

Name: Scott King-Owen, PhD.

Title: “Hell with the Lid Off”: Environmentalism in Carnegie’s Pittsburgh

Subject: AP United States History/United States History

State: Ohio

The heavy concentration of industry in Pittsburgh forced residents, including industrialists like Andrew Carnegie, to think about the effects of industrial pollution on city life. To what extent did industrialists like Carnegie understand the effects of industrial pollution? How did they conceive of environmental pollution as a factor in the health and welfare of their workers? Did workers understand their environmental conditions to be abnormal or something they just had to accept as a condition of employment?

1. Introduction, Overview, and Rationale

- a. Industrialization during the Gilded Age transformed the American landscape as well as the economy and the lives of Americans of all classes. Through a belief in an abundant environment that would always provide, Americans justified a reckless exploitation of the resources of the nation and, moreover, they believed that the wastes that they produced would be almost magically removed as nature whisked them away downstream. But, as the concentration of industry in urban settings increased, residents of cities realized that industrialization had significant problems in terms of the pollution it produced and this pollution was not simply going to disappear through natural processes. Industrialists like Andrew Carnegie realized the extent of the pollution, but did not always take responsibility for its causes nor did they advocate solutions that would actually improve the lives of their workers or urban residents affected by pollution.
- b. This lesson plan asks students to examine the effects of pollution by industries on urban residents, how urban reformers responded to this pollution, and how industrialists reacted to the problems.
- c. Debates over environmental responsibility and one’s carbon footprint are very important to 21st century Americans, though not all agree on the need to be wiser stewards of the resources of the earth. Predictions of imminent disaster in terms of biodiversity, global climate change, and loss of nonrenewable resources have aroused significant political debate. The framing of the debate as a personal problem versus a responsibility of industries mimics the debates of the late 19th century, showing that the more things change, the more they stay the same. History doesn’t repeat itself, but it does rhyme.

2. Unit Goals

- a. SWBAT identify sources of pollution in industrialized cities during the Gilded Age.
- b. SWBAT explain positions of reformers and industrialists on the causes and effects of pollution.
- c. SWBAT evaluate solutions of reformers and industrialists to the problem of urban pollution.
- d. SWBAT explain how industrialization affected workers’ lives in industrial towns.
- e. SWBAT compare debates over industrial pollution in the 19th century to the present.

3. Standards

- a. In the AP US curriculum, this lesson tangentially addresses KC 6.1.I, 6.3.I.B, and 6.1.II.A. It looks ahead to the Progressive era goal in 7.1.II.C
- b. In the Ohio Curriculum for United States History, this lesson partially addresses the following content standards:
 - i. The rise of corporations, heavy industry, mechanized farming and technological innovations transformed the American economy from an agrarian to an increasingly urban industrial society.
 - ii. Immigration, internal migration and urbanization transformed American life.
 - iii. The Progressive era was an effort to address the ills of American society stemming from industrial capitalism, urbanization and political corruption.

4. Daily Activity

- a. *Background Preparation* - This lesson is designed to be a single day or two day lesson, depending on the time available to the teacher. It presupposes several understandings to be established prior to the lesson (these understandings can be taught in any sequence and number of days the teacher has available):
 - i. Industrialization transformed American life as corporations grew in complexity and political power. This transformation accelerated the development of a very wealthy and powerful industrial elite.
 - ii. Urbanization and industrialization were intertwined processes that affected the lives of urban residents and workers alike.
 - iii. Conflict was a key feature of this industrialization after the Civil War. The rise of massive corporations not only led to a more unstable economy as vast fortunes rose and fell, but also worker-employer conflict through labor violence such as occurred in 1877, 1886, 1892, and 1894.
 - iv. Vocabulary students should know: Andrew Carnegie, Henry Clay Frick, Homestead, coke/coal, Monongahela River
- b. *Instructional Hook/Relevance*
 - i. Ask students orally or via a survey if they have ever recycled a product, thought about their carbon footprint, or wondered if it was safe to drink from their local stream (ours is Alum Creek). This should take 5-6 minutes as students think about their relationship to the environment. Students might share their thoughts with the entire class or with a partner (think-pair-share).
 - ii. Then announce the main goal of today's lesson -- to understand how 19th century industrialists and others conceived of pollution. If there is time, solicit students to ask questions about what they would like to know about 19th century pollution and industrialization.
- c. *Investigation*
 - i. Handout copies of the sources to students. This part of the lesson can be done in several ways:
 1. Students may be divided into any number of groupings (4 is usually the max for cooperative learning).

2. The students are broken into descriptions of the problems versus solutions to the problems, so the class may be broken into 2 large groups and further broken into smaller groups.
- ii. Students should interact with their sources utilizing the questions. You may ask students to report out their thoughts on each of the sources depending on how you've divided up your class. Reporting out can be charted using any number of methods (board, smartboard, chart paper, individual handouts). Some note-taking/charting resources are provided after the sources.
 1. There are multiple sources available in each section; teachers may wish to provide necessary disciplinary reading supports or remove sources they feel would not be as useful for their students.

