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THE TOXIC ANTHRACITE = TOXIC HERITAGE

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Introduction

Northeastern Pennsylvania, also referred to in the U.S. as the anthracite region, is a landscape of contradictions. The region is situated in the northern portion of the Allegheny mountains and is home to waterfalls and numerous lakes. It is also one of the most disturbed terrains in the world. Billions of tons of debris can be found in the form of coal waste piles, mine dumps, and abandoned strip mines scattered throughout a region of about 484 square miles. Two centuries of mining coal have exposed heavy metals that continue to pollute the waterways. Streams and rivers are dead. Historical documents and several generations of oral histories describe how these communities were exposed to poisonous air quality conditions and drank contaminated well water. Daily, coal workers endured the perils associated with underground mining, thinking they might not survive until the end of the day. The coal workers were often underpaid and always on the verge of starvation. Today, the anthracite region is a place of poverty, sickness, and addiction, and these devastating conditions are prime for a critique of unchecked capitalism. For some, the region is now a destination for dark heritage tourism. For others, the place is a destination to remember and commemorate the struggles of a familiar past (Shackel 2018).

The toxic heritage of northeastern Pennsylvania is tied chiefly to the anthracite mining industry. It is a history that focuses on men's work and making do during difficult times. This toxic heritage of destruction and devastation is quite visible in the landscape. At the same time, some forms of toxic heritage have their most significant impacts underground and are difficult to see. For instance, for over a century, coal companies used deep mining methods, which involved a system of shafts and slopes, some as deep as several hundred feet. These deep mines were filled with water and had to be pumped out continuously. Therefore, when mining came

to a halt, the deep mines filled with water. The water dissolves heavy metals like copper, lead, and mercury. With a lower-than-normal pH, the water eventually flows through these abandoned mines and empties into rivers and streams, a process known as acid mine drainage (AMD) (Marsh 1987). This acid water is also capable of dissolving the substructure of bridges.

While the mining industry is nearly extinct in the region, the communities continue to be impacted by the deteriorated landscape. While capital has moved on to exploit other regions and communities, northeastern Pennsylvania endures the perpetual effects of a created toxic landscape. Despite these detrimental impacts of the coal mining industry, communities search for a heroic past. In some cases, communities celebrate the power of industry. In other cases, they honor the individual struggle to overcome overwhelming odds to survive, and in some cases, to confront exploitation. Nostalgia plays a vital role in the memorialization of this toxic landscape.

Background

Anthracite coal was first discovered in northeastern Pennsylvania, U.S., in the 1760s, although it took several decades before technologies developed to market it for home heating and industrial purposes (Miller and Sharpless 1985, 15). By the 1820s, East Coast industries began replacing water power with steam power, creating a greater demand for anthracite coal. In addition, the iron industry developed rapidly with increased coal extraction, and iron became cheaper and more accessible to industries (Keil and Keil 2015, 7; MacGaffy 2013, 4). As a result, many regional historians credit the advent and acceleration of anthracite mining for the development of the U.S. industrial revolution (Tarone 2004).

The early nineteenth-century anthracite workforce came from Germany, England, Scotland, and Wales. By the 1840s and 1850s, many new workers came from Ireland, escaping famine and political oppression. In the 1880s, many coal operators began recruiting workers from eastern and southern Europe. The coal operators believed that ethnically dividing the labor movement by recruiting workers who spoke many different languages would make it difficult for the coal workers to organize (Barendse 1981, 7–8, 24–28; Brooks 1898; Greene 1968; Miller and Sharpless 1998, 170–173; Roberts 1970 [1904]).

Peter Roberts (1970 [1904]), a sociologist studying the impact of the coal industry on the new immigrant community, commented on the impact of the anthracite coal industry on the region. He explained how several generations of coal extraction had severely impacted the environment. He reported that “Trunks of trees stand in the valley, veritable ghosts of stately pines which no more know spring-time and summer.” In many places acres of culm heaps, which are the refuse of a century of mining, “stand as black monsters defiling our fairest valleys” (Roberts 1970 [1904], 155) (Figure 15.1).

