning for political decisions (Edelstein, 1988:125)."

CTEC members in Butte have charged that ARCO, the EPA, and local government officials are guilty of using all of Edelstein's examples (*Montana Standard*). In this context, the risk assessment becomes the battleground and, as such it is invested with great symbolic content.

Every symbol stands for something other than itself, and it also evokes an attitude, a set of impressions, or a pattern of events associated through time...Referential symbols are economical ways of referring to the objective elements in objective situations. Such symbols are useful because they help in logical thinking about the situation and in manipulating it (Edelman, 1964:6).

To the risk assessor and government official who relies upon that assessment to justify policy, the assessment is an expression of an objective reality, it is a referential symbol. However, Edelman (1964) notes, no symbols are ever totally referential; there is always a condensation symbology involved. Condensation symbols evoke the emotion associated with the situation.

The condensation symbols for the risk assessor and the policy-maker come into play when the risk assessment is questioned. The use of mathematical symbols as means to express reality allows for further distancing – potentially life-threatening chemicals are divested of terror when they become formulae that can be manipulated (Griffin, 1978). In the manipulation of the mathematics, the risk assessor, and the policy-makers who rely upon this manipulation, can be lulled into a sense that he or she can control the outcomes. In this sense, the risk assessment is a claim (Connolly, 1993) – a claim both that the assessor's view is the only valid representation of the landscape in question and that that landscape can be controlled. When critics question the risk assessment, they are also implicitly questioning the objective reality that the assessor and policy-maker has described and, thus, threatening comfort levels, at least momentarily.

In Butte, the environmentalists who question the risk assessment on the Pit are reacting to the condensation symbology of the risk assessment. For them, the existence of the "poisonous lake" represents a threat to both economic and emotional security (*Montana Standard*). They view the negotiated critical water level with some suspicion. To them the Berkeley Pit is far more than a vast amount of water which can be broken down into isolated mathematical formulae and probabilities. It is a very real fact of life –

it looms over the Uptown and the Flat, dominating the Butte landscape. Implicit in the critics' criticism is a claim of the landscape as threatening, very likely uncontrollable. It is a source of alarm.

Thus, both groups are talking about very different landscapes. It is possible that notions of participation also differ.

Participation

However, most residents of Butte do not participate in the cleanup, earning them the labels of apathetic or ignorant of public health issues (Craig, 7/30/95; Weinstock, 7/31/95; Kirkpatrick, 7/31/95; Dennehey, 9/21/95). Federal and state officials maintain it is not possible to involve an unwilling citizenry. The EPA has gone to great lengths to seek public involvement – Sara Weinstock (7/31/95) tells of preparing public notices of meetings, along with fact sheets, at every stage of the process. When the public appeared not to notice, Weinstock went to the schools to send fact sheets and notices home with the students.

We had information nights....We had an information fair at the Copper King [a large motel with function rooms in Butte]. We had big maps, fact sheets. We had 100 people. If you have 25 it's a good meeting. I can remember only three meetings when we really had a turnout, outside of the EPA, state, contractors and the newspaper.

Until you get a bulldozer in the neighborhood, even with the newspaper, school fliers, radio, and TV...

For the majority, even with lead, there was denial with the children's health. But if you got a new fence, OK. (Weinstock, 7/31/95)

County public health director Dan Dennehey (9/21/95) agrees with Weinstock's assessment:

The agency [EPA] does a real good job about what cleanup operations

will be and what the health risks are.. For me it's easy, but for the rest of the community... They won't even read a one-page handout. They're apathetic. I've been at meetings where the only people there are bureaucrats. If they [the public] come to the meeting, they're more concerned about the impact on their property.

We invite people to serve on an ad hoc committee, create the most diverse group we can to study and debate. On the lead issue we had twenty people. We had a number of public hearings, we had two or three people from public health, one public hearing at [Montana] Tech, one CTEC hearing.

We've been screening since 1990. If you ask about lead, people will have heard about it... (Dennehey, 9/21/95).

Dave Kirkpatrick (7/31/95), a former *Montana Standard* reporter who now works for CDM Federal Programs Corp. in the EPA's Butte office, says unfamiliarity with bureaucratic procedures may account for some hesitancy to become involved. But, even factoring in the unfamiliarity with bureaucracy, the lack of participation is noteworthy.

It's not uncommon to have 30 people in the room and only 10 of them are legitimate public. Interest is stunningly low.

There were probably only 30 to 50 people at the Pit meeting. They wanted the Pit elevation lowered; not for public health, but to mine... When the Pit decision came out, there was not one call from a legitimate person, just contractors.

At the Butte Priority Soils Time Critical Removal Action public meeting, no one showed up. I went to cover it for the paper, but no one was there. There had been ads in the paper for it.

All the time I covered government, there was little response. But one time a hydroseeder at the Anselmo [mine] went nuts. People called me like crazy then (Kirkpatrick, 7/31/95).

However, there are very few people who attend any meetings, never mind all of them. Weinstock (7/30/95) remembers one well-attended meeting (discussed at length in the media section) related to an arsenic spill that occurred on Second Street in 1978 or 1979.

There was at least one percent arsenic in some of those yards. What surprised me was that their lawsuit was never followed through. People at Timber Butte had a lawsuit against ARCO and they won...There is a lawsuit ongoing for all the people on the hill (relating to the water company; not the Superfund cleanup)... (Weinstock, 7/31/95).

There is an enormous difference in the costs of participation in a class action suit as opposed to a small neighborhood group. The failure to follow through with the lawsuit may have been the result of inability to pay lawyers' fees, take time off from work to meet with attorneys and attend court dates, and/or maintain the emotional stamina needed to fight the system. The failure to pursue the lawsuit may be more reflective of a recognition of the powers weighted against the neighborhood than an indication of apathy.

Butte's historic preservation officer Mark Reavis (11/29/95) agrees with Kirkpatrick that bureaucratic procedures are problematic for the public. He points to government officials' use of acronyms, e.g. ROD for Record of Decision and RA for Risk Assessment, and to the years that it takes to make decisions as impediments to public involvement:

When we did the [historic] preservation, every time they used an acronym we'd yell at them. There's no reason to communicate with the public that way. We've tried to participate in designs, but the process is cumbersome.

How can you really expect to hold their [the public's] interest for all those years? Even when decisions are made, changes happen in the field. There's nothing in the track record that would show that any public participation would have changed the course. In the [local] government, though, people have worked with it and that has had an impact. (Reavis, 11/29/95)

However, even local government officials get worn down by the long-drawn out complicated process. Butte-Silver Bow Health Director Dan

Dennehey (9/21/95) leans back in his chair and groans when asked about the interminable meetings.

The Superfund issue is so broad. The Priority Soils Unit, the Old Works, the Rocker operable unit ...We're taking an operable unit at a time, but people don't go to meetings every week. It gets to be mind-boggling – RIFs, RODs, proposal and planning meetings, Streamside tailings....(Dennehey, 9/21/95).

Underlying all of these comments about the public's lack of participation, there appears to be an assumption that public concern is measurable only by terms of participation established by federal law. This is an either/or definition of participation: either an actor spends hours attending public meetings, poring over remedial investigation/feasibility studies, risk assessments, seismic reports, and records of decision, and submitting written comments during public comment periods; or the actor does not care about the outcome. However, there are a number of problems with this assumption, among them the possibility that actors are interested but cannot pay the transaction costs associated with this definition of participation, that actors have defined a very different problem than that which the government is addressing, and/or that they do not believe that their participation, as narrowly defined, will change policy (Greider, 1992).

Transaction Costs

Participation on the government's terms is time-consuming. The EPA office is crammed with volumes, three large bookcases full, on the Superfund sites. Most of these volumes are written in the jargon of technocrats and, because they are written for other technocrats, concepts and connections

between them are rarely explained. Mary Kay Craig, president of CTEC and former Clark Fork Coalition employee, spends hours each day on Superfund-related activities, much of it poring over information and seeking translations of the scientific jargon (7/30/95). Then she attends meetings at night:

The sources of information I have are agency documents – RIs, FSs, RAs, ECAs, and I've read all those things myself.. I've even read the appendices. Although I'm not trained as a hydrologist or geologist, if you read enough of this stuff you learn to understand it. Also, people have been very helpful – even people who don't always agree with me, like Floyd Brossard who used to be on CTEC. I appreciate that because there are people who make it personal if you don't agree with them.... a hydrologist at Montana Tech spent half an hour on the phone with me, explaining this stuff to me. Most of the people at agencies have spent a lot of time with me. I've spent hours and hours and hours on the phone with scientists.

Now, I try to have the student staff [of CTEC] on the phone. They've got engineering mentors at the agency, and they call ARCO. They know who you have to ask to get what you need to know. You often get a better overview from someone who's not a specialist, who attends every meeting." (Craig, 7/30/95)

Working people, especially parents, may have neither the time nor the energy, or other resources, such as a car to get to government-sponsored public meetings in Rocker or Anaconda, or the money to hire a babysitter. Further, at meetings, the discussions are conducted in jargon and comments are made without background information, making it very difficult for a newcomer to understand what is happening. Protocol at every such meeting I have attended, in Butte and in Massachusetts as a reporter, is fairly rigid: officials conducting the meeting sit at a table at the front of the room; the rest

of the room is divided into two sections with an aisle down the center for the public. A newcomer might not realize that protocol demands the first few rows on each side are the domain of personnel from other involved agencies and members of the press and that from that point on one side of the aisle belongs to opponents; the other to proponents of whatever is under discussion. This is often somewhat daunting to newcomers, who, nervous and uncomfortable, tend to stand at the back of the room.

Since she was told in 1992 that some Butte citizens stopped attending government-sponsored public meetings because they felt they were being "batted down" and made to look stupid, CTEC meetings include a "word warden" to screen out jargon (Craig, 1996)

Different Problems

The EPA, state, and environmental groups are addressing technical problems — what kind and how much of a cleanup will occur where and when? Although this is important, this technical orientation assumes that Butte's quality of life can be measured in the contaminants identified by the EPA. But others in Butte who may define both quality and contamination differently are effectively silenced by the narrow parameters of officially sanctioned discussion. This is a very serious problem.

The quality of democracy is not measured in the contentment of the affluent, but in how the political system regards those who lack personal advantages. Such people have never stood in the front ranks of politics, of course, but a generation ago, they had a real presence, at least more than they have now. The challenging conditions they face in their daily lives were once part of the general equation that the political system took into account when it decided the largest economic questions. Now these citizens are absent from politics — both as

participants and as the subjects of consideration (Greider, 1992:183).

"Whose quality of life?" Marilyn Maney asks (9/22/95). Through years of working with the Butte Public Archives' labor history – she is president of the Butte archives – and her job retraining laid-off workers for the Montana state AFL-CIO, Maney has developed a formidable knowledge of Butte. Butte people are perfectly capable of determining what's important to them, she says hotly. The "vitality and strength and quality of life" in Butte comes from its working class background which has a very different ethos than that of the professionals who have arrived to oversee the cleanup, she maintains.

There are different kinds of contamination, Maney notes, and some forms are more dangerous than others. Butte's communal working class culture runs the risk of being contaminated far more by the cleanup professional's middle-class individualistic and competitive ethic than by existing mining waste, she says.

This is a working class culture that takes care of each other. This is a quality of life I don't believe I would have had somewhere else... The quality of my life, quite frankly, is much higher than those I know from other places. A lot better than just the physical.

We know entirely what's important to us as our livelihood. And that's reclaiming our right to speak for ourselves (Maney, 9/22/95).

The serious economic issues related to the end of mining and Superfund designation are beyond the scope of Superfund, EPA officials have repeatedly told local officials (*Montana Standard*). This effectively excludes issues that have just as much impact as the contaminants on residents; their comments on their priorities are dismissed. This is very different than apathy. Mark Reavis also disputes the apathetic label:

I don't think it's apathy. If someone was willing to listen to them. I've seen older people stand up and tell their story. It's politely received but public participation has been nothing more than a process. Some people have tried to make a difference (Reavis, 11/29/95).

As Marilyn Maney (9/22/95) aptly put it, the people of Butte can identify what's important to their quality of lives and speak for themselves — but, because the human values of Butte have been discounted, there is no common language with which to speak to authorities.

...The public's broad political values have been preempted by other materials — arcane rules drawn from economics, law and science — that provide the main grist of information politics. On issue after issue, the public is belittled as self-indulgent or misinformed, incapable of grasping the larger complexities known to the policy-makers and the circles of experts surrounding them. That complaint, though sometimes correct in the narrow sense, masks the nature of the conflict.

The real political contest, on issue after issue, is a struggle between competing value systems — the confident scientific rationalism of the governing elites versus the deeply felt human values expressed by people who are not equipped to talk like experts and who, in fact, do not necessarily share the experts' conception of public morality... (Greider, 1992:54).

Especially in a place like Butte, the inherently elitist nature of technocratic agencies and professionals working in the field will have to be radically altered, before any public support can be earned. Among the necessary alterations is the elimination of a professional bias that automatically assumes the working class is opposed to environmental reforms. Buttell and Flinn's research (1978) also indicates that the generally accepted belief in working class hostility to environmentalism is overstated:

... In terms of theory of the U.S. class structure, restraint should be imposed on utilizing environmental attitude studies to suggest the narrowly, self-interested, undemocratic, or overly materialistic behavior of the U.S. working class. Second, our data suggest that mass environmental beliefs may be more accurately characterized as expressions of generational – rather than class – interests (Buttel and Flinn, 1978:446).

Butte has an elderly population, Ellen Crain, director of the Butte-Silver Bow Archives, notes:

Older people who lived in their houses for 100 years and ate out of their gardens don't see a problem. The younger people are more educated, more informed... For the elderly, it's low on their priority list. They've already fought their wars (Crain, 9/21/95).

The age of the population could be a significant factor. The 1990 census reports that twenty-two percent, 7,392 of a 33,941 total population, of people living in Silver Bow County were over 60 years of age (U.S. Dept. of Commerce: Table 140). Research conducted by sociologists Frederick H. Buttel and William Flinn (1978) indicates that both awareness of environmental problems and support for environmental reform is strongly correlated with age⁴ and length of residence, with younger people being more aware and supportive. During the years of layoffs as mining wound down, the younger workers left Butte; those who had reached retirement age or were eligible for pensions tended to stay (Malone et al, 1993). Consequently, the majority of Butte's elderly population are long-term residents. However, the situation in Butte is far too complex to attribute to one cause, such as a given percentage of elderly long-term residents.

There is also another factor operating here. When, working class people

question environmental reforms it is almost always interpreted as hostility to environmentalism, rather than as an expression of a more immediate concern, that of providing food for families (Buttel and Flinn, 1978). And, even when this priority is recognized, it is often treated as narrow self-interest by researchers who, by dint of their education, do not expect to find themselves in that situation (Buttel and Flinn, 1978). This suspicion of working-class values may be a factor, especially when, as will be discussed in a later section, most of the researchers and environmental groups working on the Superfund sites are not Butte natives. This class-based suspicion is compounded by the fact that Butte has historically been the "other," the chattel of the Anaconda Company which held the state hostage (Malone, 1995). Researchers who have considered working class environmental beliefs have often assumed that "liberal environmental reforms compete for funds with welfare state agendas, as well as pose threats to working class economic security (Buttel and Flinn, 1978:438)."

However true or false that assumption may be in a particular situation, it is too narrow a way of looking at the working class, which is traditionally defined in the research by education, income and occupation (Buttel and Flinn, 1978). (The issue of "class" in Butte will be considered in a later section.) This narrow perspective also ignores the contributions that working class communities like Love Canal and Woburn have made to environmental thought, (Brown, 1991) and the potential of workers as a possible base of support.

The poor quality environments of many working class families, plus the hostility of some workers to (corporate) targets of environmental reform, may lead a substantial number of working class families to

favor environmental improvement ... many researchers have underestimated the extent to which environmental issues affect low 'socioeconomic status' families and how the working class represents a substantial nascent support base for the environmental movement (Buttel and Flinn, 1978:435).

By addressing just one narrow symptom of a multi-faceted social problem (Blaikie and Brookfield, 1987) the EPA and other government and national environmental organizations have both effectively alienated a possible base of support and allowed corporations to frame pollution in the misleading jobs/environment duality (Edelstein, 1988). Established environmental groups, like the Clark Fork Coalition, who focus their arguments on the quality of the land and water, to the exclusion of jobs, also contribute to the maintenance of the duality (Greider, 1992). Too often, environmentalists and workers meet at hearings, representing opposing points of view (Greider, 1992). Recognition of the importance of well-paying jobs to sustain communities would "lead to different kinds of public policies — transitional assistance to threatened workers or small businesses," (Greider, 1992:218) which would likely bring the community together, rather than divide it.

Narrow Definitions of Participation

The notion of participation may well be an "essentially contestable concept," (Connolly, 1993:10) open to a wide range of interpretations. The definition of participation in federal law is narrowly constrained to comment upon technocratic definitions and plans; activists' definition is often broader (Edelstein, 1988; Brown, 1991; Greider, 1992). It is possible that some people in Butte may not either accept the EPA's constrained definition of participation

and/or believe that their participation within such narrow parameters, will be unable to change policy.

In 1991, in response to a call from the Land Use Task Force, a 15-member citizen committee, for individual neighborhood development plans, just one neighborhood, Centerville, responded (*Montana Standard*, 8/19/1991).

Centerville residents wanted the New Butte Mining company to sell its properties in their neighborhood to develop sidewalks and install street lights and to monitor vacant lots. But one Centerville man said:

The thing is, after all this paperwork is done, is anything going to get done? By the time we're 65 is there going to be a sidewalk in Centerville? The reality is that in Centerville we've been waiting seven years just for stop signs (*Montana Standard*, 8/19/1991).

This may indicate that some residents, accustomed to governmental inaction and lack of response, decline to spend time on what they anticipate to be futile attempts. Or it may indicate that residents are tired of fighting the powers that be on the terms established by the powers that be. The issue of whether participation had any impact on agency decisions surfaced at a meeting about an EPA plan to dump Colorado Tailings from Butte into an area near the Opportunity Ponds, roughly 26 miles downstream from Butte. Residents of the area in which the tailings would be dumped charged the EPA with reaching a decision before holding hearings on the plan. One resident said:

People are pretty well disgusted. When they [the EPA and ARCO] were here the last time, they basically told us the decision had been made, now go home and cry (*Montana Standard*, 6/27/92).

"Most people in town just don't see any point in resisting when the plan is a foregone conclusion," the reporter wrote (*Montana Standard*, 6/27/92). A former county commissioner said people weren't "screaming" because, "Feed the candy to the kid and he's quiet. I'm talking about this golf course and the new pasture down there...They've been spoon-fed stuff about the golf course (*Montana Standard*, 6/27/92)." He was referring to the golf course ARCO is building on contaminated land near the former smelter in Anaconda.

In communities, like Woburn, Mass. (Brown, 1991) and Love Canal (Greider, 1992), victims moved outside the system to fight back, Woburn with a lay epidemiology study (Brown, 1991) and Love Canal with what Lois Gibbs calls the politics of "rude and crude (Greider, 1992:214)." Victims in Woburn and Love Canal expressed a sense of betrayal because the government that they believed existed to help them did not do so adequately. Lois Gibbs describes her experiences at Love Canal:

Generally, people at first have a blind faith in government. So when they go to EPA or the state agency and show them that there is a problem, they think the government will side with them. It takes them about a year before they realize the government is not going to help them. They see the agencies studying them to death. That's when they become really angry — radicalized.

When I started, I believed democracy worked. I believed everything I had learned in civics class. What I saw is that decisions are made on the basis of politics and costs. Money. (Greider, 1992:167)

Given the history of Butte, its people may have never known the luxury of blind faith in the government because the government itself was so often seen as the enemy. As noted earlier, between September 1914 and April 1920,

the national guard and federal troops occupied Butte six times, always with the intent of sustaining a status quo that was heavily weighted against Butte's working people (Malone et al, 1993; Toole, 1959). And in 1951 President Truman applied the Taft-Hartley Act against the striking miners (Malone et al, 1993). Federal and state law was often used against the community, and government was often viewed, justifiably, as an adjunct of the Anaconda Company (Toole, 1959). This was hardly a climate in which people would develop a sense of a benevolent government. Given the passion of Butte residents for their history (Reavis, 11/29/95), the role of government is not likely to be forgotten.

Also, it is oversimplistic to assume that lack of government sanctioned forms of participation or direct public challenges such as those seen in Woburn, Mass. (Brown, 1991) and Love Canal (Kroll-Smith, 1991a; Greider, 1992) automatically assumes acquiescence.

There is the sense that everyday life and culture, in which people implicitly 'conform to' or 'accept' their situation, should not always to be contrasted with dramatic 'social movements,' in which people question or challenge the status quo. Instead, while organized social movements remain enormously important in understanding large-scale transformation, much can be learned to by attending to 'everyday forms or resistance' as well (Dirks et al: 5).

Given Butte's labor history and the fact that the boycott was an invention of Irish peasants resistance to landowners, some residents may choose not participate as a form of resistance. Their silence may be the equivalent of a boycott by an "aggrieved" (Wolensky, 1991) population. It is also possible that some adults have come to feel powerless to influence events in which

corporations and government agencies are involved, and, instead, direct their energies into areas where they can accomplish change. This could well be attributable to lessons learned in years of interaction with the Anaconda Company, and in the current imbalances of power between Butte residents, governments at the local, state, and federal level, and ARCO.

Additionally, the environmental movement itself is fragmented, stratified along class lines.

The [environmental] movement is splintered into many different pieces, including different social classes that do not even talk to one another, much less try to work out a common political agenda. On one end are Ivy League lawyers, urbane and well educated and completely comfortable in the inner circles of government, On the other end are the thousands of home-grown neighborhood activists, utterly skeptical of government and engaged in 'rude and crude' politics at the factory gates (Greider, 1992:213-14).

In Butte the issue of class and environmentalism may be best illustrated with a story. Although Butte was designated a Superfund site in 1986, Butte's people were on their own. Environmental groups in the state have never mounted a demonstration to focus attention on the possible public health impacts of the contamination on Butte's people, even with the 1990 publication of the Moore and Luoma health study, which indicated the possibility of serious health problems in Butte and called for a detailed study. Yet the gruesome deaths of 342 snow geese in the Berkeley Pit in November 1995 resulted in a memorial service which was planned, publicized and attended by environmental groups across the state. (The study and memorial service will be discussed in a later sections.) This is in no way to minimize the horror of the birds' death; it is merely to illustrate the relatively low

position of Butte's people in the mainstream environmental pecking order.

Also, environmentalists frequently appear to be apprehensive about expanding participation to allow working-class people and anti-environmentalists to shape government policies. The following comment is fairly typical:

Don't forget that Wise Use has just as much right as you to be involved in citizen participation. Would you rather Gary Irgman decided what was to be done on the Clark Fork or a roomful of Wise Users versus you? I'd rather Gary Irgman decided — a caring biologist and public servant even though he happens to be a bureaucrat.

There is an assumption here again of either/or, in this case, the educated scientist or members of a group, the Wise Use, that is perceived by environmentalists to be anti-environment. There is no sense of an understanding that in a democracy all voices should be included, or of the possibility that exclusion may have led to some of the anti-environmentalism that is so feared. The argument of exclusion seems to rest upon the same kinds of arguments that were used against giving former slaves and women the vote: they just won't be smart enough to make the "right" decisions.

Fearfulness aside, there is some recognition in some quarters that the broader values of citizens should be included in decision making. Daniel J. Fiorino (1990), an employee of the EPA, maintains that more citizen participation is needed to improve the technocratic orientation of large bureaucracies because: lay judgments about risk are often more sensitive to social and political values that expert models do not acknowledge; technocratic orientation is often incompatible with democratic ideals which

presume citizens are the best judge of their own interests; and effective lay participation in risk decisions makes them more legitimate, which leads to better results. Fiorino's analysis of five participation methods finds shortcomings in each method: 1. public hearings involve amateurs, but do not share authority, allow limited scope for discussion, and do not promote equality; 2. initiatives allow amateurs direct involvement, shared authority, a potential for discussion, and some equality; 3. public surveys involve citizens, provide limited shared authority, rarely generate discussion, and do not promote equality; 4. it is unlikely for citizens to participate in negotiated rule making which offers the most opportunity for shared authority, discussion and equality; and 5. citizen review panels involve amateurs with limited authority in discussion with some involvement (Fiorino, 1990). To circumvent the shortcomings of each method, Fiorino (1990) suggests one mechanism be used to complement another.

In science policy, there are additional reasons to actively engage the public in decision making (Brown, 1991; Schrader-Frechette, 1991).

Some governmental agencies and scientific communities have sought public involvement in science policy. As [Sheldon] Krimsky notes, public participation provides for a just input from involved and affected people; it may even offer illumination from the perspective of those affected; and it may increase legitimacy. Yet even when lay participation has been attempted, lay members of advisory boards and panels are given insufficient information and training, and are granted inadequate power. Perhaps the central flaw in official approaches to public participation is that it is viewed as a formalistic process — simply 'good politics.' This is a shortsighted perspective, since public involvement is truly a question of 'good science' since it changes the nature of scientific inquiry. Our investigation of popular epidemiology has provided many examples of data that would have been unavailable without community input. If scientists and government fail to solicit such data, and especially if they consciously oppose and devalue it,

then that data may be lost (Brown, 1991:145-46).

As it stands, despite Sara Weinstock's understanding of Butte and her caring approach, the unresolved conflicts in the federal Superfund law and bureaucratic structure of the EPA have combined to disparage local knowledge in Butte. And, although, as indicated above, Butte's people have not reacted like some victims in other communities, there is no basis to assume that Butte residents are apathetic or do not care. Butte is not monolithic; there are simply too many variables and possible explanations to label the community.

One of the variables is that of local newspaper coverage. Assuming that, for the majority of these people, their perceptions of Superfund issues are shaped by the coverage provided in the local newspaper, the *Montana Standard*, the thesis will now turn to an analysis of four years of that paper's reporting on Superfund.

¹ The EPA defines hazardous waste as "either toxic, corrosive, ignitable, or reactive" materials which can be "transmitted through all environmental media - air, water, biota, and land." (Hird: 5)

² A thorough discussion of the debate about Superfund's effectiveness or ineffectiveness is beyond the scope of this paper. Both Yeager (1991) and Barnett (1994) offer excellent analyses.

³ That level is given as 5,410 feet in the Mine Flooding Unit Risk Assessment, indicating there may be some uncertainty.

⁴ Interestingly, Buttel and Flinn (1978) posit that environmentalism in the young may be a generational form of resistance, of rejection of parental values.

LOCAL NEWSPAPER COVERAGE

The *Standardized* Landscape

Since the majority of Butte's people are not involved in the day-to-day business of Superfund cleanup issues, the quality of the local news coverage is important because the newspaper coverage puts the events into a recognizable context for the community. It is this coverage that daily helps to shape the way readers interpret the meaning of the Superfund label and cleanup activities, and then integrate that meaning into their lives and their notions of their community.

Our picture of reality does not burst upon us in one splendid revelation. It accumulates day by day and year by year in mostly unspectacular fragments from the world scene, produced mainly by the mass media. Our view of the real world is dynamic, cumulative, and self-correcting as long as there is a pattern of even-handedness in deciding which fragments are important. But when one important category of the fragments is filtered out or included only vaguely, our view of the socio-political world is deficient. The ultimate human intelligence – discernment of cause and effect – becomes damaged because it depends on knowledge of events in the order and significance in which they occur (Bagdikian, 1990:xvi).

Butte's only daily newspaper, the *Montana Standard*, is part of the Lee Enterprise chain, the group of papers bought from the Anaconda Company in 1959. Writing in 1976, local historians (Malone et al, 1993) described the improvements that the ownership change brought to the papers: improved personnel policies and mechanical facilities; expanded and improved news staffs; establishment of a state news bureau in Helena; the addition of the

New York Times News Service to supplement Associated Press wire service coverage; and encouragement to staff members to upgrade their skills by attending conferences and seminars.

At long last, Montanans had access to objective and professional news reporting (Malone et al, 1993:368).

Given the removal of what John Gunther (1947) called the "Gray Blanket" from the majority of Montanan dailies, and the Lee corporation's improvements, Montana's delight at the changes wrought by Lee Enterprises is understandable. Although it is beyond the scope of this thesis, a comparison of *Montana Standard* coverage in the early 1970s with that of the 1990s might be interesting because, as will become clear in this section, some of those improvements seem to have disappeared over the years.

However, changes in coverage or not, the local historians (Malone et al, 1993) pointed to two important trends: the first, the professionalism of journalism; the second, the changing patterns of ownership, from families or local ownership to fewer and larger outside firms. Both trends are important to an analysis of the world according to the *Montana Standard*.

Ben Bagdikian's (1990) research into the characteristics of chain newspapers in *The Media Monopoly*, provides some insight about the coverage of the *Montana Standard*. A former reporter and dean of the University of California/Berkeley Journalism School, Bagdikian (1990) writes that after purchase of a newspaper, chains typically make four general changes: 1. introduce cosmetic alterations of page design and makeup to give the impression of modernity, and quietly reduce the amount of serious news;

2. reduce local news coverage (experienced news reporters are expensive) and replace the local news with inexpensive syndicated features; 3. reduce the news staff and hire inexperienced reporters; and tone down the editorial page. Afghanistanism is fairly common and local editorials are relatively bland to avoid upsetting advertisers.

The *Montana Standard* possesses all of the characteristics Bagdikian associates with chains. These characteristics affect a newspaper's coverage, for the worse, but there are other aspects of coverage that are harder to quantify – the role the newspaper's management sees for the paper within the community, the paper's relationship with local authorities, and the paper's overall political orientation. Because local media are generally more aware of local issues and concerns, especially of "local political, economic, and social consequences of reporting practices (Spencer & Triche, 1994:199)," an analysis of the paper's environmental reporting patterns is a useful way both to map the landscape presented daily to readers and to determine the forces that landscape, in turn, exerts on the paper. An analysis should consider: what is reported and how what is reported is presented; what is not reported; what are typically the reporters' news sources; whose voices are reported; how events are defined; and the paper's editorial stance. Both the quantitative, the number of news stories, and the qualitative, the substance, of the coverage is important.

However, because newspaper staff work under budgetary and institutional constraints, these also must be considered in any analysis. Most editors and reporters are drawn to journalism for reasons other than making money: some are generalists by nature and so are attracted by the variety of issues they will cover and the different people they will meet; others see the job as a

means to both learn themselves and educate the readers about important issues; some are drawn by the desire to be known in their communities; and some want to shape people's thoughts. Journalists, like members of any other profession, are fairly diverse in interests and orientations. But most want to do a good job. And most work under very stressful conditions. So, when looking at the paper's coverage, it is important to remember that reporters and editors will generally do the best with what they have.

QUANTITATIVE COVERAGE

From Jan. 1, 1990 through Dec. 31, 1993, the *Montana Standard* ran a total of 732 news stories, editorials, letters to the editor, and columns, which covered national, state, and local environmental issues. Given that there are 365 days in a year and that this coverage is for a four-year period, or 1,460 days, this averages out to one news story, letter to the editor, editorial, or column related to *national, state, and/or local environmental issues* every two days. This is a very low rate of environmental coverage.¹ Astonishingly low in light of the size of the Superfund site and the myriad of environmental issues on the state and national level.

Eighty-five news stories focused on state environmental issues, including 14 relating to the state's natural resource damage claim – making coverage of state-related environmental issues 11.5 percent of the *Montana Standard's* 732-story total environmental coverage. Forty-five news stories, predominantly from the Associated Press wire service, covered national environmental issues, making national coverage just 6.4 percent of the total. Twenty-three percent of the newspaper's total environmental coverage was related to coverage of Anaconda and streamside (along the Clark Fork River

and Silver Bow Creek) Superfund issues. The remaining 59 percent, 432 news stories as well as letters to the editor, editorials, and columns, of the 732 total consisted of coverage of environmental issues in Butte. However, a breakdown of the 432 total for Butte, indicates that 14.4 percent of the coverage was not related to Superfund issues; just 369 covered activities connected to the Superfund sites. And, of this 369, five percent consisted of letters to the editor, which are not generated by newsroom personnel. This means just over 80 percent, 350 news stories, editorials and columns, of the total 369 stories related to Butte Superfund coverage was actually produced by the newspaper. When this 350 total is brought back to the 1,460 days in the four-year period being analyzed, this translates to one story, editorial, or column about Butte Superfund sites every four or five days. This is a painfully low rate of both overall environmental and Butte Superfund coverage.

QUALITATIVE COVERAGE

The *Montana Standard's* Superfund coverage in Butte during this four-year period is equally poor qualitatively. In general, although the majority of the news stories are reasonably well-written, the coverage is restricted to a recitation of cleanup actions, is devoid of any understandable or meaningful context, relies exclusively on authorities as sources, fails to include voices other than ARCO, local, federal or state authorities, and members of the Citizens' Technical Environmental Committee (CTEC), and defines events narrowly.

In the *Montana Standard's* case, the most striking aspect of Butte coverage is what has not been covered. Of the 369 news stories, editorials, letters to the

editor, and columns, only three (all written in 1990) provided any substantive information about health effects of exposure to the metals or chemicals referred to in the story. Only .8 percent of all Superfund coverage in Butte over a four-year period gave the readers an indication of the health implications of exposure.² In only one of these three stories is the type of health effects – in this case, cancer – near the top of the story (*Montana Standard*, 6/14/1990). This is a story about the meeting to which Sara Weinstock referred in the previous section. This is also the only story that quotes concerned residents. After discovering a site where arsenic, lead and cadmium had been dumped 12 years previously, the EPA had slated seven yards in the area for immediate emergency cleanup, and brought in a toxicologist to warn residents to keep their children away from the site where arsenic. Not only children are affected, one resident said:

There's a lot of sick people in that neighborhood. I know. I'm a nurse.
(*Montana Standard*, 6/14/1990)

Health officials replied that more time would be needed for cancers related to the exposure to develop. Furthermore, the toxicologist said, about 25 percent of the general population will get cancer anyway so officials have no way to know whether the spilled concentrate is causing cancer in the area (*Montana Standard*, 6/14/1990). Three things are noteworthy about this story.

First, that the EPA is so quick to negate local knowledge and, invariably, when pressed, falls back on the incidence of cancer as a given for some of the population. As a rule of thumb, government environmental agencies use

statistics with certainty to assure people of protection when siting issues are on the table; they use different statistics, and uncertainty, to discount residents' claims after exposure. And, while the statistics are bandied about, what goes unquestioned is why 25 percent of the population is expected to develop cancer.

Second, although a reporter might not be expected to be aware of cancer statistics, that same reporter should spend some time after the meeting or, if necessary, within the next few days by telephone, obtaining additional national data about the prevalence of cancer, types of cancer, and official interpretations of the data. From there, the reporter should contact the state and local health departments seeking further local data. The results of these interviews should run as a follow-up story, and then, appear in summarized form in every story in which cancer incidence is mentioned. The idea behind this is that every news story should be put into an understandable context so that a first-time reader would get a grasp of the total situation. This did not happen.

The third noteworthy aspect of this story is that it was never followed up. Common journalistic procedure would entail a visit to the neighborhood to interview the residents and put forth their historical awareness of the numbers and types of illness among families in the neighborhood. No such story ever ran in the *Montana Standard*.

The other two stories from 1990 that referred to health effects, printed information about effects well past the point at which newspaper readership surveys show that most readers reach – in the sixth paragraph in one story; in the eleventh paragraph in the other. All new reporters are trained to write in a style commonly called an "inverted pyramid," which means the reporter

leads with the most important components of a story. This format is based on two premises: first, it simplifies an editor's job because he or she can save editing time by cutting the less important paragraphs at the end to shorten the story for a small newshole; and second, because, as reporters are taught from day one, both in journalism schools and on the job, readers rarely read past the headline and the first paragraph, the lead, of a story. So, information important to readers must be within the first two or three paragraphs of the story, especially if the headline does not refer to health risks, as was the case in both of these stories. Placement of health effects in the sixth and eleventh paragraphs of both stories is the equivalent of burying the information.

Even more startling is that the EPA risk assessments were rarely mentioned, and in the few instances they were, were never explained. Standard operating procedure for journalists covering Superfund sites is to use the risk assessments as one of the focal points of coverage. The risk assessments are the source of the reporter's information about what illnesses are associated with each metal and/or chemical on the contaminated site. As a matter of routine, in the course of covering Superfund sites, the reporter interviews the agency responsible for each risk assessment to obtain a translation of the jargon to present to the public in terms of probability of increased cancers and other illnesses, and the types of cancers and illnesses associated with the contaminants on-site. This information, written in a clear calm manner, is far more important to the public at large than recitations of the number of tons of dirt moved or gallons of water cleaned.

Also noteworthy is, although the adverse impacts of lead on children, including retardation in severe cases, were mentioned in the paper's stories on lead, no mention was made of the fact that in both Anaconda and Butte

high schools, rates of learning disorder and cognitive disorder are nearly twice the rate averaged among the state's 21 largest schools (Tuholske, 1993). Anaconda and Butte have the dubious distinction of ranking first and second for both disorders (Tuholske, 1993).