d. Discussion

- i. As you chart responses, focus students on these key issues with a discussion of the entire class OR conduct this discussion in smaller groups (do with your students as you see fit):
 1. Why did Pittsburghers and surrounding community residents focus exclusively on smoke rather than on the other problems?
 2. What arguments did the opponents of Pittsburgh's environmental problems make for smoke abatement? Why did they make these arguments?
 3. Who was most affected by the types of pollution that occurred on a daily basis? Why might gendered assumptions about domestic roles for women have affected their participation in anti-smoke reform movements?
 4. How did industrialists respond to the problems that they contributed to with their mills?
- ii. Key Takeaways:
 1. Smoke was the most visible product of industrial and urban life in Pittsburgh. It affected everyone, rich and poor. The transition to natural gas had demonstrated clearly that it was possible to imagine a Pittsburgh without smoke for the years that natural gas was being used.
 2. Industrialists resisted reform efforts because they depended on fossil fuel burning to make their profits; the burning of these fuels was also part of urban life as well, so not all of the smoke can be traced to the steel and iron mills.
 3. Leaders of reform movements approached the smoke problem from two different angles. The women of the LHPA made their arguments in the maternalist vein that was common to the emerging Progressive movement--that smoke was primarily a health problem that affected women and children. Their goal was to appeal to the sympathy of the public to affect reform. The men who sponsored anti-smoke research much later (Mellon Institute) made their arguments primarily in terms of economic costs--that smoke was an expensive problem, not primarily a health problem.

1. The concerns of the working poor such as those in Homestead were documented by progressive era reforms (such as those who came as part of the *Pittsburgh Survey*), but their living and working conditions did not generate enough political will to fix poor communities. The communities surrounding the steel and iron mills struggled to solve their own problems with their limited resources.

iii. Modern-Day Connections

1. If you wish to draw connections to modern-day data about air quality in Pittsburgh, there are two websites that show data that might interest students: First, Plume Pittsburgh shows the direction of emissions from the industries still in operation (<https://plumepgh.org/index.html?date=2022-05-31>)
2. Second, the Breathe Project shows the distribution of carbon and nitrogen dioxide in the region. (<https://breatheproject.org/pollution-map/>)

5. *Assessment*

- a. Since this lesson is geared for an APUSH class, the assessment consists of a modified format dueling historians short-answer question. This is a type of question that appears on the AP exam involving two historical interpretations of a time period and asking students to identify the similarities and differences between the sources. The kinds of questions asked in this SAQ are modified from those that typically appear on the AP exam.
- b. A typical short-answer question for the AP exam should take around 13 minutes to complete.
- c. After students complete the SAQ, there are several possibilities for debriefing:
 - i. Assign students to self-grade their own SAQs.
 - ii. Assign students to peer-grade their own SAQs.
 - iii. Ask students to compare their responses in small groups or pairs.
 - iv. Conduct a whole-class discussion of responses. When a student offers an answer, it is important to ask other students to respond to it rather than the teacher giving an immediate assessment.
 - v. Teachers may wish to collect the SAQs and score them on their own.
- d. An alternate assessment could involve an analysis of a visual depiction of Pittsburgh's mills and smoke problem, painted in 1925. This is appended at the end.

6. *Needs*

- a. Teachers will need a means of providing copies to students, either in print or electronically.
- b. If teachers wish to display any of the items for discussion, the use of a SmartBoard or projector may be useful.

7. *Resources*

- a. The secondary and primary sources used in this lesson are annotated at the end of this lesson in order to provide more context for the teacher.
- b. There is an annotated bibliography at the end of this lesson document citing materials that are useful for further study of Pittsburgh and its environment.

APUSH

Unit 6: Gilded Age Industrialization

“Hell with the Lid Off” - Industrialization and Environment in Pittsburgh

Examine the following secondary and primary sources for the kinds of environmental damage that was happening in the late 19th and early 20th centuries in Pittsburgh.

1. What kinds of environmental damage were happening?
2. Who was responsible for that damage?
3. How did that damage affect people’s lives? Who was affected and in what way?

SECONDARY SOURCES ON THE DAMAGE

As railroads, mills, and factories spread for miles on every available floodplain, vegetation largely disappeared from the riverbanks, and the river edges became hardened with man-made structures. Industries built wood, brick, and concrete bulkheads; cranes towered over the river shorelines; industrial waste, sewage, and storm water outflow pipes stuck through the banks; and mooring cells rose above the river surface near the shores. Some industries dumped fill beyond the river edges to extend the floodplain and then built bulkheads against erosion around the new land. The Pittsburgh municipal government raised the levels of many streets near the rivers with fill in order to diminish flood damage. Industrial and urban growth increased the release of toxic chemicals, effluent, and storm water into the rivers, and the water often took on a muddy brown color. Discarded rubbish and garbage littered the riverbanks along with abandoned barges and other debris stranded during high water episodes. At the same time, urban industrial development required the erection of numerous railroad and highway bridges over the rivers with their massive stone piers thrust into the channels. By the early twentieth century and for decades thereafter, the rivers became increasingly inaccessible to residents, unsightly and unnatural in appearance and fact.

Edward K. Muller and Joel Tarr, historians, *Devastation and Renewal: An Environmental History of Pittsburgh and Its Region*, 2004

“Homestead’s mill property was foul at best, everything caked with soot and grime, particles of metal, minute shavings and debris. Piles of iron and other materials grew everywhere, sulfuric acid choked the air. The river along the mill was clotted with human and animal feces, chemicals, rotting foods and garbage, other discarded refuse, the excrement of the modern industrial world. Homestead shared the river not only with mill pollution, but also with the sewage of upstream towns that built tax-financed sewage lines directed to the Monongahela’s flow.