Roberts (1970 [1904]) also explained how mining impacted the local streams and rivers, which some mining communities relied on for drinking water. “A great change has come over this charming landscape ... But in nothing is the change so



FIGURE 15.1 Kohinoor Colliery [Koohinor] Colliery at Shenandoah City, Pennsylvania, c. 1884. From the mid-nineteenth century these barren landscapes with breakers surrounded with coal ash were common scenes throughout the anthracite region (Bretz Collection, University of Maryland, Baltimore County, Accession Number 73-02-018).

marked as in the character of these mountain streams ... Now the rain and snow have no natural reservoirs ... Every storm means a flood ... The mining industry perfects the work of destruction” (Roberts 1970 [1904], 6). Roberts (1970 [1904], 155) later explains how the waterways were being polluted with coal dust, “The contamination of our streams, the black creeks full of water laden with coal-dust, the dismal acres where the refuse from washeries has long been turned – these make a dreary environment.”

A few decades earlier, in 1886, in a case related to the contamination of the drinking water of an individual property owner, the Pennsylvania Supreme Court, in a 5–2 decision, ruled against water quality in favor of the coal company. The court claimed that the property suffered a “mere personal inconvenience,” which “must yield to the necessities of a great public industry” (Conlogue 2013, 36). The public good of the industry outweighed the interest of the individual and the good of the working communities (Shackel 2019, 2020). The destruction of the landscape and the lack of regard for communities’ general health and welfare continued into the twentieth century. The coal companies were not held responsible for the general welfare of the communities they operated.

Coal operators had little regard for the life and health of their workers. In response to the 1902 Anthracite coal strike, one sympathetic observer, Rev. John McDowell, wrote about the working conditions of the miners. He explained, “The air is impure, the mine damp; often men are compelled to work standing in water to their knees, and water dripping on them from above. Impaired sight, total blindness, and bodies maimed for life are some of the results of this most dangerous work” (McDowell 1902:9–10). He also described the living conditions within the patch towns. “The atmosphere, because of nearness to the breaker, is laden with dust; the water is tainted with Sulphur; and the sun has to fight its way through dense clouds of black smoke which blackens everything in sight” (McDowell 1902:10). In addition, he noted, “The squalor and dirt found in the patches surpasses anything known in the slums of our cities. Coal dirt is everywhere and in everything. The food is gritty with it. The clothing grates with it. It rubs itself into the souls of those who live in it” (McDowell 1902:10).

Boys went to work in the coal breakers as early as eight years of age, starting their long-term exposure to breathing coal dust. One former coal miner explained that he migrated to the U.S. in 1909 at age 13. He initially went to school and learned English; at age 15, he began picking slate for 10 hours a day for six days a week. He described, “They dumped 2,000 cars in the breaker before they released the water (to tamper down the coal dust), and then the dust was all over the building. When I came home, I looked like a n-----” (Victor Bartus interview 1973). He eventually became a miner, and in 1973 he claimed he had black lung disease. Another contemporary worker explained, “I was a laborer at the time and the miner that I was with. We were alongside of each other, and we couldn’t see each other for the dust that was between us. There was too much dust in the place” (Anthony Naugin interview 1973). In general, these dust-filled underground chambers meant that most of the coal workers suffered from black lung disease, limiting their physical abilities and impacting their household income.

In northeastern Pennsylvania, the waste coal piles are called “culm heaps” or “culm banks.” Since the earliest miners in the region migrated from England and Wales (as well as Scotland and Germany), the term culm is probably derived from the Middle English “colme” and/or the Welsh term *cwlm* (“knot or tie”), referring to a type of coal found in balls or knots in some parts of Wales. Both refer to the fine anthracite dust too small to ship to consumers. In other regions, these waste piles are referred to as “slag heaps,” “gob piles,” or “boney piles.” The culm banks consist of small bits of coal, shale, and other rock materials. For example, in 1898, Henry Edward Rood, writing for the *Century* magazine, described a scene in the coal patch town of Lattimer:

The level land between the culm and the hillside whereon the foreigners live is devoid of vegetation. Grasses and wild flowers once were luxuriant there, but for many decades, rains have been washing from the huge pile some of the deadly black particles that smother plants, even trees, as we realize by noting the gaunt,

leafless, lifeless trunks scattered here and there, with naked grayish limbs uplifted as if crying to Heaven for help. Were it not for the green hillsides and the kaleidoscopic sky, this would be indeed a somber picture. To the immigrant just arrived from Italy the colliery town must seem a realization of desolation itself.