In addition to omission of health information, another interesting aspect of the *Montana Standard's* coverage is the manner in which Superfund issues were presented during this four-year period. The breakdown of coverage, which is presented graphically in the appendix, is as follows:

- 38 percent of the coverage, 142 stories, presented cleanup issues in a routine manner, e.g., moving dirt from one place to another, establishing monitor wells, so many yards scheduled to be cleaned up. There is occasional reference in these stories to carcinogenic chemicals, but no additional data is given and the reference is usually buried within the story.
- 76 stories, 21 percent of the coverage, were oriented toward the economic benefits of high tech industries coming to Butte to develop techniques to separate the metals from the water in the Berkeley Pit or clean the contaminants from the soil.
- 32 stories, 8 percent, were concerned with conflicts between ARCO and the EPA and/or state government.
- 6 percent was in the form of 22 editorials.
- 21 stories, 5.7 percent, deal with the economic boost that development of Butte as a mining history park will bring to the community.
- 21 stories, 5.7 percent, refer to the blood lead tests and studies done on Butte children. Although all the stories refer to the danger to children and pregnant women from lead exposure, good detailed information on the effects of lead exposure are not part of these stories. The possibility of

synergies was never raised as an issue.

- 19 stories, 5 percent, of the total 369 Butte Superfund coverage, came in the form of letters to the editor.

- 17 stories, 4.6 percent, were focused upon conflict between levels of government, e.g., federal and state, state and local.

- 10 stories, 2.7 percent, were oriented to the economy.

- 2 percent of the coverage came in the form of eight columns on the editorial page.

- .2 percent of the coverage, the one story referred to above, consisted of a public health warning.

Excluding the voices of members of the Citizens' Technical Environmental Committee (CTEC), only five Butte Superfund-related stories in the four-year period included voices of Butte people, other than local officials – just one percent of all coverage. All other coverage was presented through the voices of participants, arguing in technical terms – e.g., disputes over threshold limits, potential solutions, elevations of the Pit.

The reasons for and dangers of reliance upon organizational sources of information will be explored later in this section. For now, it is sufficient to stress the importance of including Butte voices in coverage of Superfund issues. As part of routine Superfund coverage, the reporters should go out into the neighborhoods where cleanup activities are taking place and interview residents.

Given the scale of the contamination, the most amazing aspect of the *Montana Standard's* coverage is that, unlike the majority of the daily newspapers in the United States, this newspaper has no designated trained environmental reporter.

There are four basic messages stressed by the *Montana Standard's* news coverage over the four-year period. The cumulative impact of these messages includes the notions that:

1. the Superfund cleanup is a technical procedure only and, as such, has little relevance, other than as an occasional source of annoyance, to the lives of people in Butte;

2. cleanup standards are little more than arbitrary numbers over which ARCO, government agencies, and CTEC members squabble;

3. technology will save Butte by developing solutions to mine the mining waste and, in so doing, bolster Butte's sagging economy; and

4. Butte's history can be mined to attract tourists.

Nowhere in the Butte Superfund coverage is the contamination presented as a social issue or is reference made to other Superfund sites and possible similarities to Butte, e.g. income levels, types of contamination, public health issues, population impacts, geographic locations. Also, nowhere in the Butte Superfund coverage has there been an attempt to look at the political economy of Superfund. This type of coverage would entail consideration of: the number of Superfund sites in the United States; they location of the sites; identification of the most common PRPs and whether they are still in business; how profitable their operations are; how many people they employ; what is known about health impacts of those sites; what kinds of cleanup solutions EPA has allowed; how much the PRPs at other sites have paid for cleanup; and how much have taxpayers paid. These would be reasonable places to start questioning, and much of this data is available in EPA computerized data banks.

An additional shortcoming is that nowhere in the *Montana Standard's*

Butte Superfund coverage has there been an attempt to take a hard look at ARCO, e.g. an analysis of corporate balance sheets that indicate profits made and losses declared, reference to the corporation's lobbying to gut the Superfund law, or any indication when corporate-issued statements differ from its actions. However, in fairness to the *Montana Standard*, this type of corporate coverage is very rare in the mass media. The reason for this will be considered later in this section.

EDITORIAL STANCE

The paper's editorial positions have come under fire from CTEC members and other environmentalists who charge that the paper takes a pro-ARCO position. Through letters to the editor, the critics are talking back. After the paper ran an editorial that charged CTEC with overstepping the legal constraints that prevent recipients of federal technical assistance grants from taking advocacy positions, CTEC president Mary Kay Craig (7/31/95) brought a copy of the law to the editor to show him that CTEC was operating legally. "He said he didn't care about the law. That [the content of the editorial] was his opinion," Craig recounted after her meeting.

George Waring expressed his frustration in a letter to the editor:

According to Mr. Lewis the Citizens' Technical Committee that's staying on top of the Superfund cleanup shouldn't be informing us of the pros and cons of the various options available. Why not? Certainly the *Montana Standard* isn't performing that function. All we get are ARCO handouts printed on the front page.

What this town badly needs is a non-ARCO newspaper. The old Copper Collar is sure locked back in place (Waring, 10/21/95).

This points to another serious structural constraint operating against activists. Because there are such high transaction costs in the Superfund information-driven process, citizens frequently find they must hire professionals to help them translate and assess official definitions of the problem and proposals for cleanup plans (Brown, 1991; Greider, 1992). The EPA recognizes this imbalance in its provision for Technical Assistance Grants (TAGs); in Butte, CTEC operates with such a grant. But there are strings attached; TAGs preclude any activity that could be construed as overstepping narrow definitions of advocacy. Members of committees operating under TAGs frequently find themselves walking a tightrope when taking a position on a cleanup option. They are always vulnerable to charges, like that made by the *Montana Standard*, that they are overstepping the bounds. The end result is that TAG committee positions tend to be self-censored by legitimate fear of loss of funding (Greider, 1992).

The strings are even more tightly drawn when citizens must rely upon grants from non-governmental organizations, such as foundations (Greider, 1992). The federal tax code is structured to allow wealthy corporations and individuals to fund "activities that are really self-interested expression (Greider, 1992:5)."

Under the federal tax code, tax-exempt grants are fully deductible for the donors only if the recipients stay clear of partisan politics, and many organizations accept these limitations on their politics. They may develop 'educational issues' or create 'civic projects' for citizens but they cannot take these concerns into the arena of accountability that matters most to those in power — elections (Greider, 1992:219).

The federal tax code assures that the wealthy have the ability to "define the political agenda for others... The overall effect of political charity, as one might expect, is mostly conservative — guaranteed to preserve the status quo. Charity is another form of political power (Greider, 1992:219)."

In addition to struggling with the constraints of the TAG grant, activists in Butte also contend with instances of faulty reporting. The day after a July 1995 meeting about the state's plan to address contamination along Silver Bow Creek, state officials, CTEC members and myself were amazed to read an account of the meeting that bore no resemblance to that which we attended. The *Montana Standard* reporter, liberally quoting ARCO project manager Sandy Stash, announced that no support for the state plan had been expressed at the meeting. This was simply not the case.

To someone unfamiliar with the news business this looks like the paper is taking a position. Sometimes that is the case; other times it is the result of an inexperienced reporter who has had difficulty locating the comments within the context of the complicated issues under discussion. Advocates at public meetings would be well advised to preface their comments with an indication of support or opposition. In this case, the story was written by an inexperienced reporter who likely did not understand the implications of the comments made by those who preferred the state's plan to that proposed by ARCO. Stash and critics of the state plan were much more direct in their comments than were the proponents.

However, CTEC president Mary Kay Craig notes, the reporter "makes no attempt to speak with anyone after the meeting than ARCO." The paper has a slant, she says:

The point of view is you have to get every buck out of ARCO in terms of economic growth. Forget why Superfund came here in the first place. I said (Superfund came to Butte) for the protection of human health and the environment. The paper cut out health. Although at least this article [about the meeting referenced above] said there were some environmentalists concerned about human health and the environment. They call you an environmentalist because they disagree with you and, in a mining town like Butte that makes you not credible (Craig, 7/30/95).

Research indicates that activism in contaminated communities is always difficult. Further, corporate activity often makes activism even harder in those based on resource extraction:

...Overall, the pattern suggests that resource-exploiting industries may have been able to avoid political responsibility for worker layoffs — and in fact, by contrast, have been able to develop politically useful allies — by blaming environmental regulations, and not their own practice, as the key reasons for shutting down their operations (Freudenburg, 1992:326).

John Ray, CTEC member and board member of the Montana Environmental Information Center, characterizes the *Standard's* orientation as more pro-development than pro-ARCO. The coverage is:

...very much filtered through "what's good for Butte is economic development." The paper takes things very much at face value. Six years ago I wouldn't have said that; it had a more balanced approach. It's not promoting a pro-ARCO position; but Butte development. It's not a strong environmental paper. The *Standard* has no environmental reporter...It pays low wages, gets people right out of school...

Given Lee Enterprise's nature...they want to be in with the powers that be. They won't rock the boat. They'll pick a little on local government but less now than six years ago (Ray, 10/24/95).

Analysis of editorials and columns over the four-year period shows a pattern more complicated than a simple pro-ARCO orientation, which bears out Ray's assessment. Of 22 environmentally-oriented editorials: two were pro-EPA; one very strongly anti-ARCO; three advocated a good timely cleanup;; one spoke for the public right to know about decisions being made; one addressed the need for planning to address future environmental risks (although the subject of this editorial was a site in Helena); and one insisted that the EPA move its offices to Butte. Together, those editorials accounted for 41 percent of the editorial coverage. Editorials critical of the EPA accounted for another 41 percent. The remaining 18 percent of editorials were distributed as followed: 9 percent relating to other environmental issues in the state; 4.5 percent stressing the need for technological solutions to Butte's Superfund cleanup; and 4.5 percent informational.

Of the eight columns, three were written by *Standard* staff, and of these three, two were critical of the EPA. Of the remaining five: John Ray urged a cautious interpretation of the lead study results; John Wardell of the EPA corrected six inaccuracies in a *Standard* editorial; a column critical of the EPA was picked up from *Mining Engineering* magazine; a free-lance writer raked ARCO's publicity campaign over the coals; and ARCO replied to the freelance writer. From 1990 through 1993, the paper's opinion page ran a gamut of sentiments. Three of the eight columns were critical of the EPA.

However, it is in the national environmental stories picked up from the wire services, where an anti-government agency sentiment surfaces. Roughly 32 percent of these national environmental stories consisted of criticism of the agency, e.g. EPA officials shredded incriminating documents,

EPA is too large, EPA budget should be cut, EPA health reports are faulty, EPA doesn't collect all the money that is due it. Given the minimal national coverage, the large percentage of critical copy selected from the wire services does give a sense of anti-EPA overtones over time. But it is not solely the selection that gives a sense of bias, it is the manner in which the issues that are written about are framed.

The production of news also involves ideological, political, and economic factors. Events may be framed in ways that tend to confirm or reformulate a dominant ideology. This may result from a reliance on organizational sources of information, but it can also result from the power that different organizations can wield. Economic factors include constraints imposed by deadlines, sales and advertising, the assumed beliefs of news sources and the public... (Spencer & Triche, 1994:201).

In any field, there are constraints. For reporters, the most common are deadlines and the timeliness of stories. Deadlines are the bane of a reporter's existence. Far too often, a reporter must file a story without the additional information he or she would like to include or without comments from an interested party because it was too late to call that person, or he or she was out of town. And, missing information or comments notwithstanding, the deadline must be met. Most experienced reporters will try to get the additional information or contact the interested person the following day to do a follow-up story but sometimes, given a large beat, the followup may be postponed because another story or two is planned for the following day and the next day, and the next. Timeliness is another constraint. All too often an involved story that may take weeks to gather will go by the board as reporters chase breaking stories. Other institutional constraints will vary from

newsroom to newsroom.

CONSTRAINTS IN THE *STANDARD* NEWSROOM

The most common common impediment to good news production is understaffing. There is no way around it – good newsgathering takes time, and time is something that reporters working for an understaffed paper do not have. The *Montana Standard* has a very small staff: four full-time reporters for Butte; and two bureau reporters who cover Anaconda and other outlying areas within the paper's circulation area (Van Fossen, 11/14/95). Publisher Norm Lewis, who joined the paper as editor in January 1994 reorganized the news staff, eliminating the use of stringers, part-time reporters who are called in for additional coverage, and put the stringer budget into full-time reporters (Van Fossen, 11/14/95). Although, given the tendency for reporters to be restricted to their own beats, the elimination of stringers may reduce some flexibility, it has the advantage of both consistency in coverage and a staff that is more aware of the local issues and players than stringers might be. Also, full-time personnel tend to be more committed to their jobs than part-time or occasional employees.

But, adjustments or not, the paper, which has a circulation of 16,000, has a small staff and the Superfund cleanup is just one of many other issues in Butte (Van Fossen, 11/14/95). Local government issues – municipal services such as water provision and landfills, zoning ordinances to channel future development and protect existing sources of water, and taxes among the standard staples. Schools must be covered – curriculum, funding, school sports, and features about programs that bring schools and community

together, special projects, and gifted students. Crime and fire stories must be written. Features on local people are needed. Businesses news and Butte's sizable elderly population must be covered. And, for this city of some 30,000 people, there are just four full-time reporters to do all that for seven papers a week (Van Fossen, 11/14/95).

Each of the four reporters who cover Butte have very large beats (Van Fossen, 11/14/95). One covers what Managing Editor Drew Van Fossen calls "cops and courts," as well as writing occasional features; the second covers business stories in addition to producing the Sunday business page and writing business briefs; the third covers education, in addition to general assignment stories and features; and the fourth handles city/ council government and Superfund. There are also two bureau reporters – one who covers Dillon, Sheridan, Twin Bridges, Virginia City, and the Big Hole area; the second covers Anaconda – and a three-member sports staff – one works five nights; the other two one night apiece (Van Fossen, 11/14/95).

One city editor is responsible for reporter supervision, story planning, assignments, and editing everything from obituaries to news stories (Van Fossen, 11/14/95). He works 9:30 a.m. to 10:30 p.m. five days a week and a half day the remaining two days. This is the editor's preferred schedule, Van Fossen explains:

He likes it like that. He lives at the newspaper. One of the reasons I was hired here is that we're so opposite we complement each other (11/14/95).

The paper currently has one full-time photographer and is hiring another (Van Fossen, 11/14/95). One of the bureau people also takes photos. Four

copy editors, who work two to a shift in four 10-hour days round out the staff (Van Fossen, 11/14/95). This is an extremely small staff for a daily newspaper.

The next most common impediment to good coverage on any newspaper is inexperienced reporters. Clearly, all new reporters are inexperienced and have to start somewhere to get experience. Equally clearly, some are far more equipped to do the job and catch on more quickly than others. In a well-staffed newsroom, where experienced reporters, particularly those who may have covered the same beat, have some time to spend mentoring the less experienced, inexperienced reporters do not usually adversely affect the quality of coverage. But, when experienced reporters are overworked or, as in the case of the *Montana Standard*, no longer working in the newsroom, inexperienced reporters can present problems to coverage. The problems related to inexperienced reporters are two-fold:

1. They have not developed the news instincts that set off alarms in experienced reporters who have developed a familiarity with governmental forms, have worked in a number of places and learned to recognize certain patterns, and are acutely aware of the importance of what is not said.

2. Their output tends to be far lower than that of experienced staff.

Much of what shapes a reporter's coverage of issues depends upon that reporter's familiarity with an area – who are the major players, what are their connections, their political affiliations, their interests? What is the history behind the issue at hand? Who can be trusted for direct information? Who has an ax to grind and how does that color the information this person gives you? If the reporter is new to an area, he or she must rely upon experienced reporters or clips in the paper's library. If the experienced reporters are not

available for consultation and/or coverage has been poor, an inexperienced reporter can easily be duped. And, in the process, coverage suffers.

John Ray (10/24/95), who is also a political science professor at Montana Tech, attributes the poor environmental coverage to a combination of laziness on the part of some reporters, the inexperience of other reporters, and understaffing on the part of the *Montana Standard*. Excepting laziness, a former reporter for the *Montana Standard* confirmed Ray's assessment, noting that the paper hired reporters out of school, gave no training to reporters covering Superfund sites, and expected reporters to cover large beats.

An experienced reporter, covering a Superfund site for the first time, is usually not afraid to ask the questions he or she needs answered to get an understanding of the process. Also, an experienced reporter generally has developed a good news sense that will direct his questions, and is accustomed to writing about conflicts. In contrast, inexperienced reporters tend to be timid about asking questions and have not yet developed the news instinct to ask the right questions, and many are uncomfortable writing about conflict. Unless there is a good editor, who is knowledgeable about Superfund and not himself overworked, the inexperienced reporter's copy will consist of little more than poorly connected quotes from authorities.

In the absence of investigative reporting, news personnel rely heavily on organizational sources of information, which often possess their own agendas, perspectives, and timetables and can shape media definitions of risk and safety (Spencer & Triche, 1994:201). Inexperienced reporters are not trained in investigative techniques, and experienced overworked reporters do not have the time to devote to digging.

Because Superfund issues are complicated, good coverage takes time – hours spent talking to government officials, reading government documents, becoming familiar with the site and the jargon. An inexperienced or overworked experienced reporter with a large beat, no matter how motivated, does not have the time to do the research necessary to write coherent copy on the subject, never mind do the additional work essential to supplying a full range of voices and context. Additionally, many reporters, even those with experience, are not inclined to question authorities too deeply. Greider, a former reporter, writes:

For several generations...Americans have been systematically taught to defer to authority and expertise in a complicated world. The modern political culture, transmitted by schools and universities and the news media, teaches implicitly that those chosen to hold power have access to special knowledge and intelligence not available to others and, therefore, their deliberations and actions are supposedly grounded in a firmer reality...(Greider, 1992:407).

In the *Standard* newsroom, as in many others, the staff relies upon authorities and ARCO for information that is "safe." The result of reliance on authorities as sources often affects which occurrences become news events and, in turn, how these events are defined in terms of risk and safety.

The media's reliance on one particular news source may privilege one set of definitions over other, competing definitions (Spencer & Triche, 1994:201).

This seems to be the case in the paper's environmental coverage from 1990 through 1993.

Standard managing editor Drew Van Fossen has inherited a difficult

situation. New to the position himself, he is working with five inexperienced reporters out of a total of six (Van Fossen, 11/14/95). And, given the low rate of pay for reporters and "the impression that this paper is not one of the best in the state," Van Fossen recognizes that the likelihood of attracting experienced reporters is low. He knows, given the salaries the newspaper offers, it is extremely unlikely he will be managing experienced reporters in the near future, so he's trying to create a climate in which "people will work hard (Van Fossen, 11/14/95)."

We'll give them autonomy. We'll provide as many opportunities as we can and give them the chance to get good clips (Van Fossen, 11/14/95).

Output among the *Standard* staff is not uniform. The two best of the staff produce 15 stories apiece a week, but the others produce less, Van Fossen says (11/14/95). The combination of understaffing and inexperienced reporters is a recipe for disaster in any newsroom. In addition to grappling with a small, inexperienced staff, Van Fossen, an Anaconda native, is also trying to find a way to reach younger readers:

Thirty-five percent of our readers are elderly. They're careful newspaper readers... They spend a lot of time with it. At least the ones who call me do....But I don't know if we're picking up readers from the young age group (Van Fossen, 11/14/95).

Van Fossen is trying to instill a new approach in the newsroom. He has just completed redesigning the paper and is now trying to upgrade the

content, using a consensus, rather than the usual "vertical hierarchy of the newsroom (Van Fossen, 11/14/95)." He has two primary goals: to make the reporting less institutional and to "do a better job of looking back and following up."

I'm looking for how this public official's decision affects real people. So much that we write is controlled. People want to know how Jack Lynch's city council decisions will affect their tax bills and their kids in schools. I want to know when, say, a great reading program is cut, how the mother of a kid in that program feels (Van Fossen, 11/14/95).

The need to follow up stories should extend from reporters to the copy desk, Van Fossen says (11/14/95). He's stressing consistency in coverage and good headline writing:

The motto everybody should have tattooed on them is "Words Matter!"

By and large I'm happy with our staff. I'm trying to breathe new life into them, to get a different thought process out of them, and sometimes it comes down to using my own thought process (Van Fossen, 11/14/95).

Van Fossen is handicapped by more than understaffing, reporters' inexperience, and low salaries. He must grapple with the impact of the two trends that Malone and fellow authors identified in 1976: the professionalism of journalism and the concentration of media ownership in the hands of few corporations.

In the *Standard* newsroom, as in newsrooms across the country, "objectivity" is the goal. The insistence on objectivity which requires the "meticulous certification of almost every phenomenon by an authority with a

title," came about with the professionalism of journalism (Bagdikian, 1990:130). This has had a profound influence on the nature of reporting, both print and broadcast:

American news, under that [objectivity] doctrine, has become increasingly conservative, not truly neutral, and too often devoid of meaning. The doctrine led journalists in the standard media to "safe," politically neutral subjects like crime and natural disasters, and it delayed for decades intelligent examinations into the causes of events...It has given American standard news a profoundly establishmentarian cast under the guise of a press independent of established authority (Bagdikian, 1990:130).

The objectivity doctrine also keeps news coverage "superficial" to avoid offending or boring readers by screening out interpretation and background, which has resulted in a loss of context in much news coverage (Bagdikian, 1990). This is problematic. Mere recitation of facts is "inadequate" because, although readers are bombarded with fact after fact they are given no clue about how to put the facts together into any coherent reality (Bagdikian, 1990). In addition, readers have difficulty understanding the relative importance or unimportance of what they are reading because facts without context "imply that all facts are of equal value (Bagdikian, 1990:214)."

Another important impact of the dependence on authority-sanctioned facts and limitations on context is that American journalists are ill-equipped to indicate when authorities lie or evade facts (Bagdikian, 1990).

Unfortunately, neither situation is uncommon (Bagdikian, 1990; Greider, 1992).

It [objectivity] widened the chasm that is a constant threat to democracy – the difference between the realities of private power and the illusion

of public imagery...(Bagdikian, 1990:180).

The professional standards of journalism bear a strong resemblance to both the scientific and economic assumptions referred to in a previous section: news stories that consist of recitations of facts out of context have both an atomistic and reductionist nature in that they deal with complicated subjects as isolated incidents reduced to scattered quotes or sound bites from authorities; the removal of context effectively serves to abstract knowledge and information from the natural, and social, world; insistence on objectivity denies that subjective decisions are made in the selection of news items and the manner in which they are reported; and the removal of context leads to an illusion of value-free stories.

However, some argue, these stories are far from value-free. Greider maintains over time, think tanks "have shaped the very language and thought patterns of the media (1992:300)." He traces the flow of information produced by corporate-sponsored think tanks and foundations into schools and universities and the news media (1992). It is not surprising, he writes, that reporters are so comfortable with authorities — the intellectual frameworks of those producing the information and those reporting are compatible — "ostensible rationality and objectivity of disinterested statistics and abstract argumentation (Greider, 1992:300)." The press reports everything in the manner of objective academic inquiry, keeping its distance.

The stories of real people, while often told in compelling detail, are treated as interesting "anecdotes" rather than hard evidence of political failure. When they wish to know what the public thinks, the media usually turn to opinion polling, a measuring device that is also distancing because it reduces public opinion to an impersonal

commodity. When the results are in, various influentials are invited to debate what the polling statistics mean (Greider, 1992:300-301).

However, as is the case with risk assessments, the decisions about what to include and exclude in news stories are clearly subjective, as are decisions made about what to write about, how to write about it, and who to use as sources. The reliance upon authorities and removal of context have political consequences, and contribute to the creation of a landscape as removed from reality as our Lady of the Rockies from the Berkeley Pit. This tends to serve the status-quo because:

Informed social-economic context has unavoidable political implications which may disturb some in the audience whose world view differs. Those readers and viewers might grudgingly accept the briefly announced, indisputable fact but not the display of its similarly indisputable implications... (Bagdikian, 1990:214).

However, decisions about what is proper context require both experience and an understanding of the issue at hand, as well as the history and political economy in which that issue is considered. This demands an experienced competent reporter who understands the difference between personal opinion and legitimate historical and social background. There are journalists who have the necessary skills but they are not used "for the wrong reasons (Bagdikian, 1990:214)." Those "wrong reasons," are related to ownership of media outlets. In the 4th printing of his book *The Media Monopoly*, Bagdikian reports that just 29 corporations own the major markets – some 25,000 outlets – in the American media market. He connects this concentrated ownership to the sanitizing of the news. Just as the consolidation of mining interests under the umbrella of the Anaconda

Company, and the subsequent entry of Standard Oil executives shifted decision-making to outsiders interested solely in short-term profits, now, rather than depending solely on their readers, newspapers must answer to advertisers, Wall Street investors, and parent corporations (Bagdikian, 1990).

As the media monopoly developed and corporate ownership sought increased advertising revenue, the papers became blander to avoid alienating readers (Bagdikian, 1990). Political expression, even that which was sympathetic to corporations, was eliminated from coverage (Bagdikian, 1990). Opinions in political columns were channeled into the mainstream: only centrist positions, operating within a narrowly defined interpretation of centrism, were seen (Bagdikian, 1990). Ideas questioning the operations of corporations or capitalism as a system were not published in the mass media (Bagdikian, 1990).

It was a clear demonstration of neutralizing the news to make papers more efficient carriers of advertising. but it produced social sterility and silence on fundamental forces behind major news events (Bagdikian, 1990:205).

That silence gave credence to the movements to limit taxes that surfaced in the 1980s, Bagdikian notes. The major media, the primary sources of information and analysis of economic and political issues for the majority of citizens, have, by dint of ownership, become "partners in achieving the social and economic goals of their patrons and owners (Bagdikian, 1990:151)." And the new "central authority over information" is the "national and multinational corporation (Bagdikian, 1990:xix)." This is troubling because news, information, and popular culture "shape the consensus of a society

(Bagdikian, 1990:xx)." The American press has always served as "an important and controversial mediating voice for citizens, a corrective mechanism that both speaks to power and sometimes checks its abuses," Greider writes (1992:277). Like other primary political institutions, such as political parties, the press has lost connections to its own readers and no longer speaks as reliably on their behalf (Greider, 1992). Although people may sense the distance they may not recognize how connected the media has become to elite interests and those who dominate politics (Greider, 1992). Not only does the news business have no economic incentive to exercise its historical role of mediator of social forces, it "faces economic risk if it tries (Greider, 1992:305)."

The result is a pattern of media coverage that stresses the shortcomings of the public tax-supported sector and ignores flaws in the corporate private sector (Bagdikian, 1990). Over time, the public, and some journalists, have come to believe the public sector is inherently flawed and private enterprises function efficiently (Bagdikian, 1990; Greider, 1992). The most common manifestations of this belief can be found in the anti-tax campaigns and in the cry for privatization of public service agencies (Bagdikian, 1990; Greider, 1992).

The *Montana Standard's* coverage reflects these interests. The paper's limited environmental coverage has stressed government agency incompetence and highlighted disputes between levels of government, while simultaneously lauding the forward-thinking of the high-tech businesses working on the Superfund waste. The result of elimination or vague inclusion of corporate American from analysis is the production of a deficient view of the socio-political world (Bagdikian, 1990).

In Butte, this sense of something missing manifests itself as concern that the paper is pro-ARCO. Suspicions of the paper's connection with ARCO run deep, especially after the newspaper published a statement of ownership on October 1, 1994 which listed ARCO as one of the principal stockholders. After a series of letters to the editor charging that ARCO's stockholder status colored the paper's coverage of Superfund issues, the paper replied in an editorial:

Yes, ARCO is a 'significant stockholder in Lee Enterprises. That is, it holds more than one percent and less than five percent of Lee stock. There are dozens of individuals, companies and organizations in this category. ARCO is just one more largish investor in Lee Enterprises. It has no special privilege.

Nobody from ARCO sits on the Lee Board of Directors or occupies any corporate office.

ARCO's advertising revenue is insignificant.

As far as we know, the publisher isn't being paid off under the table.

This paper makes its own editorial decisions. Reporters are given no instructions on how to cover stories that involve ARCO, except to report the facts. No editing is done to make a story conform to some pro-ARCO opinion....

Assertions of an evil ARCO connection makes dramatic accusations, but they're fiction (*Montana Standard*, 6/15/1994).

However, to look at the paper's ownership in terms of ARCO only is much too oversimplistic. The composition of major stockholders is the story here. The primary stockholders consist of banks, trusts, and insurance companies – a group very similar in composition to the Superfund Coalition Greider wrote about. These are the interests which would be well-served if the Superfund law were overhauled much along the lines that ARCO has suggested (Barnett, 1994; Greider, 1992). These are the interests promoting the efficiency of the corporation versus the inefficiency of government

(Bagdikian, 1990; Greider, 1992). The corporate practice of interlocking boards of directorates (boards with shared members), leads to a frequent commonality of political interests (Bagdikian, 1990; Greider, 1992). Charges of conspiracy would be equally oversimplistic, but:

The absence of a conspiracy, however, does not mean that large media corporations lack power or fail to use it in a unified way. They have shared values...[which] are reflected in the emphasis of their news and popular culture. They are the primary shapers of American public opinion about events and their meaning. And through that, and their organization in large powerful corporate units, they are a major influence on government(Bagdikian, 1990:9).

However, media owners deny that they influence the news. That may be true for "most operators in day-to-day, hour-by-hour operations, but it is not true for larger issues in which the media corporations have a strong interest (Bagdikian, 1990:100)." It is naive to think, as the *Montana Standard* editorial implies, that exercise of power is necessarily overt, e.g., mandating a certain type of coverage in memos from the board of directors or as directives at editorial meetings. Control in the news media is exercised far more subtly.

As previously indicated, owners can virtually assure simplistic coverage by understaffing and offering salaries low enough to attract only inexperienced reporters. Additionally, the passage of open meeting laws in most states and the Freedom of Information Act, which allows the press access to government documents (unless they relate to Butte-Silver Bow's landfill), makes it easier for the press to cover government. Because corporations are private entities, with the status of persons, the press does not have access to corporate records. Given a 40-hour work week and the

demands of covering a given beat, new reporters will usually take the path of least resistance, and focus their energies on government. And, by placing strict boundaries around beats, editors can assure that reporters work within fairly strict parameters. Also:

Every year there is a distressing list of reporters and editors of newspapers and magazine who are fired or demoted because they stumbled on the private politics of their owner...Even when such firings and demotions are clear interventions of corporate politics into the editorial process, the worse damage is not in one particular incident but in the long-lasting aftermath in which working professionals at the editorial level behave as though under orders from above, although no explicit orders have been given (Bagdikian, 1990:36-37).

Additionally, given the profit motivation, the editorial's contention that ARCO advertising money is "insignificant" is questionable. ARCO's advertising has also become a source of controversy. ARCO sees it as a means of public communication about the Superfund process. Activists see it as a source of propaganda and subversion of public awareness and participation. In response to complaints, ARCO operations manager Sandy Stash said:

The company will continue to advertise...it has increased its advertising as more work gets underway. Advertising has proven to be an effective method to increase public involvement (*Montana Standard*:12/8/1993).

Even under the EPA's narrow definition of participation, the reading of an advertisement would not constitute public involvement. Nor, short of activists' angry response to the ads, is it clear how other more conventional methods of public involvement came about as the result of the ads. C.B.

Pearson, 1993 Clark Fork Coalition executive director, expressed concern to ARCO that the corporation is shaping public perceptions in an attempt to avoid liability:

Under Superfund law, ARCO is the major responsible party – not as your advertisements say, "responsible partner." Your 'Shared Duties' campaign ignores the reality that ARCO is legally responsible for the massive damage to our water, aquatic and terrestrial areas (*Montana Standard*: 12/8/1993).

CTEC president Mary Kay Craig says that ARCO's influence goes well past its advertisements:

The biggest problem I have is the corrupting of public energy by ARCO (Craig, 7/30/95).

Because the county has also been named a potential responsible party by dint of its operation of the Metro Storm Drain through which wastes were transported into Silver Bow Creek, it, like ARCO, which controls the purse strings, has a stake in limiting the cleanup to avoid spending scarce county resources, Craig (7/30/95) says. She points to possible conflict of interest between local officials and ARCO which may result in "not looking out for the health of people (Craig, 7/30/95)." These issues are also not included in the paper's Superfund coverage.

Unlike the activists, the county health director and chief executive have no quarrel with the paper. Health Director Dan Dennehey (9/21/95) says the paper does present the information he wants, given the limited amount of

column inches that can be expended:

The media here has been very good. We use them for so many other things – announcements, immunizations. We've developed a good working relationship over the years (Dennehey, 9/21/95).

The publication of press releases announcing immunizations and health screening events are an important part of a newspaper's role in a community. But the press releases should not be a substitute for good reporter-generated news coverage. And, apparently access to the media does not extend past the county level. The EPA "can't get a story in the newspaper," public affairs officer Sara Weinstock says (7/31/95).

Craig agrees. CTEC also has been unsuccessful at obtaining coverage:

We (she and one of CTEC's technical staff) would like to put an educational feature in the paper about Superfund. We explained our mandate and said we wanted people to participate more fully. We'd put it together, weekly or monthly. He [former editor and current publisher Norm Lewis] said, "It's not my job to educate people; this paper is for news"....If we could give him news, he'd put it in (7/30/95).

George Waring notes that there are major gaps in the *Montana Standard's* coverage:

Just the idea that there's an EPA office in town where you can get volumes of information. But people don't know that. I didn't know.

You don't have to hide information – just overwhelm people with the amount of material and level of expertise needed [to understand the material]. The local newspaper has been terribly bad at doing this. The connection is not made by scientific people (Waring, 10/21/95).

Greider (1992) maintains that newspapers have a role as educators. "The erosion of democracy" is stark proof of newspaper editors failure to take on this "responsibility for their own readers (Greider, 1992:303)."

That is, to speak frankly in their behalf, to educate them as citizens, to create a space for them in the political debate and draw them into it... From time to time, newspapers bemoan the ignorance of the general public – citizens who do not know the name of their own senator or hold grossly mistaken impressions about government – but newspapers would never blame themselves for the ignorance and inertia of their readers. The decline of voting and elections is the subject for regular sermonizing in the press, but newspapers would never accept that their own performance as mediating voices is perhaps implicated in the decay. Notwithstanding the usual civic bromides, newspapers, like other political institutions, run away from their own failure to communicate what matters to citizens, in a timely context that citizens might understand and act upon... (Greider, 1992:303-304).

So, in Butte, CTEC and MEIC board member John Ray has developed a different set of expectations for the *Montana Standard's* coverage.

Yes, I read it. Yes, it gives me the information I want because all I want is to see how the paper's treating an issue. For example, if the *Standard* had a neutral headline and the other papers had a much more proactive headline...I want to know how the paper's presenting it (Ray, 10/24/95).

Activist George Waring adds:

If one relies on the newspaper you get very little or highly biased information. I'm not convinced it's pro-corporate bias but you have inexperienced people covering these stories. They can be manipulated. Sandy Stash [ARCO spokesman] and Don Peoples [former Butte-Silver

Bow chief executive and current local businessman] take time to give her [the reporter] a worldview, like a form of socialization (10/21/95).

Residents who are not involved with Superfund also find the paper lacking:

No. I don't read the *Montana Standard* because it doesn't give you information. I go to the sources, to the departments involved (Crain, 9/21/95).

No, because I think the *Montana Standard* has totally missed the point on what Superfund is all about. If there's something I felt had a lot of relevance to my life I'd probably go to the EPA or Mary Kay Craig's group (Maney, 9/22/95).

Beyond the lack of relevance that results from removal of context and local voices, the trend toward consolidating hosts of warring weeklies and dailies, each with their own unique voice that spoke to their own distinctive readers, has led to blandness that pleases few (Greider, 1992).

Trying to hold the mass audience's loyalty, newspaper editors have retreated from identifying with any single part of their readership – especially the lower classes where reader attrition is greatest. This strategy has not been especially successful in halting their decline. But newspapers have adopted an angle of vision that presumes an idyllic class-free community — a city where everyone has more or less the same point of view on things (Greider, 1992:292).

Butte is far from idyllic. Nor, can a researcher find one prevailing point of view. Neither fact is acknowledged in *Montana Standard* coverage. Whether the result of understaffing, inexperience, ownership, consolidation, a definite orientation, or a combination of any or all, the *Standard's* coverage for the

four years from 1990 through 1993 was poor journalism – the result of what was not, rather than what was, reported. If Van Fossen can implement his goals, coverage will be greatly improved. It is ironic that Van Fossen's background, which is in the area of graphics, rather than journalism, may actually be an asset in the *Montana Standard* newsroom because he has not been exposed to the "professional" standards of journalism. However, Van Fossen will be constrained by the publisher and board of directors.

If Van Fossen cannot change the orientation of the newspaper, the *Standardized* landscape will remain very similar to Butte's geology – the driving forces are unseen, underground. And the media-constructed landscape above ground, like the city of Butte, will contain large gaping vacant areas – among them spaces for public education, public health information, and the political economy that directs decisions made. The next section focuses upon operative perceptions of public health in Butte, indicating where there are gaps and where there are indications that there may well be legitimate causes for public health concern which are not being addressed.

¹ As a reporter covering a small New England town of 11,000 people (roughly one-third of the population of Butte), my environmental coverage of a small state Superfund site and a potentially contaminated landfill consisted of four stories a week, on average. In addition, the newspaper, a daily with a circulation of 100,000 (roughly 3.5 times the circulation of the Montana Standard, ran at least two state-related environmental stories a week, plus daily environmental coverage from other towns, and federal environmental coverage from the wire services.