“Water for home use was always in short supply. The rare inside faucets of Homestead produced vile, viscous liquids, while the rain brought down tons of soot suspended in the atmosphere. The usual method for getting water was a trek over the refuse, cinder and scrap metal piles that lined the lifeless river bank. The water thus fetched was medically unsafe for drinking, though some

claimed its pollution was antiseptic: “No respectable microbe would live in it,” one Homestead resident allegedly asserted.”

Richard Krooth, historian, *A Century Passing : Carnegie, Steel and the Fate of Homestead*, 2004

“It was Mrs. Frick who oversaw the daily management of the house, which had been renamed Clayton. The maintenance of the twenty-three room home was, in itself, a large task, given the amount of soot and dust endemic to Pittsburgh and its environs. Mrs. Frick directed her staff of seven in the campaigns to clean layers of fabric that adorned the walls and hung at the windows and in the doorways at Clayton. Quantities of brass and silver had to be continuously cleaned and polished.”

Joanne B. Moore, “The Family,” in *Clayton, the Pittsburgh Home of Henry Clay Frick*, 1988.

PRIMARY SOURCES ON THE DAMAGE

[Natural gas] cleared our skies and showed us that we had, if not the most beautiful, certainly then the most picturesque, city in the Union. As our natural horizons broadened, so also did our aesthetic vision expand – in short we had libraries, beautiful buildings, parks and driveways appropriate to a great city – and all due directly to our clear skies. The grime and soot was an incubus to all advancement. We groped ... in our murky atmosphere, content to gather dollars and only dollars ... What incentive could there be to build a fine house when we knew that in a few months it would be declared defaced and defiled? Why should we buy beautiful pictures, and some furniture and ornaments or gather valuable libraries when the pall would surely destroy them all? If this smoke nuisance is not promptly abated, we will surely sink back into our former indifference ...

***Pittsburg Times*, May 16, 1895**

The noisy iron-manufacturing town of Braddock now occupies the site of Braddock’s defeat. . . . Braddock is but eight miles across country from Pittsburg, although twelve by river. We have, all the way down, an almost constant succession of iron and steel-making towns, chief among them Homestead, on the left bank, seven miles above Pittsburg. The great strike of July, 1892, with its attendant horrors, is a lurid chapter in the story of American industry. With shuddering interest, we view the famous great bank of ugly slag at the base of the steel mills, where the barges housing the Pinkerton guards were burned by the mob. To-day, the Homesteaders are enjoying their Sunday afternoon outing along the town shore--nurses pushing baby carriages, self-absorbed lovers holding hands upon riverside benches, merry-makers crossing the river in crowded ferries; the electric cars, following either side of the stream as far down as Pittsburg, crowded to suffocation with gayly-attired folk. They look little like rioters; yet it seems but the other day when Homestead men and women and children were hysterically reveling in atrocities akin to those of the Paris commune. Approaching Pittsburg, the high steeps are everywhere crowded with houses--great masses of smoke-color, dotted all over with white shades and sparkling windows, which seem in the gray afternoon, to be ten thousand eyes coldly staring down. . . .

Reuben Gold Thwaites, *Afloat on the Ohio: An Historical Pilgrimage of a Thousand Miles in a Skiff, from Redstone to Cairo*, 1894 [Thwaites was a historian and librarian who traveled down the Monongahela and Ohio in 1894]

“Words fail adequately to describe Pittsburg, this city of dreadful night; no human language contains sufficient adjectives for the purpose. Everything and everybody are black and gloomy; black is the place, and black is the air; the sky itself is black. Day and night these fourteen thousand chimneys pour forth their noisome vomit of smoke, steam, soot, embers, and sparks, killing everything. The temperature is such that the human organism cannot endure some of the furnaces for more than a few minutes.”

Count Peter Vay de Vaya y Luskod, *The Inner Life of the United States*, 1908 [The Count was a Slovakian religious leader who traveled through the United States in the late 19th century]

Examine the following primary and secondary sources on solutions to Pittsburgh’s environmental problems. Consider the following questions:

1. Who was leading the fight against pollution?
2. What arguments did anti-pollution activists make?
3. How did industrialists respond to pollution problems? What were their solutions?

SECONDARY SOURCES ON SOLUTIONS

“The founders of Pittsburgh’s first organized antismoke movement embodied many of the local and national cultural changes of the years between the Civil War and the turn of the century. Pittsburgh’s Ladies Health Protective Association (LHPA) was organized in 1889, on the model of a similar New York City group, to combat impure water, inadequate garbage disposal, and smoke. The group’s methods and motives were grounded in the long tradition of women’s charitable efforts to protect the poor from environmental threats to health. Middle-class women’s concern with health intensified after midcentury, as connections between the health of the poor and that of their own families made palpable by the uneven expansion of municipal services to manage water and waste. Popular versions of zymotic and german theories of disease emphasizing air and dust transmission led to increased suspicion of all municipal dirt. The LHPA portrayed smoke as an enemy of health under this rubricThe LHPA cast opposition to smoke as the protection of a necessity of life rather than as an expression of an elite taste for luxury.”

Angela Gugliotta, “How, When, and For Whom was Smoke a Problem in Pittsburgh?,” 2003

“The discovery and commercialization of clean-burning natural gas provided a respite, however brief, from the pollution. By 1886, estimates of the amount of coal displaced by natural gas ranged from six to twenty million tons per year. Of course, the downside was soaring unemployment in the minefields. National publications noted the benefits of natural gas and the dramatic reduction of pollution in Pittsburgh. But as early as 1890, fluctuating and dwindling natural gas supplies were already affecting industrial users. By 1891, Andrew Carnegie’s Edgar Thomson steelworks became disillusioned with the availability and cost of natural gas and

switched back to coke for fuel. George Westinghouse countered by suing Carnegie for a rather large unpaid gas bill amounting to \$580,000..... There is no public record of how the millionaires settled their dispute.”

