Introduction

Some Thoughts about the Pittsburgh Environment

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A Walk around a Pittsburgh Park

ONE EARLY JUNE morning in 2002, while preparing the introduction for this book, I took a stroll in Schenley Park, which adjoins my university office. It was a beautiful morning, with the sun glistening through the leaves of trees that still held rain droplets from the previous day's evening shower. The park itself is a marvel, 454 acres and based on land donated to the city in 1889 by Mary Schenley, an heir to a Pittsburgh landed fortune, at a time when Pittsburgh had no parks. On a high pedestal at the entrance to the park stands the statue of the man who had persuaded her to donate the land, Edward Bigelow, director of the Department of Public Works. Bigelow was an admirer of Central Park and modeled Schenley after Frederick Law Olmsted's and Calvert Vaux's masterpiece. He is revered as the father of Pittsburgh's parks.[1]

As I walked through the park I visited the outdoor gardens of the Phipps Conservatory and Botanical Gardens, a massive greenhouse with silvered domes and glass vaults donated to the city by Henry Phipps, a partner of Andrew Carnegie, and opened in 1893. Beautifully arranged and landscaped on several levels, the gardens display varieties of flowering plants, spices, and shrubs. Outside the garden I was saddened to see the stump of a large elm tree that a

fierce storm (an act of nature) had toppled just two weeks before. A sign placed next to the stump by the Conservatory noted in gratitude that the tree had provided shade to park visitors for over a hundred years—it would be sorely missed. Here we had an example of how nature had given to Pittsburghers (although perhaps the tree had been planted by the park's landscapers) and then taken away.

My path then wound around two rectangular landscaped ponds planted with water lilies (one graced with a statue of Neptune spewing out water), and took me across a road busy with morning traffic and then to an overlook from which I could view the deep valley and thick woods (but secondary growth) of Panther Hollow. All panthers, except for the four sculpted by Giuseppe Moretti that guard the entrances to a nearby bridge, have long since vanished. In idle moments, I speculate about the possibility of returning panthers to the Hollow just as wolves and buffalo have been brought back to Yellowstone, only to realize the implausibility of such a return of first nature to the city.

Wending my way up the road, I came upon the Westinghouse Memorial Fountain, dedicated on October 6, 1930, by sixty thousand Westinghouse employees to show their "esteem, affection and loyalty" to the great inventor and entrepreneur. At the head of the pond surrounding the fountain is a statue of a young George Westinghouse, looking intently at a triptych of brass panels, each bearing etched images of his most famous inventions and projects: the air brake, alternating current, the electric locomotive, and the Niagara Falls power house. Surrounding the pond is a spectacle of nature—weeping willows, bushes, and grass—sculpted and landscaped and complementing the hymn to industry inscribed by the monument.

My walk in the park on that June morning reminded me of the many contradictions presented in Pittsburgh's environmental history. Schenley Park is beautiful, but the initial landscaping had eliminated many of the site's rugged features in order to present a more pastoral setting and not jar elite and middle-class sensibilities as well as to have a civilizing influence on visiting Pittsburgh immigrant workers. During the park's initial years, however, it was difficult to access, and not easily available to workers who frequently lived in crowded and dilapidated housing near the mills, suffering from poor air and water. Edward Bigelow may have been the father of Pittsburgh's parks, but for many years he was closely associated with the notoriously corrupt political machine of William Flinn and Christopher Magee.[2] The name of Flinn's construction company adorns many pieces of park infrastructure. Phipps Conservatory lightens the spirit with

the beauty of nature, especially in the dark winters, but the smoke produced by Carnegie Steel, from whence the money for the Conservatory came, and by other coal burners, had harsh effects on the city's atmosphere and defoliated many wooded hills. In the park itself smoke necessitated the use of pollution-resistant trees—hence the rows of ginkgo trees that line the park road overlooked by Bigelow's statue.