² Standard news reporting of contaminants always includes a paragraph or two that tells the reader what types of cancers or illnesses are associated with the chemicals at the site under discussion. Most reporters keep a previously written "kernel" paragraph or paragraphs, if the site has numerous contaminants, filed for use in every story on the Superfund site.

PUBLIC HEALTH

Subterranean landscapes

One very noticeable vacant area in Butte is that which is, in other Superfund sites across the country, often occupied by vocal groups of residents worried about the health impacts of contamination (Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988, 1991; Brown, 1991; Greider, 1992). The previous sections addressed the historical landscape, as well as those landscapes put forth by the EPA and local health officials, and the local newspaper. This section considers the ways in which residents have come to understandings of public health issues. It also points to data which indicate that public health may well be cause for concern, and notes the failure of government agencies to conduct the health studies which are necessary to determine if, indeed, a public health problem does exist.

The history of public health in Butte is an important factor in the understanding perceptions of health issues in 1996. Unlike the situations in Woburn (Brown, 1991), Love Canal (Kroll-Smith and Couch, 1991a; Greider, 1992), and Three Mile Island (Davidson and Baum, 1991), which have been extensively studied, Butte residents were not shocked into the sudden realization that their town was possibly unhealthy. Butte is a mining town with a history of health risks, both below and above ground. Further, health issues were politicized early in Butte's history.

At the turn of the century, the Women's Protective Union, organized by women working in the boarding houses and restaurants of the mining camp, fought against the pollutants that spewed forth from the smelters in Butte, and, as early as 1898, "called for national health insurance, unemployment

insurance and a retirement plan for all workers...(Maney, 1990:6)." Shortly after the turn of the century, miners and their families knew that miners' consumption, silicosis, was the result of working in dry, poorly- or non-ventilated mines:

The risk, however, was routinely assumed. From 1916 to 1919 a U.S. Bureau of Mines study found that of 1,018 Butte miners interviewed, 432 (42.5 percent) had miners' consumption, another 63 had tuberculosis... As one Butte newspaperman wrote, the miners' wives were also "unhealthy from washing clothes saturated... with... bad air and giant powder smoke, and [being] compelled to inhale the... deadly fumes (Emmons, 1990:150).

In addition to silica-laden dust, miners were exposed to carbon dioxide levels more than 20 times that of "clean country air" and temperature extremes that ranged from tropical in the mine shafts to Butte's above ground temperature, which was fiercely cold in the winter. The result:

...in the winter, men were hoisted, in five minutes time, from 90 degree mine shafts into outside air that routinely reached a brittle 40 degrees below zero. One longtime Butte resident remembers men emerging from the mines "covered with sweat," hitting the cold air and disappearing in balls of steam. Before the construction of change rooms, or dries, the men then walked home with their clothes frozen on them (Emmons, 1990:150-51).

Along with this acceptance of risk, came prestige and, at least at certain points in local labor history, high pay that indicated the danger of the work. The miners' need for economic security sometimes came into direct conflict with health issues, as was the case when the head of the Butte Miners Union, disagreed with a concerned physician's suggestion that consumptives be

"quarantined" from the mines because the quarantine would interfere with the miners' ability to support themselves (Emmons, 1990:158).

There was considerable strife among union men about a company decision that senior miners receive X-rays to determine the condition of their lungs. Those whose X-rays showed "black spots" would be dismissed from their jobs, supposedly for health reasons. The union interpreted this as a company ploy to get rid of senior employees who cost them more in wages and benefits. The company would also be insuring that the men retired before they were eligible for a full pension. The men, knowing they would fail the health exams, wanted to refuse the X-rays so they could continue working. The union's challenge in this case was a boycott of the mandatory X-rays so that the men and the company would not know who had "black spots" and the company could not discriminate against senior workers. The report on the issue indicated that it would be rare for an older worker not to fail the exam. It is ironic that the refusal of diagnosis of a chronic illness or health risk would be turned into a union victory. The union won the right for men to risk their lives in unsafe conditions so they might get a full pension should they live long enough to retire (Finn, 1994:259-60). The underlining is the author's.

The mining companies disputed the connection between consumption and silica dust, maintaining it was the result of the miners' lifestyles or that the numbers of miners' consumption in Butte were skewed because younger men left Butte to work in cooler mines (Emmons, 1990). The Anaconda Company held sway.

Dad died of miner's con. They called it TB to make the Company not responsible. It was formerly silicosis. Uncle Pat, everybody I knew as a kid, died of silicosis (Shea, 10/24/95).

"From the 1940s to the 1960s the Montana State Welfare Department, not the Anaconda Company, shared the burden of pensions for the state's "silicotics" (Finn, 1994:257)."

The risky nature of life in Butte was known outside of Butte's boundaries. Historian David Emmons refers to a U.S. Navy recruiting advertisement in 1916, when World War I was raging in Europe, and American intervention under discussion. The ad, which ran in the *Montana Socialist*, indicated that miners stood to gain a better life in war conditions than in Butte's mines.¹ Later in the history, the Anaconda Company operated a local hospital (Malone et al, 1993). In Butte, the Company owned the town and this fact, activist George Waring notes, has implications:

There's a psychological factor. The Company owns the whole town. It really is a factory. You can live here in your little house but can be kicked out at any time. You're living on borrowed time. My property's defined as part of the Old Plymouth Lode. It's described in mining terms.

There's no idea of *res publica*. Everything is private property owned by an absentee landlord. Not only isn't this your property; it's the enemy's property (Waring, 10/21/95).

The mines, and the town, were privately owned (Malone et al, 1993; Malone, 1995; Toole, 1959, 1972; Emmons, 1990).

In Butte, the company enjoyed the right of eminent domain to exploit mineral resources beneath the surface lands. While many Butte residents realized the American dream of owning their own home, they were often living on borrowed space and time (Finn, 1994:143).

The miners' bodies were private (Finn, 1995) so silicosis, like mining accidents, was a personal "trouble" (Edelstein, 1988), a private problem which could occur to anyone in the community. Unlike the more public approach of the Women's Protective Union (Maney, 1990), the male-dominated associations, which were supported by non-mining residents of Butte,

approached illness and death as private loss which, inadvertently, reinforced the notion of private trouble (Emmons, 1990).

Although county health commissioners noted the poor working conditions in the Butte mines in 1914 and recommended that mining companies provide toilet cars and covered steel water containers and health checks of the horses working in the mines, they did not call for improved ventilation in the mines (Emmons, 1990). They called for ordinances requiring more square feet for people living in the boarding and rooming homes (Emmons, 1990). However, they maintained that the workers were primarily responsible for workers' health and advised the permanent residents to educate the transient miners (Emmons, 1990).

The pattern that emerges is clear and understandable. As important as steady work, in fact an integral part of it, was work in cool, safe drifts with congenial mates and a friendly shift boss. It may not need saying, but a broken head or miners' con had the same effect on steady work as a mine shutdown. Certainly no one could have missed the point of the sign posted on the North Butte Mine: "Don't Get Hurt. There are TEN MEN waiting for YOUR JOB (Emmons, 1990:154)."

Public health awareness in Butte historically was associated with the hazards of mining which extended to the women washing the miners' clothes (Emmons, 1990). But that illness was associated with the underground workings; it extended aboveground only on the miners' clothes. The landscape aboveground was threatening only to the extent that children had to be kept away from abandoned mine shafts. Although the community, in its funding of associational programs for miners, was generous, the hazards were not perceived to be shared by the community as a

whole (Emmons, 1990). However, the EPA Superfund designation changed that by labelling most of the community a toxic site, forcing a renegotiation of the landscape, or denial. Researchers at other Superfund sites have noted "secondary impacts" produced by the "social, technological and legal responses to the contamination (Couch and Kroll-Smith, 1991b:303)." Among those "secondary impacts" are issues related to stigma.

In pollution cases, stigma routinely accompanies the announcement of contamination and the identification of its boundaries. The stigma can apply to a variety of targets, including affected residents, objects...

...accordingly, one can evaluate how disruptive an exposure event is, whether its existence is concealable, whether it affects aesthetic qualities, whether the victim is any way responsible for its occurrence, what its prognosis is, and the degree of peril it portends... [victims'] homes and neighborhood are downgraded by observers who exhibit 'anticipatory fears' about the place (Edelstein, 1988:14).

Arguably, the cessation of mining activities, which resulted in years of job loss in Butte, was far more overtly disruptive to the community than the Superfund label and the accompanying stigma. Because of the risks that have always existed in Butte, it is residents adapted culturally many generations ago, adopting a way of life that stressed their ability to survive by taking risks, and expressing pride in their difference. Outsiders, tended to look upon Butte with some suspicion (Emmons, 1990). Very possibly, the local pride in the risk-taking involved in mining, the pranks of Butte's kids, and the often noted clannishness of Butte's people was the community's way of talking back to the outsiders' suspicion, both acknowledging the outside perception of their community while simultaneously denigrating it by making life in Butte far more exciting and Butte's people far better at

surviving than outsiders. If this is the case, EPA designation of the community as a Superfund site would change little because the cultural adaptations to stigma were already in place – the risks inherent in the place had been internalized by the culture and those risks and differences celebrated in the Irish designation of "Butte, America (Emmons, 1990)."

There was no way to conceal the mining landscape. By the end of the nineteenth century, the land was degraded and, to outsiders, Butte was ugly and, as such, already stigmatized. But to residents, this city amidst mine waste, was home and, as such, was beautiful. Former state representative Fritz Daily, explains:

I'm from Butte. I love Butte. I don't know a better place to live.... I don't think the Pit's ugly. When I look at mine dumps and mine waste I don't think it's ugly. But when I drive through Kellogg, Idaho [another former mining town] I think it's ugly (Daily, 12/8/95).

The waste in Butte is part of a familiar landscape – home; the waste in unfamiliar communities is immediately apparent and aesthetically displeasing to an outsider.

In the case of hazard agents that linger for seemingly indeterminate periods, these cultural adaptations to the invisible threat are especially significant, as they may become routinized and a new 'way of life' for affected populations (Kroll-Smith and Couch, 1991b:301).

The toxic label was attached to familiar places, e.g., mine dumps where current Butte adults played as children. Butte-Silver Bow Health Director Dan Dennehey, who spent all but his college years in Butte, says:

Most people I've talked to about Superfund issues have lived with

mining scars for years. They played on mining dumps and tailings. It's hard to get them to understand (Dennehey, 9/21/95).

John T. Shea says the town was a playground:

We played on the mine dumps. We'd find mercury and quicksilver and put it in a jar and the bottom of the jar would fall out. By the Mountain Con [mine], the Centerville football team practiced on a mine dump, especially up here [in Walkerville]. All the mines were up here (Shea, 10/24/95).

Sara Weinstock, EPA remedial project manager, says:

I grew up right below Walkerville. Missoula Gulch was filled with dumps, there were dumps everywhere. We played on them constantly. There were only two things – blasting caps and shafts– we were told to stay away from. We had a bottle of mercury from the Alice Mill area.

On the other hand, my Dad always took a shower before he came home. Because my mother was a nurse we didn't picnic on waste dumps (Weinstock, 7/31/95).

CTEC president Mary Kay Craig says she had been told to avoid certain areas:

I lived two blocks from Silver Bow Creek as it goes through town. It's now called the Metro Storm Drain. I didn't play in it — my folks told me to stay away from it. It was called Silver Bow Creek, Copper Creek, Shit Creek. It was Shit Creek to most people. It had raw sewage in it. The stench was so bad. We used to take our bicycles under the railroad viaduct (bridge). There was a place where there was a 2' by 10' plank across the creek. It wasn't very wide to get your bike across. We had fat-tired bikes. You had to do it or be called chicken. So, of course, we'd take the dare and take the chance we wouldn't fall in.

Along the railroad tracks, boys would hitch rides on boxcars from the Utah and Wyoming Street area, and then jumping before they reached Kew Avenue. It seemed like a fun thing but we didn't do it.

We were told to stay away from the slag heaps which are now dubbed by ARCO as an "historical mining landscape (Craig, 7/30/95)."

Although Craig points to ARCO's attempts to minimize cleanup and, thus, its costs, the assignment of blame for the contamination is muddled. One of the many differences between natural disasters and CTDs is that in natural disasters the survivors are often portrayed as heroes; however "cadmium or lead pollution of soil or drinking water creates no heroes (Couch and Kroll-Smith, 1991b:304)." In Butte, there is a twist on this theme— the toxins are the result of mining activities performed by miners who, because of the dangers that accompanied their jobs, were local heroes who brought the community to life and then sustained it economically, giving the place its identity in the process. Within Butte, the respect for the miners, who are often family members, would likely mitigate against assigning responsibility to them. However, given the Anaconda Company's control of the community, it would be very possible to lay the responsibility at the corporate door.

For three-quarters of a century the enemy was the Anaconda Company. The Company controlled the land and the local government, except for brief instances when local officials and/or the union asserted themselves (Malone et al, 1993; Malone, 1995; Toole, 1959, 1972). However, Company authority did not forestall collective response, the most public in the form of strikes (Malone et al, 1993; Malone, 1995; Toole, 1959, 1972). Because of the vast differences in power, the collective resistance was conducted within the physical and social landscape established by the Company. The result of operating within such constrained terrain was often, ironically, to reinforce

the oppressive structure.²

However, it is important to note that resistance comes in many forms. The challenge to the new owner (ARCO) when the corporation fought against paying benefits to the laid-off miners, the appeal to ARCO stockholders for reinvestment in the community, the organization of the Butte Family Union, and the construction of Our Lady of the Rockies can be seen as forms of resistance. As important as, if not more than, success is the existence of a tradition of community resistance and the resiliency involved in challenging consistently (Finn, 1995).

There are observers who point to a despairing tendency to blame the Company when things went wrong in its communities, Butte and Anaconda, home to the Company smelter. Bob Vine, Anaconda historian, summed it up.

In the past we could always blame the Company. Now many have shifted the blame to our city-county government and our elected representatives. In our inability to adjust to change, we have the myopic tendency to continue to blame others and not ourselves (*Anaconda Standard*, 11/10/90).

Anaconda psychologist Timothy Casey saw the greatest challenge for Anaconda as "the need to discard the traditional and entrenched characteristic of a 'company town.'" Casey defined the problem as one of dependency:

The residents of Anaconda attempted to cope with the stress of the shutdown by either attacking ARCO or denying the problem. The attackers sought to fight big business. The dreamers preferred to believe the smelter would reopen. Unfortunately neither approach served to change individual or community circumstances. To complicate matters further, the people of Anaconda had always been taken care of by the Company (*Montana Standard*, 11/30/90).

Casey identified an additional complication related to the cessation of mining and smelting operations: the loss of jobs for skilled craftsmen.

From my training and experience, I really see one's work as a major factor in terms of creating and developing an identification.... I know there are skilled people working on jobs where they are unhappy (*Montana Standard*: 11/30/90).

Both criticisms seem somewhat harsh given the amount of change to which residents of Anaconda and Butte had to adjust. The criticisms seem to miss the importance of mining-related activities which were far more than an economic base. Mining activities provided the cultural identity; their loss requires extensive renegotiation, as does the Superfund designation. More importantly, both criticisms fail to take into account the historically great disparities in power between the communities and corporation and their lack of traditions of independent governance. However, the issue of blame raised by Vine is important in contaminated communities.

By assigning the blame the event becomes more controllable because then someone should be able to avert it and similar events would be escapable in the future (Davidson and Baum, 1991:37).

Researchers have found that who is blamed is also important. A number of researchers have correlated the loss of control experienced by victims of toxic exposure with long-term stress in instances where victims hold someone else responsible (Davidson and Baum, 1991; Edelstein, 1988). In Butte and Anaconda, where the communities also lost control over the industry that provided their economic base and identity, the stress levels may well run deeper. Researchers at Three Mile Island discovered that symptoms

associated with blaming others included "more somatic complaints, anxiety and depression, poorer concentration or motivation...(Davidson and Baum, 1991:48)." More than two years after the 1979 nuclear accident occurred in 1979, these symptoms were still manifesting themselves in some people (Davidson and Baum, 1991). Although the notion of blaming yourself may seem contradictory, some researchers have found that self-blame restores the lost sense of control inherent in toxic exposure situations (Davidson and Baum, 1991). Working at Three Mile Island two years after the accident, sociologists Laura M. Davidson and Andrew Baum (1991) found that theories about different types of self-blame may have explained some of the earlier discrepancies about the benefit of self-blame. If the self-blame is attributed to behavior, e.g., such and such an action or series of actions on my part was a mistake, the sense of control can be regained (Davidson and Baum, 1991). However, if the self-blame is attributed to failings in character, e.g., I'm too dumb to do anything else, it simply deepens the depression (Davidson and Baum, 1991). So, people who blame themselves for making a mistake are more likely to cope better with CTDs (Davidson and Baum, 1991). But:

Unfortunately, because of the nature of technological mishaps, these types of disasters are frequently accompanied by externalizing blame. And, blaming others is likely to highlight the loss of control created by the original mishap and to lead to greater feelings of helplessness and its accompanying stagnation (Davidson and Baum,1991:50).

Medical psychologist Michael Edelstein (1988) reports that activism also serves to restore a sense of control. But, he adds, in challenging the system, activists take on a different kind of stress:

...in the preponderance of cases, toxic incidents move very slowly... As a result, the life cycle of American community groups tends to be prolonged through a gruelling period of study and evaluation. Groups become exhausted as they enter slow-moving and protracted states of the incident during which continued mobilization becomes difficult to sustain... (Edelstein, 1988:148).

Further, activist groups often find their questions are not welcomed.

George Waring tells of receiving a "tongue lashing" from a local official at a meeting on the Berkeley Pit after the activists had turned in a petition with 3,700 signatures that protested the local government acquiescence with the EPA in allowing water to continue to flow into the Pit:

...It really made you feel what it was like when Anaconda ran the place...He told me the key was to protect the 400 jobs of MRI. He'd been told MRI would be shut down if they couldn't put water in it. His view was we'd get the same, or better, level of cleanup by waiting...

That idea of job losses had been planted early in the process. We felt the council of commissioners didn't like being blackmailed but simply had to cross their fingers and hope they were doing the right thing. They're willing to put short-term profit ahead of long range (Waring, 10/21/95).

Also, activists frequently find themselves in conflict with other segments of their communities:

For some residents the threat of contamination is remote or simply nonexistent. For others, however, contamination is not a remote possibility but an immediate reality... For other residents, however, the problem is not as immediate, perhaps not as severe, and calls for a less volatile and drastic response... Biospheric contamination creates a crisis of requiring a choice as to which of several competing experiences of the same world, each of which tacitly claims to have faithfully reflected that world will be credited as the valid version...

People who define the problem as at worst a warning or perhaps as no problem at all are likely to begin viewing believers and their

emergent groups as threats to property values or jobs. Those who do not find in the environmental cues warrant for extreme concern are likely to see themselves as victims of a fictive or at best exaggerated crisis (Kroll-Smith and Couch, 1991a:64-65).

Because of the difficulty in establishing causal relationships between contaminants and cancers and other illnesses, there is always an uncertainty about whether local illnesses are the result of exposure, so in most contaminated communities, there are "non-believers" and "believers" (Edelstein, 1988)."

"Non-believers" espouse a highly individualistic and meritocratic set of values. They are defenders of the status quo, and subscribe to the view that life in present-day American industrial society is inherently and pervasively risky. Accordingly, they hold that the major burden of responsibility legitimately resides with each family to secure the information and resources necessary to safeguard its welfare...

The "believers" live in less privatized and more sociable worlds. They articulate an inextricable linkage between individual and collective welfare and an expectation that the polity properly stands for the interests of the individual when these would be compromised or jeopardized by the interests of the industrial order (Edelstein, 1988:47).

In Butte, because of the mining identity and economics, the situation is more complicated. Although she questions the priorities of Superfund, Marilyn Maney of the AFL-CIO and Butte-Silver Bow Archives, is no defender of the status quo. This points to a possible conflict that could affect whether and how Butte residents renegotiate their relationship with the landscape as a result of the Superfund designation: residents both internalized and celebrated the risk-taking nature of the place, while often linking individual and collective welfare in both female and male union

issues. However, the bottom line which both directed and limited, activity in Butte, was always geared toward whatever it took to keep the community intact (Emmons, 1990).

Another difference between believers and nonbelievers is related to personal experience with health problems. Believers generally have had unusual health problems or have had experience with others' illnesses and believe that those health problems are directly related to toxic exposure (Edelstein, 1988). Nonbelievers and their acquaintances have not had similar experiences with illnesses and usually keep a distance from events and sources of information which tends to reinforce their denial (Edelstein, 1988). In Butte, there are believers and nonbelievers, and people who take stands between both poles. Convincing the nonbelievers that there are health risks so they should become involved with the cleanup is close to impossible, Mary Kay Craig says:

People told me if they walked across it [toxic waste] and immediately dropped dead they'd pay attention. All you can say is cadmium may cause this, lead may cause this, etc. (Craig, 7/30/95).

People with relatives working at the ongoing MRI mine operation or for others involved with local politics "are scared to speak out," CTEC president Mary Kay Craig says. "Their relatives need their paychecks."

Nonbelievers interviewed dismissed a question asking if there is more illness in Butte than in other places with a simple, "No." When asked if they worry about their own or their children's health, there was more variety in the responses, from a simple "No" to:

No, related to Superfund. I tend to worry about what happens if I lose this job and I don't have health insurance (Maney, 9/22/95).

This response indicates an apparent lack of concern about illnesses specifically related to the contaminants present in the community and simultaneously returns to the ongoing problem of maintaining jobs, with benefits packages in the community. Some non-believers tend to return to the theme of personal trouble, linking it with lifestyle choices, rather than environmental causes.

I don't think there's any different sicknesses here. If we have an area of high morbidity, it's smoking. My uncle worked in the mines but he also smoked three packs a day. There's nothing statistically (Dennehey, 9/21/95).

Some researchers have noted a shift in the meaning of the word "risk" from a fairly neutral term based on mathematical probability where "good" risks were possible, to a negative, meaning "danger" (Douglas and Wildavsky, 1983; Lupton, 1993). Risk discourse can be loosely grouped into two perspectives: the first, as a "health danger...posed by environmental hazards...over which the individual has little control"; and the second, as a consequence of "lifestyle" choices (Lupton, 1993:429). This is not a simple issue. Clearly, public health officials would not be protecting public health if they did not point out correlations between cigarette smoking and lung cancer. Although cigarette manufacturers refute the connection between cigarette smoking and lung cancer, most physicians accept the correlation and are adamantly opposed to smoking (Montana AHEC, 1989). Published 1989 estimates indicated a decrease in the numbers of Montana smokers, however,

lung cancer was the leading cancer among both men and women (Montana AHEC, 1989), which is not surprising because cancer often takes years to develop (Lappé, 1991; Bates, 1994). What is important to note is: it is more difficult to correlate an illness, such as lung cancer or emphysema, with environmental causes in the case of a person who smokes; conversely, it is also easier to dismiss the possibility of environmentally induced lung cancer in a smoker.

Just as a moral distinction is drawn between 'those at risk' and 'those posing a risk,' health education routinely draws a distinction between the harm caused by external causes out of the individual's control and that caused by oneself. Lifestyle risk discourse overturns the notion that health hazards in postindustrial society are out of the individual's control. On the contrary, the dominant theme of lifestyle risk discourse is the responsibility of the individual to avoid health risks for the sake of his or her own health as well as the greater good of society (Lupton, 1993:432-33).

The determination of whether a risk is external or internal, and therefore the personal "trouble" (Mills, 1959) of the person who smoked, drank, used drugs, or engaged in other risky activities, is often made by institutions which have a stake in the matter (Lupton, 1993).

Health education emphasizing risks is a form of pedagogy, which, like other forms, serves to legitimize ideologies and social practices. Risk discourse in the public sphere allows the state, as the owner of knowledge, to exert power over the bodies of its citizens. Risk discourse therefore, especially when it emphasizes lifestyle risks, serves as an effective Foucauldian³ agent of surveillance and control that is difficult to challenge because of its manifest benevolent goal of maintaining standards of health. In doing so, it draws away from the structural causes of ill health (Lupton, 1993:431).

When the structural causes of ill health, which could include a unsafe environment, poverty or both, are disregarded, public health issues become privatized, a personal problem. There is a fine line here which, in light of previously cited information regarding the need of government officials to allay panic, is of potential concern.

When asked if he worries about the health of his own or children's health, Butte-Silver Bow Health Director Dan Dennehey says:

I worry about my children's future in terms of violence, suicide, teenage pregnancy – the number one health issues in the U.S. and Montana. I don't worry that my children will get cancer because we live in Butte instead of Missoula. We live in a lead-free house, try to teach our kids about tobacco and pregnancy. We're worried at Congress taking away family planning funding. Worrying about poverty and taking children off Medicaid. Worried about [whether] the Womens, Infants and Children program can continue immunizations. Concerned about where there is lead, but trying to improve and take care of it. That's what our lead program does (Dennehey, 9/21/95).

Dennehey is locating protection from illness in individual family practices, while also recognizing the impact that poverty and the environment can have on public health. His beliefs about the possibility of environmental illness echo those of the EPA risk assessments. History and economic concerns, other than as they affect the staffing of his department, do not appear to direct his comments.

Other nonbelievers noted they would worry more about their own or children's health if they lived somewhere other than Butte. Given a choice between living in a more professional individualized culture or in Butte with working class culture that takes care of its own, Marilyn Maney (9/22/95) said,

"With the kinds of things I'm worried about, I'd probably worry a lot more [if she and her children lived somewhere else less caring]." Dennehey also speaks to the strong sense of community in Butte when asked the same question.

I wouldn't worry less. I love it here. The reason is the people here... When we have issues like Clean Up Butte Day, we had 60 tons of garbage given to us in one day. When we had an outbreak of measles we had over 3,500 kids immunized – parents, physicians, the hospital and the health department working together. When we had a meningitis outbreak we did 7,200 kids – 92 percent of the targeted population had shots. The Centers for Disease Control said that was an incredible rate. This community rallies around issues when their children are at risk (Dennehey, 9/21/95).

It is precisely the issue of whether children, or adults, are at risk that separates the believers and nonbelievers. A further indication of conflicting belief systems are disagreements about whether more information is needed to accurately assess potential public health inputs. Nonbelievers, and some believers, say they have sufficient information; other believers say much more information is required. Chief Executive Jack Lynch points to his reading of "resource and information journals, periodicals and publications from both public and private sector agencies" which supplements additional information (10/25/95).

We derive our information from both the federal government, the Department of Environmental Quality as well as a variety of sources that have done studies, both on a contract basis here for public health agencies and from individual and private sources (Lynch, 10/25/95).

Dennehey (9/21/95) says he has "all the information I can get from CTEC, EPA, ARCO and the state." Maney (9/22/95) agrees she also has sufficient information, but adds, "Again, I just don't think it has any particular relevance."

There is some middle ground. When asked if Butte has more illness than other communities, if she worries about her children's health or would worry less elsewhere, Ellen Crain said:

I don't know about illnesses in the state. I look at other mining communities like places in Colorado. We're going to be different than other places in Montana.

I don't know about cancer. I would say we might have more unusual cancers but the first cancer spot is Anaconda.

Of course I worry about my kids' health. When we did the lead study I went over it with my doctor. I feel for quality of life we're in better shape with Superfund (Crain, 9/21/95).

Crain (9/21/95) feels "informed to the nth degree" on Superfund issues and "is on everyone's mailing list."

On public health that depends. My kids had low blood lead levels but Sarah had a high arsenic level because she sucked her thumb. I go to meetings, know people involved. I called my physician and he said he didn't know. The doctor said she's probably fine. So, yes on lead, but not other related things that aren't well known (Crain, 9/21/95).

John Ray, a board member of the Montana Environmental Information Council who is also involved with CTEC, is comfortable both with the information he has and the ease of getting more.

I have no problem getting additional information. I was on the phone this morning with Jim Ford [a state official]. I can look at the Great

Falls paper. It had two articles on streamside tailings; there were none in the sub-*Standard* [a critical nick-name for the *Montana Standard*] (Ray, 10/24/95).

Ray, also, would not worry less if he lived somewhere else.

Our house was built by the Anaconda Company; there's no lead, no arsenic. They knew where to build for their executives. Butte has problems with air pollution but it's worse on the Flats. We have a water purifier. We eat organic vegetables (Ray, 10/24/95).

Some of the believers have had personal experience with illness:

Statistics show we have an exceptionally high cancer rate, lung diseases, heart disease – here and in Anaconda. My wife's father died in his 30s from a disease that attacked his brain. She [the speaker's wife] suffered from really terrible asthma and she grew up right across the street from a mine on East Park Street. Her neighborhood was devastated by the Pit. Her house still stands. She was raised right next to an active mine. The asthma and a spinal problem – a heart condition, 25 percent lung capacity – all made worse by a spinal disorder. Death at 35. Her mother died two years after her retirement of stomach cancer at 62 or 63 (Waring, 10/21/95).

In an editorial in CTEC's publication, *Simply Superfund*, Mary Kay Craig writes:

...I've already had cancer thanks. And we all have friends and relatives who've had cancer of unknown cause. We can't prove that any of us contracted a disease from mining wastes left by Anaconda/ARCO. But health studies done in the 1970s revealed our Butte-Anaconda area had the nation's highest per capita incidence of 'all disease,' and of 'heart disease.' Lung disease claimed as many women as men here, despite only men working underground. Why us? Other towns have had the same kind of hard working, hard drinking citizens. Without further studies we may never know.

What we do know is that there are plenty of toxins around us – and, yes, in the floodplain of Silver Bow Creek — toxins causing specific

diseases: Arsenic causes skin cancer. Cadmium is a carcinogen and is also associated with systemic lupus erythematosis, a 'rare' blood disorder which claimed two of my very good friends. Lead causes learning disorders in children. Mercury is related to a host of human health concerns. Unfortunately, we don't know where else it is in the floodplain other than the 12 (only) test samples ARCO produced for the 25-mile stream (June/July 1995: 5).

John T. Shea says:

Two years ago I had a lung taken out. I quit smoking in 1964 because I couldn't keep up with eight- and nine-year-old kids when I was smoking. I smoked cigars for a while. I had a slow-moving cancer. I asked the doctor who operated on me, told him I quit in 1964, tried chewing but didn't like it, tried cigars. Then the doctor asked me about work. I was down in the mine. I worked in the Kelley Mine every day. Down there in dust. Then the Pit was nothing but dust. The doctor said that combination plus whatever's in the air [was responsible for the cancer].

There's a lot of cancer. My mother. My sister lost both breasts and a leg. Everybody ... when we were kids most of the guys died of the con and there was a lot of cancer...

In the last four or five years, we've had a lot of guys die of Alzheimer's (10/24/95).

Janet Finn reports:

Each resident has her story of unexplained cysts. The presence of inexplicable forms of cancer, and, as she talks, she looks knowingly to the mines for the cause (1994:266).

George Waring (10/21/95, a history professor at Montana Tech, says whether he worries about living in Butte will "depend on what kind of a cleanup you get." He, like so many other Butte residents, is critical of the EPA's decision to allow water to continue to flow into the Berkeley Pit.

The decision at the Pit, the local government was coopted by mining interests, to accept a cleanup that no independent community would ever deal with. It's as though the people at Love Canal wanted a generation to clean up. I'm sure local government thought it did the right thing. Grief can induce a level of fatalism (Waring, 10/21/95).

Waring (10/21/95), who attends public meetings and the EPA Technical Assistance Grant group (CTEC) meetings, says, "Of course not," when asked if he has all of the information on public health and the environment in Butte. And Mary Kay Craig (7/30/95) would like to see a health study.

The believers consistently referred to the Moore/Luoma health study which was presented at the Clark Fork Coalition Symposium in 1990 but never referred to in the *Montana Standard* in any story that appeared in the four years studied for this thesis, years which included the publication of the study. University of Montana geologist Johnnie Moore and Samuel N. Luoma of the U.S. Geological Survey found, relative to the 480 largest U.S. cities, for disease-caused mortality ratio⁴ showed⁵:

- All diseases – Butte had the highest mortality, ranked number 1 in 1949-1951 and 1959-1961, and number 5 in 1969-1971.
- Heart and kidney disease – Butte was ranked number 1 in 1949-1951, number 2 in 1959-1961, and thirty-first in 1969-1971.
- Heart disease – Butte was ranked number 2 in 1949-1951, number 18 in 1959-1961, and number 94 in 1969-1971.
- Other than heart and kidney – Butte was ranked number 3 in 1949-1951, and number 1 in 1959-1961 and 1969-1971. (179)

Their study also found that counties in the area of primary contamination

were among the highest American counties in terms of rates of mortality of both men and women from all types of cancer, and, more specifically, from trachea, bronchus and lung cancer through 1979.

Moore and Luoma reported the following data on all cancers in Silver Bow County:

- MEN – 211 deaths per 100,000 in 1950-1959; 202 per 100,000 in 1960-1969; and 204 per 100,000 in 1970-1979 in comparison to 156, 170, and 180, respectively, for the same periods in the state of Montana. The number of male deaths in Silver Bow County in 1950-1959 was statistically significant, e.g. greater than expected from national statistics. Silver Bow County was ranked in the top 30 percent for male deaths in 1979.

- WOMEN – 163 deaths per 100,000 in 1950-1959; 127 deaths per 100,000 in 1960-1969; and 156 deaths per 100,000 in 1970-1979 in comparison to 129, 121, and 119, respectively, for the same periods in the state of Montana. The number of female deaths in Silver Bow County in 1950-1959 and 1970-1979 was statistically significant. Silver Bow County was ranked in the top three percent for female deaths in 1979. (p.180)

For mortality rates from lung, cancer and bronchial cancer in 1970-1979, the study found a rate of 65.2 deaths per 100,000 in Deer Lodge County, where Anaconda is located, and 55.3 in Silver Bow County in comparison to 31.1 in Montana, 22.9 in Idaho and 26.7 in Wyoming. (p.181)

Also, the study reported that for the period 1970-1979 women in Silver Bow County suffered from significantly greater rates than expected from national statistics from the following cancers:

- Pancreas, 94th percentile
- Chorion-uterus, 91st percentile

- Hodgkins disease, 90th percentile
- Lung, trachea, bronchus, 96th percentile (p.182)

Moore and Luoma noted that the high incidence of cancer in women appeared to indicate that the illness was not related to workplace exposure only. They called for "detailed local studies" to be "undertaken immediately to determine if the risk of death from disease remained unusually high into the 1980s"; to determine if the risks are environmental or confounded by smoking; to find if elevated incidence occurred outside of the areas of primary contamination; and to examine relationships of illnesses with specific types of contaminants (182-183). Cancers, which are a national issue, are increasingly being traced to environmental conditions.

In 1982, the National Cancer Institute warned that one in every three Americans would die of cancer. Cancer already takes more American lives, each year, than were lost during all of World War II, the Korean War, and the Vietnam War combined; it is responsible for eight times as many annual deaths as automobiles.

Apart from the magnitude of such statistics, at least three facts about cancer deaths are significant. For one thing, many epidemiologists claim that about one-third of the fatalities are correlated with cigarette smoking. Also, the deaths are occurring among the young, not merely among typical elderly victims. Cancer is the leading cause of death for all U.S. children between the ages of one and ten and for all women between the ages of thirty and forty. It is second only to accidents as the leading cause of death for all Americans under the age of thirty-five. Cancer rates for all age groups have been increasing in the last three decades. Most important, the U.S. Office of Technology Assessment claims that up to 90 percent of all cancers are "environmentally induced" and hence 'preventable (Schrader-Frechette, 1991:25).

Although originally his concerns were with the future economic development of Butte, former state Representative Fritz Daily has fought consistently to lower the water level which will trigger pumping and

treatment of the 26 billion gallons of toxic water in the Berkeley Pit. Unlike CTEC members and some other Butte residents who want immediate pumping and treatment, Daily's fears are targeted at a future point, at the elevation at which the poisoned Pit water meets groundwater. He wants the level at which the water in the Pit is treated to be lowered.

Every foot the water rises the danger becomes more imminent. I personally think the Berkeley Pit and the Butte Mine Flooding Unit is the most serious issue for Butte, the state of Montana, and the whole Pacific Northwest because the Pit lies at the headwaters of the Columbia River Basin.

I believe the Pit and Mine Flooding Unit has the potential to destroy my community from an environmental standpoint, an economic standpoint, and a social standpoint. How difficult will it be, in the future, to attract new businesses to employ people knowing we have the largest body of contaminated water sitting in the middle of town? Socially, the EPA says a major contaminant is arsenic and every time they mention arsenic they say it's a carcinogen. This can present some problems in Butte, Montana. (Daily, 12/8/95)

There are miners who believe that the poisoned water will seep through cracks and fissures in the rocks before it reaches the level at which the EPA says the local groundwater would be threatened. Daily (12/8/95) shows a slide of metal railroad tracks in a mine shaft which are systematically being eaten by the acidic water. John T. Shea (10/24/95) says the "copper water will find seams — it eats rock, eats steam pipe."