William R. Huber, *George Westinghouse: Powering the World*, 2022

PRIMARY SOURCES ON SOLUTIONS

“I timidly besought various people to show me some of their benevolent schemes, and at once, with an air of pride, they pointed out to me certain marble halls, lofty edifices, and gilded cupolas, ‘in memory of Mr. X.,’ ‘to the honor of Mr Y.,’ and ‘for the glory of Mr Z.’ I failed to understand, and said so; and then it was explained to me that one of these palaces possesses a famous collection of antediluvian skeletons, another some marvellous ancient parchments, while Mr. Z’s glittering cupola shelters thousands of the most valuable volumes. Yet I could not quite see the connection between these magnificent specimens of architectural art, with their dazzling interiors, and the practical well-being of the toilers. It seemed to me that they served much less for the benefit of the poor than the glorification of the rich; and I thought how laudable it would be if Messrs X., Y. and Z., instead of advertising their own wealth and greatness in the fashion alluded to, would erect humble, yet clean and comfortable dwellings for their labourers.....”

Count Peter Vay de Vaya y Luskod, *The Inner Life of the United States*, 1908

“The man who abolishes the smoke nuisance in Pittsburgh is the foremost of us all; to him be assigned first place, and to him let our deepest gratitude go forth. Is there no Westinghouse or Brashear among us to work the miracle of our salvation from this nuisance? I have made numerous inquiries since my arrival, as my stay has been entirely favorable to seeing Pittsburgh in its robes of mourning, and I am more than ever impressed with the necessity which exists for a change.”

Andrew Carnegie’s address to the Pittsburgh Chamber of Commerce, 1898 (at a banquet in his honor at Hotel Schenley)

“I assert that there is nothing particularly unhealthy about smoke; on the contrary, it may mitigate other and worse evils. A reference to statistics will show that this city is not particularly unhealthy, but that, on the reverse, it enjoys a rather low death rate.”

William Metcalf, “The Consumption of Smoke,” 1892 [Metcalf was the owner of a steel plant in Pittsburgh and the author of a manual on the making of steel]

AN ORDINANCE To regulate and suppress the production and emission of smoke from bituminous coal, and to provide penalties for the violation thereof in the city of Pittsburg.

Section 1. Be it ordained and enacted by the city of Pittsburg in select and common councils assembled, and it is hereby ordained and enacted by the authority of the same that and from October 1, 1895, the emission of more than 20 per cent of black or dark gray smoke from any chimney or smokestack where bituminous coal is used as fuel in connection with boilers for heating and power purposes, shall be deemed and is hereby declared to be a public nuisance.

Section 2. That it shall be unlawful for any corporation, copartnership or individual owning, controlling or using any chimney or smokestack used in connection with boilers within the city limits, as provided in section 1, to allow, suffer or permit smoke from bituminous coal to be emitted or to escape therefrom.

Section 3. Any corporation, copartnership or individual who shall or may allow, suffer or permit smoke from bituminous coal to be emitted or escape from any chimney or smokestack used in connection with boilers for over three minutes' duration at any one time, shall in addition to any and all laws requiring the abatement of nuisances, forfeit and pay to the city of Pittsburg for every such offense, a sum not less than ten dollars (\$ 10) or more than fifty (\$ 50) dollars, to be recovered before any alderman of the county of Allegheny or any police magistrate of the city of Pittsburg as debts of like amounts are now recoverable.

Section 5. The director of the department of public works of the city of Pittsburg is hereby empowered and directed to enforce the provisions of this ordinance.

City of Pittsburgh, Anti-Smoke Ordinance, 1895 (declared unconstitutional by the Pennsylvania Supreme Court in 1902)

Because of the important part that coal has played in the industrial development of Pittsburgh and because the coal has been so burned, or rather so poorly burned, that it has given off great quantities of black smoke, Pittsburghers have come to regard smoke as a sign of prosperity. . . . Even if the production of black smoke was a means of profit to the industrialist it could not be tolerated by the public because of the damage it does to individuals, to their business establishments and to their homes. In this report an attempt has been made to estimate the minimum cost of the various items of damage about which data could be secured. [The total cost of damage caused by smoke is estimated at \$9.9 million] **Mellon Institute of Industrial**

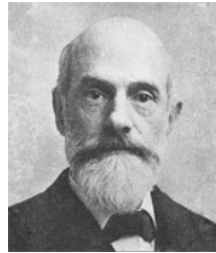
Research, *Smoke Investigation Bulletin*, 1-4, 1912

OVERALL DISCUSSION

1. Of the environmental problems that industrialization caused, which one(s) caught the attention of Pittsburgh residents and why?
2. How did industrialists respond to the environmental damage caused by industries?
3. How did urban residents conceive of damage to the environment? Do we know anything about how the working poor thought about their environment?

APUSH

Hell with the Lid Off: Environmental Pollution in Pittsburgh



What were the environmental conditions faced by Pittsburgh residents?

How did people living in Pittsburgh and the surrounding areas think about their environmental conditions?

Who led movements to fix environmental problems in Pittsburgh and the surrounding areas?



Who opposed movements to fix environmental problems in Pittsburgh?

APUSH

Name: _____

Hell with the Lid Off: An SAQ

Date: _____ **Period:** _____

Read the following two interpretations of the late 19th century environment of Pittsburgh. Answer the questions that follow.