The ginkgo trees, however, have outlived all but one of Carnegie's steel mills, and the other mills have succumbed to human demolition. Now they are either awaiting renewal or have spouted new elements of the built environment. The electrical and transportation-related industries spawned by George Westinghouse helped transform our cities with light and transportation, giving jobs to generations of workers, but the great Westinghouse industrial empire is all but gone. The streams and land of Pittsburgh's "electric valley" have yet to recover from the damage inflicted upon them by industrial wastes, and many of the old Westinghouse works are empty and deteriorating. Eventually they, too, will be demolished or refurbished and the land put to other uses. Then, very possibly, more nature will return to the site and coexist in a symbiotic relationship with the forces of urbanization and industrialization.[3]

The City and the Natural Environment in Historical Perspective

All cities possess environmental stories, but there is no city that surpasses Pittsburgh in terms of the scope of its air, land, and water pollution history and the extent to which its landscape has been altered and shaped. Over the past two centuries, commentators who have encountered the city have noted its particular ambience. Consider, for instance, the following quotations:

James Parton, 1866: Pittsburgh is "Hell with the lid taken off."

Willard Glazier, 1883: "In truth, Pittsburg [*sic*] is a smoky, dismal city, at her best. At her worst, nothing darker, dingier or more dispiriting can be imagined."

Herbert Spencer, 1882: "6 months residence here [Pittsburgh] would justify suicide."

R. L. Duffus, *Atlantic Monthly,* 1930: "From whatever direction one approaches the once lovely conjunction of the Allegheny and the Monongahela the devastation of progress is apparent. Quiet valleys have been inundated with slag, defaced with refuse, marred by hideous

buildings. Streams have been polluted with sewage and the waste from the mills. Life for the majority of the population has been rendered unspeakably pinched and dingy. . . . This is what might be called the technological blight of heavy industry."[4]

Today Pittsburgh has managed to overcome many aspects of this history although the tasks ahead remain considerable.

Human-produced environmental blight has marred not only this city but also other urban and metropolitan landscapes. Some are recovering but others make slow if any progress. During the past decade or so, the attention of environmental and urban historians, as well as researchers from other disciplines, has begun to focus on the subject of the city and its relationship to the natural environment. The roots of this concern actually go back to the 1960s but the volume of literature published has accelerated in recent years as new research agendas are developed.[5]

Urban history and environmental history are both relatively new subfields of American history, with urban history emerging as a sustained focus of study in the 1960s and 1970s and environmental history originating in the 1970s and 1980s. Both fields were largely outgrowths of the events and turmoil of their own times rather than evolving from the independent study of the past. Urban history, in this respect, reflected concern over the growth, decay, and future of cities in an age of urban disruption and decline, while environmental history emerged during an era of heightened concern over the quality of the environment and threats to nature and human health. Initially the two fields appeared to be largely concerned with separate spheres. After all, urban history was about cities and built environments, while environmental historians largely studied natural environments and different manifestations of wilderness. As the distinguished environmental historian Donald Worster comments, environmental history was about "the role and place of nature in human life."[6] And, for most environmental historians in the first decade of the field's development, "nature" was something that was found in the American West or rural areas rather than the heavily urbanized parts of the nation.

Reflection tells us, however, that it would be difficult to write urban history without touching on environmental elements. Americans founded their cities in locations where nature offered various attractions—on coastlines where the land's contours created harbors, on rivers and lakes that served for transportation, water supplies, and waste disposal, and in fertile river valleys with plentiful food and animal resources. Cities have always placed demands on their sites and their hinterlands and, as the chapters in this book illustrate, Pittsburgh's demands were large.[7]

All cities, including Pittsburgh, were interested in extending their usable territory. Municipal governments, urban developers, industries, and railroads often reshaped natural landscapes, leveling hills, filling valleys and wetlands, and creating large areas of reclaimed land along the edges of rivers, lakes, and bays. On this new land they constructed a built environment of paved streets, squares, parks, parking lots, railroad tracks, and viaducts, as well as erecting structures such as houses, warehouses, factories, office buildings, and churches. In the process they altered urban ecosystems for their own purposes, killing off animal populations, eliminating native species of flora and fauna, and introducing new and foreign species. They also disrupted local hydrological patterns, damming rivers, dredging their bottoms, and culverting streams. Thus urbanites constructed a built environment that both replaced the natural environment and created a local microclimate, with different temperature gradients and rainfall and wind patterns than those of the surrounding countryside.