The November 1995 deaths of 342 snow geese in the Berkeley Pit sparked public concern. Bonnie Immonen of Walkerville wrote to the *Montana Standard* to question ARCO's manager of Montana facilities, Sandy Stash, who has insisted that there is insufficient proof to connect the birds' deaths to the waters of the Pit:

My goodness if she had ever been married to a miner who worked his entire life in the Butte mines, she would know that the water in the 'lake' is highly toxic.

My husband used to come home from work in the mines (even when the pumps were still going up on the hill) with his legs just full of copper sores. We treated them each night with zinc oxide and wrapped them in plastic in hopes of keeping them dry through the next shift. It never helped. He worked in water up to and over his ying yang, which is now speckled with arsenic burns (Immonen, 12/10/95).

The large color photographs of some of the autopsied snow geese displayed at the Feb, 24, 1996 memorial for the birds were a gruesomely graphic affirmation of Immonen's letter. Speakers at the memorial protested the EPA's refusal to take seriously public comments in 1993 and 1995 that warned of danger to migrating birds. Caroline Byrd, a member of Women's Voices for the Earth, made the link between the death of the birds and the public health of Butte, and asked people at the memorial:

How many dark birds have died in the dark waters of the Pit? We have no idea (Byrd, 2/24/96)."

In newspaper articles that appeared the following day in Lee newspapers, the *Missoulian* and the *Montana Standard*, Sandy Stash⁶ of ARCO was quoted as asserting the deaths were "a unique occurrence and that there is no evidence of previous major bird kills (*Missoulian*, 3/7/96)." Byrd replied to Stash' comments pointing out information in the state of Montana's report on the incidence.

The report says that the snow geese's deaths were 'not an isolated occurrence' and details an incident in November 1993 when six birds were found. The report points out that the dead geese were discovered

only because snow geese are white and people happened to be in the pit checking water quality shortly after their deaths. According to the report, it's likely that darker birds, such as loons, grebes, pelicans, cormorants, geese and ducks have died unnoticed in the dark water of the pit.

...The Golden Sunlight Mine in Whitehall, not far from Butte, has developed methods to keep birds from landing in its toxic tailings ponds. Hundreds of dead birds have been found in cyanide heap-leach ponds in the Black Hills (Byrd, *Missoulian*, 3/7/96).

Despite the warnings of seepage and the deaths of birds, health studies have not been conducted in Butte. There are few health records on the local level⁷. The county relies upon the state for data and protocols, Butte-Silver Bow Health Director Dan Dennehey says. The local health board has both a maternal child health assessment and breast and cervical cancer assessment.

We're surveying by mail. The state of Montana has a task force of breast and cervical cancer. How do they screen? What protocols do they use? The state's doing that; we're trying to make it community and county specific.

A lot of women over 50 or 60 are not going to gynecologists. In the initial phase we looked to the state for records and found nothing out of the ordinary here in terms of incidence. But the hospital hasn't reported for a number of years. Now we're hoping for better statistics (Dennehey, 9/21/95).

No local studies have been undertaken; even worse, cancer reporting from Butte has fallen behind, skewing state records (Hellhake, 9/15/95). Obtaining recent cancer data from the state public health and human services department will not be possible until sometime in 1996 because St. James Hospital, the only hospital now operating in Butte, has not reported cancer statistics properly for the past three years or so, according to Debbi Hellhake of the state Tumor Registry (Hellhake, 9/15/95). Until the reporting is up to

date, the numbers for Butte-Silver Bow, and for the rest of the state of Montana, will not be correct (Hellhake, 9/15/95).

An official at the state office of Vital Statistics Division says:

Cancer in Butte is probably a real issue. But it's a problem for government. Epidemiologists say until we know more about what people have done and where they have been... (7/18/95).

And, the official says, because of a "small number" statistical problem, for the first time since 1954 the 1995 Vital Statistics Annual Report will not include cancer morbidity rates "because people at the local level tend to misinterpret those numbers (7/18/95)." The "small number problem" he refers to is related to what statisticians call "chance variation," the possibility that one occurrence of the events being measured can occur, at random, in such a way that it changes the ratio of the events being measured. For example, a very intelligent person may take the Scholastic Aptitude Test on a day he or she is feeling ill which results in a much lower score than he or she would normally get. In a study of many test takers a total will not be changed by one skewed test score; in small populations, like Montana, one randomly sick person could alter the ratio, producing a rate that is misleading and could appear to be well above or below the state or national average for the event measured. So statisticians prefer to avoid working with small numbers. The end result is that the statistical approach, which considers only the problems inherent in numbers, can overlook a possible social reality and, thus, perpetuate the status quo, even if that status quo is possibly unhealthy.

Other states, such as North and South Carolina are working with

Geographic Information System technology to get a handle on health statistics, the state official says.

We haven't touched that here – partly as a result of issues related to geocoding and partly because of rigid confidentiality laws. So we cannot or will not identify individuals who may have died of cancer by address. We have, within our constitution, very strong language about the individual's right to privacy (7/18/95).

So, in Montana, it is well nigh impossible to determine areas of high incidence, what epidemiologists call "clusters." This identification of a cluster is a first step in the process of determining a connection, or lack of it, to a specific illness and the environment (Brown, 1991). A grouping of cancers does not necessarily prove that connection – such groupings can occur naturally, by random. However, if clusters are not identified, the studies necessary to indicate if they are random or environmentally induced will not take place. In the name of privacy, Montanans have the right to suffer from potentially high rates of environmentally induced illness. And the morbidity figures that might give credence to calls for further study of public health will not be published for fear of misinterpretation.

There are two remaining impediments to data collection which could lead to underreporting of Butte and Montana cancers. The first is that many Montana residents go out of state both for cancer diagnosis and treatment so some of these cases may not be reported to the Montana Cancer Tumor Registry (Montana AHEC, 1989). The second relates to Butte residents who have relocated. Because of the latency period of cancers, the time before the illness manifests itself (Lappé, 1991), and the migration of families from Butte in the years that mining operations wound down, the full public health

impact of exposure to contaminants in Butte will never be known – any illnesses experienced by those who relocated will be recorded as belonging to the places of relocation. This causes two statistical problems: first, another community's cancer rates will appear to be higher than they actually are; and, second, Butte's will appear to be lower.

To date, no federal health studies are planned in Butte – in spite of the Superfund Reauthorization of 1986 which directs "the Agency for Toxic Substances and Disease Registry [ATSDR] to perform a health assessment at each Superfund site to assist in determining whether to take additional steps to reduce human exposure and to collect additional information (Barnett, 1994:231)." Sara Weinstock, the EPA's remedial project manager in Butte, says:

The agency has done no health studies here. They're expensive and take a long time. Butte-Silver Bow did the blood lead study. There's a small number problem, even on the blood lead study. I'd rather spend money cleaning it up than doing the studies (7/31/95).

The EPA will conduct a Baseline Risk Assessment for the Butte area, the agency conducted the Time Critical Removal of lead-contaminated soil concurrently with the risk study to immediately reduce the possibility of adverse health effects of exposure, especially on children (Weinstock, 1996). Weinstock is correct – cleanup operations should reduce the risk of environmentally-caused illness in Butte and, assuming a limited amount of dollars, money would likely be better spent on cleanup than tests. If, up front, money were an issue, Weinstock's approach would be the only

reasonable alternative. However, under the federal Superfund law the costs involved should be recoverable from the potentially responsible party(ies) (Barnett, 1994). So, without considering the unresolved structural issues inherent in the Superfund law referred to in the previous chapter, it is difficult to understand why the EPA is more concerned with reducing expenditures than studying the full extent of health impacts involved with the largest contaminated site in the country.

And there are other issues involved here: possible teratogenic (adverse impacts on a fetus) and mutagenic (changes in individual DNA structure) results of exposure will not be identified without health studies. Furthermore, residents, as was the case in Woburn (Brown, 1991), who may have been sickened from exposure, will lose the opportunity to win a legal claim for future medical costs without health study data to buttress their cases (Brown, 1991); and, given the number of applications for expansions of existing mines and new mines in Montana, data about the potential health damages of exposure to mining-related contamination would be very useful. Under the reauthorization, citizens are allowed to petition ATSDR for health assessment (Barnett: 231).

Mary Kay Craig says:

The agency [ATSDR] that might do an epidemiological study is too damn busy. When they came to town, the then board of CTEC asked them to go away. I got them back here [in 1995]. They just don't have the resources to look at Butte closely (7/30/95).

CTEC has not heard from ATSDR. Craig is not alone in her criticism.

...studies of health risks at early 1,000 Superfund priority sites are

'seriously deficient.' Because ATSDR health assessments have not fully evaluated the health risks of many Superfund sites, communities have not been adequately informed about possible health effects... If the agency can't improve its performance, Congress should consider abolishing the assessment program... EPA has seldom used the assessments and most local officials and community residents do not value the assessments highly if they know them at all⁸ (*Montana Standard*: 9/4/91).

A researcher on the ATSDR performance in Butte and Anaconda found:

The so-called health assessment for Butte is a memo written by an ATSDR staffer regarding whether people swam or waded in Silver Bow Creek would incur health problems. The memo doesn't address the widespread contamination in Butte nor does it determine whether Butte's 34,000 residents might be exposed to lead, pentachlorophenol, cadmium or any of the other contaminants that lace the streets of the town.

Likewise the ATSDR document labeled as the health assessment in Anaconda is not a health assessment either. Instead, it is a letter from an ATSDR physician confirming the EPA's 1985 decision to move the Mill Creek families. As was the case for Butte, the so-called ATSDR health assessment for Anaconda did not address the widespread arsenic contamination in the community, nor possible exposure to arsenic among Anaconda residents (Tuholske, 1993).

It is not surprising that the health assessments have been discounted outside of the agency; they have been discounted within the agency too, partly as a result of the agency's orientation. Since 1970 the EPA has been more oriented to the concerns of engineers and technologies than to consideration of the effects of toxic exposure on human health (Yeager, 1991).

In 1977 there were only some fifteen physicians on EPA's (relatively) large professional staff, and EPA Administrator Douglas Costle suggested in congressional hearings that the agency's research on the health effects of toxics was quite limited. Other congressional testimony indicated that EPA experts tended to deal more with cities'

and towns' treatment facilities' managers than with their public health officials.... and that within EPA there was poor coordination between the dominant engineering component and the health effects researchers (Yeager, 1991:225).

Physicians need a number of skills to answer questions about toxic exposure and other health risks, including "the ability to evaluate and assess the nature and the extent of a patient's exposure to an environmental hazard, the ability to assess the degree to which the hazard presents a health threat, and the ability to communicate the extent of the risk to the patient or to the community ... to minimize or prevent further exposure (Cortese, 1993:5)."

However, medical students receive little training in these skills:

One study that examined the teaching of occupational and environmental medicine concluded that current medical students receive less than four hours of education in these two areas during their four years of medical school...The most likely candidate [to teach these skills] is the course on epidemiology..., but in general this subject is given little attention. The same situation applies to the education of physicians after medical school – environmental and occupational health are rarely covered (Cortese,1993:5).

Most physicians lack an adequate background in statistical reasoning and in environmental and occupational epidemiology, and many risk assessors have not been adequately grounded in human disease biology or toxicology.... (Cortese, 1993:10).

The EPA was fortunate to have local physicians working on the Butte cleanup, Weinstock (7/31/95) says.

We had a pediatrician helping ... the cleanup. We had a couple of doctors here working with us; one died, another's moved on. We have a gap there now. But we already have the Butte Lead Abatement Program which will clean up all avenues [of lead]. Dr. McCarthy played in an integral role in developing the lead plans.

The current lack of physicians involved in the cleanup and studying data is important. Given the lack of training in medical school, unless physicians are willing to educate themselves, there is the very real possibility they will not consider environmental sources of illness.

During a period of health concern, the family is dependent upon physicians reluctant to accept environmental explanations for symptoms, relying instead upon conventional explanation and treatment. After being diagnosed as "normal," the illness becomes demystified, and the victims have no reason to search for environmental causes. Even 'environmental' diseases rarely prod physicians to search for environmental causes. It is no wonder that many victims have this jaded view of the medical establishment. When doctors fail to "legitimize" toxic exposure as the cause of health problems, claims by victims may be viewed as irrational. Furthermore, establishing a rational basis for health impacts is epidemiologically difficult under the best of circumstances. The resulting uncertainty about health effects at Love Canal helped to split believers from non-believers (Edelstein, 1988:50).

In Butte, as in other contaminated communities, the uncertainty has resulted in believers and nonbelievers. But Butte may differ from other communities in that the Moore-Luoma research which indicates a need for study of public health is not common knowledge. It is difficult to say if awareness of the study would change nonbelievers' minds; beliefs are strongly held (Milburn, 1991; Kroll-Smith and Couch, 1991a). However, it does seem to be important that people in Butte have the right to all relevant information.

As it stands, there may well be a local knowledge about health issues that is disregarded by government officials. As long as this local knowledge is discounted and believers are hampered in their attempts to gather

information on public health, the public health landscape in Butte will remain buried – will continue to be a private problem, an ignored local knowledge expressed in rumors, whispers, knowing glances, and silences.

Although Butte residents have not been adequately informed of health risks and limitations inherent in the risk assessment process, there is some indication that the shocking deaths of the 342 snow geese have brought, at least, the possibility of future health hazards into the public arena. Whether the increased awareness of health hazards will mobilize residents to join the few who have challenged what they believe to be inadequate cleanup plans and an inequitable distribution of power, to influence the cleanup process will depend upon a number of factors. One of those factors, the local understandings (the social landscapes) of Butte will be considered in the next section.

¹ "Mining jobs, said the Navy, were uncertain; there were strikes, layoffs, and the omnipresent threat of illness; even a mild one meant lost wages and high medical costs. The Navy promised steady work, paychecks that came whether sick or well, and free medical and hospital care. A disabling illness or injury meant economic catastrophe for the miner, no job, no prospect of a job, no income. The disabled Navy man received a 'generous pension.' Accidental death in the mines, 'stuffy, gloomy places at best, left your family with only what you've saved.' The Navy's death benefits were six months' pay and full pension benefits to the survivors. In the mines, promotion was slow and uncertain and marked by favoritism. In the Navy it was sure and quick and 'the best man wins.' Old miners were not just scarce, they were unknown. Illness and age related debilities meant their jobs went to 'younger men.' Navy men, on the other hand, retired after only thirty years' service spent, moreover, in 'fresh air, sea, clean, healthful, athletic life,' at three-fourths their pay at the time of retirement." (Emmons, 1990:167)

² See Finn's discussion of the gender-based differences in resistance.

³ Michael Foucault, a psychologist and philosopher, is best known for his work that stressed that "human sciences have become techniques of power." (Farganis, 1996:419) He coined the phrase "carceral society" to denote that power is embedded in relationships of people with teachers, doctors, therapists, social workers and psychiatrists" who act as moral agents whose discretionary power is based on their membership in the credentialed knowledge elite." (Farganis, 1996:420)

⁴ Mortality ratio is the per capita mortality rate relative to that expected for the nation.

⁵ Numbers have been adjusted for population to avoid what statisticians refer to as "small number problems."

⁶ Stash has since been convinced that the water in the Berkeley Pit killed the geese (*Missoulian*, 4/25/95)

⁷ Health records from emergency room services of Silver Bow Hospital from Jan. 19, 1973 to Dec. 31, 1973, the latest year of records in Butte-Silver Bow archives, indicate that, of a total 10,409 visits, 13.8 percent involved chest-related complaints, and of these chest-related complaints, more than half, 50.51 percent, were children/young adults aged 20 or younger. Of the 10,409 visits 1.9 percent (199) involved health exams and work releases, 22.5 percent (2,341) involved trauma, and the remaining 75.6 percent (7,869) were medical visits. Although, on their own, the records have no statistical weight, I spent some time with them. Because of the illnesses associated with the contaminants in Butte, I searched for references to convulsions, spontaneous abortions, cancers, lesions, cysts, tumors, dermatitis, lupus, neuromuscular disorders, headaches, urinary and kidney problems, liver, heart, chest-related visits, nervousness and/or agitation, and flus and colds. All of these categories were present (and would likely be present in any hospital emergency records for a similar period). Of the 7,869 medical visits, those references that showed up as one percent or more included: chest-related visits, 13.8 percent; flus and colds, 3.3 percent; heart-related visits, 3.2 percent; cancer and chemotherapy, 1.13 percent; dermatitis and rashes, 1 percent; and lesions, cysts, and tumors, 1 percent. Although less than one percent, during this period the hospital treated four patients with lupus. Slightly more than half of the chest-related

visits involved people under the age of 20. Although in 1973 there were two hospitals in Butte, I am assuming that complaints seen in Silver Bow General Hospital's emergency room in 1973 were representative of those seen at St. James Hospital. Because St. James Hospital was larger (180 beds) it is likely its emergency ward saw more people, proportionately, during the year than Silver Bow General Hospital (140 beds). (State records for 1974 indicate St. James Hospital treated almost twice the number of inpatients than treated by Silver Bow General Hospital.) Although children in school are exposed to outbreaks of communicable diseases, the large numbers of children seen in the Silver Bow General Hospital's emergency room for respiratory problems could indicate that the respiratory tracts of children in Butte may have been weakened. Or a statistical comparison may find that in that year this was a typical emergency room pattern in a similar-sized community. The only way to put the health question to a test is to conduct a health study.

⁸ The report, "Superfund: Public Health Assessments incomplete and of Questionable Value, was prepared by the federal Government Accounting Office for the Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives, August, 1991.

THE SOCIAL LANDSCAPES OF BUTTE

Diverse Terrains

Butte was founded on the notion of extraction of natural resources, and was developed within context of a Western industrialized belief that the environment was background, that human activities were exempt from the ecological constraints that acted upon "lower" animals and the landscape (Catton and Dunlap, 1980). These beliefs are deeply embedded in humans and our social institutions, which are slow to change. The change, which involves a renegotiation of the relationship with the land, involves both "political disagreements about how to live in nature" and "divergent discursive frameworks for understanding 'the environment' (Greenough and Tsing, 1994:95)." Those frameworks are shaped by experience, both personal, and historical.

History, however, is more than antiquarian reminiscences of colorful mining kings and of epic doings of yesteryear. Much more weightily, history is the burden of attitudes, mores, prejudices, loves, and hatreds rooted in the economic, social, and political milieu which formed over 100 years ago...

...Like the frontier itself, Butte was rich, unabashedly exploited, turbulent — and endlessly fascinating (Malone, 1995:217).

The key word is *was* — Butte *was* rich, *was* unabashedly exploited and turbulent, *was* endlessly fascinating. What is the Butte that *is*? What does it mean when the entire history of a community is intimately tied to current notions of contamination? Does this necessarily disparage the lives of those who lived and worked and died in Butte? Will one of the most vibrant and exciting histories in the United States be placed on a slag heap of

contamination to be scrapped as unenlightened, to be junked? There is a real tension here which surfaces in the residents' justified love of the history and of their place, their home. It is possible that the history is the locus of community resistance, the site of "buried subjugated knowledges¹ (Foucault, 1994)."

"...with what in fact were these buried subjugated knowledges really concerned? They were concerned with a historical knowledge of struggles. In the specialized areas of erudition as in the disqualified popular knowledge there lay the memory of hostile encounters which even up to this day have been confined to the margins of knowledge (Foucault, 1994: 203)."

Butte is no stranger to struggle. Given the extreme physical and social landscapes of Butte, the process of negotiating new self-definitions will likely be painful and slow. From the 6,500-foot elevation of Walkerville to the 3,500 miles of tunnels in the depths of Butte Hill, there is little middle ground. The simple truth about Butte, Sara Weinstock (7/31/95) says, is "you either love it or hate it." But, depending on whether you were born and brought up in Butte or you are an outsider, you may be loving or hating something quite different for various reasons.

Likely a result of the life-and-death nature of the forces that shaped Butte, almost from its inception it assumed metaphorical status. There are many metaphorical Buttes. And the metaphors are often contradictory — home, poison, a disaster, an opportunity, ugly as sin, beautiful, fact, fiction, beloved, despised. The metaphorical Buttes, as represented in discursive frameworks which often border on the nostalgic, seem to diverge along the axes of history, economics and the import of the contamination. The Superfund designation

may have exacerbated already existing divergences by dint of the stigma inherent in the Superfund label and the uncertainty about the impact of the contamination upon public health. The Superfund process itself, which has been characterized by "absences, silences, repression ideas, and marginalized statements (Peet and Watts, 1993:230-01)," may have widened the chasms. Absences in the Superfund process in Butte include organized public participation, health coverage in the local media, a study of the synergistic effects of contaminants and sites, as well as accurate health records. Perhaps the most important absence is that of social context in technocratic visions of the landscape.

The issue of cancers and other diseases in Butte is cloaked in silence.

According to Mary Kay Craig, the notion of health studies has been repressed:

We don't have the health studies. Anyone who comes to town to do a health study may get run out. When I was living in California someone said they were doing a health study. I'm not sure if it was this [Superfund-related contamination] or radon. It was something about the slag heaps. Lately, I hear ARCO has done some new studies — but that is proprietary information, so they aren't sharing what they know (Craig, 7/30/95).

It is possible to attribute ARCO's attempts to keep its cleanup costs down to the structure of the "treadmill of production" (Schnaiberg and Gould, 1994) which mandates exploitation of both natural resources and labor to produce profits for stockholders rather than to evil intent. However, it is impossible to leave unquestioned the corporation's right to withhold health information. Clearly the corporation's private rights in this respect should be subordinate to the public right to know.

Equally clearly, as evidenced by official reaction to the previously referred to nurse's statement about illness in her neighborhood, some residents' concerns about illness have been repressed in the Superfund process. Throughout Butte's history, health issues have been marginalized — from the Anaconda Company's refusal to comply with state occupational safety law to its ability to alter death certificates, to its changing the cause of death on death certificates from miners' consumption to tuberculosis to free the company of responsibility, to the associations' efforts to provide health and death insurance. In his research of a coal-based community in Appalachia, Wolensky (1991) found:

This structure of domination, centered around the civic governmental order has meant that the vast majority have been excluded from the practice of economic and political decision-making. The benefits of business productivity were tightly controlled by those with economic position while the government jobs and other factors were under the direction of political leaders whose regimes were characteristically corrupt and particularistic. High levels of poverty, unemployment, and underemployment amid extremes of wealth and inequality have not only reflected political and economic exclusion but have reinforced dependency (Wolensky, 1991:230).

THE HISTORY

The patterns of community development in the area Wolensky (1991) researched and Butte are similar. Imbalances of power have always existed close to the surface in Butte. Although it is difficult to imagine that politicians in the 1990s would have the autonomy of those in Butte's not-so-distant past, it is conceivable that the history has led to both a very narrow definition of democracy, especially in terms of citizen participation in

government. John Ray notes a lack of professional criteria for government office:

Jobs were set aside for blind people, like the justice of the peace position... the debate was whoever was the blindest. The notion of who could do the job was irrelevant. The notion of setting aside a job for people, the sheriff's job was often set aside for Serbians. In the history of these jobs, none were based on qualifications.

The first election, when we moved to Butte, there were three criteria for public office: family man, union member, veteran. They campaigned on the steps of various parishes. None of them needed certain qualifications for office...(Ray, 10/24/95).

Lack of professional qualifications notwithstanding, the criteria to which Ray refers is understandable within context of Butte's history. This setting aside of jobs is the legacy of a community in which members took care of each other, and recognized, given the dangerous nature of their work, any one of them could be the next person who needed to be cared for. The criteria speak to the need for local government to reflect the community's working class family values, shared by many American communities, which have been discounted by the increasing professionalism of all segments of American life. Clearly, an electoral system built solely on values which exclude notions of job qualifications can be abused. This may be what local critics mean when they charge Butte officials with "economic boosterism" and question their competence.

The local government operates the way machine politics or Southern politics do, where you have one party which is not particularly accountable to the public and doesn't want it to participate. It operates on graft or corruption. The approach of Butte government to a problem is, "Let's cut a deal." Butte has never had good government. It was controlled by the company, on occasion by labor or been

controlled by someone else, socialists in the early 20th century. The notion of public responsibility is meaningless... The Anaconda Company did not sponsor a spirit of critical objectivism.

There's an interesting phenomenon in Butte. Maybe it's part of its corporate past. Competent people never get involved in government. Maybe it's because if you were prosperous you could control without running for government. It's interesting, also, how elected officials get family members jobs (Ray, 10/24/95).

The movers and shakers tend to be people who never left Butte or went away to college and came right back. There are certain families here in Butte, intertwined with the Montana Power Company [which was founded by the president of the Anaconda Company] and government. Their influence has been so pervasive (Waring, 10/21/95).

In any community, the dominance of one particular group is problematic. However, the dominance of "objective" professionals from community values and human concerns about care leads to situations just as easily open to abuse, as is the case with risk assessment and cost-benefit analysis. The trick is to find the middle ground, to think past a community/professional duality. Given that the community is now associated with contamination and the professionals with its cleanup, it would be easy to dismiss community values but this would be wrong. There's much to be said for the the operative values of Butte, Mark Reavis says:

This is one of the most generous towns around. When I first got here I saw a brief mention of need on a radio show get incredible results. There's a level of generosity for providing for others here. Other towns, like Bozeman, put their poor on a bus and send them to Butte (Reavis, 10/24/95).

Some are concerned with preserving the quality of care associated with Butte's working class life, as well as its history. In addition to working to

create new jobs, Marilyn Maney (9/22/95) says the AFL-CIO is trying to protect the 4,000 union jobs that still exist in Silver Bow County, jobs that help to maintain the community's working class² nature. Some, like Marilyn Maney (9/22/95), are concerned that the influx of professionals who work in the high tech industries in Butte, will change the community for the worse by making it more individualistic and competitive. Others believe that the professional newcomers will adopt Butte's values.

They put us down so many times... When they shut the mines down they said they were going to bury us in that hole down there, the Pit. But as long as there's people like me, they'll have that Butte spirit. We fought to go to work, to stay at work... I've seen this town go from good to bad and bad to good. But it came back. There will always be a Butte.

If they come into Butte to live, give them a year and they're Butte people... I don't think people can change this town – they get the same values I got about Butte (Shea, 10/24/95).

Those values cannot be separated from the history and practices of the place.

People growing up in communities of memory not only hear the stories that tell how the community came to be, what its hopes and fears are, and how its ideals are exemplified in outstanding men and women. They also participate in the practices — ritual, aesthetic, ethical — that define the community as a way of life. We call these "practices of commitment" for they define the patterns of loyalty and obligation to keep the community alive (Bellah et al, 1986:154).

There is much vitality and commitment in the local struggles to redefine Butte and develop a new way of life, with its own ritual, aesthetic and ethical practices. At stake are both the history and health of the place. Although the closing of the mines threatened both the livelihood and identity of the

community, the stigma attached to the Superfund designation, has the possibility to denigrate its entire history. So Butte natives hold onto their history, a simpler time when the opposition was clearly understood as the Company, and talk back to the stigma through their history. The Butte that natives describe is not a contaminated community; it is a rich tapestry of past and present, people and history, diverse neighborhoods of colorful ethnic groups clustered around that mines that sustained them, "big shots" (Finn, 1995) and laborers, held together by caring communities of women.

It's dynamic, able to adjust. When things get thrown at us we just grab the ball and go with it. We're really strong people with good moral fiber. The people here work hard, live decent. It's a wonderful, fascinating place. It's the best example of industrial America, small enough to study with all the components of a larger industrial community (Crain, 9/21/95).

This is the greatest melting pot of ethnic culture in the United States. We have everybody from every community in the world. Now, with the School of Mines [Montana Tech], we have people from India. Up here in Walkerville was Irish, a few English, Italian and a few Slavs. In Centerville where I live, were Irish and English. In McQueen and Meaderville were Italian. East Main and Granite are Finlanders.

People lived where they worked. People in Walkerville worked at the Mountain Con, the Lex, or Badger. Neighborhoods developed around the mines. On the lower side of Park, the big shots lived.

A lot of people on the east side worked at the Belmont and the Emma. Everybody worked around the mines. I worked with guys from Norway. When I started, it was just me and another Irishman; all the rest were Swedes and Norwegians. I belonged to the Iron Workers' Union. We had Italians, Irish, Englishmen, Finlanders at lunch. Most guys could say hello in a half dozen languages. If you were Irish and lived in Finntown, you could talk Finnish. All the kids were taught to talk the language of the neighborhoods. Most everybody in Butte could talk at least two languages. Everybody in Butte knew how to swear in five or ten languages (Shea, 10/24/95).

It's a concrete example of feminist rhetoric. An ideal working class culture that has created such a nurturing place for women and daughters. All they have to do is come to Butte. I raised two daughters as a single mom. I have absolute confidence, believe if something happened to me, I have no doubt that the women of Butte would have cared for them, and taken good care of them. It goes on in Butte all the time, caring (Maney, 9/22/95).

The history of Butte that is so interwoven into the present is not an abstraction; it is an emotional reality, a terrain bounded by resistance and loss, a proud inheritance to be claimed by survivors. In a letter to the local newspaper, written to support the preservation of the remaining gallows frames on Butte Hill, Nicholas J. Bedovenac wrote:

Most of them [the miners] died at very young ages, like my dad who went to work in the mines at the age of 16 and died at the age of 40 in the county hospital.

...These gallows frames are not only a picture of history, but are also memorials. I am positive they are tombstones.

I do believe that to even think of destroying them for a profit is totally sacrilegious (*Montana Standard*, 9/22/92).

Although large numbers of Butte residents have not been involved in the preservation of Butte's history, they are passionately attached to it. Mark Reavis says:

I've never seen so many amateur historians in my life. You just ask a question and off they go.

People call me and want me to talk about family histories and dates. But I'm an architect. I'm dealing with the importance of the structures and the way they tell the story of the factory, the working man (Reavis, 11/29/95).

Anyone who spends any time at the Butte-Silver Bow Archives in the old fire station on Quartz Street can confirm Reavis' assessment of the

importance of the local history. Here, surrounded by bound copies of newspapers dating back a hundred years, coroners' records, birth records, it is possible to look out the large windows down Butte Hill and imagine an older Butte. On any given day there is a constant stream of traffic, quiet conversations between people searching through old newspapers for references to family members, writers researching events and details to add "local color" in the form of descriptive passages in planned papers and books. People are lined up waiting for help from the friendly staff. The quiet of the place is frequently broken by muted exclamations of delight when a reference to a family member or event is located, bringing smiles to fellow researchers and staff.

Archives Director Ellen Crain reports that the demand for archival services has increased dramatically. Time was when Butte's harsh winters kept visitors away; now increased numbers of visitors are hunched over records year-round. And written requests for information have doubled. But the budget, hard-fought every year, has not increased and Crain is seeking grant money to organize the material, much of which is still unsorted and uncatalogued, in the boxes that are piled from floor to ceiling in the vast cold basement that used to house fire department trucks and apparatus. Local politicians have little interest in the archives; even a 1995 national labor history award did not attract their attention, never mind an offer of additional funding from the county (Crain, 9/21/95).

Because this history was such hard-fought terrain, this love of local history entails more than a simple recounting of past events — it is also a form of resistance, a telling of a story very different than that told by the Anaconda Company, local, state, and federal government the captive press, and the toxic

label represented by Superfund. In this context, Butte's history may be seen as a genealogy of intransigence which may be difficult for outsiders to understand. Butte may also be hard to comprehend for someone who was not brought up working class. "If you're not born in Butte it's hard to understand the community," George Waring (10/21/95), who grew up in a "lower middle class individualistic community," notes.

Different constructions of the physical landscape continually surface in the descriptions of Butte and the telling and meaning of its history. Non-natives tend to describe Butte in physical terms. Waring, who has lived in Butte for 28 years, tells of first fully experiencing Butte:

It was the second or third year I was here. The first few years I lived in a residence hall, in walking distance of Tech. I didn't have a car. One night someone took me to see them working on the Berkeley Pit... There was always noise – in the day it was background; at night it seemed much louder. It came to me that Butte was really a outdoor factory. You can go from one machine to another but there's no roof. All the debris is scattered everywhere. We were living in an outdoor factory – slag heaps, discarded machinery, mini dumps. It was never picked up at that time (Waring, 10/21/95).

I tell him that he is the first person I have interviewed who was not born and brought up in Butte and that he is also the first who described the place in physical terms. He replies, "My use of physical description reveals how alienated I still am from this community." Mark Reavis, another non-native, agrees with Waring's factory metaphor:

It really is a big machine. And you have the conscious knowledge there are all these tunnels under you. There were the sounds, the lights. People miss that level of activity here – that's what they mean when they say it's dead. People hear the pit [the East Continental Pit]

trucks still — it's a pleasant little growl, but it's not the same (Reavis, 11/29/95).

Is it possible that Butte natives may not really see the physical landscape unless they leave for a while? Not necessarily, Sara Weinstock says. "Maybe you don't have to leave to see it, but just be educated to a different point of view, another way of thinking (Weinstock, 7/31/95)."

Some non-natives see Butte very differently than natives. Twenty years in Butte notwithstanding, John Ray has not been charmed by Butte.

Physically, it's one of the ugliest towns I've ever been in. It reminded me of some of the coal mining towns in Pennsylvania. Politically, it reminds me of the South, where I grew up, because we had one party based on personality. Being psychologically macho was compensation. A lot of people here feel second-rate. There's a proclivity to boosterism to compensate. The Democratic politicians play into that to motivate Butte's voters to vote for them. Critically and sociologically, it's sort of an ossified turn of the 19th century into the 20th century (Ray, 10/24/95).

Certainly the architecture, economic and political structures are reminiscent of the turn of the century when Butte came into its own; however, there are very contemporary aspects to Butte operating in the cracks in the structure, such as groups like the Butte Community Union, Marilyn Maney's work with the AFL-CIO, and CTEC. The issue here is that the structure constrains these groups to the perimeter.

Non-natives stress aspects from the history that are very different than the working class culture and ethnic mix which are stressed by natives.

There's a level of distrust against government. It's [the local Democratic party] a Jacksonian, small businessmen, protection of *laissez faire*, rather than a New Deal kind of party. Government was

seen as belonging to the Company and the laws were a foreign language of those occupying Butte (Waring, 10/21/95).

Reavis (11/29/95), a self-described "new immigrant" of 15 years, reports his first response was:

What the hell happened here? The stunted junipers, the environment, the dryness... This is a hard place – the weather and family ties. You'll always be a new immigrant... They ask you if you were born in Butte. They need to know if you lived through it. Do you understand?

But Butte is extremely diverse and so tolerant.... You're tolerated here if you're a decent human being (Reavis, 11/29/95).

However, the outside world has far less tolerance for Butte than Butte has for outsiders. Butte, America is the dark side, the "other" in the eyes of outsiders, both in Montana and beyond, who do not understand. Weinstock (7/31/95), who lived with her son for 10 years in Helena before returning to Butte, reports when she and her son were preparing to move to Butte "the kids in school told him he'd be beat up." Others report:

There is antipathy toward Butte. People don't even want to come to Butte. When we were moving here a professor at Madison who grew up in Great Falls said, "Why do you want to move to Butte? It's the armpit of Montana (Ray, 10/24/95)?"

I grew up in Washington state. Sight unseen I moved here. People said, "You're moving to Butte?" They knew about it in Washington... Nobody from Bozeman, at the architectural school, wanted to come here. I moved here in 1981 during the economic decline (Reavis, 11/29/95).

Mary Kay Craig, a self-described "Butte kid" who left Butte for 27 years,

says that Butte's poor image is the result of the degraded landscape, of the stigma of being a contaminated community.

...the moonscape when you fly into Butte. It's hard to attract professionals. I think Butte should be as attractive an area as Bozeman and Kalispell, the Bitterroot – all the places that people are moving to. Why don't they want to move to Butte? Just look at it. If you remove the contamination and make it a healthy place it will automatically become a pretty place and people won't be afraid to move here (Craig, 7/30/95).

Mark Reavis, like Marilyn Maney, believes that Butte as history — its 100 years of raw, sometimes violent, labor strife — is the real Butte, the Butte that must be preserved. That Butte was never pretty – to sanitize the history, and the landscape that embodies that history, would trivialize the lives of those who paid the price for living it. It is out of fear of gentrification, of the "prettying up" of the raw mining city, that Reavis fought for the EPA and ARCO to comply with the National Historic Preservation Act. In 1962 six square miles of Butte containing roughly 4,000 buildings and numerous mine workings were designated a National Historic Landmark. (See map of National Historic District in the appendix.) As a result, any federal government agency must approach any structure older than 50 years as a potential "resource." The conflict between history and cleanup surfaced about mine dumps and slag heaps.

The EPA said "We're worried about kids dying," but we have to look at the whole picture, it's much more complicated than that. It was balanced out. The National Preservation Act says you must consider history, even the piles of dirt in the National Historic Landmark district [most of Uptown Butte]. They have something to do with the development of the industrial revolution (Reavis, 11/29/95).

Reavis knows he cannot save it all:

We're destroying the way this place looks. We've acknowledged certain sites to preserve it, but the whole thing was important. Our losses are defined in mitigation [remediation of contaminated sites]. The whole basis was on the regional preservation plan.

It was an amazingly long process. We started cranking out concepts and things in 1991. The Granite Mountain Overlook [the scene of the Speculator Mine Disaster of 1917] is a process we started. The EPA was supposed to put up signs and do the photo documentation. The county got a grant for a major memorial to disaster. But the EPA screwed up and I blew the whistle – they'd signed a Memorandum of Understanding....