“Though the city was smoky and dirty and its streets were crooked and poorly paved, it had a beauty of its own. The smokestacks against the red sky, the curving rivers with their steel-girded bridges conjured a romantic picture. It was the landscape of a workshop, the greatest in the world, a workshop which supplied the railroads with rails, bridges and locomotives, shipyards with steel plates, factories with heavy machinery, telephone, telegraph and electric companies with wires, and which also furnished the tools and implements, the hardware and much of the farm and industrial machinery that went into the growth of the West.”

Sylvester K. Stevens, “The Heart of the Nation,” in Stefan Lorant, *Pittsburgh: The Story of An American City*, 1964

The East End capitalists were involved in many civic improvements that helped their image. Pittsburgh mills and factories faced the results of a major social analysis known as the “Pittsburgh Survey” As a major real estate holder and Pittsburgh social donor, [Henry Clay] Frick supported the survey as well. The results were eye opening. The horrific report was made public in 1909 and profiled water pollution, air pollution, living conditions, industrial accidents, and wage issues for Pittsburgh’s 1.6 million immigrants. USS steel executives were clearly moved by the facts. Alva Dinkey, who was manager of the Homestead Works, said that the report was an epiphany similar to Lincoln seeing the abuse of slaves in his youth. USS executives including Frick became important partners in finding solutions to the city’s problems. Even Carnegie, while living in Scotland, aided programs to improve the lives of his old employees.

Quentin R. Skrabec, *The World's Richest Neighborhood: How Pittsburgh's East Enders Forged American Industry*, 2010

- a. Briefly contrast the point-of-view of the first interpretation with that of the second interpretation.
- b. Briefly describe ONE piece of evidence that would support or contradict one of the interpretations above.
- c. Briefly explain how ONE of the following groups would respond to the argument presented in the first OR second source.
 - i. Middle-class Pittsburgh women
 - ii. Workers in a steel or iron town
 - iii. The owner of a steel mill

APUSH

Name: _____

Hell with the Lid Off

Date: _____

Period: _____

Art-Based Assessment



Pittsburgh artist Otto Kuhler painted this image of the Monongahela in 1925. It is entitled “Steel Valley.” As the artist asks you to look at the effects of industrialization, consider how the painting evokes the environmental challenges of the region.

1. How has the artist used colors to suggest the effects of industrialization on Pittsburgh?
2. Where are the people in the painting? Why has the artist chosen to focus on mills, barges, and the river?
3. What time of day is suggested by the position of the sun?
4. Does the artist approve of the environmental conditions created by the smoke? Does he disapprove of them? How do you know?

Teacher’s Notes on the Sources:

SECONDARY SOURCES ON THE DAMAGE

As railroads, mills, and factories spread for miles on every available floodplain, vegetation largely disappeared from the riverbanks, and the river edges became hardened with man-made structures. Industries built wood, brick, and concrete bulkheads; cranes towered over the river shorelines; industrial waste, sewage, and storm water outflow pipes stuck through the banks; and mooring cells rose above the river surface near the shores. Some industries dumped fill beyond the river edges to extend the floodplain and then built bulkheads against erosion around the new land. The Pittsburgh municipal government raised the levels of many streets near the rivers with fill in order to diminish flood damage. Industrial and urban growth increased the release of toxic chemicals, effluent, and storm water into the rivers, and the water often took on a muddy brown color. Discarded rubbish and garbage littered the riverbanks along with abandoned barges and other debris stranded during high water episodes. At the same time, urban industrial development required the erection of numerous railroad and highway bridges over the rivers with their massive stone piers thrust into the channels. By the early twentieth century and for decades thereafter, the rivers became increasingly inaccessible to residents, unsightly and unnatural in appearance and fact.

Edward K. Muller and Joel Tarr, historians, *Devastation and Renewal: An Environmental History of Pittsburgh and Its Region*, 2004

Muller and Tar describe the basic environmental damage done to the water as a result of industrialization and urbanization. Note that much of the focus is on the rivers (the Monongahela in particular).

“Homestead’s mill property was foul at best, everything caked with soot and grime, particles of metal, minute shavings and debris. Piles of iron and other materials grew everywhere, sulfurous acid choked the air. The river along the mill was clotted with human and animal feces, chemicals, rotting foods and garbage, other discarded refuse, the excrement of the modern industrial world. Homestead shared the river not only with mill pollution, but also with the sewage of upstream towns that built tax-financed sewage lines directed to the Monongahela’s flow.

“Water for home use was always in short supply. The rare inside faucets of Homestead produced vile, viscous liquids, while the rain brought down tons of soot suspended in the atmosphere. The usual method for getting water was a trek over the refuse, cinder and scrap metal piles that lined the lifeless river bank. The water thus fetched was medically unsafe for drinking, though some claimed its pollution was antiseptic: “No respectable microbe would live in it,” one Homestead resident allegedly asserted.”

Richard Krooth, historian, *A Century Passing : Carnegie, Steel and the Fate of Homestead*, 2004

Krooth is focused on Homestead and provides a more detailed view of the effect of the mills and the lack of infrastructure on conditions in the village. The environmental damage, though, is not just industrial. Residents dumped waste in their streets and yards.

“It was Mrs. Frick who oversaw the daily management of the house, which had been renamed Clayton. The maintenance of the twenty-three room home was, in itself, a large task, given the amount of soot and dust endemic to Pittsburgh and its environs. Mrs. Frick directed her staff of seven in the campaigns to clean layers of fabric that adorned the walls and hung at the windows and in the doorways at Clayton. Quantities of brass and silver had to be continuously cleaned and polished.”