As the field of urban-environmental history emerged during the last decade, six primary themes emerged: the study of the construction of the built environment and of urban infrastructure and their effect on the natural environment; the study of societal responses to these impacts and efforts to alleviate environmental problems; analysis of land use patterns, including the reshaping of the landscape; exploration of the attempts to bring elements of the natural environment to the city; analysis of the relationship between cities and their hinterlands; and the investigation of the interplay of the factors of gender, class, and race with environmental issues. Also explored were topics such as the political economy of cities and provision of environmental services, the effect of political and economic power on environmental decision making and considerations of environmental justice. All of these themes are involved in the environmental history of Pittsburgh and are implicit if not explicit in the chapters included here.

Of special note are three immediate predecessors to this volume—that is, three books whose authors initiated the compilation of articles and essays dealing with the environmental history of a specific city: *Common Fields: An Environmental History of St. Louis* (1997), a pioneering volume edited by Andrew Hurley; *Transforming New Orleans and Its Environs: Centuries of Change* (2000), edited by geographer Craig E. Colten; and *On the Border: An Environmental History of San Antonio* (2001), edited by Char Miller.[8] At this point other volumes on cities such as Boston, Houston, and Los Angeles are under preparation.

This book focuses on the environmental history of the city of Pittsburgh and its hinterland. Readers will find that Pittsburgh and its region

share some features with the cities mentioned above—St. Louis, New Orleans, and San Antonio—but there are also a number of differences stemming from factors such as geographical location, climate, and resource endowment. Pittsburgh, as might be expected, is more similar to industrial cities located primarily in the eastern and midwestern parts of the nation. But every city, while sharing common elements with other cities, has its own unique environmental history. Pittsburgh stands out for its site characteristics, rivers, and resource endowment, especially coal; extensive industrialization and massive iron and steel complexes; distinctive history of pollution; attempts at creating a "Renaissance" for the industrial city; and, most recently, sweeping deindustrialization and attempts at redevelopment, which have powerful implications and promise for renewing aspects of the natural environment. Elements of these issues will be dealt with in the chapters in this book. First, however, I wish to present some basic geographical and demographic facts.

Pittsburgh sits astride the Monongahela and Allegheny rivers at the mouth of the Ohio River, just west of the ridges of the Allegheny Mountains—one of the world's great city locations. George Washington visited the future site of Pittsburgh in November 1753 and commented in his journal that, "I spent some time in viewing the rivers, and the land in the fork; which I think extremely well situated for a fort, as it has absolute command of both rivers." He might also have noted that it was an ideal location for a city. Both the French and the British built forts on the peninsula between the rivers—Fort Duquesne and Fort Pitt being the most substantial—and they played a critical role in the French and Indian War of the 1760s.[9] Fort Pitt proved the most durable, and eventually the settlement around it grew into a city. Pittsburgh was incorporated as a borough in 1794 and applied for and received its city charter from the Commonwealth of Pennsylvania in 1816.