You just can't do a standard process in Butte, Montana. The photo just laid on the shelf. This formed my philosophy – let's start with a new concept, just fund the signage and interpretation. I got a VISTA volunteer. The EPA funded the plaques. We are almost there (Reavis, 11/29/95).

Funds to construct and maintain the memorial will come from the sale of bricks which will make up the floor of the memorial, the sale of artwork related to the site, and fundraising, as well as grants. Reavis says:

By autonomously going for grants, working with the agency, and fundraising, we got it going. This is a life's work. When an opportunity shows up, I draw pictures and convince people. We've got a \$400,000 grant to fix up the Belmont [mine] to use if for a senior citizen center (Reavis, 11/29/95).

Under the historic Programmatic Agreement, Butte-Silver Bow struck with the EPA, Anaconda-Deer Lodge, ARCO, and Walkerville, ARCO supplied \$175,000 which was used to construct the Visitor Center. Although he can count on some Butte natives to turn out to fight for preservation of specific buildings, the more general attitude toward what he is doing is one of

"that's nice" and well-wishing (Reavis, 11/29/95). Reavis attributes the passivity toward preservation to an overall lack of self esteem. The Company used that lack of self-esteem to its benefit when it developed the Berkeley Pit — it was not difficult to get people to move to the Flat, Reavis says:

There was a perception that you were poor white trash if you couldn't move off the Hill. But, still, some people kept their family houses and have been proud of it.

They're seeing a little more that they should be proud; not ashamed (Reavis, 11/29/95).

Reavis set out to develop a regional historic preservation plan, which would include Anaconda, home of the Company's smelter operations. Reavis (11/29/95) describes Anaconda as "the closest thing to a sibling. It's probably a sister – it's a little cleaner and more organized because it was supposed to be the state capitol." The plan was established with five key gateway interpretive sites which will be ultimately connected by a railroad line: 1. The American Indians and early settlers, including buffalo kill sites, transport routes, and camps.; 2. The period of gold and silver; 3. The Richest Hill on Earth, mining operations in Butte; 4. The smelting of the ore in Anaconda; and 5. The reclamation and ongoing technology (Reavis, 11/29/95) The community is pushing for a national historical designation, hoping to attract tourists and the revenues they bring — something akin to mining the history. Under the programmatic agreement, open space will include (Butte-Silver Bow, 1992):

1. Parks, improved open space with grass and trees. Uses may include parks, parkways, tot lots and recreational facilities such as tennis courts, ball

fields, golf courses, skating rinks, municipal swimming pools and picnic areas.

2. Arid landscapes, naturally occurring open areas that may include vegetation but require little or no maintenance.

3. Historic mining landscapes, including non-vegetated landscapes as well as those that are reclaimed.

4. Wetlands, both existing and improved areas.

5. Heritage Rail trails, which will run beside active rail lines.

6. Neighborhood buffer trails which will separate neighborhoods from congestion in historic and park areas.

7. Controlled trails, where access and usage will be monitored.

8. Drainage control trails, which will run parallel to drainage troughs and provide recreational and interpretive experiences as well as access for drainage maintenance (Butte-Silver Bow, 1992).

Most of the support of ongoing preservation efforts comes from the "new immigrants," but they appear to love a more gentrified Butte (Reavis, 11/29/95).

They want to preserve what's nice about the history. Maybe it relates to past experience they liked growing up. But I don't want to sanitize it. That really scares me.

You can be more responsible but how can you criticize or condemn or want to cover it up (Reavis, 11/29/95)?

The problem that the EPA and CTEC saw was that, especially in heavy spring rains, unvegetated contaminated soil, also known as historic mining waste, will run off down the steep slopes of Butte Hill toward Silver Bow Creek, depositing contaminated soil in yards and the creek, thus spreading the

contamination. Reavis disagrees (11/29/95). The lead program, which will be administered as part of the Institutional Controls by Butte-Silver Bow officials and be overseen by ARCO and the EPA, will protect the public, Reavis says. With the lead program now in place, the EPA now agrees that the conflict between history and cleanup has been resolved. Sara Weinstock says:

There are other yards with a potential to be contaminated. But Butte-Silver Bow will continue to track the contamination through testing of kids (Weinstock, 7/31/95).

ECONOMICS

Others are not so sure that institutional controls will protect public health. The Clark Fork Coalition charged that preservation of "historic mining landscapes" would limit the cleanup of Butte. It is difficult to cleanly separate the historical importance of preservation from the economics and politics of the cleanup, activists say (Craig, 7/30/95; Waring, 10/21/95). They question if implementation of the controls will allow ARCO to fund a lesser cleanup effort. And they have little faith in the local government which will implement the controls in perpetuity.

The further removed from local government, the better off you are. I've see the local government here blackmailed. The economy's so vulnerable to blackmail (Waring, 10/21/95).

In terms of the EPA, they are trying to do the right thing. They are constrained by the law. The state people in the trenches are good people too, but you run into problems with political appointees. I've no confidence in the local government, elected or appointed. (Ray, 10/24/95)

...They have a love/hate relationship with ARCO. It's 0/10, heaven/hell, binge/purge (Ray, 10/24/95).

Faith in the judgment of local officials was likely further eroded when zoning was downgraded from residential to commercial at the Montana Pole site which led to a lesser cleanup of water than would have been required if the original residential zoning had been kept (Curran, 1994). In her comments to Jeff Merrifield, counsel to the federal Subcommittee on Superfund, Waste Control and Risk Assessment in Washington, D.C., Craig (7/9/95:2) wrote:

Here, in exchange for ARCO-promises of ballparks, RV parking facilities and an industrial park, etc. over the top of contaminants, local government has changed a zoning provision from residential to industrial thereby decreasing degree of cleanup of PCPs at the Montana Pole Treatment Plant. To appease a local employer PRP [potentially responsible party], local government has ignored a petition signed by over 10 % [sic] of the population asking that the volume of contamination at Butte's Berkeley Pit not be allowed to double. Instead local government voted to put off real cleanup for 30 years. For a Jack Nicklaus golf course over the top of the toxics, 100% of contamination has been allowed to remain in the floodplain in Anaconda. Other examples of local government being coopted toward perpetual management of wastes — not cleanup — can be cited in parallel with their contracts to PRPs for creation of Institutional Controls.

We have even seen the very people [Jon Sesso] who exclude our EPA grant-funded citizen group from involvement in local government Superfund meetings receive an award from the EPA for creating "consensus among diverse groups." As PRPs and local government officials in this area know well, consensus can always be obtained when those who might disagree are not allowed to participate. Boldface type is Craig's.

Ray expressed his concern about local officials' relationship with, and trust in, ARCO, in a letter about the lead study sponsored by ARCO:

...I am concerned about the relationship of the Health Department and ARCO. The Health Department has embraced the results of this study with unquestioned enthusiasm. Yet, the Health Department should

remember that any corporation such as ARCO protects the corporate interest. The two interests are often in conflict. Consider: The quality of any study depends on quality data and quality analysis of that data. If the data or analysis is faulty, the results are faulty. In assessing the analysis and evaluation of data, questions of source willingness to report and interpret a situation accurately must be considered. If there is a potential bias on the part of the source or the source's sponsor, independent corroboration must be sought. In this light the following questions must be asked: What is the nature and extent of the relationship between the University of Cincinnati's Institute of Environmental Health, which conducted the study, and ARCO? ARCO paid for the study. Was any information processed through ARCO? Did ARCO have any influence on the conduct of the study or the release of results? How do the findings of the study relate to ARCO's possible Superfund responsibility? These questions have yet to be answered satisfactorily. I am not accusing or implying that anyone deliberately falsified information. Nor am I questioning anyone's competence or integrity. I am saying that we need independent verification of this study before we assume there is only a negligible lead problem in Butte. The lead exposure study must be scrutinized by the EPA as well as by independent peer reviewers with no industrial bias (*Montana Standard*, 5/15/91).

In light of complaints that the agency historically left the testing that determined the extent and composition of contamination to the corporations responsible for the pollution (Barnett, 1994), it is difficult to understand why the agency initially left the study to ARCO. Although the EPA later refused to accept the lead program the county and ARCO developed from the study, there was no indication that peer review was ever accomplished. However, as Weinstock (1996) notes, testing was done and a baseline risk assessment will be issued.

CTEC members have also questioned the county-ARCO institutional controls proposal which, its authors maintain, will protect Butte people from the contamination that will remain after the cleanup efforts are completed (Craig, 7/30/95). What ARCO, local officials and EPA refer to as institutional

controls are generally referred to by planners as land and resource management — zoning, subdivision control, wetlands and aquifer protection. Clearly, some institutional controls will be necessary in Butte, which is honeycombed by mines, has buildings built on tailings, and is ravaged by mining waste — it is not possible to completely clean the mining waste. The state's Natural Resource Damage Program maintains, even under the best remediation alternative, baseline conditions will not be restored for a few thousand years (Montana NRDP, 1994).

The ARCO/Butte-Silver Bow Planning Department institutional control proposal has identified seven areas, with the possibility of additional controls to be added at a later date, as critical to monitoring hazardous waste that will remain after cleanup of Superfund sites in Butte (ARCO/Butte-Silver Bow, 1993). The seven areas are: surface and groundwater controls; development standards; lead poisoning/abatement program; historic preservation; waste repository; operation and maintenance of reclaimed/restricted sites; and a Geographic Information System to monitor the other six controls (ARCO/Butte-Silver Bow, 1993). The use of institutional controls raises two important questions: 1. Will they be used to minimize the amount of cleanup that ARCO will have to provide; and 2. Will they adequately protect public health?

Sara Weinstock (7/31/95) believes the institutional controls will work well:

...We're looking at ARCO versus Butte-Silver Bow as the contractor. Therefore they [ARCO employees] will always be overseeing at Butte-Silver Bow. We can rest assured that the money will be spent the way we want it. EPA has a five-year review forever on this. We'll review

every five years... EPA will continue to pressure ARCO to get the job completed (Weinstock, 7/31/95).

Although the local environmentalists concerned with the Superfund site are not sure the EPA review will be sufficient, some natives do not judge local government as harshly; others point to the various levels of government that are working together as a positive.

I believe you should let the people in Butte with ideas do it with ARCO...You shouldn't have people from Missoula or Helena. It's [the contamination] been here for 100 years. The ARCO retirees believe the same way. Keep the state out of here. Keep it local and keep it simple (Shea, 10/24/95).

They [federal, state and local government officials] work so cooperatively. They're working as a team which is a good approach. It will give us the best overall solutions to these problems (Crain, 9/21/95).

Public health Director Dan Dennehey points to differences both in the roles of levels of government and in resources the levels can bring to the cleanup. He, also, believes the tiered levels involved in the cleanup will offer more protection to the people of Butte.

I have faith in the EPA, the state and us. If you look at EPA from the street, they're seen as rigid. If you ask about us, people will say free immunizations, family planning, water quality district, air quality. We aren't one-dimensional. We wear so many hats here – it's management by crisis...

I don't want to spend 90 percent of my time on Superfund. We should be the Superfund Department. But I don't think Superfund was on anyone's mind when they created health departments. We're sewers, food quality....

From the industrial revolution on there will be a whole lot of problems. EPA's huge. We're fortunate enough to get grants to hire

people. What if you're in a community without a health department?
(Dennehey, 9/21/95)

Weinstock says Superfund works in Butte because the parties involved cooperate:

Here we're all equal partners. The lead abatement program was developed by Butte-Silver Bow. We attended the meetings and helped them with information, but it was them who said this is what we can live with.

Things will happen here that wouldn't happen anywhere else. Not just the feds, but the PRP [ARCO] who will do some work, and we allowed state and local government participation. If you don't have local government at the table you might as well forget it. That's another reason Superfund works here. Many of the people who work with the federal government will help you get through the mess. We have credibility in Butte (7/31/95).

Given ARCO's lawsuits and challenges, Weinstock's definition of cooperation may be questionable, and best understood in her role as mediator, as the person who casts oil upon troubled waters. In her role as the local EPA remedial project manager, Weinstock becomes the locus of all disputes, a tense and tiring job. Although the CTEC activists disagree with EPA's failure to seek permanent solutions as manifested in the institutional controls, they give the agency and the state far higher marks than local government. They complain of being excluded from local government meetings with ARCO and representatives of former county chief executive Don People's company, Merdi. (See the anonymous cartoon that this incident precipitated in the appendix.) Craig says:

I had to advise CTEC to crash the meeting... A government person became so concerned that Merdi was meeting with agencies and local officials and would be negotiating on Silver Bow Creek without

anyone knowing that I was called and told to go to the meeting and bring the media with me. I thought it out and thought why escalate? What I want is to be part of things (Craig, 7/30/95).

Dennehey counters that it's difficult to understand the process. He also stresses the importance of local government involvement.

We thought the public comment on it [the Merdi Greenway proposal for Silver Bow Creek cleanup] would come later. The Superfund coordinating committee complained they weren't at the table. If we put it on a referendum it would probably be okay. There has to be some catalyst, so local government's had to be the catalyst to get both to the table — the environmentalists and those concerned with aesthetics. We can reach a compromise as we did with the lead (9/21/95).

But CTEC members question the need to compromise and fear that the Butte-Silver Bow government will not push too hard for a stringent cleanup because because it, too, is a potentially responsible party (PRP) and hopes to avoid cleanup costs. Thus, there is a sizable financial incentive for the county to go along with ARCO's attempts to reduce the scale of cleanup, activists charge. The problematic economics of Butte add to their concern.

Beyond loss of revenue from mining taxes, future economic development is an issue because of the lack of buildable land in the Uptown area. Unemployment, is high – 9.7 percent, about three points higher than the state average of 7.0 (U.S. Dept. of the Census, 1990). Reavis points to buildings in the Uptown — wonderful examples of stone and brick architecture. Although the first floors of many buildings have been restored and are used by small businesses, most of the upper floors are decaying (Reavis, 11/29/95).

However, as difficult as Butte's economics are, the community has been spared the depreciation of property value that is often experienced by contaminated communities (Edelstein, 1988). Because Butte was always "the other" and often shunned by outsiders long before the Superfund designation (Emmons, 1990), its property values were judged by different standards, which were established by those who lived in the community. Homeowners interviewed said they had not experienced a loss of property value.

... [my home has] increased value. Realtors have told me that sites that are cleaned up or don't have liability are worth more. (Ray, 10/24/95)
We lived in Walkerville and sold our house there and it didn't reduce the value of our property (Crain, 9/21/95).

People who have bought property in Butte are doing it to be in close proximity to their job. I never looked at that property as having value beyond that. The values of Montana property are not associated with the value of property in Butte. It has to be south of Butte. The people on the Hill want to be close to work or participate in Butte's historic ethos. I wasn't investing; never considered the house important to the quality of life (Waring, 10/21/95).

Ironically, the lack of buildable land on Butte Hill, where blocks were rezoned to open space and commercial, has created a seller's market for homes under \$100,000 in Butte. One realtor claims if he "had the land," he could sell 10 homes under \$100,000 "in 10 days (*Montana Standard*, 6/15/95)." The costlier homes are not selling as quickly, the realtor added (*Montana Standard*, 6/15/95).

HEALTH

Even if financial concerns do not color the local government agenda, the lack of specialized professional staff occasionally creates a problem, as it did

with the original lead agreement between the local government and ARCO. The lead strategy came under criticism from both environmental advocates and the EPA.

In Butte there are a minimum of 36 identified sites of significant lead contamination. Even low levels of lead exposure can cause metabolic problems, neuropathy, reduced growth and intellectual development, increased hypertension, blood disorders, and possible cancer. Children are particularly susceptible to lead's toxicity. Harmful health effects from lead and other heavy metal contaminants are a health disaster waiting to happen in Butte.

As indicated by their comments on ARCO's lead study, our County Health Department officials have apparently decided to intervene only after health problems develop as a result of exposure to heavy metal contamination. Prevention of health problems from heavy metal contamination before they occur should be the goal and emphasis of the Health Department, not intervention after the fact. Once people show the effects of lead poisoning, it is too late....

Another shortcoming of the lead study is that this study does not adequately cover the synergistic/cumulative health effects of exposure to lead along with other heavy metals in Butte soils.. (*Ray, Montana Standard*, 5/15/91).

The EPA monitored development of the county/ARCO plan, refusing to accept the plan's original use of the term "trigger" levels, which require further investigation, rather than "action" levels which require immediate removal of the contaminant (*Montana Standard*, 1/17/90). Six months later, the EPA declared the county/ARCO plan inadequate on four counts (*Montana Standard*, 7/4/93). The county/ARCO plan was based on a misunderstanding of statistical probability: under the county's plan, less than five percent of children in Butte would be exposed to risk; the EPA requirement was that each child in Butte have less than a five percent chance of exposure (*Montana Standard*, 7/4/93). The county/ARCO plan would

have possibly put five percent of Butte children at risk. The EPA also noted the plan allowed almost twice the amount of lead to remain in Butte soils, failed to develop a schedule for cleaning yards, and did not provide for future cleanup of yards if children moved into homes with lead-soaked soil (*Montana Standard*, 7/4/93).

Craig asks:

Why are we negotiating with ARCO who's arguing for less cleanup? When you've got the Butte local government called a PRP they're not looking out for the health of the people. The health department just hired a new Superfund hydrologist — he's not a hydrologist. He's an industrial hygienist who worked as a contractor to ARCO with his office in the ARCO building in Anaconda. Earlier, I spoke up against his appointment to the board of health because of conflict of interest. There were qualified people for the hydrologist position...(Craig, 7/30/95).

Dennehey says local officials struggle with differences of opinion and ARCO's clout but maintains that his staff is competent:

There's a diversity of opinions in the community. We're mediating differences. ARCO has a huge staff and purse; we don't. We have an environmental health director, a chemist on water quality, an environmental engineer and soils person. We work as a team. We got some money from the EPA for lead and ARCO for [lead] screening and abatement. There's no federal money and no state involvement. ARCO calls on hydrologists, geohydrologists.

It's important we continue to look at what will be environmentally feasible, what public health concerns will be addressed on scientific information, and done in my lifetime. We've had an operable unit for streamside tailings since 1983 and now we're ... bickering about what could be done — there's ARCO, the state, the EPA. We want to get things done. They [the public] say, 'Quit studying and move some dirt.' People get upset and cynical. We try to get involved and they say we're in the pockets of ARCO because we get money from ARCO... (Dennehey, 9/21/95).

The cumbersome Superfund process came under criticism by 1990. Four years after the Superfund designation, Montana Senator Conrad Burns criticized the length of time EPA spent on studies and praised ARCO's willingness to begin the cleanup. John Wardell, EPA head, said the agency was under pressure from "civic groups, sportsmen, senators and others... to accept ARCO's Colorado Tailings plan without going through public meetings (*Montana Standard*, 3/8/90)." Peter Nielson, director of the Clark Fork Coalition in 1990, also complained that ARCO was attempting to "force" its remedial proposal through "without public participation (*Montana Standard*, 2/18/90)." Nielson said the public has the incorrect perception that the state Department of Health and Environmental Science and the EPA are responsible for causing cleanup delays.

ARCO's strategy is to wear the public down and wear the agencies down to where we accept the first thing — the public will become so frustrated they will accept anything that comes along (*Montana Standard*, 2/18/90).

Nielson added that he did not blame ARCO because it was understandable that the corporation wanted to minimize costs (*Montana Standard*, 2/18/90). Nor did he begrudge ARCO's pitches for its proposal to groups and politicians before the EPA actually asked for formal plans (*Montana Standard*, 2/18/90). But, Nielson questioned the fact that many people, including Senator Conrad Burns, were treating ARCO's proposal as the reclamation plan and urging its adoption (*Montana Standard*, 2/18/90).

Issues of cooperation versus cynicism, ARCO's machinations and the slow

pace of cleanup notwithstanding, the county/ARCO planned institutional controls, which include the lead program, have serious shortcomings related to issues involving accountability, staffing, and jurisdiction (Curran, 1994). To accommodate the controls, the county revised the Master Plan, rezoning over 78 city blocks. This has a major impact on the amount of cleanup because under state law the new zoning classifications — public/open space and commercial — require less stringent water quality standards than the former residential classification. This greatly reduces the amount of cleanup required by ARCO and runs the risk, in heavy spring rains of moving contamination about on Butte Hill. The zoning downgrade of land from residential to public/open space also reduces the municipality's future tax revenues because the land is precluded from development. More serious than economic losses is that the rezoned areas have not been designated as Superfund districts (Curran, 1994).

Given the need for controls in perpetuity and routine employee turnover, failure to clearly tie rezoning, new bylaws, and operations to contaminated sites is problematic because there is nothing to ensure future employees understand the reason for strict enforcement of controls (Curran, 1994). Also missing from the institutional controls agreement are (Curran, 1994):

1. enforcement policy communicated clearly to and then implemented by every county board involved in maintenance and enforcement of the controls;
2. specific written guidelines and published operating procedures related to monitoring and enforcement; and
3. specific chains of command to establish a clear line of accountability, with the identification of the position or positions ultimately responsible for

ensuring both monitoring and enforcement.

If the EPA monitoring is not adequate, and reports cited in an earlier section indicate that this is a distinct possibility, the state is not likely to pick up the slack as there are additional enforcement problems on the state level. As indicated by the Legislative Auditor's 1994 performance audit of the enforcement of the state's Water Quality and Public Drinking Water Supply Acts, a law or ordinance on the books is no guarantee of enforcement (Montana Office of the Legislative Auditor, 1994). The audit identifies accountability, staffing, and jurisdictional issues as impediments to enforcement. These are the same issues that have not been addressed in the Butte-Silver Bow Planning Department/ARCO institutional controls (Curran, 1994). And they are the same issues that led to the state's cessation of mine capping work in Butte in 1991 (*Montana Standard*, 10/2/1991).

New federal regulations prohibit the state from sealing off abandoned mines in Butte, including new shafts created by collapsing tunnels (*Montana Standard*, 10/2/1991). There are 4,000 known shafts, ranging from 20 to 2,000 feet deep in need of work in the Uptown section of Butte — shafts above the water line will deteriorate as a result of exposure to the air (*Montana Standard*, 10/2/1991). "I don't think we have any answers as to who's going to correct this problem," Sara Weinstock has said (*Montana Standard*, 10/2/1991).

Further, pollution related to mining is not restricted to Butte. A report prepared by the Western Interstate Energy Board for the Western Governors' Association stated that the state of Montana has more than 20,000 inactive and abandoned non-coal mines that have damaged 153,800 acres and 1,118 miles of stream (*Montana Standard*, 11/7/1991). The cleanup costs are

estimated at \$912 million (*Montana Standard*, 11/7/1991). Montana's inventory included 19,757 mine sites, 1,057 smelters, 14,038 acres of mine dumps, 20,862 acres of disturbed land, 466 miles of high walls (in open pit or strip mines), 4,868 mine openings, 1,845 acres over shallow mine workings, and 1,747 hazardous structures (*Montana Standard*, 11/7/1991). Also listed were, 147,150 acres affected by exploratory drill holes, five mining-related EPA Superfund sites, and acres of contaminated streambank sediments and soil contamination from smelter emissions (*Montana Standard*, 11/7/1991).

Staffing is also an issue for the state's Hard Rock Mining Board which helps communities analyze the adequacy of mining impact plans (*Montana Standard*, 1/16/90). A Montana Mining Association report identified staffing as the "single greatest problem facing the Department of State Lands Hard Rock Mining Board. According to the report, the board does "not have enough people to do its job, cannot recruit new employees because of low wages, and cannot retain current employees (*Montana Standard*, 7/22/90)." As a result, the report concluded that the remaining department employees are often not competent to regulate mining (*Montana Standard*, 7/22/90). The state waste bureau is also understaffed, with just 2.5 employees to travel the state to monitor landfills (*Montana Standard*, 1/17/90). The state has 112 dumps and seven of the seven landfills that are regularly monitored are leaking (*Montana Standard*, 1/17/90).

So, both in Butte and in the entire state, there is a substantial margin for error in the form of what sociologist William Freudenburg refers to as "recreancy³," the possibility that the intricate division of labor in technically-oriented bureaucracies may lead to situations in which duties are not carried

out properly and "important responsibilities may fall through the institutional cracks (Freudenburg, 1993:915)." In Butte, the institutional cracks could well be threats to public health.

Often, in fact, the most significant failings are not so much those of individuals or organizations... The key question is simply whether experience shows that the behaviors of specialized individuals and institutions can be counted on (Freudenburg, 1993:917).

When the notion of recreancy is factored into the equation, the complaints of technocrats about public irrationality "could be seen as efforts to divert attention away from institutional failings, doing so in part by calling into question the legitimacy of citizen concerns about these failings (Freudenburg, 1993:917)." Because "government inactivity or failure is an important form of recreancy," (Freudenburg, 1993:926) there is a "need to examine the assumption that the only 'serious' risks are the ones having immediate implications for physical health (Freudenburg, 1993:927)." There are many potential institutional cracks in the controls planned to minimize exposure to contaminants that remain in Butte. However, there is little common ground on whether the EPA-designated contaminants are serious threats to public health.

Most natives interviewed expressed no fear that the Superfund designation has affected their quality of life or poses a serious health hazard, and have not warned their children away from Superfund areas.

...My girls and I spent practically every Saturday and Sunday roaming around the St. Lawrence and Granite Mountain Mines. I'm more concerned about the history (Maney, 9/22/95).

No. [They were] warned only where active mining [was ongoing], where trains or trucks may have posed a threat, not from any inactive site. The fact is that children have frequently played on many of the mine dumps (Lynch, 10/25/95).

MINING

Without information to the contrary, — information that has not been forthcoming from the EPA, ATSDR, or the local newspaper — it is difficult to believe that a landscape so familiar to generations of Butte families is dangerous. It is equally difficult to consider the Mining City without mining operations. If not mining, what is Butte's identity? If not a diverse mixture of ethnic neighborhoods held together by shared risks and a sense that no one outside could possibly understand their world, what is Butte? Is more mining desirable, or possible? Some favor new mining because the industry has been associated with higher-paying jobs that are desperately needed by the community.

I would be absolutely delighted if a mine opened here, if I could take my 230 displaced workers from Rhone Poulenc [the closure of this plant is discussed later in this section] and they could continue to make a living wage (Maney, 9/22/95).

Others point both to the economic importance of mining historically and to the state's historic role as a resource colony. Although he has warned that the poisoned water in the Berkeley Pit will contaminate Butte groundwater, former Representative Fritz Daily says:

I'm pro-mining. It was the lifeblood of the state and will be the economic lifeblood of the state again. Montana is a natural resource state. For us to survive and function we have to use those natural resources... (Daily, 12/8/95).

When asked if he worries that the current MRI operation in the East Continental Pit could become another Berkeley Pit, Daily (12/8/95) says , "I like mining. I don't want to think about that."

Health Director Dan Dennehey believes Butte is "mined as much as we can be mined," but believes that technological advances may ensure that mining has a place in the state's economy:

I think we can manage it environmentally but I don't think we can afford any more fiascos like Anaconda. MRI's an opportunity. We have a petrie dish incubator, a scientific lab here in Butte. It's looking at issues concerning heavy metal soils. We're emphasizing how to get technologies here to deal with environmental issues. If we got the technology there may be room for additional mining here.

It's a huge state. There's room for more mining. Crown Butte's [mining operations proposed in eastern Montana where environmentalists charge it would damage Yellowstone National Park] problematic, it could damage "the last best place." In an area where there's low environmental impacts to the community and landscape, I think there's a possibility. If technology can make strip mines look better, it should be done. It's a siting issue. I don't want to see wilderness areas succumb to mining. I don't want tailings where I hunt or fish. I think there's a happy medium between tourism and mining, concerning money and environmental impacts (Dennehey, 9/21/05).

The "happy medium" may be very difficult to located in a state which has not yet decided if it is "The Treasure State" or "The Last Best Place." In the 1980s, in efforts to attract tourists to the state, it billed itself as "The Last Best Place," a title immortalized in an anthology of literature from and about Montana edited by William Kittredge and Annick Smith. The "Last Best Place" is a romanticized version of wilderness studded with cozy rural communities filled with resourceful, and often, exceptional, people. But the lack of staffing of state agencies and enforcement of state environmental laws

make it look as if the "Treasure State" is being resurrected. Nowhere is the tension between the "Last Best Place" and the "Treasure State" more apparent than in the battle over the state's water quality laws. In 1995 the state Legislature passed, and the governor signed into law, several bills that changed the state's water quality laws significantly, allowing more pollutants in Montana's waters (*Missoulian*, 8/13/95). The changes increased the previous standard for each of the more than 100 carcinogens, except arsenic, monitored by state regulators from a one in one million risk of cancer for people drinking the untreated water over a lifetime to one in 100,000 (*Missoulian*, 8/13/95). The new standard for arsenic has been relaxed to a cancer risk level of one in 1,000 (*Missoulian*, 8/13/95). Some find the statistical risk of possible death by cancer an affront. Lois Gibbs says:

"Would you let me shoot into a crowd of one hundred thousand people and kill one of them," Gibbs asked. "No? Well, how come Dow Chemical can do it? It's okay for the corporations to do it, but the little guy with the gun goes to jail... (Greider, 1992:56)."

The changes in Montana's water law also allow more nitrates in the groundwater, which has been a problem in Butte, as discussed in the previous section; narrowed the definition of high quality water, waters which cannot be degraded with state authorization after regulatory review; eased restrictions on placing waste next to streams; and limited challenges to the issuance of discharge permits (*Missoulian*, 8/13/95). Prior to the revised law regulating challenges to the issuance of discharge permits, anyone who submitted an official comment during a hearing on the discharge permit was allowed to appeal the issuance; the revised law allows appeals only by

someone with a property interest, water right, or a direct economic interest in the permit decision (*Missoulian*, 8/13/95).

The vision of the "Last Best Place" is operative in an initiative campaign conducted by a grassroots coalition that includes business people, conservationists, water quality specialists and others, to strengthen water quality laws by requiring new metal mines, expansions of existing mines which use cyanide leaching processes, and metal mine exploration activities to treat their waste water before it is discharged to surface or groundwater (Bachman, 1996). The change proposed by this coalition, Montanans for Clean Water, would affect mines that do not have permits by November 1996 — likely including Noranda's New World Mine near Yellowstone National Park, Phelps Dodge's McDonald project on the Blackfoot River near Lincoln and ASARCO's Rock Creek Mine near Noxon (Bachman, 1996). Mines considering expansion that would be affected include Pegasus' Zortman/Landusky complex near the Fort Belknap reservation and the Golden Sunlight Mine near Whitehall (Bachman, 1996).

Mining companies are "all but claiming the end of mining in Montana" if the initiative is passed (Bachman, 1996:1). However, even if the initiative were passed, small mines which disturb less than five acres or move less than 36,500 tons a year, will be exempted, and some of the state's largest mining operations — including Stillwater's platinum mine near Nye and its proposed East Boulder Mine near Big Timber, MRI's copper/molybdenum mine in Butte, and Pegasus's Montana Tunnels gold mine near Clancy — would be unaffected (Bachman, 1996).

The non-natives, who arguably have less invested in the history of Butte

and mining, are less convinced than Dennehey that technology is sufficient to protect the state from further mining-associated pollution.

I would support any mining activity conducted in an environmentally sensitive manner. From what I've seen that's rare. None of the proposed mines are conducted in an environmentally sensitive manner. Mining engineers are not trained to worry about environmental concerns. "If you can't grow it, you've got to mine it" is a bumper sticker at Tech.

In principle I'm not opposed but since mining companies do such a terrible job at protecting the environment... One of the biggest problems with gold mining is the cyanide leaching (Ray, 10/24/95).

No, definitely not. Because I've worked for 28 years with mining engineers and they'd strip mine the planet if they could and feel perfectly justified doing it (Waring, 10/21/95).

Although he would support more mining in Butte and the rest of the state, Lynch (10/25/95) says the community is looking "to expand our economy, diversify our economic base, and introduce or reintroduce a number of good-paying blue collar jobs ... through a strong economic development program."

Obviously, Butte-Silver Bow has, through the substantial downsizing of mining and other changes in our basic economy, lost a significant number of well-paying blue collar jobs. We need to reestablish these jobs and I think that overall would provide a greater benefit to people in our community (Lynch, 10/25/95).

MORE ECONOMICS

In June 1995, Rhone Poulenc Basic Chemicals Co. announced it would stop production at its Silver Bow phosphorous plant and lay off all but 50 of 200 employees by early 1996 (*Montana Standard*: 6/15/95). The plant's average payroll was about \$10 million a year – the average worker's wage and

benefit package amounted to roughly \$50,000 a year (*Montana Standard*: 6/15/95). The result will be a further erosion of Butte's working class population because most of these workers will have to relocate to receive retraining and find new jobs(*Montana Standard*: 6/15/95). From 1980 to 1992, Butte's population dropped 9.8 percent, a loss of 3,650 people (U.S. Census, 1994)

With federal and state government assistance, local government has sought high technology companies which employ highly educated well-paid specialists, and simultaneously, through local tax incentives, companies which will provide large numbers of lower-paid production-type jobs which do not require specialized education. But, critics note, this approach ensures the continuation of the past history of wealth in the hands of a few and financial uncertainty for many, in the form of lower paid jobs, which are always subject to elimination as technology develops. Marilyn Maney questions officials' search for \$6-an-hour jobs, the salary offered by the pasta plant which officials unsuccessfully spent more than \$100,000 trying to lure to Butte in 1995 (Maney, 9/22/95). She agrees that jobs are important, but insists the jobs must provide adequate salaries.

.... we're [labor organizations] involved in the creation of a family wage, decent jobs – not \$6-a-hour crap. We're certainly concerned with the political climate, the whole economic war on the working class, and reclaiming our heritage and our right to speak for ourselves... We're concerned not only about a family wage, but the kind of jobs that males in our class can work and regain their sense of dignity, their sense of having worth...(Maney, 9/22/95).

In their willingness to provide concessions to any company that will

employ large numbers of Butte's people, even when salaries are low, Butte officials may well be acting from lessons learned from the history of interaction with the Anaconda Company. Sociologist William Freudenburg (1992) notes that resource dependent communities have:

...a tendency for local leaders to represent a growth machine orientation, working vigorously to attract increased employment, business, and real estate development.. in ...isolated, resource dependent regions... these tendencies tend to be amplified, if not raised to a level of desperation. While the desperation needs to be seen as understandable, however, it does not need to be treated as inevitable... (Freudenburg, 1992:329).

Additionally, traditional local attempts to improve their business climates – tax cuts, weakened regulations and incentives – have had no or a negative effect on the communities that undertake such efforts. This may well be a manifestation of a more global economy and/or an indication of the relatively small percentage of the total cost of doing business represented by any community (Freudenburg, 1992). Although, in the past, extraction of raw materials was a viable path to economic development;

... societal relationships with environment and technology have changed so fundamentally that extractive industries today appear more likely to lead rural regions to economic addiction (Freudenburg, 1992:305).

The change is the result of increased costs of extraction and downward trends in global commodity prices in tandem with the geographic isolation of extractive communities, their lack of power *vis a vis* that of the extractive industry, and the lack of realistic alternatives for other development paths

which would provide more community independence (Freudenburg, 1992). There are three basic reasons that the volatile market for extractive products will encourage economic addiction:

1. Frequent and dramatic price swings may mask the long-term, downward trend in commodity prices (Freudenburg, 1992). As was the case in Butte, the community and workers, accustomed to the rise and fall of copper prices, may grant concessions when prices are low, assuming that they will benefit when prices rise again.

2. The instability of world markets may increase the marginalization and exploitation of workers and host communities (Freudenburg, 1992). The Anaconda Company was able to wrest concessions from both Butte and Chilean employees, playing one group against the other (Finn, 1995).

3. The volatility of extractive commodity price trends, which are both intermittent and irregular, function to encourage resource-dependent workers and communities to gamble on the payoff by overadapting to the needs of the extractive industry (Freudenburg, 1992). This seemed to be the case when Butte residents relocated to make room for the Berkeley Pit.

...when seen in this context, a dependence on resource extraction resembles nothing so much as the (other) forms of gambling that are officially recognized.... Whether the relatively random positive reinforcement comes from the slot machines or the commodity markets, the payoffs tend to come just often enough to keep substantial numbers of social actors hooked in gambles for new riches (Freudenburg, 1992:320).

Once the industry is established, as in the case of Butte, to maintain or at least minimize the decreasing employment base, the community tends to

overadapt to the industry, investing community resources into facilities and support services that have value only to the extractive industry (Freudenburg, 1992; Norgaard, 1984). That overadaptation has led to the loss of tax revenues which are now desperately needed in Butte. Further, this overadaptation extends to the state level. In November, the state Department of Environmental Quality granted Pegasus Gold, Inc., operator of the Beal Mountain Mine, a new water discharge permit that will allow groundwater from an area under the mine's open pit to be discharged and released into German Gulch. The gold mine employs about 120 workers, and has a payroll of more than \$6.3 million. The permit, which will allow the mine to continue operation for another, is possible only because of the previously mentioned downgrade of water quality criteria (*Montana Standard*, 11/14/95). The end result of overadaptation to an extractive industry, given any community's limited financial and physical resources, is that other alternatives are excluded, making other forms of development unlikely or, especially in instances of environmental degradation, sometimes close to impossible (Norgaard, 1984). However, Freudenburg (1992) points to three other characteristics of addiction that are equally serious.