Joanne B. Moore, “The Family,” in *Clayton, the Pittsburgh Home of Henry Clay Frick*, 1988.

Moore’s description of cleaning activities at Clayton, the Frick home, show that the environmental effects of pollution fell heavily on women. Clayton, built far from the city in the Point Breeze neighborhood, was directly north of Homestead. Although this neighborhood was supposed to be spared from the environmental effects of Pittsburgh pollution, it wasn’t totally free from it. Frick’s daughter Helen recalled in 1949 that her father in fact wanted to move to NY partly to protect his art investment from environmental damage.

PRIMARY SOURCES ON THE DAMAGE

[Natural gas] cleared our skies and showed us that we had, if not the most beautiful, certainly then the most picturesque, city in the Union. As our natural horizons broadened, so also did our aesthetic vision expand – in short we had libraries, beautiful buildings, parks and driveways appropriate to a great city – and all due directly to our clear skies. The grime and soot was an incubus to all advancement. We groped ... in our murky atmosphere, content to gather dollars and only dollars ... What incentive could there be to build a fine house when we knew that in a few months it would be declared defaced and defiled? Why should we buy beautiful pictures, and some furniture and ornaments or gather valuable libraries when the pall would surely destroy them all? If this smoke nuisance is not promptly abated, we will surely sink back into our former indifference ...

***Pittsburg Times*, May 16, 1895**

As campaigns to clean up Pittsburgh’s skies took off in the 1890s, this editorial points to the

fact that the skies had been cleaner in the natural gas era (1880s-1890s). The problem of smoke is highlighted in this source and it is framed as a threat to the city's beauty as well as its material objects (homes, furniture, paintings).

The noisy iron-manufacturing town of Braddock now occupies the site of Braddock's defeat. . . . Braddock is but eight miles across country from Pittsburg, although twelve by river. We have, all the way down, an almost constant succession of iron and steel-making towns, chief among them Homestead, on the left bank, seven miles above Pittsburg. The great strike of July, 1892, with its attendant horrors, is a lurid chapter in the story of American industry. With shuddering interest, we view the famous great bank of ugly slag at the base of the steel mills, where the barges housing the Pinkerton guards were burned by the mob. To-day, the Homesteaders are enjoying their Sunday afternoon outing along the town shore--nurses pushing baby carriages, self-absorbed lovers holding hands upon riverside benches, merry-makers crossing the river in crowded ferries; the electric cars, following either side of the stream as far down as Pittsburg, crowded to suffocation with gayly-attired folk. They look little like rioters; yet it seems but the other day when Homestead men and women and children were hysterically reveling in atrocities akin to those of the Paris commune. Approaching Pittsburg, the high steeps are everywhere crowded with houses--great masses of smoke-color, dotted all over with white shades and sparkling windows, which seem in the gray afternoon, to be ten thousand eyes coldly staring down. . . .

Reuben Gold Thwaites, *Afloat on the Ohio: An Historical Pilgrimage of a Thousand Miles in a Skiff, from Redstone to Cairo*, 1894 [Thwaites was a historian and librarian who traveled down the Monongahela and Ohio in 1894]

Thwaites observed Homestead and Pittsburgh just two years after the Homestead strike and lockout of 1892 by sailing down the Monongahela to the Ohio river. He mentions slag, the byproduct of iron making (made of limestone mixed with the impurities in the iron ore), which was dumped in ravines across Pittsburgh. Thwaites' observations suggest that working class people are enjoying their lives in spite of the damage around them. Are his observations too rose-colored? Although he notes the presence of smoke, he doesn't dwell on it. Perhaps it was a good air day as he traveled, or perhaps he's very romantic in his observations.

"Words fail adequately to describe Pittsburg, this city of dreadful night; no human language contains sufficient adjectives for the purpose. Everything and everybody are black and gloomy; black is the place, and black is the air; the sky itself is black. Day and night these fourteen thousand chimneys pour forth their noisome vomit of smoke, steam, soot, embers, and sparks, killing everything. The temperature is such that the human organism cannot endure some of the furnaces for more than a few minutes."

Count Peter Vay de Vaya y Luskod, *The Inner Life of the United States*, 1908 [The Count was a Slovakian religious leader who traveled through the United States in the late 19th century]

The Count visited Pittsburgh (and traveled across the U.S.) in the late 19th century. His reflections on the atmosphere focus on the smoke problem. Is his account overly-dramatic in

comparison to Thwaites?

SECONDARY SOURCES ON SOLUTIONS

“The founders of Pittsburgh’s first organized antismoke movement embodied many of the local and national cultural changes of the years between the Civil War and the turn of the century. Pittsburgh’s Ladies Health Protective Association (LHPA) was organized in 1889, on the model of a similar New York City group, to combat impure water, inadequate garbage disposal, and smoke. The group’s methods and motives were grounded in the long tradition of women’s charitable efforts to protect the poor from environmental threats to health. Middle-class women’s concern with health intensified after midcentury, as connections between the health of the poor and that of their own families made palpable by the uneven expansion of municipal services to manage water and waste. Popular versions of zymotic and German theories of disease emphasizing air and dust transmission led to increased suspicion of all municipal dirt. The LHPA portrayed smoke as an enemy of health under this rubricThe LHPA cast opposition to smoke as the protection of a necessity of life rather than as an expression of an elite taste for luxury.”