Over approximately two centuries the city has grown into the center of a major six-county metropolitan area that extends 40 to 50 miles from a highly concentrated downtown. The city occupies an area of 56 square miles (144 sq. km.) while the metropolitan area—which for our purposes is equivalent to the Pittsburgh region—is 3,650 square miles (11,976 sq. km.). The population of Pittsburgh in 2000 was 334,563 persons, down from a high of 676,806 in 1950, while the metropolitan population was 2,358,695 in 2000, slightly up from 2,213,236 in 1950. Thus the city, after growing for much of its history, has lost half its population in the last half-century, while the region's population, after peaking in 1970, has been stable. Urban uses of the land expanded as population grew, but even when population

growth halted, suburbanization continued to consume greenfields at the periphery of the metropolitan area, putting pressure on rural areas and on the natural environment.[10]

From an ecological perspective, many other aspects of the history of the region are critical. Its particular geological history and topography are essential background factors in its environmental history, and these are touched upon in several chapters. The region's natural history, its biological and botanic features, are also vital, but unfortunately no comprehensive study of the natural history has been compiled.

The Pittsburgh region has a temperate climate, and while winters can be severe and snowfall heavy, this is the exception. An absence of extremes is also characteristic of rainfall patterns and summer temperatures. The land occupied today by the metropolitan area was originally heavily forested, largely with the so-called mixed oak forest, including various oaks, American chestnut, flowering dogwood, as well as mountain laurel. The area was timbered over several times, but, aside from the built-up areas, is again heavily forested.[11] A limited number of wetlands existed in the region before dense settlement, but most of these, especially near rivers and streams, have disappeared. Many varieties of fish species swam in the Pittsburgh rivers before the twentieth century, but by the 1920s sewage, mine acid, and industrial pollution had created long stretches of river dead zones. Today, however, the rivers are again abundant with species of fish, some reintroduced or newly introduced.[12] Prior to European colonization, sixty-nine species of mammals existed in what is today the state of Pennsylvania, and one can assume that most of these species were present in the Pittsburgh region. Some, such as the beaver, were exterminated but have been reintroduced. Today there are sixty-five species of land mammals in Pennsylvania.[13]

From an environmental perspective, we are concerned with the manner in which the physical and economic growth of this city has shaped its location, penetrated its regional hinterland, and impacted the natural environment. Like most American cities, the site of Pittsburgh was originally used and occupied at different times by various tribes of Amerindians, including the Delaware, the Shawnee, and various tribes from the Iroquois nation.[14] By the early nineteenth century, settlers, most of whom were English and Scotch-Irish, with the assistance of the U.S. Army, had largely pushed the various tribes out of the region's heart and taken over the land. The city and its site went through various stages of development after its colonial and military beginning, providing a major commercial and transshipment center for travelers moving west into the Ohio Valley; furnishing

important natural resources, especially relating to energy, to cities and industries; becoming one of the nation's premier industrial centers; and experiencing rapid deindustrialization in recent decades.[15]

Each of these stages affected the environment, as commercial and industrial development and the construction of the built environment impacted and shaped the natural environment in the mediums of water, air, and land. These issues are dealt with in various chapters throughout this volume. The first chapter, "The Interaction of Natural and Built Environments in the Pittsburgh Landscape," by Edward K. Muller and myself, provides an overview of the city's history over two centuries. This chapter is followed by three chapters that deal explicitly with issues relating to water: Muller's chapter on the history of the region's major rivers; my chapter with Terry Yosie exploring the critical decisions relating to water supply and wastewater disposal; and Nicholas Casner's chapter examining attempts to deal with one of the region's worst water pollutants—mine acid.

The second section of the book deals with air quality. Pittsburgh is famous as the "smoky city," and the three chapters presented here examine several aspects of this issue. Angela Gugliotta's penetrating chapter shows how smoke, over time, was regarded as having both costs and benefits. Subjecting attitudes toward coal smoke to social and cultural analysis, she challenges the reader to comprehend the complexity of the environmental issue and not to view it only from a perspective of problem creation and solution. Lynn Snyder's chapter on Donora, originally published in 1994 in the *Environmental History Review* but presented here with a new introduction, discusses the manner in which the Donora smog episode produced a set of contradictory results—a focus on exploration of the health effects of industrial pollution rather than a call for federal leadership in pollution regulation and prevention. In the final chapter in this section, Sherie Mershon and I explore the variety of forces, including a strong smoke control ordinance and market-driven fuel change, behind Pittsburgh's elimination of heavy smoke in the 1940s, and contrast this with the limited approach to controlling air pollution from industrial sources in Allegheny County after 1949.