First, because many extractive industries pay higher salaries in terms of the communities in which they locate, there is little incentive for local youth to develop "entrepreneurial skills." Yet these are the skills necessary to respond to the traditional warning that communities avoid overdependence on one enterprise by focusing "heavily on the development of local enterprises (Freudenburg, 1992:322-23)."

Second, the relatively high pay can subvert "the typical economic reward

structure for education" because, in the short-term, "high school dropouts can often earn more through extractive jobs" than many of the best-educated people in the community (Freudenburg, 1992:323).

Third, worker protections and benefits can work to increase addiction because the most senior workers learn to remain passively in the community to wait for the return of the good times.

Ironically, each time this logic works, its apparent validity increases, while the long-term downward trend in prices may mean that the real validity gets shakier each time, up to the point where the shut-down proves in fact to have been permanent (Freudenburg, 1992:323).

Disagreements about the future of mining in Butte notwithstanding, some are concerned that worried that local officials will seek another relationship similar to that which the community had with the Anaconda Company (Ray, 10/24/95; Waring, 10/21/95). The distrust of local government and fear of government collusion with ARCO recalls the history of local government's ties to the Anaconda Company. The suspicion runs through the political landscape like a fault line under Butte Hill. It is noteworthy that everyone interviewed believes it is possible to change Butte for the better; no one has given up. But there are differences of opinion about what might improve the quality of lives of people in Butte.

Ellen Crain (9/21/95) maintains the answer is "education, education education." Although they differ about the types of jobs that are needed, Lynch (10/25/95) and Maney (9/22/95) see jobs as the solution. John T. Shea agrees that jobs are needed but thinks children in Butte need more community activities, too:

And something for the youth of today to do. When I was a kid everyone learned to skate, sledded on Big Butte, walked to the creek to go fishing, would have a bologna sandwich on the top of Big Butte. Every kid in Butte climbed up the East Ridge, played baseball, marbles, entered soapbox derbies on West Park Street... (Shea, 10/24/95).

Mary Kay Craig (7/30/95) and George Waring (10/21/95) believe a good cleanup is the answer. Waring adds that a renewed connection with nature might be the best improvement:

Coming from Seattle — so many parks, a sense that nature should be protected and people deserve to recreate. Wouldn't it be great to have a stream with trees to give you a sense of place and increase your own sense of worth? I thought, "We don't need urban revitalization but nature brought back into the city to restore human dignity."

I had spent summers in Oxford. When you go through the gate out of the city you're in the gardens with a wonderful 18th and 19th century village. It really influenced my view on what this city needed. There, on bus tours, even gasoline stations are buffered and thatched. It's very pleasing.

Dennehey says his department's focus on public health, incorporated into institutional controls, will improve residents' lives:

We're coming up with ideas and public policy to: first, remove public health threats and we've created new lead screening and abatement programs to take care of children and remove lead from homes; and, second, the water quality district. Improved enforcement of water quality problems deter people from drilling into Superfund sites (Dennehey, 9/21/95).

It is not surprising that the visions of an improved Butte are based in history, economics, and health — since the smelter smoke first masked the physical landscape and Butte's miners fought to stay alive in the threatening

tunnels under Butte Hill, the physical landscape of Butte has been obscured above ground and a threat below ground. Because of the Anaconda Company's dominance in Butte and the state of Montana, economic security has always been the issue in Butte. Given the centrality of the notion of development in Western thought, it is likely that economic themes will continue to play a dominant part in the reconstruction of Butte.

The Western, modernist discursive formation, formulated during momentous changes in global power relations, in control over nature, and in science and technology, has as its dynamic theme the core concept of "development (Peet and Watts, 1993:231).

On the local level, awareness of the human interrelationship with the land, in particular, health impacts, has been subverted by government officials' attempts to balance economic development and cleanup and by ARCO's legal obstructionism. The inadequate and uncritical newspaper coverage has further constrained local activists. Terms of participation have alienated Butte's people, keeping local public health knowledge under the surface.

The conflict is not geographically contained in Butte. ARCO's maneuverings are also below the surface, conducted in underground tunnels throughout Butte Hill to Washington D.C. and corporate headquarters in California. The state of Montana and federal government are also deeply involved. Given the scale of contamination and costs of cleanup, the stakes are high — socially, as well as financially. The possibilities of social change in Butte are considered in the next, and concluding, section.

¹ Foucault defined subjugated knowledges as "those blocs of historical knowledge which were present but disguised within the body of functionalist and systematizing theory and which criticism... has been able to reveal," as well as "a set of knowledges that have been disqualified as inadequate to their task or insufficiently elaborated: naive knowledges, located low down on the hierarchy, beneath the required level of cognition or scientificity..." (1994:203)

² For a full treatment of class in Butte, see Finn.

³ Freudenburg writes that his use of the word "recreancy" is "intended to provide an affectively neutral reference to behaviors of persons and/or institutions that hold positions of trust, agency, responsibility, or fiduciary or other forms of broadly expected obligations to the collectivity, but that behave in a manner that fails to fulfill the obligations or merit the trust." (1993:916-17)

CONCLUSION

Renegotiating Community, Landscapes of Social Change

Although Butte bears strong similarities to sociological studies of contaminated communities, Butte has its own particularities which may provide both impetus for and constraints on the opportunities for social change that researchers have noted in other Superfund communities (Couch and Kroll-Smith, 1991a). Butte is subject to the same structural issues embedded in the federal Superfund law (Barnett, 1994; Yeager, 1991; Greider, 1992) and environmental protection in general (Schnaiberg and Gould, 1994; Peet and Watts, 1993) as were other communities studied. Issues related to institutionalized practices of government technocracies (Weber, 1996; Barnett, 1994; Yeager, 1991; Greider, 1992; Lupton, 1993; Schrader-Frechette, 1991; Kroll-Smith and Couch, 1991a, 1991b; Edelstein, 1988; Freudenburg, 1993; Brown, 1991; Fiorino, 1990), discursive practices (Schrader-Frechette, 1991; Connolly, 1993; Milburn, 1994; Edelman, 1964; Greider, 1992; Greenough and Tsing, 1991; Brown, 1991), and public health issues related to contamination (Lappé, 1991; Cortese, 1993; Hu and Kim, 1993; Edelstein, 1988; Brown, 1991; Castleman and Ziem, 1988; Bates, 1994) are also similar.

However, the community's experience with corporate practices over a hundred years differs from that of some other contaminated communities by dint of the Anaconda Mining Company's economic and political power in both Butte and the state of Montana (Malone, 1995; Malone et al, 1993; Toole, 1959, 1972; Emmons, 1990; Finn, 1996; Gunther, 1947). Company tactics often entailed brute force, as was the case with its hiring of goons to infiltrate and spy upon union memberships and thugs to break strikes (Malone, 1995;

Toole, 1959, 1972; Emmons, 1990). Challenges to the Company's autonomy were dangerous business. In Butte, there is still an undercurrent of retribution exacted from those who challenge the powers that be. Marilyn Maney (3/19/96) tells of a member of the Women's Protective Union who lived with the anxiety that the Anaconda Company would realize that she was the little girl holding her mother's hand in a well-known picture of the murdered Wobbly Frank Little's funeral.

Even up to the time of her death at 82, she was afraid of retaliation on her and her family if the Company knew she was that little girl. That speaks volumes about what their [the workers'] relation was to the Company. Although they didn't have that fear in a group in the parade... [there was throughout the] 40s, 50s, 60s, still that fear if the Company knew she was actually that little girl there would be retaliation for her, her family, and her union (Maney, 3/19/1996).

The retribution continues. CTEC learned in March 1996 that the group's arrangement for office space and accounting with Montana Tech would not be renewed. There are silences here, the result of domination and the exercise of power as "repressed ideas (Peet and Watts, 1994:230)." Speculations persist that, in light of the press coverage and statewide participation in the snow geese memorial, CTEC is being punished for taking an activist role. The intimidation that results from the exercise of power may be the greatest detriment to collective action in Butte.

Additionally, the notion of stigma (Kroll-Smith and Couch, 1991; Edelstein, 1988) is important. For a hundred years Butte was the other, a mining community in a largely rural Western state, and, as such, was stigmatized both by its physical appearance and the "spooky" (Emmons,

1990:62) nature of thousands of men burrowing under Butte Hill. Further, that otherness, in tandem with an immigrant population, and the occupational danger of mining led to the creation of a culture that both internalized and celebrated risk that is different from some other well-studied contaminated communities in the East, such as Love Canal (Greider, 1992) and Woburn, Mass. (DiPerna, 1985; Brown, 1991). It is possible that communities founded on extraction of natural resources, especially those that have lasted for a great many years, have very different dynamics than those which were not reliant upon such extraction. Further, there may be differences in communities with different types of extractive practices. Although logging communities also lived with great occupational risk (Dietrich, 1992) and were subject to radical union activity (Toole, 1959, 1972; Emmons, 1990; Malone et al, 1993), mining communities may differ from logging communities in that loggers, working above ground, were more connected to the landscape than were miners, burrowing below ground or carving out huge open pits. Mining may have alienated communities from the natural world more than other extractive activities.

...Well, these loggers live in the woods and work in the woods and play in the woods. They are out in the chill rain and the hot sun. They see deer while driving to the logging job in the morning and eagles on the way home. The fish, they hunt, they hike. These forests are to them a mosaic of memory a city dweller can't imagine, a hundred places cut and regrown. To them, a clearcut isn't an end. It is a beginning (Dietrich, 1992:45).

Another difference between Butte and other contaminated communities, such as Love Canal and Woburn, Mass., is related to the activity of the press.

Love Canal became a subject of investigation for the national press which activists, such as Lois Gibbs, quickly learned could help them publicize their struggle (Greider, 1992). In Woburn, a small weekly newspaper uncovered and published a story about the extent of the contamination (DiPerna, 1985). The people of Butte do not have that asset. There is no indication that the *Montana Standard* will suddenly undergo a transformation which would result in the practice of responsible journalism, which is both critical and educational.

Much of the research in contaminated communities indicates that discovery of contamination in soil, air or water offers an opportunity to challenge the existing power structure, as expressed in government agency and corporate action.

...The point is that in reacting to what is seen as inadequate behavior by large-scale organizations in relation to technological hazards, adversarial groups may emerge which challenge the actions, and even the legitimacy, of these organizations. In adapting to human caused hazards, these groups may alter the power relationships within communities, as well as between communities, corporations and governments (Couch and Kroll-Smith, 1991a:314-315).

The notion of recreancy (Freudenburg, 1993) is particularly helpful because the keystone of the adversarial groups' challenges are generally based on the disillusionment that sets in when victims of pollution decide that large-scale organizations are reacting inadequately in relation to technological hazards (Couch and Kroll-Smith, 1991a, 1991b, Edelstein, 1988, Brown, 1991). There is a great deal of uncertainty associated with contaminated communities — "It can't be that dangerous, I'm not sick" as opposed to "The risk is likely worse

than officials say, look at how many people I know are ill." In the face of uncertainty:

...individuals are apparently not content to rely solely on their perceptions of risk. Social factors frequently provide a framework for selective perceptions and judgments about the hazard. People will seek out others to confirm their assessments of danger....

Several studies of technological crises found a direct relationship between the construction of shared beliefs about danger and the emergence of citizens' groups. These groups organized around something more than the mere perception of risk. A shared set of ideas about threat, accountability, and the necessity for immediate remedial action served as the basis for group legitimation and membership, setting the believers apart from the non-believers. From a sociological point of view, beliefs more profoundly influence the believer than perceptions influence the perceiver. This is largely because belief systems are socially constructed, socially inherited, and exercise considerably more control over the appraisal of events than perceptions do... (Couch and Kroll-Smith, 1991a:306-307).

However, for this challenge to materialize, there must be a sufficient number of disillusioned victims who have reached some consensus on the nature both of the threat and of their grievances. This has not been the case in Butte where few local activists struggle against the combined weight of an historically- and economically-shaped landscape of beliefs, as well as the contamination that is the real legacy of the exploitation of Butte's people and the land. However, this is changing — a cluster of miners sat quietly together at the snow geese memorial, a possible expression of the beginning of a wave of concern flowing through the community like the groundwater under Butte Hill. It is possible that public awareness of Moore and Luoma's study could initiate a groundswell of concern. It is crucial that this information be disseminated in Butte.

Although his work has been performed in the context of "natural disasters," such as earthquakes and floods, sociologist Dennis E. Wenger's notions of the internal and external ties of organizations that constitute the community's structural relationships are helpful in considering the possibility for social change in Butte. Wenger (1978:21) defines internal ties as those that "include the various institutionalized patterns of relationships between local organizations operating at the local level." External ties, which reach beyond local boundaries, can be hierarchical, with layered tiers of authority, one higher than the next, or horizontal, with equal authority (Wenger, 1978). Butte's external hierarchical ties included Eastern corporations and banks which supplied capital (Toole, 1959, 1972; Malone et al, 1993; Malone, 1995), the Anaconda Company which controlled the state political apparatus (Toole, 1959, 1972; Malone et al, 1993; Malone, 1995), the union's ties with regional and national organizations (Emmons, 1990) and and national organizations (Emmons, 1990), and the federal government which had an interest, especially in wartime, in keeping the mines open (Toole, 1959, 1972; Malone et al, 1993; Malone, 1995; Emmons, 1990). During the traumatic years from the late 1970s when mining operations were discontinued, until the early 1980s when the federal government became involved on an environmental basis, the most important external ties were, for the most part, ties to ARCO and state government. With designation of Butte as a Superfund site, the external hierarchical ties to the federal government became paramount. The resulting conflict between federal Superfund law, state government and ARCO then took center stage, directing local response. However, even without the Superfund status, the trend is toward a predominance of external hierarchical ties:

...external-hierarchical relationships are becoming increasingly more extensive and intensive in contemporary society. Conversely, internal ties, the integrative mechanisms of exchange and coordination at the local level, are becoming weakened (Wenger, 1978:34).

In Butte, these new external hierarchical ties also include the influx of professionals and outside environmentalists with different value systems than those of the community. The professionals, who work within the parameters of technocracy, are oriented to a more individualistic culture, and the outside environmentalists tend to impose visions of a healthy landscape divorced from the history of the place. These responses of organizations with external-hierarchical ties to biospheric contamination, usually in the form of "social, technological and legal responses," tend to produce "secondary impacts," which often include social isolation and stigma, in the contaminated community (Couch and Kroll-Smith, 1991:303). Because of its differences with the rest of the state, Butte's history is of one of chronic "secondary impacts." Yet, although the combined authority of the Anaconda Company and federal, state, and local governments was often brought to bear against Butte's people, the control over their "political desires and interests" (Wolensky, 1991) was never complete (Finn, 1995). This analysis has pointed to varying forms of resistance, including both miners' union and the Women's Protective Union activities, struggles to save the uptown from the expanding Berkeley Pit, the creation of the Butte Community Union and the Coalition for Benefits which was formed to pressure ARCO for decent treatment of laid-off workers, the construction of Our Lady of the Rockies, and citizen takeover of CTEC. Further, the analysis has indicated that the failure of many Butte people to participate on the county's and EPA's terms

in cleanup efforts may be in part explained as a boycott, another form of resistance. Butte has a history of both public and private resistance (Finn, 1995) that local activists can tap into. What is needed, is creativity:

...communities must rely on organizational resilience or innovation to bounce back from the insult of contamination. Such creative ability to recover from unanticipated dangers after they have become manifest may be present in structural arrangements designed for management of non-emergency conditions, but it would surprise us it is was. The teleological nature of community social structures, their manifest design and purpose, their customary and methodical arrangements are more suited to anticipation than resilience. Thus, faced with the dangers of environmental contaminants, but without the benefit of an anticipatory organization response, local community organizations are apt to be perceived by victims as inadequate to respond in a timely and effective manner... successful adaptation to extreme uncertainty demands mitigative adjustments that are likely to be inconsistent with routine social arrangements (Kroll-Smith and Couch, 1991b:309).

It is important to keep in mind that strain and conflict are the norm in any local structure, however, integrative mechanisms, e.g., the normative structure, tend to mediate the conflict (Wenger, 1978). In Butte the normative structure, the community-sanctioned guidelines for behavior which are embedded in the community's value and belief systems, is working class. People in Butte judge people on their "work ethic, ability to be honest and willingness to commit to the community (Crain, 3/19/95)." These are very different values than those of the technocracy which is now working in Butte and making decisions that will have a major impact on the community's future. Yet, despite historical and current power imbalances Butte has a powerful history of asserting community values, of working in the interstices of power relations to create space for community. However, in the past, the

spaces may have been more comfortable because they were familiar and patterns of assertion were well established in community/corporate relationships. Also, the community values were derived, to a great extent, from the relationship with the Company, in which the Company dominated and set the norms for allowable action (Finn, 1995). Those norms, and the price of challenge, were well understood. The world that faces the people of Butte in 1996 is not as clearly defined or obvious, which may explain some of the nostalgia that pervades the town. Because of this lack of definition, it may be difficult to discern where the values should be brought to bear, where and how the resistance should be conducted.

A necessary first step in the renegotiation of community and the gathering of resources to fight to maintain that renegotiated community entails a search for some common understanding of the origins and meanings of the contamination. This analysis argues that the origins are not simply the result of mining, but of structural inequalities and a worldview that does not take the land into account. The land is further distanced by the influx of professionals who treat the pollutants as a marketable commodity out of social context, and, because of the difference in values, pose another kind of threat to the working class culture. Additionally, members of the community must decide to what extent its history becomes a commodity. These are far more subtle and murky issues than those that the community has traditionally faced.

The ecological-symbolic perspective joins environmental sociology's assumption that biospheres and social structures are interdependent with a key assumption of symbolic interaction that people act on the basis of the meanings they attribute to events and conditions. From this perspective, social responses to hazards and disasters are affected by

both the nature of the disruption in human/environmental relationships and the appraisals people make of those disruptions (Couch and Kroll-Smith, 1994:28).

Their appraisals are made within context of belief systems, both collective and individual. Because their voices are yet to be heard, the meaning of the contamination to the people of Butte is not yet clear. However, changes in belief systems are slow because there is a narrow latitude in which messages divergent to a person's beliefs may actually act to alter those beliefs. The more strongly held the belief the narrower the latitude of acceptance for divergent messages (Milburn, 1991). Further, if people are disinterested or not knowledgeable about an issue, the only possible way to change beliefs or attitudes is a peripheral route, rather than a direct challenge. Some have charged Butte's people with disinterest (Weinstock, 7/31/95; Kirkpatrick, 7/31/91; Dennehey, 9/21/95). This analysis argues that resident disinterest is not the sole issue; instead, there are structural reasons that Butte's people have not been adequately informed, or, possibly protected, and that the process of renegotiation is occurring within structural constraints, both historic and present. Further, because the community's history and identity are so strongly tied to mining, the contamination and cleanup, as presented by the EPA and mainstream environmental groups like the Clark Fork Coalition, represent a real threat to strongly held beliefs about the meaning of their family histories and struggles. The technocratic approach to contamination is that it is a technical problem that has occurred and will be cleaned up completely out of social context. By this definition of contamination, the Butte people who are so actively engaged with their mining history and way of life are apathetic or ignorant.

Because the technocratic approach screens out social context, the linkage between the ruthless exploitation of the land and of Butte's people has not been made in EPA documents or in the local newspaper coverage. The extraction process, which was early intensified with financing provided by Eastern and West Coast capitalists, typified the functioning of what Schnaiberg and Gould (1993) refer to as the "treadmill of production" — accumulated wealth produced by extractive activities led to development of technology to extract resources more rapidly and replace labor with machinery. Government support for the extractive industry was essential to maintain tax revenues to fund national development and social welfare programs (Schnaiberg and Gould, 1993). As extraction intensified in Butte, the resource base was depleted and the environment became more degraded, which, in turn created socioeconomic disorganization (Schnaiberg and Gould, 1993) as miners were laid off and the mines began to close.

To forestall the inevitable, to keep the mines operating, the political and social system made the necessary concessions to the Company and, later, ARCO. All of Butte's systems were oriented to supporting mining, leaving few resources available for alternative use after mining ceased. As the land became more marginalized (less resources and more degradation), Butte's people became more economically marginalized (poorer) and politically marginalized. Within this context, the contamination is a social problem: the extent of the contamination can be directly correlated to the inequities of power between the actors involved, in this case, the Company, local, state and federal governments, and the people of Butte. As a rule, the greater the differences in power, the more contamination or environmental degradation (Boyce, 1994).

So, when the EPA or environmental groups treat contamination as a technical problem only, they are treating a symptom, rather than the disease. Further, the technical approach denies the people of Butte a real voice in the process by relegating local knowledge to unprovable superstition. And, even worse, the technocratic ahistorical approach implicitly blames the victims for their plight — after all, the argument goes, they were the miners who made the mess, they profited from it. This argument completely denies the structural inequalities that always existed in Butte. Thus, the situation is polarized and the people of Butte who are denied a place in the present, and uncertain of the future, are left with a past that is denigrated. In situations like this, belief systems will be adhered to more rigidly, (Edelstein, 1988; Kroll-Smith and Couch, 1991a, 1991b) thus leaving less latitude for change.

The less latitude, the more need for the use of peripheral routes to get across a divergent message, e.g. the cleanup planned may not be sufficient to protect public health in Butte, or public health is a valid concern and should be investigated. Peripheral routes are commonly used by advertisers, e.g. the use of well-like experts of popular figures and/or pleasant background music while the message is delivered (Milburn, 1991). The idea is that if the person's thoughts are positive during the message, the person's attitudes will tend to shift toward agreement with the message. However, the attitude change in response to messages delivered through a peripheral route tends to be temporary (Milburn, 1991). Peripheral routes are more successful if the messages are presented with more powerful positive emotional images that deal with the substantive issue (Milburn, 1991), in this case, the need for a more stringent cleanup, or health studies.

The approach planned by Citizens for Labor and Environmental Justice

may work on a peripheral level by turning the remediation into a positive, in the form of well-paying jobs. The new group has forged an alliance with state labor groups to press for the hiring of union members on the many cleanup projects that are planned (Ray, 10/24/95; Hadley, 10/5/95). Kathy Hadley, with John Ray and others, have been involved with the Clark Fork Superfund sites since the toxins were first discovered. (CTEC president Mary Kay Craig and activist George Waring are also active and involved members of the new group.) Because the EPA had neglected to include the Clark Fork River in the constellation of Superfund sites, Hadley and others formed the Clark Fork Coalition to fight for the river's inclusion. (See map of streamside tailings in the appendix.)

My interest was Superfund. The river wasn't in the Superfund site; it was just Silver Bow Creek to Warm Springs Ponds... The river transports all the tailings down the river.

Lots of times people join groups because they have a problem they want to solve... It was the Clark Fork Coalition that got the river into the Superfund sites. It took meeting after meeting. We even went to a meeting in D.C. I took my sister [Lois Gibbs¹] with me. I think they [government officials] were scared. Shortly after that they included it (Hadley, 10/5/95).

Since its founding the Clark Fork Coalition has actively pressed for a stringent permanent cleanup and supported the state's Natural Resource Damage claim. In the early 1990s the Coalition funded a Butte office and hired Mary Kay Craig as the Upper Clark Fork Coalition representative to organize Butte residents to support the cleanup. But Craig's activities were circumscribed threefold: by the Coalition's insistence she work part time only; its organizing style which stressed fisheries and aesthetics which are more middle- than working-class concerns; and its organizational orientation

toward technocracy. This orientation applies standard operating procedures uniformly, disregarding particularities, which is problematic because Butte is particular. So, given the Coalition's failure to design a campaign that took into account Butte's identity as the "Mining City" and its working class ethos, it would have been surprising if the Coalition's organizing approach had been effective. Additionally, the more institutionalized the approach, the less likely it is to change social relations in a community.

We propose that adaptive responses that are emergent, less-institutionalized and exist for extended periods of time are more likely to be incompatible with preexisting patterns of social life. What was structural, in other words, what routinely acted to constrain and limit, ceases to be so, becoming instead subject to human agency in the form of alternative leadership, emergent groups, beliefs, and so on (Couch and Kroll-Smith, 1991b:299).

To engage people in Butte, Hadley and Ray are trying a more specific strategy, oriented toward the community's working class history, a strategy that offers a challenge to the status quo:

Everybody has different ideas about environmental justice. To me, the cleanup is a tremendous opportunity for jobs. The cleanup will take 10 years and produce thousands of jobs — not \$6-an-hour jobs. But the state can't require the jobs here to go to local people.

Originally we wanted to do a job analysis for the cleanup but couldn't get it done in time. The EPA doesn't look at economic impacts. We were working with union groups and had to do it [the job analysis] in a 60-day period.... Some [grant organizations] were interested in it but even when we were asking for emergency money they couldn't work that fast (Hadley, 10/5/95).

Members of the environmental justice group had hoped that the job analysis would generate some press coverage, and, that the ensuing publicity

about the possibility of well-paying jobs, would motivate people to press for a better cleanup (Hadley, 10/5/95). Additionally, workers on the cleanup would receive the equivalent of on-the-job training about environmental hazards. But because the federal Superfund law is not designed to consider economic impacts, it does not address the issue that Citizens for Environmental Justice group has identified. Under the federal law there is no allowance for issues that the public identifies and, further, public participation is constrained as the ability to respond to an official definition of the problem and officially designed solutions to that definition of a problem only.

Additionally, there are high transaction costs in the Superfund information-driven process. The 60-day comment period is often difficult for activists to meet because most work full time while raising families, and many require assistance to translate the technical jargon used in government reports. Unlike corporations which have the money to hire full-time employees to prepare comments, citizens frequently have to seek grant money to hire experts. So activists must seek grant money to fund their efforts. However, even in emergency situations, the time period involved in seeking grant money is longer than the public comment period allowed under the federal Superfund law.

Although Citizens for Labor and Environmental Justice found potential grant support from labor organizations, the group ran out of time — the comment period expired before they could complete the grant application.

Hadley says:

We learned our lesson, learned at least the state labor organizations were interested. They put staff time into it. We should be able to do

this for the next comment period. But it's too late for Butte (Hadley, 10/5/95).

It's too late in the sense that many of the cleanup plans for Butte have already been formulated; the cleanup of Silver Bow Creek, called streamside tailings, remains to be determined. And, the EPA is reconsidering its plans for the Berkeley Pit in light of the deaths of the snow geese. However, through a job analysis and press coverage, it may be possible to develop support to employ the people of Butte (and Anaconda) in the remediation of the creek — this would help to reduce local unemployment rates while providing a minimal environmental education. Also, a more environmentally-aware base of support could be used to encourage residents to scrutinize the effectiveness of planned institutional controls, which will include the siting of one or more waste repositories for mining waste that will be run by local officials. Unlike situations of existing contamination which divide a community, siting issues often bring the community together (Couch and Kroll-Smith, 1994).

If Citizens for Environmental Justice can obtain a grant from labor organizations, they may avoid some of the other constraints associated with both government and private foundation grant money². As members of CTEC discovered, there are often strings attached to grant money, as is the case with the EPA's Technical Assistance Grants (TAGs). The end result is an officially limited scope of participation which can leave activists vulnerable to charges of advocacy beyond the allowed parameters, as was the case when a *Montana Standard* editorial inaccurately charged CTEC with overstepping EPA boundaries. So, funding from labor organizations may allow Citizens for

Environmental Justice a broader area in which to work. And the group's "back door" approach — using the cleanup as a way to provide needed well-paying jobs — should be more effective than direct confrontation with operative beliefs which are often difficult to change.

The connections between CTEC and the Citizens for Labor and Environmental Justice should also be helpful. Research indicates that collective action in rural communities and regions is often dependent on the nature of strong and weak tie networks, which are necessary for "effective community response and development (Couch and Kroll-Smith, 1994:28)."

The strong tie usually consists of "an interactional resource based on familiarity, emotional intensity, repeated face-to-face contact, and the reciprocal exchange of services (Couch and Kroll-Smith, 1994:28)." In Butte, where people often belong to the same associational or social groups, there is much face-to-face contact on a daily basis. It is here that the links with labor, history, economics, and cleanup must be made for any kind of agreement to occur.

The weak tie is often a bridge between strong-tie groups, e.g. a person who belongs in two unaffiliated groups who provides opportunities for mutual exchange between them (Couch and Kroll-Smith, 1994). In a rural community, the weak ties would supply "important links in the relationship between the local setting and extra-local aid and assistance (Couch and Kroll-Smith, 1994:29)." These ties may be individuals or groups, such as John Ray who is also a board member of the Montana Environmental Information Council and Citizens for Labor and Environmental Justice, which link the local community to regional or national organizations (Couch and Kroll-Smith, 1994). Research indicates a strong tie community group becomes

particularly important if it can establish a weak tie between local groups and cosmopolitan resources because this enhances "the adaptive capacity of the local community (Couch and Kroll-Smith, 1994:29)." However, because of the uncertainty inherent in contamination cases, several strong-tie groups with different interpretations of risk associated with the contamination are likely to form regarding the environmental risks of local pollution (Couch and Kroll-Smith, 1994). The local lead committee's ties to ARCO, the EPA and county government represents another strong tie group in Butte.

The external strong tie groups should be chosen carefully. Although local environmental activists need support, there is a suspicion of environmentalists in Butte, largely the result of the class difference between the predominantly middle class membership of many environmental groups and the people of Butte. The middle class wilderness orientation of some environmentalists is denigrated in Butte by the epithet "Trustifarian," (Reavis, 11/29/95) which wittily connotes a preachy activist who has never had to work a day in his or her life, but is, instead, supported by a trust fund. The implication is that environmentalists don't have to pay the price for their principles. Although this is not always the case, given the environmental movement's historic lack of understanding of the social repercussions of the policies they espouse, the criticism is reasonably well-founded.

References are often made to the women's leadership of the toxic grassroots movement (Edelstein, 1988; Brown, 1991; Greider, 1992) which is composed of local groups working in their own, often poor or blue-collar, communities. Typical members of grassroots groups are "wary of elections and formal politics, and even large civic organizations, cynical about

government at all levels. Instead of political activism...they normally concentrate their energies on nurturing and defending their own small private spaces — family or church or immediate neighborhood (Greider, 1992:214)."

In contrast, the members of the national environmental organizations are "the offspring of the affluent managerial class, people who will feel at ease in the higher realms of politics and skilled at the rationalistic policy analysis. Many are idealistic professionals, committed to large intellectual conceptions of the environmental problem but not personally confronted by the risks of poisonous industrial pollution (Greider, 1992:214)."

In attempt to bridge the gulf in priorities between grassroots and more traditional national environmentalists, Lois Gibbs tried to bring both together.

"It was hilarious...People from the grassroots movement were at one end of the room, drinking Budweiser and smoking, while the environmentalists were at the other end of the room eating yogurt. We wanted to talk about victim compensation. They wanted to talk about ten parts per billion benzene and scientific uncertainty. A couple of times, it was almost war.

"We were hoping that, by seeing these local folks, the people from the Big Ten would be more apt to support the grassroots position, but it didn't work that way. They went right on with the status quo position. The Big Ten approach is to ask: What can we support to achieve a legislative victory? Our approach is to ask: What is morally correct? We can't support something in order to win if we think it is morally wrong (Greider, 1992:214)."

The bottom line is that there is little incentive for Butte people to participate in the cleanup as participation is structured by the EPA and local government. Some working class communities created their own notions of

participation. They have mobilized the citizenry around conducting their own health studies. This approach, generally referred to as lay or popular epidemiology, serves four purposes simultaneously: it accomplishes needed research; educates; mobilizes the public; and challenges authority (Brown, 1991). It is interesting that official efforts to correct, at least partially, the abuse of the land does not extend to that which may have been done to people.

Although the degradation of the land has been well-chronicled by the state's Natural Resource Damage Program there has been no such tallying of human cost. Nor is any such tallying, in the form of health studies, planned. As indicated earlier, this official oversight, combined with the failure of the local press to pursue health issues, is significant:

...such studies [epidemiological] are vitally important. They provide information on the scope of the problem, and they serve to educate communities about the hazards and the possible (if not exact) risks. Moreover, methods of exposure assessment and outcome ascertainment are constantly improving, as is demonstrated by a recent study in which slight but significant increases in malformation rates were associated with residential proximity to hazardous-waste sites in New York State (Hu and Kim, 1993:43).

Given official failure to investigate, popular epidemiology, "the process by which laypeople involve themselves in detection of and action on environmental health risks and diseases," (Brown, 1991:134) may be the only alternative to determine if, in actuality, Butte's people have been and continue to be, at risk from exposure to contaminants in soil, air, and water. The most important precedent is the work done by Woburn residents in collaboration with sympathetic professionals (Brown, 1991). Research conducted by the lay public tends to be more inclusive than that

done by professional scientists, sociologist Phil Brown (1991) reports:

Popular epidemiology takes into account social structural factors, involves social movements, utilizes political and judicial approaches to remedies, and challenges basic assumptions of traditional epidemiology, risk assessment, and environmental regulation.

Lay observations are crucial components for the general society's awareness of health and environmental risks. Quite simply, people know of data concerning their daily lives that may be inaccessible to scientists. Lay observation has been largely responsible for the major gains made in community and workplace hazard identification. Scientific and government sources have largely failed in this area, due to uncertainty and controversy surrounding new frontiers of knowledge, and to corporate and governmental resistance to threats to private enterprise and government bureaucracy (Brown, 1991:135).

In many communities — among them, Pittsfield and Woburn, MA; Yellow Creek, KY; Love Canal, NY; and South Brunswick, NJ — residents pinpointed important information before health problems were evident (Brown, 1991). People use "their observations to develop "common- sense epidemiology," attributing "disease to pollution (Brown, 1991:135)."

Woburn residents, like those in other contaminated communities, quickly found that professional epidemiology was in fact a value-laden endeavor. Government agencies sometimes hid data, and other times failed to report it to relevant parties in a timely fashion. In addition, government opposition to community involvement has sometimes led to disciplinary action against scientists who aid citizen initiatives (Brown, 1991:144).

"The movement is outside the system." [Lois] Gibbs explained, "because that's the way to win. If you work within the established system, doing the right thing, more often than not you will lose. The system is put together by the powers that be so they will win. To be outside means not to accept that we will lose (Greider, 1992:168)."

Popular epidemiology, the outsider of the medical establishment, poses a direct challenge to professional control over environmental health information and to professional standards of proof necessary before action is taken (Brown, 1991). Lay people argue that public health, rather than statistical significance should trigger action (Brown, 1991). Scientific insistence upon statistical significance and fear of uncertainty, combined with the social aspects of contamination, pose serious barriers to public participation (Brown, 1991). In the process of confronting their own political agendas, lay epidemiologists also challenge scientists to admit that they too have agendas, "even if covert, unconscious, or unrecognized (Brown, 1991:148)." Fortunately, there are scientists like Mary O'Brien (1993), who maintain that scientists should take not be "afraid to stand beside those who knew far less... as they worked to halt toxic assaults on the world."

Popular epidemiology is an important part of environmental activism because it is empowering (Brown, 1991).

This challenge to traditional science is particularly significant since the toxic waste movement is a new type of social movement, unlike even the older environmentalist movement. In contrast to the largely middle-class and upper middle-class composition of older environmental groups, toxic waste groups are typically composed of lower middle-class to middle-class members. They are less educated than members of most other social movements, and are largely led and populated by women...(Brown, 1991:149).

Mary Kay Craig, CTEC president, has proposed to research health issues through the Montana Technical Undergraduate Research Program to determine if illness has lessened with the closing of the mines (Craig, 3/26/96). In her proposal she notes that the federal Agency for Toxic

Substance Disease Registry has never been funded sufficiently to carry out its mandate, however a toxicologist at the Denver ATSDR office has agreed to oversee her research to ensure "scientific objectivity (4)." This may be a start.

Craig indicates an employee of ATSDR has indicated her research may possibly enable the agency "to conduct a more in-depth epidemiologic research on human health problems in Butte (6-7)." However, it is difficult to comprehend how, if the agency has been insufficiently unfunded, any additional health information would result in additional funding, especially in light of Congressional cuts to environmental agencies. Additionally, because there is a very fundamental difference between epidemiology as practiced by government agencies and lay or popular epidemiology, the question of the intent of the research needs to be addressed because the intent will determine the study's structure. Unlike governmental epidemiology, which is conducted by epidemiologists considering only narrow statistical determinations of cause and effect, lay epidemiology is designed to be both broader in scope and to be conducted by members of the community. In the case of Woburn, residents used the results of the research to buttress their lawsuit for payment of future medical costs (Brown, 1991; DiPerna, 1985), rather than as a means to pressure government agencies. The health survey questions, which I had compiled in 1995, which Craig has proposed to submit for consideration to ATSDR, are designed broadly to encourage both participants and respondents to think historically as well as in the present, which goes back to the educational and empowering nature of lay epidemiology. This is a very different orientation than the agency's.

Also problematic is that Craig has received a only \$500 grant. Given that the Woburn study operated on a \$10,000 grant, obtained by the medical

researchers, Craig may find it very difficult to accomplish sufficient research with such a small grant. The Woburn study was conducted under the supervision of a full-time person selected by the medical personnel (Brown, 1991; DiPerna, 1985), so, unless a qualified person volunteers his or her time to Craig's research, her grant money will not be sufficient. However, these questions notwithstanding, Craig's proposal may be an important beginning.