Angela Gugliotta, “How, When, and For Whom was Smoke a Problem in Pittsburgh?,” 2003

The late historian Angela Gugliotta has written the most thorough account of Pittsburgh’s smoke problem (it was her as yet unpublished doctoral dissertation). As was the case in the late Gilded Age, many of the reformers were middle-class women. Some of these women were leading figures in the city’s elite, though they were often not the wives of steel and iron mill owners. They portrayed smoke as a health problem, though their opponents hired an “expert” (who really wasn’t) to testify that smoke was actually healthy and that Pittsburghers were actually better off than others. The LHPA affiliated with similar reformers in New York.

“The discovery and commercialization of clean-burning natural gas provided a respite, however brief, from the pollution. By 1886, estimates of the amount of coal displaced by natural gas ranged from six to twenty million tons per year. Of course, the downside was soaring unemployment in the minefields. National publications noted the benefits of natural gas and the dramatic reduction of pollution in Pittsburgh. But as early as 1890, fluctuating and dwindling natural gas supplies were already affecting industrial users. By 1891, Andrew Carnegie’s Edgar Thomson steelworks became disillusioned with the availability and cost of natural gas and switched back to coke for fuel. George Westinghouse countered by suing Carnegie for a rather large unpaid gas bill amounting to \$580,000..... There is no public record of how the millionaires settled their dispute.”

William R. Huber, *George Westinghouse: Powering the World*, 2022

Huber’s account testifies to the usage of natural gas, but that the temporary abandonment of coal did create unemployment. This should cause students to think about the economic costs of

environmental activities; workers might in fact vote against their own interests in terms of health and safety because they'd rather have a job (this is still seen in coal mining communities today). But Huber also points to the fact that industrialists had experimented with natural gas before switching back to coke. It is worth pointing out to students, however, that iron making itself produced very little in the way of air pollution--it was a closed process. The open hearth and the Bessmer process for steel, however, did produce air pollution. All of the air pollution did not come from the steel industries, moreover. Homes and businesses in town that burned coal inefficiently also contributed to the smoky atmosphere.

PRIMARY SOURCES ON SOLUTIONS

"I timidly besought various people to show me some of their benevolent schemes, and at once, with an air of pride, they pointed out to me certain marble halls, lofty edifices, and gilded cupolas, 'in memory of Mr. X.,' 'to the honor of Mr Y.,' and 'for the glory of Mr Z.' I failed to understand, and said so; and then it was explained to me that one of these palaces possesses a famous collection of antediluvian skeletons, another some marvellous ancient parchments, while Mr. Z's glittering cupola shelters thousands of the most valuable volumes. Yet I could not quite see the connection between these magnificent specimens of architectural art, with their dazzling interiors, and the practical well-being of the toilers. It seemed to me that they served much less for the benefit of the poor than the glorification of the rich; and I thought how laudable it would be if Messrs X., Y. and Z., instead of advertising their own wealth and greatness in the fashion alluded to, would erect humble, yet clean and comfortable dwellings for their labourers....."

Count Peter Vay de Vaya y Luskod, *The Inner Life of the United States*, 1908

The Count returns in this passage to suggest that the philanthropy of Pittsburgh's steel and iron barons was misdirected. Instead of libraries, museums, and art collections, the immediate need of Pittsburghers was "clean" housing. Carnegie could have invested in clean water for Homestead. Industrialists chose to elevate the "culture" and "manners" of the city through their spending on civic improvements that carried their names down to the present.

"The man who abolishes the smoke nuisance in Pittsburgh is the foremost of us all; to him be assigned first place, and to him let our deepest gratitude go forth. Is there no Westinghouse or Brashear among us to work the miracle of our salvation from this nuisance? I have made numerous inquiries since my arrival, as my stay has been entirely favorable to seeing Pittsburgh in its robes of mourning, and I am more than ever impressed with the necessity which exists for a change."

Andrew Carnegie's address to the Pittsburgh Chamber of Commerce, 1898 (at a banquet in his honor at Hotel Schenley)

In this speech, Carnegie acknowledges that smoke is a problem that needs to be solved. The rest of the speech, however, does not address the causes of the smoke problem and it frames it entirely as a technical problem. His reference to Westinghouse and Brashear are meant to suggest that local inventors just need to come up with a technical solution to the problem in

order to resolve it (Brashear, by the way, was an astronomer and telescope builder). Some human problems have no technical solutions--they are problems that originate in human behavior, and no amount of technical tinkering can solve them.

“I assert that there is nothing particularly unhealthy about smoke; on the contrary, it may mitigate other and worse evils. A reference to statistics will show that this city is not particularly unhealthy, but that, on the reverse, it enjoys a rather low death rate.”

William Metcalf, “The Consumption of Smoke,” 1892 [Metcalf was the owner of a steel plant in Pittsburgh and the author of a manual on the making of steel]

Metcalf was a leading figure in steel production whose 1892 response to the LHPA argued that the women had misdiagnosed the cause of the smoke problem and, moreover, that smoke wasn't really that bad anyway. His rejection of the environmental problem was reprinted in leading steel and iron making journals. He also hired an outside “expert” from Chicago to testify that smoke wasn't that bad in Pittsburgh. The expert was no expert and predictably confirmed Metcalf's pre-existing point of view.

AN ORDINANCE To regulate and suppress the production and emission of smoke from bituminous coal, and to provide penalties for the violation thereof in the city of Pittsburg.