Pollution of the land has also been a major factor in the Pittsburgh area, resulting in the cutting up and reshaping of the landscape. Elements of this are dealt with in Muller's and my landscape chapter, especially how the creation of a built environment of roads, streets, and tunnels altered the physical landscape. Industry has an equally important role in reshaping the landscape in order to meet both its transportation and production needs and to dispose of its wastes. In his chapter, "Slag in the Park," Andrew McElwaine deals with the latter issue comprehensively in his study of

the fate of the beautiful Nine Mile Run valley, converted to a dump for slag produced by the steel industry.

A constant theme in most of the chapters is the use of power to cause or avoid change; that is, who benefited from actions that produced environmental degradation and pollution and who bore the health and nuisance costs? In some cases the answer is obvious—industry altered and scarred the environment, and the poor and the immigrant and African American working class suffered the most. But in other cases cultural and political forces as well as economics came into play, and responsibility for harm was not always clear. Cultural attitudes helped shape the industrial workforce's position on smoke and water purity. Industry's position was also not always uniform: some were heedless in their willingness to use air, water, and land as sinks for their wastes, while others found that degraded air and water quality raised their costs and damaged their products.[16]

A consideration of the exercise of power also involves the exploration of who sought positive change and why they did so. These chapters examine positive improvements in many aspects of environmental quality as well as its degradation, and the authors explore and explain the success and failure of these reform attempts. Much of the movement toward environmental improvement over time was led by elites, professionals such as engineers and physicians, and women's groups who became involved in campaigns to control air, water, and land pollution. The motivations of these groups are not always obvious and they cannot easily be assumed to have always been self-interested. More recently, representatives of industrial unions and minorities concerned with environmental justice issues have played a role in seeking to control pollution.[17]

The stories presented here tell of many positive environmental outcomes, even though change frequently required decades to come to fruition. The air and water are far cleaner today than in a century and many species of fish fill the rivers. The hills that were barren for years have become richly revegetated, endowing the city with a green ambience. The rivers themselves are being opened to recreational use, and old industrial sites along their shores have been redeveloped. Even the slag-filled Nine Mile Run valley is now being redeemed with the construction of housing and building of a green corridor to the river. And there is even movement toward "daylighting" long buried urban streams. In balance, the trend has been positive even though significant air, water, and land environmental problems remain, as do others that relate to environmental equity issues. Pittsburgh boosters like to trumpet the city's environmental accomplishments, but least they become too self-congratulatory about their achievements, eminent environmental historian Samuel P. Hays, a former long-

term resident of the city and an environmental activist for forty years, scolds them in this volume's final chapter. Hays argues that not only have the city's politicians and elites exaggerated their environmental accomplishments but they have also been in an "environmental lethargy" for the past thirty years. Legislative actions on the state and local level have been limited, and the region's environmental organizations, he charges, have been overly cautious, with no strong leadership emerging to set environmental goals and to invigorate the region's environmental culture.

While some who identify themselves as proponents of environmental quality will dispute Hays's criticisms, his words are worthy of serious consideration. Strong leadership and consistent movement toward higher goals of environmental quality need constant reaffirmation. However, it must also be recognized that, in its own way over time, through the actions of concerned citizens and groups, Pittsburgh has managed to remediate many of the damages that its built environment and industry inflicted upon its natural environment. How far such healing will go, however, is unclear. Cities are human artifacts, subject to the various pulls of economic, political, and cultural forces, and these often result in compromises that produce less than ideal results.