Throughout its history, which has for the most part been recorded as the struggle of immigrant risk-taking male miners against capital, the state and federal government, and the land itself (Malone, 1995; Malone et al, 1993; Toole, 1959, 1972; Emmons, 1990), Butte has always relied upon its women (Finn, 1995, 1996; Maney, 1996; Crain, 1996). In the background of these histories, Butte's women "crafted the everyday (Finn, 1996)," creating the comfort of a routine in a place where the routine was often dramatically altered every three years when union contracts ran out. The members of the Women's Protective Union set the tone for the community (Maney, 1996).

My interpretation of their history is they saw themselves less as feminists as we use the word today, but as working class in a social structure that tried to deny basic human dignity to this particular group of people. They were very comfortable with the word class. Most of us are not comfortable with class today. They talked about their allegiance to other working class members, they were comfortable with that relationship (Maney, 1996).

These are the operable values in Butte today, the values discussed by Finn, Maney and Crain (1996). In her membership in community groups, such as the Ladies Ancient Order of Hibernians, Craig (3/26/95) is an active volunteer in this tradition. These are also the characteristics of the toxic waste

movement. However, there are differences at work, the toxic waste movement stresses its working class nature and this is undercut by terms established by the EPA and ATSDR. which ignore class issues, social context, and are not designed to empower. Those differences may be very important in a place like Butte.

Although there are organizations, such as Lois Gibb's National Toxics Campaign, which assist local groups, there are no national membership organizations like the large middle-class groups, e.g. the Sierra Club, Audubon. The toxic waste movement is grassroots because this is the way that communities can retain their identities. The working class toxic waste groups "are part of a social trend which considers that science and technology cannot be viewed as automatically beneficial and omniscient... (Brown, 1991:150)." Their challenge to science reaches out to include regulatory agencies, "since these agencies represent a collaboration of government, science, and industry in defense of the status quo (Brown, 1991:150)." The status quo may not be conducive to maintaining the values of Butte — it may be a threat both culturally and physically.

There are also interesting gender issues in contaminated communities. The Big Ten's rationalistic or technocratic approach has been characterized as the "male" position by feminists who question them (Griffin, 1978; Plumwood, 1993); the grassroots' insistence upon values, the devalued female (Griffin, 1978; Plumwood, 1993; Greider, 1992). These male/female, objective/subjective, status quo/change dualities are also deeply embedded in Western culture (Griffin, 1978; Plumwood, 1993).

It is ironic that the traditionally female role of cleanup (Griffin, 1978; Plumwood, 1993) has, in contaminated communities, been usurped by the

"male" discourse (Griffin, 1978; Plumwood, 1993) of clean as defined by technocratic rationality. Although somewhat simplistic a metaphor, the female notion of clean, as expressed by female-led grassroots groups, entails a "cleaning" that extends to moving furniture, clearing out closets and attics, and then moving out in the neighborhood itself; the male notion, as expressed by technocrats, entails what women often refer to as "a lick and a promise," a speedy wiping of cloth across table. The female cleaning challenges the arrangements of the status quo; the male cleaning merely polishes the surface.

Although they are more concerned with the environmental quality of the Clark Fork River than the future of Butte, the environmentalists downstream know that the fate of Butte also has a direct impact on them. As Hadley (10/24/95) points out, the contaminants flow down Butte Hill, into Silver Bow Creek where they reach the Clark Fork River and back up at the Milltown Dam, a dam with a crack, just east of Missoula. (See map of the Milltown Reservoir in the appendix.) The fears of downstreamers, who have warned of the threat that the arsenic-laden sediments piled up at the Milltown Dam, pose to Missoula's water supply, were given credence in February 1996 when the Milltown reservoir was drawn down because of flooding and ice jams, leading to violations of state water quality standards downriver (*Missoulian*, 3/1/96). Ice jams are not uncommon in cold climates, such as Montana's. The EPA has proposed that the contaminated sediments be left in place, rather than removed or disinfected (*Missoulian*, 3/1/96).

As a result of the February drawdown, samples taken downriver from the dam, showed: copper levels of 630 to 770 parts per billion (ppb), compared

with a state standard of 18 ppb; zinc levels of 1,140 to 1,310 ppb, compared to a state aquatic life standard of 120 ppb; and 97 ppb arsenic, compared to the state's newly increased 18 ppb human life standard (*Missoulian*, 3/1/96). Drawdowns can and will happen again, Russ Forba, the EPA Milltown site manager, said (*Missoulian*, 3/1/96).

"We realize that if you have an episode where there is scouring like this, there can be a release of metals that pulses down the stream," Forba said. "We realize that can happen. But we don't think the releases are going to accumulate in places that will cause threats to ground water or long-term threats to aquatic life (*Missoulian*, 3/1/96)."

Clark Fork-Pend Oreille Coalition scientist Geoff Smith challenged Forba's statement, charging that the "toxic sediments behind Milltown Dam pose a direct and long-term threat to the biological integrity of the Clark Fork and the safety of Missoula's aquifer (*Missoulian*, 3/1/96)." Given the review of EPA records of decision that indicates the agency's tendency toward partial or ineffective treatment remedies, the Coalition and environmental activists may have a tough fight on their hands to alter the agency's stance at Milltown. Also troubling are the numbers of abandoned mines in the state (*Montana Standard*, 10/2/1991) and problems with state enforcement of water quality laws (Montana Office of the Legislative Auditor, 1994). Further, the ongoing battle over Superfund reauthorization, which, environmentalists charge, could result in the weakening of the law, is a real concern for people in Butte and downstreamers as well.

Also problematic are Republican plans to cut the EPA budget by one-third and cut its enforcement budget by \$130 million (*Missoulian*, 7/17/1995). Ellen Crain (9/21/95) summed the concern up neatly: "The government's shutting

down Superfund. This is a huge economic and major health problem."

County Chief Executive Jack Lynch (10/25/95) worries about the state's claim for damages:

My biggest concern right now as it relates to Superfund is on a national level while reauthorization is uncertain, the opportunity for natural resource claims is threatened and there is clearly no defined directive as to how this very critical national program will continue in the future.

Equally important is that Montana does not exist as an isolated state; it is part of a national and global economy which has historically been dependent upon commodity and capital markets located beyond state boundaries (Toole, 1959, 1972; Malone et al, 1993; Malone, 1995; Kemmis, 1991; W. Robbins, 1994). Butte, as a small Western town, is not alone in its struggle to redefine its economic base.

What appears to be changing in the post-cold war era, then, is a new West, a region characterized by dramatic demographic movement, the persistent restructuring of local economics, and a future that promises more of the same.

But that emerging new West is at one with the past. Success and failure, prosperity and misfortune, expansion and decline, boom and bust, after all, were components of the broader development and evolution of capitalism at the local and regional, national, and global levels. To grasp the essence of the transformation of the American West during the last century and a half therefore, one must look to the mainstays of material relations in the region: the perpetually changing, even revolutionary character of its political and economic culture; the inherent instability of its resource sector and its relation to larger centers of capitalist decisionmaking; the dynamic and always-changing dialectic over time between country and city; and the larger mosaic of global conditions and circumstances (W. Robbins, 1994: 189-90).

Inherent in the tension between the "Treasure State" and the "Last Best Place" is the notion of industrial salaries versus lower service-oriented eco-tourism-type wages as well as the notion of mining dumps, slag heaps and clear cuts versus more natural open areas. Montana, like other resource dependent areas of the West, relied upon those higher salaries and the tax revenues from resource exploiting corporations which were capitalized outside of the West. With the exception of San Francisco, the centers of capital, are still in the East and in large international metropolitan centers (Robbins, W., 1994). In other words, the West is still as vulnerable to exploitation as it was in the 1860s.

The influx of capital that is triggering the creation of the New West is also leaving in its wake a two-tiered society: (1) on one level the "equity refugees" or "equity bandits," well-to-do- newcomers with sizable capital savings or independent sources of income: and (2) on the other, low-wage service workers and longtime residents dependent on relatively fixed incomes. The juxtaposition of new money and dying industries on such a scale is relatively new to the West, but it is a specter that will probably continue to haunt smaller communities. In terms of real income, service sector jobs bring a poor return in comparison with older forms of industrial work. The consequence is a sharpening of class divisions on a scale never witnessed in the old, more traditional West with its agricultural and industrial base (W. Robbins, 1994: 194)

This description is strikingly similar to what world systems theorists, working in the Third World, refer to as "disarticulated economies," peripheral economies characterized by low-skill production and export of primary goods reliant upon the core economies which control the flow of capital and development of technology. Although world systems theorists posit a core and periphery, there are peripheries within the northern core

itself. This analysis presents Butte and the American West (W. Robbins, 1994) as a periphery within the core. The result of the periphery's dependence upon the core is a disarticulated economy, which relies upon low-cost labor combined with a modern technological industrial base, and suppresses development of local internal markets, depresses local consumption standards, and orients the most "dynamic sectors" of the local economy to export production (Moberg, 1992:6), such as timber, wheat, beef, and ore in the case of Montana.

This economic imbalance is mirrored by political imbalances which makes it very difficult for community and state officials to wrest concessions from those with capital, thus swinging the balance back to the Treasure State. These imbalances are played out in a number of ways: Eastern capital/Western resources; state government/national government; workers/capital; foreign interests/domestic among them. So, faced with the possibility of new proposed large-scale mining operations, it is unlikely that the localities selected or the state of Montana will be able to negotiate terms favorable to the community (W. Robbins, 1994; Freudenburg, 1992), such as diverting some of the capital flow back into the community to buffer the inevitable booms and busts of global competition, or mandating procedures to protect the environmental and public health. It is worth noting that mining companies make gross profits of 47 percent and net profits of 26 percent, that of the 34 largest Western metals mines, located on public land or land acquired under the 1872 Mining Law, over 30 percent are foreign owned, and that 60 percent of the largest gold mines in the United States are foreign owned (*Montana Standard*, 4/6/94). Neither Butte, the state of Montana nor the West has the resources to mitigate against current global terms of trade.

With a relatively low tax base and a work force marginalized as a result of the decline in industrial jobs, rural areas are providing unique opportunities for mobile, capital intensive, computer-age companies (W. Robbins, 1994). Historian William Robbins recounts the story of a development engineering company that relocated from Californian to Montana where the owner noted a "certain lack of business drive in the local work force, a 'strong work ethic and a lack of hustle ethic,' he calls it." (1994:195) The owner, who hopes to "help reverse the flow of jobs and capital to Latin American counties and assist in the rebuilding of the American West," (W. Robbins, 1994:195) says his company is "promoting Montana as the newest North American emerging nation." Emerging from the yoke of colonization, like the Latin and Central American countries to which capital has been fleeing? Emerging as a peripheral economy, subject to the terms of trade and vagaries of global capitalism on the same ground as the Third World? If this is, indeed, the ground that Montana now occupies, it is very difficult to conceive that Butte-Silver Bow officials or state officials can turn the economy around.

Despite the popularity in recent years of policies that, in effect, call for rural communities to lift themselves by their own bootstraps, evidence to date suggests that, in reality, such a feat may be as unlikely in community affairs as in physical ones. Increasingly the forces that buffet rural communities are far broader than those that originate within or can be controlled by the communities themselves. In one sense, the most important policy implications are for decisions made not just at the local or state level but also at the national or international level. To prescribe local solutions for such structural problems may be simply the community-level analogue of ineffective arguments that those who are addicted to drugs should "just say no."... Anything less than a comprehensive rural development approach that addresses both local and extra-local dimensions of their resource dependency cycle will inevitably fail (Freudenburg, 1992:328).

Butte, like the rest of the West, has always faced these structural constraints but, against all odds, the people of Butte have created and maintained a culture that has survived the corporation that formed it (Finn, 1995). Their culture, constructed about a working class core, was built in the periphery, in the shadow of the Company. What is important, and ignored by technocrats and many environmentalists, is that the culture was the result of interactions with their landscape as embodied in historical and social relations. Once this accepted, it is clear that any cleanup of the landscape that does not include the social landscapes of Butte is "irrelevant (Maney, 9/22/95)." As problematic as the lack of information given to Butte's people is that the full range of social landscapes has not been explored. Further, those landscapes that emerged during the interviews for this analysis are as fractured and stratified as the rock formations that underlay Butte.

TERRAINS OF ACTION

Given the number of Buttes, no one plan of action could possibly address them all. A necessary first step, then, must include a dialogue designed to put forth information, making connections between what has been presented as disassociated facts, and to listen, consider and seek common threads of experience. Given the failure of journalism in Butte, the dialogue will have to take place in other arenas. This may well be a positive.

Strange as it may seem to an era governed by mass-market politics, democracy begins in human conversation. The simplest, least threatening investment any citizen may make in democratic renewal is to begin talking with other people about these questions, as though the answers matter to them. Harmless talk around a kitchen table or in a church basement will not affect anyone but themselves, unless they

decide that it ought to. When the circle is enlarged to include others, they will be embarking on the fertile terrain of politics that now seems so barren (Greider, 1992:411).

Clearly there is a need for a number of dialogues to occur simultaneously. Citizens for Labor and Environmental Justice can bring a connection to state labor organizations but, at the same time, local labor leaders such as Marilyn Maney and former union workers who have lost their jobs must be involved as equals. CTEC, which has developed the expertise to speak with federal and state agencies must continue its struggles for a more stringent cleanup, however, because CTEC is constrained by its reliance upon an EPA grant which defines the terms of the debate, grassroots support from Butte is essential to address the social aspects of contamination. Because that support did not spring into being, as was the case in Love Canal and Woburn, Mass. some organizational skill will be necessary both to identify and mobilize possible grassroots support, and to work with Citizens for Labor and Environmental Justice and CTEC. Equally important is that participants understand that some conflict is inevitable because "Change means movement. Movement means friction (Alinsky, 1989:21)." At stake is the empowerment of the only people who can legitimately decide the future of Butte — the people of Butte.

Because of this, although I think of myself as an environmentalist, I would argue that any action plan for Butte must be based on Saul Alinsky's principle of organizing rather than that typically employed by the mainstream environmental movement. Alinsky recognized that the ultimate goal of organizing must be to empower those organized to make their own decisions.

We learn, when we respect the dignity of the people, that they cannot be denied the elementary right to participate fully in the solutions to their own problems. Self-respect arises only out of people who play an active role in solving their own crises and who are not helpless, passive, puppet-like recipients of private or public services (Alinsky, 1989: 123).

In situations where corporations and government have systematically denied that right to participate, people must relearn their rights to demand participation on equal terms, which includes the right to define the problem they are addressing. The only proper role of an organizer is to facilitate the relearning process. This type of facilitation takes time, likely years. The goal of this facilitation is to "convert the plight into a problem (Alinsky, 1989:119)," a problem that people can attempt to solve on their own terms. This means that the plight cannot be presented as something determined by power imbalances but as injustices that can be addressed in political action defined by members of the community. This was the program of the Butte Community Union.

Given the history of Butte and the unrecognized contributions of its women, an organizer might start with conversations about how women have survived the boom and bust of Butte, and about the skills they developed during those times, skills of which women are often unaware because their skills have been so undervalued in the popular culture (Plumwood, 1993; Griffin, 1978). An organizer might seek women involved with social services, public health, education, history and labor and talk with them about their histories, about their own and their families' health, of the Moore-Luoma study, and of the connections between the exploitation of the land and people in Butte. Additionally, an organizer might seek out epidemiologists

and other medical professionals who have expressed concern about environmental illnesses in the hopes of interesting them in conducting lay, rather than traditional, epidemiological studies in Butte because lay studies engage and empower.

Equally importantly, an organizer in Butte might act on two of Alinsky's fundamental beliefs. The first, "that you don't communicate with anyone purely on the rational facts or ethics of an issue...It is only when the other party is concerned or feels threatened that he will listen.. (1989:89)." Second, tactics must be carefully planned, not responses to the powers that be.

Throughout my year and a half in Butte's unfamiliar landscape my own vision of the landscape has changed. I find myself seeking the right light to photograph the ever-changing Montana sky at different times of the day through the metal structures of the gallows frames on Butte Hill. I marvel at the view of Butte from Walkerville and imagine Christmases past when the entire hill was covered in gallows frames strung with Christmas lights. I think this is not nostalgia but rather a recognition of and respect for the history that the people of Butte have survived and for their human spirit that found space to celebrate in such a harsh demanding place.

I have found myself enraged at the affronts committed upon Butte's people and the land, and impatient with environmentalists whose romanticized landscape seems to be devoid of humans. I have delighted in the black humor and wit of Butte, a humor born of a wisdom and struggle that the middle and upper classes have not shared. I find myself worrying if the community can retain its working class ethos and standards while transforming itself into an economically and physically healthy place. Of far greater value than the copper under Butte Hill are the people who

tenaciously clung to life above and below ground, creating a vibrant culture in the process. Butte's greatest resource has always been its people — tough, determined, risk takers, survivors. In a more just world, they would beat the odds again.

FUTURE STUDY TOPICS

A study of the correlation of suicide and busts in Butte, Montana and other mining towns might be useful to convey the human costs of exploitation. Also, although issues related to mining and the health of miners in Butte are being explored, there is a real need for a retrospective study of the health of women and children and a full health study today. And, on the local level, the functioning of the institutional controls should be investigated over time and state enforcement of water quality control laws and mining reclamation should be monitored as well.

Additionally, on the local level, a study of the community response, with emphasis on both strong and weak tie groups, to the siting of the waste repository would be useful to compare with community response to the existence of contamination. And, research into the role of the Catholic Church, especially as manifested from parish to parish, historically in Butte, and a study of how the children in Butte understand the history and its relevance to their constructions of landscape would be of great interest.

On the state level, a study that integrated data from federal and state Superfund sites, with contamination from landfills, municipal wastewater treatment facilities, ongoing industrial operations, and private wells, would be helpful to determine exactly how much of the state has been degraded.

On the federal level, an updated investigation into EPA records of

decisions, with particular control on impermanent solutions and the use of institutional controls is needed. Additionally, a study of the actual functioning of institutional controls in operation more than five years might be enlightening. And, perhaps most important, would be an analysis of the number and location of aquifers the EPA has written off to date on a national basis.

¹ Gibbs became a national figure for her activism at Love Canal, the site that precipitated passage of the federal Superfund law, and later as the founder of Citizens' Clearinghouse on Hazardous Waste.

² The strings are often even more tightly drawn with grants from non-governmental organizations, such as foundations. William Greider attributes these restraints to the federal tax code which allows tax deductions for wealthy corporations and individuals to conduct "activities that are really self-interested expression." "Under the federal tax code, tax-exempt grants are fully deductible for the donors only if the recipients stay clear of partisan politics, and many organizations accept these limitations on their politics. They may develop 'educational issues' or create 'civic projects' for citizens but they cannot take these concerns into the arena of accountability that matters most to those in power — elections.

"... Every organization that relies on tax exempt contributions lives constantly with the complications of what it can or cannot do; many flirt at the edges of what the Internal Revenue Service would allow.

"The tax-exempt financing provides still another means by which wealth — including corporate wealth — defines the political agenda for others. In the arena of public affairs, private wealth exerts enormous scope and direction and defines the political agendas of others. In the arena of public affairs, private wealth exerts enormous scope and direction of what citizens will undertake, because the defining is conditioned by the givers' own sense of what is an appropriate political cause... The overall effect of political charity, as one might expect, is mostly conservative — guaranteed to preserve the status quo. Charity is another form of political power."
(Greider, 1992:220-221)

LIST OF CHEMICALS AND ASSOCIATED ILLNESS
at the Mine Flooding Operable Unit (Berkeley Pit), Lower Area One,
Area One and Montana Pole Site

ACENAPHTHENE — (COC) at Montana Pole Site

ACENAPHTHYLENE — Montana Pole Site

ACIDITY — Berkeley Pit

ALUMINUM — Berkeley Pit, Montana Pole Site — bladder cancer in workplace exposures, teratogenic; association with the "tangles" in the brains of Alzheimer's patients (Lappé, 1991)

ANTHRACENE — (COC) at Montana Pole Site

ANTIMONY — Montana Pole Site

ARSENIC* — Berkeley Pit, Montana Pole Site — Cancers of the bladder, lung, liver, kidney, skin, and colon (USEPA, 12/15/93); Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996); Nasal, throat, lung, skin, respiratory and gastrointestinal mucosa irritation; abnormal decrease in white blood cells, altered electrocardiograms; anemia; anxiety; birth defects; blackfoot disease (loss of circulation in fingers and toes; brain dysfunction; bronchitis; skin and lung cancer; cardiac arrhythmias; cardiopulmonary collapse; chromosomal aberrations; coma; confusion; contact dermatitis; convulsions; cyanosis; death; dehydration; depression; depression of red or white blood cells; dermatitis; destruction of red blood cells' diarrhea; distal axon degeneration; elevated serum enzyme levels; emotional lability; fatigue; garlic breath; hallucinations; headaches; heart rate over 100 beats per minute; hoarseness; hyperpigmentation of skin with interspersed spots of hypopigmentation; impaired memory; impaired respiratory function; insomnia; irritability; kidney inflammation; lassitude; loss of reflexes; low birth weight; metal fume fever; metallic taste; nasal mucosa inflammation; nausea; nervousness; numbness in hands and feet; numbness, tingling, or prickling sensation; overgrowths of the skin; painful "pins and needles" sensation; paralysis; peripheral ventricular contractions; pulmonary edema and hemorrhagic lesions; Raynaud's disease; removes the myelin sheath from nerves; sexual disorders; shock; skin disease and lesions; spontaneous abortions; swollen and tender liver; tissue damage; ulceration of nasal septum; vascular lesions; vomiting; weakness; wrist or ankle drop (Chemical Injury Information Network, 1996); miscarriages, teratogenic (Lappé, 1991)

BARIUM — Montana Pole Site

BENZO(a)ANTHRACENE* — Montana Pole Site

BENZO(a)PYRENE* — Montana Pole Site — the risk of this chemical in particulate form is frequently overlooked, can reach the human

embryo and fetus transplacentally (Lappé, 1991)
 BENZO(b)FLUORANTHENE* — Montana Pole Site
 BENZO(ghi)PERYLENE* — Montana Pole Site
 BENZO(k)FLUORANTHENE* — Montana Pole Site
 BERYLLIUM — Montana Pole Site
 CADMIUM — Berkeley Pit, Montana Pole Site— Lung cancer (USEPA, 12/15/93); Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996); evidence of carcinogenicity, adverse reproductive effects, neurotoxicity or other chronic effects, birth defects (Chemical Injury Information Network, 1996); testicular cancer; teratogenic; low birth weights; at low levels, cadmium functions as a behavioral teratogen, at low levels causes bone marrow damage, but this can be reduced with simultaneous exposure to zinc (Lappé, 1991)
 CALCIUM — Berkeley Pit, Montana Pole Site
 CARBAZOLE — Montana Pole Site
 CARBON DISULFIDE — Montana Pole Site
 CHLORIDE — Berkeley Pit —linked with Epstein-Barr activation and higher incidence of liver disease which increased in relation to number of years of exposure (Environmental Access Research Network, 1996)
 4-CHLORO-3-METHYLPHENOL — (COC) at Montana Pole Site
 2-CHLORONAPHTHALENE — Montana Pole Site
 2-CHLOROPHENOL — (COC) at Montana Pole Site
 CHROMIUM (COC)— Montana Pole Site — Toxic effects to respiratory tract and lung after inhalation, hypersensitivity skin reactions following dermal exposure (USEPA, 2/10/93); suspected of causing human cancer (Lappé, 1991)
 CHRYSENE* — Montana Pole Site
 COBALT — Montana Pole Site
 COPPER — Berkeley Pit, (COC) at Montana Pole Site — Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996); short term effects to 30 ppm in water include vomiting, diarrhea, stomach cramps and long-term exposure to 3 ppm in water causes liver damage in infants (ATSDR)
 DIBENZO(a,h)ANTHRACENE* — Montana Pole Site
 DIBENZO(k)FLUORANTHENE* — Montana Pole Site
 2,4-DICHLOROPHENOL — (COC) at Montana Pole Site
 2,4-DICHLOROPHENOL — Montana Pole Site
 2,4-DIMETHYLPHENOL — Montana Pole Site
 2,4-DINITROPHENOL — (COC) at Montanan Pole Site
 2,4-DINITROTOLUENE — (COC) at Montana Pole Site
 DIOXINS/FURANS* — Montana Pole Site — immune-suppressive

effects at low-level chronic inhalation exposures (Environmental Access Research Network, 1996)

FLUORANTHENE — (COC) at Montana Pole Site

FLUORENE — Montana Pole Site

FLUORIDE — Berkeley Pit

INDENO(1,2,3-cd)PYRENE* — Montana Pole Site

IRON — Berkeley Pit, Montana Pole Site — Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996)

LEAD — Berkeley Pit, (COC) at Montana Pole Site — Impaired or delayed mental and physical development, impaired heme biosynthesis, decreased serum vitamin D levels (EPA, 2/11/94); impaired hearing or learning (EPA, March 1994); evidence of carcinogenicity, adverse reproductive effects, neurotoxicity or other chronic effects, birth defects (Chemical Injury Information Network, 1996); can cause deficiencies in essential metals, calcium, iron, and zinc, severe lead intoxication is associated with sterility, abortion, stillbirths, and neonatal morbidity and mortality from exposure *in utero* (Goyer, 1993); testicular cancer; teratogenic; low birth weights; at low levels causes bone marrow damage, but this can be reduced with simultaneous exposure to zinc (Lappé, 1991)

MAGNESIUM — Berkeley Pit, Montana Pole Site

MANGANESE — Berkeley Pit, (COC) at Montana Pole Site

2-METHYLNAPHTHALENE — (COC) at Montana Pole Site

2-METHYL-4,6-DINITROPHENOL — (COC) at Montana Pole Site

NAPHTHALENE — (COC) at Montana Pole Site

NICKEL — Montana Pole Site — Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996)

NITRATE — Berkeley Pit

2-NITROPHENOL — Montana Pole Site

4-NITROPHENOL — Montana Pole Site

PAH (Total non-carcinogen)(a) — Montana Pole Site

PENTACHLOROPHENOL* — Montana Pole Site — soft tissue sarcomas and colon cancer (Lappé, 1991)

PHENANTHRENE — (COC) at Montana Pole Site

PHENOL — Montana Pole Site

POTASSIUM — Berkeley Pit, Montana Pole Site

PYRENE — (COC) at Montana Pole Site

SELENIUM — Lower Area One — teratogenic; at low levels dramatically activates defensive proteins such as metallothioneins (Lappé, 1991)

SILICONE — Berkeley Pit — in particulate form exposure causes

silicosis which has been linked with rheumatoid arthritis and, with some coal miners, scleroderma (Lappé, 1991)

SILVER — Montana Pole Site

SODIUM — Berkeley Pit, Montana Pole Site

SULFATE — Zinc, severe diarrhea (USEPA, 12/15/93) Berkeley Pit

2,3,5,6-TETRACHLOROPHENOL — (COC) at Montana Pole Site —

Decreased body weights, increased kidney and liver weights, and centrilobular hypertrophy in livers (USEPA, 2/10/93)

2,3,7,8-TETRACHLORODIBENZO - P - DIOXIN* — Montana Pole Site

THALLIUM — Lower Area One

TOLUENE — Montana Pole Site — Potentially toxic (Chemical Injury Network, 1996)

2,4,6-TRICHLOROPHENOL* — Montana Pole Site

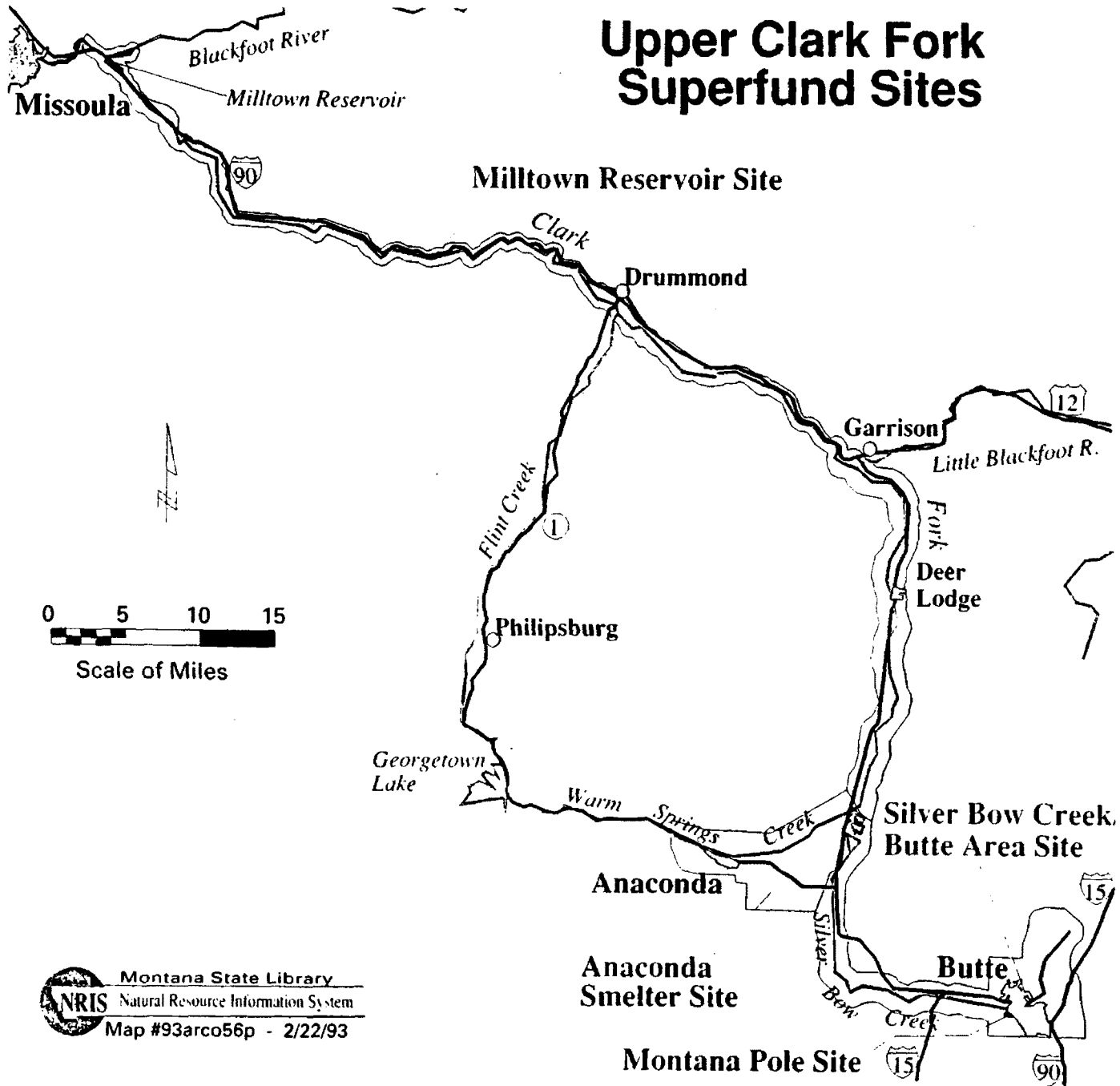
VANADIUM — Montana Pole Site

XYLENE — Montana Pole Site — Potentially toxic (Chemical Injury Network, 1996)

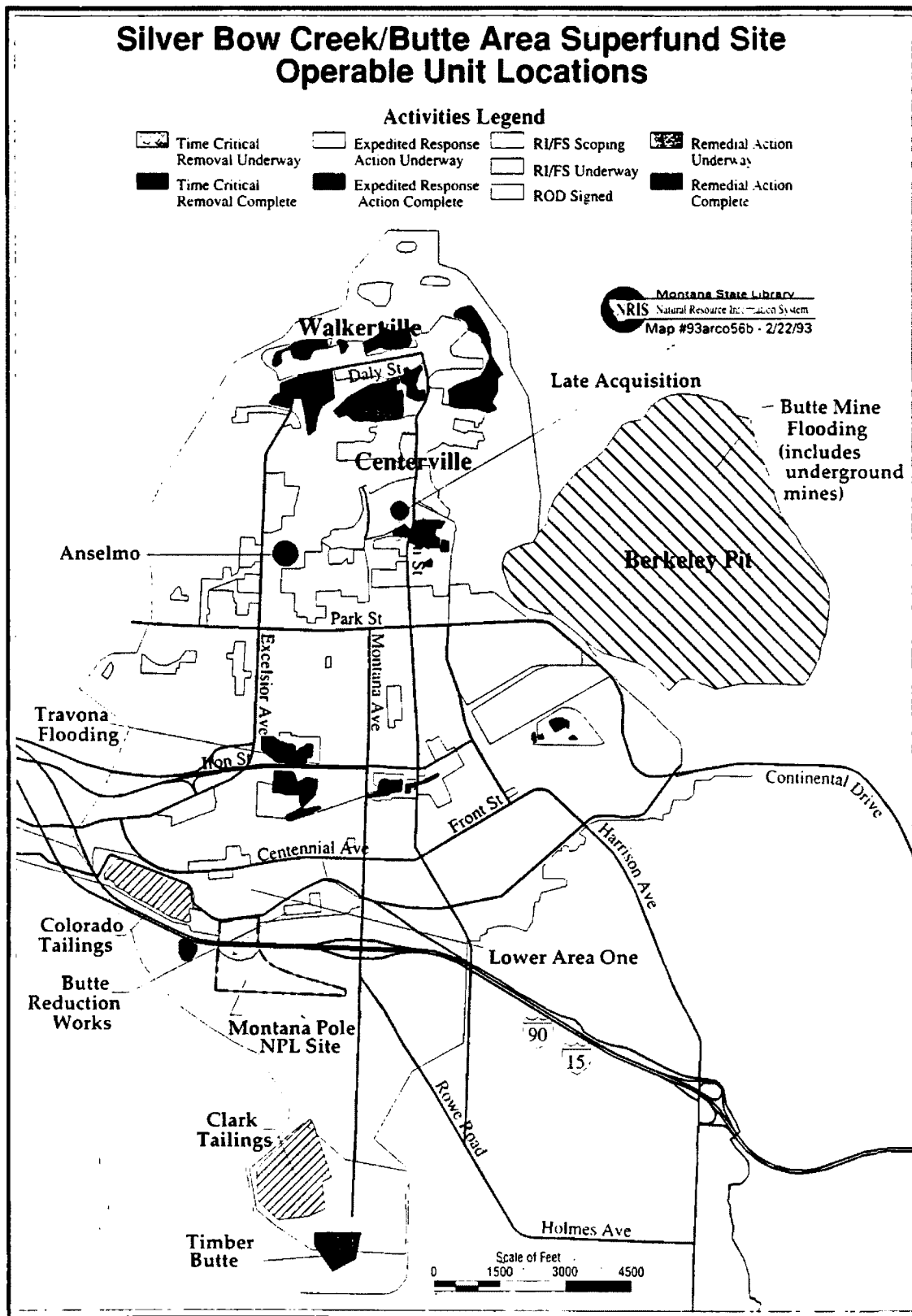
ZINC — Berkeley Pit, (COC) at Montana Pole Site — Porphyrinogenic which can have a variety of organ system effects ranging from the central nervous system and gastrointestinal to cardiac, lung, kidney and liver effects (Duehring, 1996); metal fume fever which is characterized by difficulty in breathing and flu-like symptoms in exposures at 600 mg/m for 10 minutes and digestive problems with 80 ppm in food for six weeks, decreased serum HDL-cholesterol levels with 90 ppm in food for five weeks, altered immune system and anemia at 153 pp, in food for six weeks(ATSDR)

* indicates EPA-designated carcinogenic
(COC) indicates EPA-designated Chemical of Concern