Section 1. Be it ordained and enacted by the city of Pittsburg in select and common councils assembled, and it is hereby ordained and enacted by the authority of the same that and from October 1, 1895, the emission of more than 20 per cent of black or dark gray smoke from any chimney or smokestack where bituminous coal is used as fuel in connection with boilers for heating and power purposes, shall be deemed and is hereby declared to be a public nuisance.

Section 2. That it shall be unlawful for any corporation, co-partnership or individual owning, controlling or using any chimney or smokestack used in connection with boilers within the city limits, as provided in section 1, to allow, suffer or permit smoke from bituminous coal to be emitted or to escape therefrom.

Section 3. Any corporation, co-partnership or individual who shall or may allow, suffer or permit smoke from bituminous coal to be emitted or escape from any chimney or smokestack used in connection with boilers for over three minutes' duration at any one time, shall in addition to any and all laws requiring the abatement of nuisances, forfeit and pay to the city of Pittsburg for every such offense, a sum not less than ten dollars (\$10) or more than fifty (\$ 50) dollars, to be recovered before any alderman of the county of Allegheny or any police magistrate of the city of Pittsburg as debts of like amounts are now recoverable.

Section 5. The director of the department of public works of the city of Pittsburg is hereby empowered and directed to enforce the provisions of this ordinance.

City of Pittsburgh, Anti-Smoke Ordinance, 1895 (declared unconstitutional by the Pennsylvania Supreme Court in 1902)

As many urban areas do in the late 19th century, they pass ordinances to regulate the problems of industrialization and urbanization. Pittsburgh attempted multiple times to regulate the smoke problem, as this 1895 ordinance indicates, but regulation had its difficulties. This 1895 ordinance was declared unconstitutional. Other ordinances had problems in enforcement, since a law is only as good as the person making sure that it is followed does their job.

Because of the important part that coal has played in the industrial development of Pittsburgh and because the coal has been so burned, or rather so poorly burned, that it has given off great quantities of black smoke, Pittsburghers have come to regard smoke as a sign of prosperity. . . . Even if the production of black smoke was a means of profit to the industrialist it could not be tolerated by the public because of the damage it does to individuals, to their business establishments and to their homes. In this report an attempt has been made to estimate the minimum cost of the various items of damage about which data could be secured. [The total cost of damage caused by smoke is estimated at \$9.9 million]

Mellon Institute of Industrial Research, *Smoke Investigation Bulletin*, 1-4, 1912

Often reform movements have to find the right language and the right appeal in order to convince people of the need for change. Smoke abatement in Pittsburgh would remain a problem through the end of World War II in spite of the LHPA and this report of the Mellon Institute. The smoke investigation bulletin framed the problem in terms of its economic costs to Pittsburghers, from damage to buildings, to the frequent need to wash clothes. Where the LHPA saw smoke as a health concern, the brains behind the Mellon report tried to frame it as having an economic cost. Still, efforts to remediate the smoke problem would continue for the next fifty years.

Annotated Bibliography

Edward K. Muller and Joel Tarr, *Devastation and Renewal: An Environmental History of Pittsburgh and Its Region*, 2004

Edward K. Muller, Joel A. Tarr, *Making Industrial Pittsburgh Modern : Environment, Landscape, Transportation, and Planning*, 2019

These two volumes, edited by Muller and Tarr, with contributions from both as well as other historians, explore the environment and geography of the region with attention to industries as well as the politics of regulating growth.

Angela Gugliotta, “Hell with the Lid Taken Off:” A Cultural History of Air Pollution – Pittsburgh, Ph.D. Diss., Notre Dame, 2004.

*Gugliotta’s work is the best account of the problems of regulating air pollution in Pittsburgh. She has essays that recapitulate her dissertation in the Muller and Tarr volume (*Making Industrial Pittsburgh Modern*) as well as an article in the journal *Environmental History*.*

Angela Gugliotta, “Class, Gender, and Coal Smoke: Gender Ideology and Environmental Injustice in Pittsburgh, 1868-1914,” *Environmental History*, Vol. 5, No. 2, *Environmental Justice in the City: A Theme* (Apr., 2000).

Borrowing from her dissertation, Gugliotta explores the gendered dimension of Pittsburgh’s first attempts to regulate smoke, led by the middle-class women of the LHPA.

Margaret Byington, *Homestead: The Households of a Mill Town*. Pittsburgh: University of Pittsburgh Press, 1911.

Byington’s pioneering look at the lives of Homesteaders living in the shadow of the steel mills provides a lot of first-hand data about life in the community.

Richard Krooth, *A Century Passing : Carnegie, Steel and the Fate of Homestead*, 2004.

Krooth, a sociologist, did exhaustive and extensive research on Homestead in the 1890s and afterwards, using primarily the newspapers printed in the town (which are available on microfilm at the Carnegie Library, Pittsburgh).

Allen Dieterich-Ward. *Beyond Rust : Metropolitan Pittsburgh and the Fate of Industrial America*, 2016

Dieterich-Ward’s investigation of environmental and urban planning challenges in Pittsburgh in the late 20th century examines how the problems of the 19th get resolved as the region transitioned away from the steel production of the Carnegie era.

James Longhurst, *Citizen Environmentalists*, 2012.

Longhurst examines how citizens in Pittsburgh took on industry in several areas, not just smoke abatement, with an eye toward understanding how environmental activism develops.

For additional secondary source materials for use in making SAQs or other assessments, follow [this LINK](#) to download additional excerpts that relate to Pittsburgh, its environment, and Homestead.