Upper Clark Fork Superfund Sites

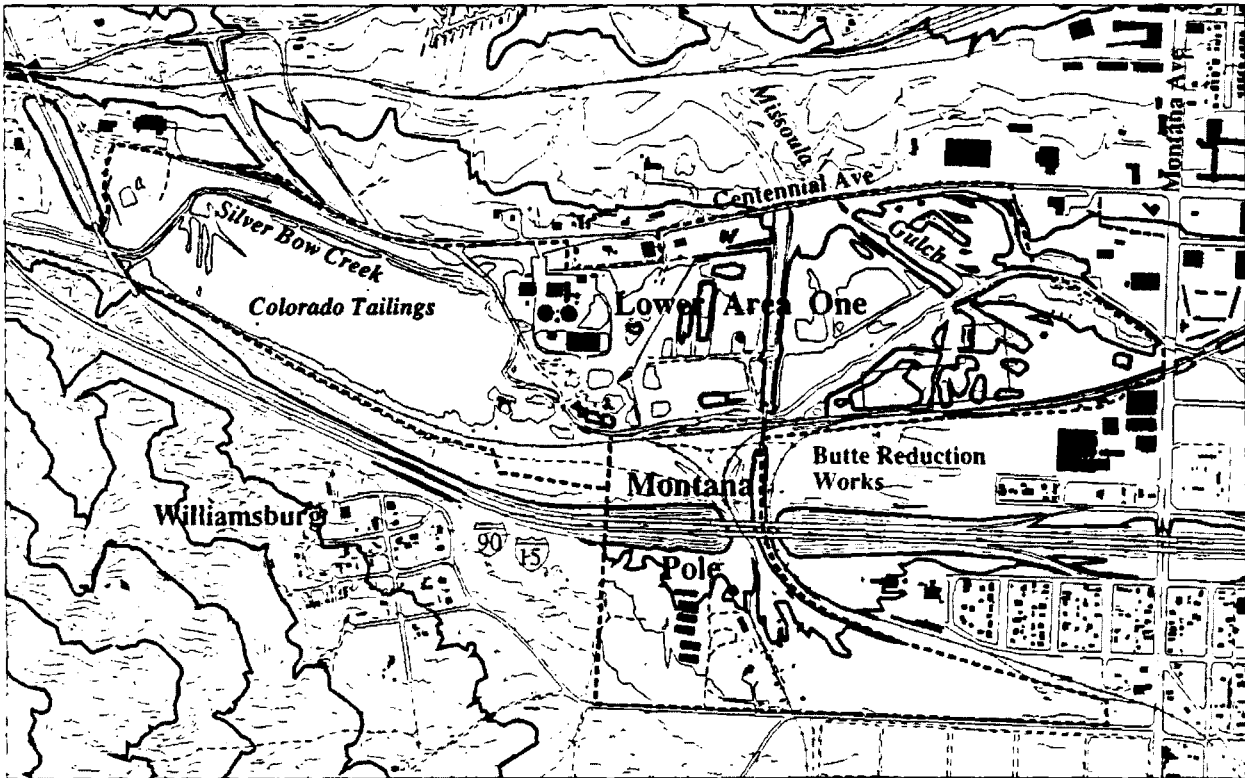


Montana State Library
NRIS Natural Resource Information System
Map #93arco56p - 2/22/93



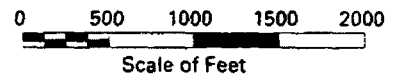


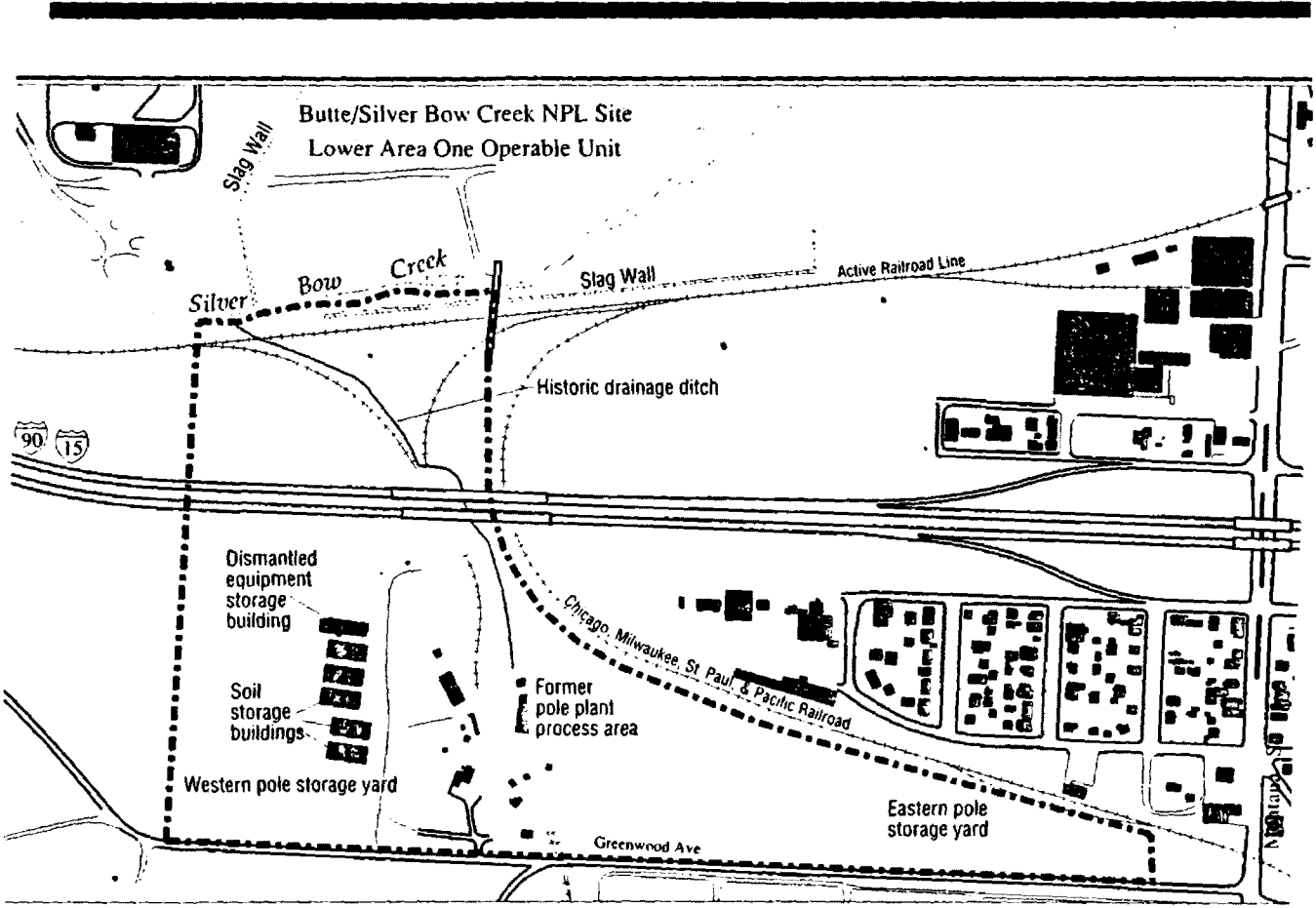
Lower Area One




Natural Resource Information System
Montana State Library Map #93arco561 - 2/22/93

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









Montana Pole and Treating Plant. Site Layout and Features

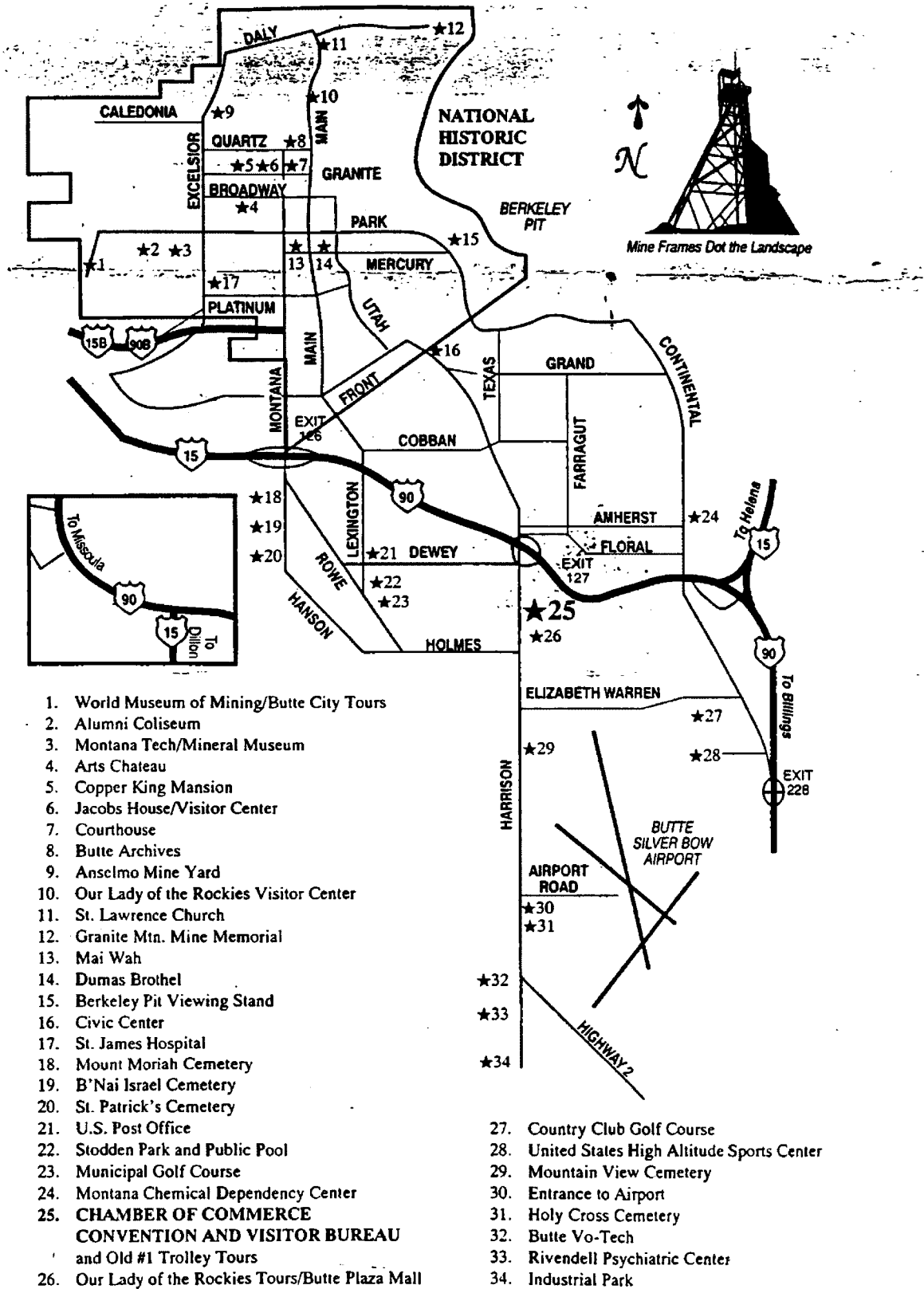

 Montana State Library
 Natural Resource Information System

0 200 400 600 800 1000
 Scale in Feet

-  Building
-  Water
-  Slag Wall
-  Original Site Boundary
-  Paved Road
-  Railroad

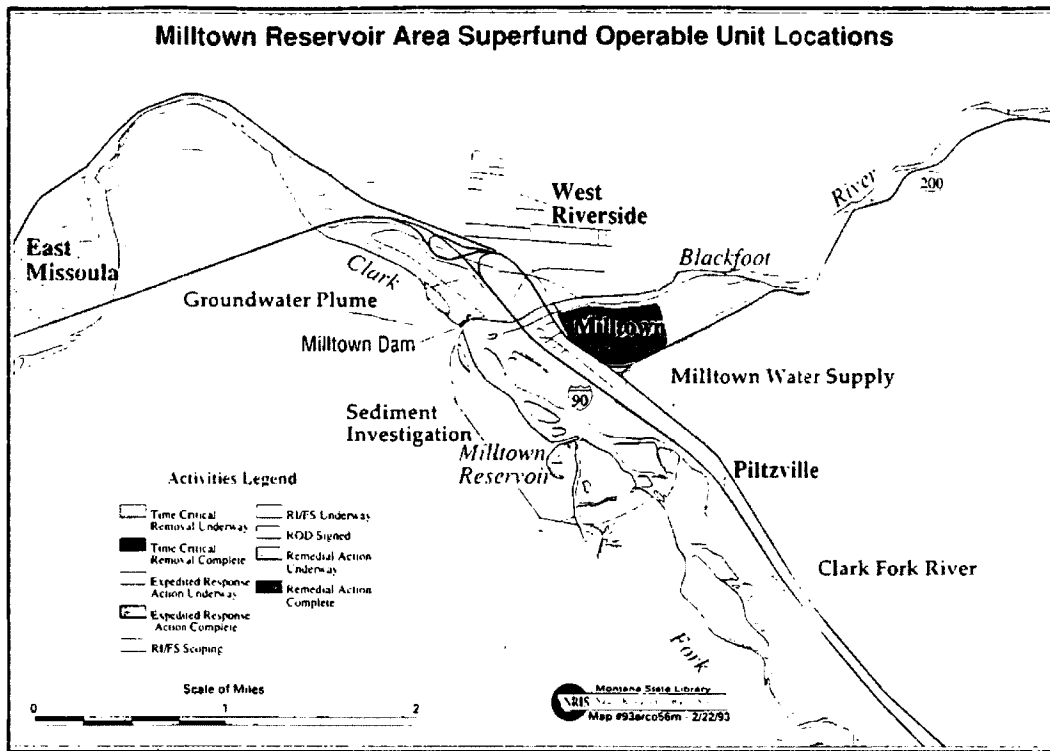
March 1993 Rng No. 9

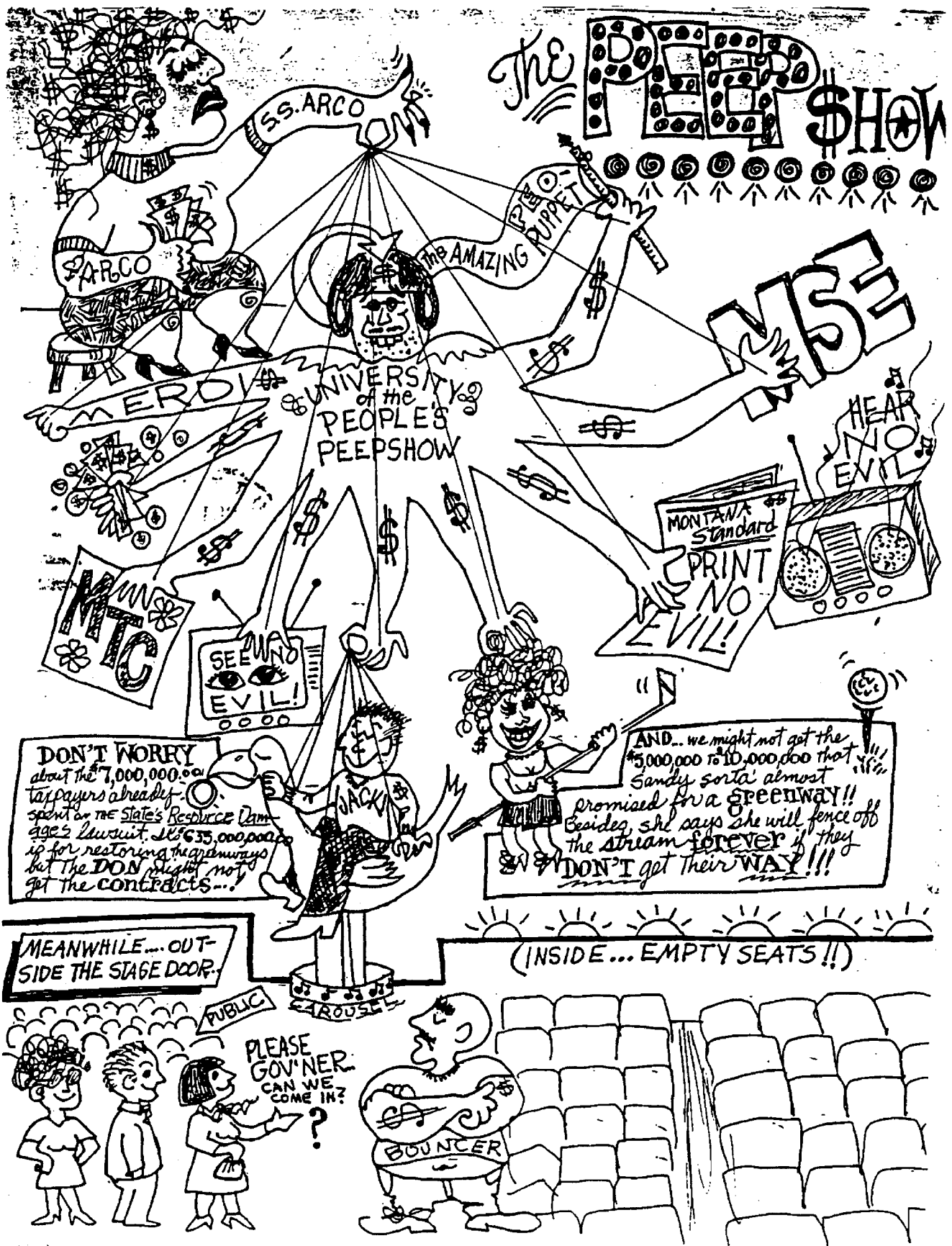
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BIBLIOGRAPHY

- Anaconda Mining Company. (c.1970). *The Anaconda Company in Montana*. Pamphlet.
- ARCO. 1993. *Environmental Action Plan for The Upper Clark Fork River Basin*. Anaconda: Atlantic Richfield Co.
- ARCO. Important Agreement on Lead Reached. FAX, Sept. 28, 1994.
- ARCO. 1995. *Cleaning The Land And Water of Silver Bow Creek. Environmental Report to the Community*. Anaconda: Atlantic Richfield Co.
- ARCO/Butte-Silver Bow Planning Department. 1993. *Institutional Controls Strategic Framework Document*. May 4.
- Alinsky, Saul D. 1989. *Rules for Radicals: A Pragmatic Primer for Realistic Radicals*. New York: Vintage Books.
- American Lung Association. 1995. *Estimated Prevalence & Incidence of Lung Disease by Lung Association Territory*. May.
- Aronoff, Marilyn and Valerie Gunter. 1994 "A Pound of Cure: Facilitating Participatory Processes in Technological Hazard Disputes." *Society of Natural Resources*. 7: 235-252. .
- Bachman, Don. 1996. "Clean Water Campaign Launched." *Down to Earth*. Montana Environmental Information Center. March.
- Bagdikian, Ben H. 1990 *The Media Monopoly*, 3rd ed. Boston: Beacon Press.
- Barnett, Harold C. 1994 *Toxic Debts and the Superfund Dilemma*. Chapel Hill: University of North Carolina Press.
- Bates, David V. 1994 *Environmental Health Risks and Public Policy: Decision Making in Free Societies*. Seattle: University of Washington Press.
- Baum, Andrew, Raymond Fleming, and Laura M. Davidson. 1983 "Natural Disaster and Technological Catastrophe" in *Environment and Behavior*. 15: 3, 333-354.
- Bellah, Robert N., Richard Madsen, William M. Sullivan, Ann Swidler, and Steven M. Tipton. 1985. *Habits of the Heart: Individualism and Commitment in American Life*. New York: Harper and Row.
- Blaikie, Piers and Harold Brookfield. 1987.
- Bluestone, Barry and Irving Bluestone. 1992. *Negotiating the Future: A Labor Perspective on American Business*. New York: BasicBooks.
- Bowles, Samuel and Herbert Gintis. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. New York: Basic Books, Inc.,
- Boyce, James K. 1994. "Inequality as a cause of environmental degradation." *Ecological Economics* 11 (December): 3, 169-178.
- Brandenburg, Andrea M. and Matthew S. Carroll. 1995. "Your Place or Mine?: The Effect of Place Creation on Environmental Values and Landscape Meanings." *Society and Natural Resources* : 381-98.

- Brown, Phil. 1991. "The Popular Epidemiology Approach to Toxic Waste Contamination" in *Communities at Risk: Collective Responses to Technological Hazards*, ed. Stephen Robert Couch and J. Stephen Kroll-Smith. New York: Peter Lang.
- Bryant, Raymond L. 1992. "Political ecology: An emerging research agenda in Third-World studies." *Political Geography*. 11 (January): 1, 12-36.
- Bullard, Robert D. 1993. Introduction in *Confronting Environmental Racism: Voices from the Grassroots*. Robert D. Bullard, ed. Boston: South End Press.
- Buttel Frederick and William L. Flinn. 1978. "Social Class and Mass Environmental Beliefs: A Reconsideration." *Environment and Behavior*. 10 (September): 3, 433-450.
- Butte-Silver Bow government. 1991. Regional Historic Preservation Plan.
- Cable, Sherry and Edward Walsh. 1991. "The Emergence of Environmental Protest: Yellow Creek and TMI Company" in *Communities at Risk: Collective Responses to Technological Hazards*. Stephen Robert Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Castleman, Barry I. and Grace E. Ziem. 1988. "Corporate Influence on Threshold Limit Values." *American Journal of Industrial Medicine*, 13: 531-39.
- Catton, William R. and Riley E. Dunlap. 1980. "A New Ecological Paradigm for Post-Exuberant Sociology." *American Behavioral Scientist*. 24: 1, 15-43.
- Chavis, Jr., Benjamin F. 1993. Foreward in *Confronting Environmental Racism: Voices from the Grassroots* Robert D. Bullard, ed. Boston: South End Press.
- Chemical Injury Information Network. 1996. *Our Toxic Times*. 7 (January): 1.
- Chemical Injury Information Network. 1996. *Our Toxic Times*. 7 (February): 2.
- Clarke, Lee. 1991. "The Political Ecology of Local Protest Groups" in *Communities at Risk: Collective Response to Technological Hazards*. Stephen R. Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Connolly, William E. 1993. *The Terms of Political Discourse*. Princeton: Princeton University Press.
- Cortese, Anthony D. 1993. Introduction in *Critical Condition: Human Health, Risk and the Environment. A Report by Physicians for Social Responsibility*. Cambridge: MIT Press.
- Couch, Stephen R. and Steve Kroll-Smith. 1994. "Environmental Controversies, Interactional Resources, and Rural Communities: Siting Versus Exposure Disputes." *Rural Sociology*. 59 (Spring): 1, 25-44.
- Couch, Stephen Robert and J. Stephen Kroll-Smith, ed. 1991. Introduction. *Communities at Risk: Collective Responses to Technological Hazards*. New York: Peter Lang.
- Craig, Mary Kay. 1995. "Editorial." *Citizens' Technical Environmental*

- Committee Newsletter*. II: 3.
- Craig, Mary Kay. 1995. Letter to the Butte-Silver Bow County Planning Board, 14 September.
- Craig, Mary Kay. 1995. Citizens' Technical Environmental Committee memo, 11 September..
- Craig, Mary Kay. 1995. Letter to Jeff Merrifield, counsel to the Subcommittee on Superfund, Waste Control and Risk Assessment, 9 July.
- Craig, Mary Kay. 1995. Interview by author. Victor, 30 July.
- Crain, Ellen. 1995. Interview by author. Butte, 21 September.
- Crain, Ellen. 1996. Women, Labor and Community in Butte. Lecture at the University of Montana, 19 March.
- Curran, Mary E. 1994. An Analysis of the Institutional Controls Planned for Butte, Montana. Unpublished manuscript.
- Daily, Fred ("Fritz"). 1995. Lecture at the University of Montana and subsequent questions by author. Missoula, 8 December.
- Davidson, Laura M. and Andrew Baum. 1991. "Victimization and Self-Blame Following a Technological Disaster" in *Communities at Risk: Collective Responses to Technological Hazards*. Stephen Robert Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Dennehey, Dan. 1995. Interview by author. Butte, 21 September.
- Devesa, Susan S., William J. Blot, B.J. Stone, Barry A. Miller, Robert E. Tarone, Joseph F. Fraumeni, Jr. 1995. "Cancer Trends in the United States." *Journal of the National Cancer Institute*. 87 (February): 3, 175-81.
- DiPerna, Paula. (1985). *Cluster Mystery: Epidemic and the Children of Woburn, Mass.* St. Louis: C.V. Mosby.
- Dirks, Nicholas B., Geoff Eley and Sherry B. Ortner. 1994. Introduction in *Culture/Power/History: A Reader in Contemporary Social Theory*. Princeton: Princeton University Press.
- Douglas, Mary and Aaron Wildavsky. 1983. *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Berkeley: University of California Press.
- Duehring, Cindy. 1996. "Porphyrenogenic Chemicals and Metabolism: MCS Patients at Risk." *Our Toxic Times*. 6: 11, 9-11.
- Duffy, Joseph K. (undated). "Nicknames of the Camp." Butte-Silver Bow Archives, Butte, Montana.
- Edelman, Murray. 1964. *The Symbolic Uses of Politics*. Urbana: University of Illinois.
- Edelstein, Michael R. 1988. *Contaminated Communities: The Social and Psychological Impacts of Residential Toxic Exposure*. Boulder: Westview Press.
- Edelstein, Michael. 1991. "Ecological Threats and Spoiled Identities: Radon Gas and Environmental Stigma" in *Communities at Risk: Collective Responses to Technological Hazards*. Stephen Robert Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Ellul, Jacques. 1991. "The Technological Society" in *Questioning*

- Technology: Tool, Toy or Tyrant?* John Zerzan and Alice Carnes, ed. Philadelphia: New Society Publishers.
- Emmons, David M. 1990. *The Butte Irish: Class and Ethnicity in an American Mining Town, 1875-1925*. Urbana: University of Illinois Press.
- Environmental Access Research Network. 1996. *Medical and Legal Briefs*. 1 (January/February): 4.
- Erikson, Kai. 1991 "A New Species of Trouble" in *Communities at Risk: Collective Responses to Technological Hazards*. Stephen Robert Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Farganis, James. 1996. *Readings in Social Theory: The Classic Tradition to Post-Modernism*. New York: The McGraw-Hill Companies.
- Fiorino, Daniel J. 1990. "Citizen Participation and Environmental Risk: A Survey of Institutional Mechanisms." *Science, Technology and Human Value*. 15: 226-41.
- Finn, Janet Leigh. 1995. *Mining Community: The Cultural Politics of Copper, Class and Gender in Butte, Montana and Chuquicamata, Chile*. University of Michigan.
- Finn, Janet Leigh. 1996. Women, Labor and Community in Butte. Lecture at the University of Montana, 19 March.
- Foucault, Michael. 1994. "Two Lectures" in *Culture/Power/History: A Reader in Contemporary Social Theory*. Nicholas Dirks, Geoff Eley and Sherry B. Ortner, ed. Princeton: Princeton University Press.
- Freudenburg, William R. 1993. "Risk and recreancy: Weber, the division of labor, and the rationality of risk perceptions." *Journal of Social Forces*. 71: 4, 909-33.
- Freudenburg, William R. 1992. "Addictive Economies: Extractive Industries and Vulnerable Localities in a Changing World Economy." *Rural Sociology* 57: 3, 505-32.
- Goodwyn, Lawrence. 1978. *The Populist Moment: A Short History of the Agrarian Revolt in America*. Oxford: Oxford University Press.
- Greenough, Paul and Anna Tsing. 1994. "Environmental Discourses and Human Welfare in South and Southeast Asia." *Social Science Research Council*, 40 (December): 95-99.
- Greider, William. 1992. *Who will tell the People: The betrayal of American democracy*. New York: Simon & Schuster.
- Griffin, Susan. 1978. *Women and Nature: The Roaring Inside Her*. New York: Harper & Row.
- Gunther, John. 1947. "The Gray Blanket" in *Inside U.S.A.* New York: Harper & Brothers.
- Hadley, Kathy. 1995. Interview by author. Butte, 5 October.
- Hird, John A. 1994. *Superfund: The Political Economy of Environmental Risk*. Baltimore: The Johns Hopkins University Press.
- Hu, Howard and Nancy K. Kim. 1993. "Drinking Water Pollution and Human Health" in *Critical Condition: Human Health and the Environment. A Report by Physicians for Social Responsibility*.

- Cambridge: MIT Press.
- Hunt, E.K. 1990. *Property and Prophets: The Evolution of Economic Institutions and Ideologies*, 6th ed. New York: Harper & Row, Publishers.
- Kemmis, Daniel. 1991. *Community and the Politics of Place*. Norman: University of Oklahoma Press.
- Kirkpatrick, Dave. 1995. Interview by author. Butte, 31 July.
- Kroll-Smith, J. Stephen and Stephen R. Couch. 1991a. "As If Exposure to Toxins Were Not Enough: The Social and Cultural System As a Secondary Stressor." *Environmental Health Perspectives*, 95: 61-66.
- Kroll-Smith, J. Stephen and Stephen R. Couch, ed. 1991b. "Technological Hazards, Adaptation and Social Change" in *Communities at Risk: Collective Responses to Technological Hazards*. New York: Peter Lang.
- Kroll-Smith, J. Stephen and Stephen Robert Couch. 1990. *The Real Disaster is Above Ground: A Mine Fire and Social Conflict*. Lexington: The University Press of Kentucky.
- Lappé, Marc. 1991. *Chemical Deception: The Toxic Threat to Health and the Environment*. San Francisco: Sierra Club Books.
- Looking Back from the Hill: Recollections of Butte People*. Butte-Silver Bow Archives.
- Lupton, Deborah. 1993. "Risk as Moral Danger: The Social and Political Functions of Risk Discourse in Public Health." *International Journal of Health Services*. 23: 3, 425-35.
- Lynch, Jack. 1995. Correspondence to author. Butte, 25 October.
- Malone, Michael P. 1995. *The Battle for Butte: Mining & Politics on the Northern Frontier 1864-1906*. Helena: Montana Historical Society Press.
- Malone, Michael P., Richard B. Roeder, William L. Lang. 1993. *Montana: A History of Two Centuries*, revised ed. Seattle: University of Washington Press.
- Maney, Marilyn. 1990. "Women's Protective Union: Working women's union fight for social justice 100 years ago." *Montana Family Union VOICE*. (December.)
- Maney, Marilyn. 1995. Interview with author. Butte, 22 September.
- Maney, Marilyn. 1996. Women, Labor and Community in Butte. Lecture at the University of Montana, 19 March.
- Marcosson, Isaac F. 1957. *Anaconda*. New York: Dodd, Mead & Co.
- Merchant, Carolyn. 1992. *Radical Ecology*. New York: Routledge.
- Milburn, Michael A. 1991. *Persuasion and Politics: The Social Psychology of Public Opinion*. Pacific Grove: Brooks/Cole Publishing Co.
- Montana AHEC. 1988. 1 (April): 2.
- Montana AHEC. 1989. "Montana Cancer Data." III (August): 5.
- Montana AHEC. 1991. "Are Montanans at Risk?" IV (January): 10.
- Montana Central Tumor Registry. 1995. Correspondence from Debbi Hellhake, RRA, to author, 29 September.

- Montana Environmental Information Center. 1995. "Clean Water: It's Our Constitutional Right." (August).
- Montana Environmental Information Center. 1995. "Governor Signs Water Pollution Bills." (June).
- Montana Health Data Book and Medical Facilities Inventory. (1992). (Pp. 3-30).
- Montana, Office of the Legislative Auditor. 1994. *Enforcement of the Water Quality and the Public Water Supply Acts. Performance Audit Report.* (September).
- Montana, State Natural Resource Damage Program. 1994. *Summary of Restoration Report Upper Clark Fork River NPL Sites.* (March).
- Moore, Johnnie and Samuel N. Luoma. 1990. "Hazardous Wastes From Large-scale Metal Extraction: The Clark Fork Waste Complex, MT." Paper presented at the 1990 Clark Fork River Symposium. Montana Academy of Science.
- Nielsen, Peter. 1988. "Jurisdiction." Northern Lights Research and Education Institute, Inc. *The State of the Clark Fork: Mending a River.*
- Norgaard, Richard B. (1984). Coevolutionary Development Potential. *Land Economics.* (Vol. 60, #2). May. (Pp. 160-173).
- O'Brien, Mary. 1988. "Being a Scientist Means Taking Sides." Presented at the Public Interest Science Conference, University of Oregon, Eugene, OR, 6-7 March .
- O'Brien, Mary. 1988. "Quantitative Risk Analysis: Overused, Under-Examined." *Journal of Pesticide Reform.* 16 (Spring):29, 7-12.
- Ochenski, George M. 1984. "Curing the Clark Fork: Poisons from a century of mining have given Montana its own Love Canal." *Montana Magazine.* November/December.
- Peet, Richard and Michael Watts. 1993. "Development Theory and Environment in an Age of Market Triumphalism." *Economic Geography.* 69 (July):3, 227-53).
- Plumwood, Val. 1993. *Feminism and the Mastery of Nature.* London: Routledge.
- Ray, John. 1995. Interview with author. Butte, 24 October.
- Reavis, Mark. 1995. Interview with author. Butte, 29 November.
- Robbins, Jim. 1994. *Last Refuge: The Environmental Showdown in the American West.* New York: Harper Collins Publishers.
- Robbins, William. 1994. *Colony and Empire: The Capitalist's Transformation of the American West.* Kansas: University Press.
- Sarver, Christian. 1994. Her Sweet Faith, unpublished thesis. Missoula: University of Montana.
- Schnaiberg, Allan and Kenneth Alan Gould. 1994. *Environment and Society: The enduring conflict.* New York: St. Martin's Press.
- Schrader-Frechette, K.S. 1991. *Risk and Rationality: Philosophical Foundations for Populist Reforms.* Berkeley: University of California Press.

- Sewell, William H, Jr. 1992. "A Theory of Structure: Duality, Agency, and Transformation." *American Journal of Sociology*. 98 (July):1, 1-29.
- Shabecoff, Phillip A. 1993. *A Fierce Green Fire: The American Environmental Movement*. New York: Hill and Wang.
- Shea, John T. 1995. Interview with author. Butte, 24 October.
- Smith, Dorothy. 1996. "Women's Experience as a Radical Critique of Sociology." in *Readings in Social Theory: The Classic Tradition to Post-Modernism*. Farganis, James, ed. New York: The McGraw-Hill Companies.
- Spencer, J. William and Elizabeth Triche. 1994. "Media Constructions of Risk and Safety: Differential Framings of Hazard Events." *Sociological Inquiry* 64 (May):2, 199-213.
- Toole, K. Ross. 1959. *Montana: An Uncommon Land*. Norman: University of Oklahoma Press.
- Toole, K. Ross. 1972. *Twentieth Century Montana: A State of Extremes*. Norman: University of Oklahoma Press.
- Tuholske, Lilly. 1993. Ignoring the Obvious: The Agency for Toxic Substances and Disease Registry's Failure to Monitor Public Health on the Clark Fork River Superfund Site. Unpublished Master's Thesis. University of Montana, Missoula.
- U.S. Dept. of the Census. 1994. County and City Data.
- U.S. Dept. of the Census. 1990. Income in 1989 of Households, Families and Persons. Table 148.
- U.S. Dept. of the Census. 1990. Poverty Status in 1989 of Families and Persons. Table 149.
- U.S. Dept. of the Census. 1990. Selected Characteristics of Persons 60 Years and Over by Age. Table 150.
- U.S. Dept. of the Census. 1990. Labor Force Characteristics. Table 173.
- U.S. Dept. of the Census. 1990. Poverty Status in 1989 of Families and Persons. Table 178.
- U.S.E.P.A. 1991. *Final Preliminary Baseline Risk Assessment, Lower Area One, Silver Bow Creek/Butte Area NPL Site*. Golden: CDM Federal Programs Corp., 25 October.
- U.S.E.P.A. 1992. *Silver Bow Creek/Butte Area (Original Portion) Superfund Site: Lower Area One Operable Unit Final Expedited Response Action Work Plan*. 30 August.
- U.S.E.P.A. 1993. *Revised Final Baseline Risk Assessment for the Montana Pole NPL Site (Vol. 1)*. Denver: Camp, Dresser & McKee, Inc. 10 February.
- U.S.E.P.A. 1993. *Draft Baseline Risk Assessment Mine Flooding Operable Unit, Silver Bow Creek/Butte Area NPL Site*. Golden: CDM Federal Programs Corp. 15 December.
- U.S.E.P.A. 1994. *Butte Priority Soils Operable Unit: Unilateral Administrative Order for Conduct of a Non-Time Critical Removal Action*.

- U.S.E.P.A. 1994. *Enforcement/Action Memorandum: Butte Priority Soils Operable Unit of the Silver Bow Creek/Butte Area Superfund Site*. August.
- U.S.E.P.A. 1994. *Draft Baseline Risk Assessment for Lead. Expedited Response Action Priority Soils Operable Unit, Silver Bow Creek/Butte Area NPL Site*. Golden: CDM Federal Programs Corp. 11 February.
- U.S.E.P.A. 1994. *Responsiveness Summary: Priority Soils Expedited Response Action, Silver Bow Creek/Butte Area NPL Site*. 8 August.
- Van Fossen, Drew. 1995. Interview with author. Butte, 14 November.
- Waring, George. 1995. Interview with author. Butte, 21 October.
- Weber, Max. 1996. "Bureaucracy" in *Readings in Social Theory: The Classic Tradition to Post-Modernism*, 2nd ed. James Farganis, ed. New York: McGraw-Hill Companies, Inc.
- Weinstock, Sara. 1995. Interview with author. Butte, 31 July.
- Wenger, Dennis E. 1978. "Community Response to Disaster: Functional and Structural Alterations" in *Disasters: Theory and Research*. E.L. Quarantelli, ed. International Sociological Association. London: Sage Publications.
- West, Patrick C. 1994. "Natural Resources and the Persistence of Rural Poverty in America: A Weberian Perspective on the Role of Power, Domination, and Natural Resource Bureaucracy." *Society and Natural Resources*. 7: 415-27.
- Wilkinson, Charles F. 1992. *Crossing the Next Meridien: Land, Water, and the Future of the West*. Washington, D.C.: Island Press.
- Wolensky, Robert. 1991. "POWER: Collective Action and the Anthracite Region Water Crisis" in *Communities at Risk: Collective Responses to Technological Hazards*. Stephen Robert Couch and J. Stephen Kroll-Smith, ed. New York: Peter Lang.
- Writers' Program of the Work Projects Administration in Montana. 1943. *Copper Camp: Stories of the World's Greatest Mining Town, Butte, Montana*. New York: Hastings House.
- Yeager, Peter C. 1991. *The Limits of Law: The public regulation of private pollution*. Cambridge: Cambridge University Press.