(Rood 1898: 809)

However, they are more than stagnant markers on the landscape. Because coal and heavy metals are part of the culm bank, rainwater leaches through these culm banks, reacting with the coal and other traces of heavy metals, and drains into the groundwater and streams (Ewall 2017). As a result, communities relying on wells and streams for potable water often suffered, unknowing the cause of their maladies. Also, because culm banks have a low amount of coal, they can catch on fire and burn for years, releasing toxic chemicals into the atmosphere.

Poor sanitary and environmental conditions and the lack of a proper diet also meant that the mortality rate for children tended to be much higher than the average American. Diseases such as measles and typhoid ran rampant in these communities. In some mining communities, as many as 40% of the children died before they made it to adolescence (Miller and Sharpless 1998:195; Roberts 1970 [1904]). All these conditions existed while the coal and railroad companies made significant profits, with little regard for the workers, their families, or the communities in which they lived. The workers were interchangeable and replaceable.

By 1917, at the height of the industry, anthracite coal extraction increased to about 100 million tons a year, and the industry employed 180,000 workers. During WWI, the coal industry had a difficult time meeting demand. However, after the war, oil and natural gas gained a more significant market share, and the anthracite industry began its rapid decline (Rose 1981, 77). By 1922, the production of coal had dropped by nearly 40%. While there was a slight uptick in coal extraction during World War II, the industry further declined in the 1950s. The Knox Mine disaster occurred on January 22, 1959, resulting in twelve miners' deaths when the Susquehanna River broke through the roof of a mine. This tragedy was the death knell of coal extraction in the region. With the dramatic closing of the mines, many of the region's women became the sole economic provider for families as they found jobs in the garment industry. Many men were unemployed or "gone to New Jersey" for work (Wolensky 2020; Shackel 2023).

Nostalgia in a Toxic Environment

Generally translated from Greek, nostalgia means "a longing to return home." Nostalgia becomes useful during times of stress and uncertainty, especially when the present does not conform to one's expectations. It can help create a sense of comfort in a time of traumatic stress. Nostalgia can cushion the shock of change. Individuals call upon nostalgia during times of distress, loneliness, and anomie to help provide identity continuity (Rudacille 2015). The use of nostalgia and claiming a past is a way

to veil the disharmony and the angst of contending with the deindustrialization of the region and dealing with new cultural values in a relatively new post-industrial environment (Shackel 2016). Smith and Campbell (2017, 612–627) argue that nostalgia can “assert a sense of communal belonging and sense of place in the context of rapid deindustrialization and social change.” Mah (2010) explains, “The concept of the ruin implies sad beauty, majesty, glorious memory, tragedy, loss, and historical import [R]uins reflect pastness, romance and nostalgia, while at the same time representing risk, commodification and neglect.” In the case of the anthracite region, there is a strong relationship between the decline of the coal industry and the growth of nostalgia.

During the demise of the anthracite region, coal companies abandoned the region, leaving behind a ruined landscape. Penn State geographers Deasy and Griess (1961) came to the area in 1960 to assess the landscape and suggested revitalizing the economy by developing a sense of heritage. They explain that some people might be attracted to the distressed anthracite landscape. They claim that it is not uncommon for people to go out of their way to visit the slums of Paris and New York. While some might find the decimated anthracite landscape repulsive, they believed it could not be ignored. The anthracite region is one of the world’s largest concentrations of disturbed lands. The area is littered with coal waste piles and abandoned strip mines. Deasy and Griess compare the amount of earthmoving to the “engineering feats of the Suez and Panama canals and the pyramids of Egypt” (Deasy and Griess 1961, 3). Within this context, they describe the landscape as “man-made Bad Lands.”

Now that anthracite mining is nearly non-existent in northeastern Pennsylvania, the intrusive culm bank on the landscape serves as a reminder of the industrial past. Many culm banks throughout the region are over 100 feet high and can be viewed from significant distances. Goin and Raymond (2004, 39) note that some former miners and descendants of the miners consider these features, as memorials to the labor performed by the coal workers. – They are monuments to the many anonymous workers who toiled in this uncompromising industry. “Culm banks in Wyoming Valley are the remaining markers of a once-powerful industry that gave meaning to the place and to the lives of those who lived in it” (Goin and Raymond 2004, 39). To others, these features are now part of the vernacular landscape (Shackel 2020) (Figure 15.2).

Thomas Kiety Blomain’s poem provides a scene of old miners and their relationship to the landscape (quoted in Goin and Raymond 2004, 40–41):

I’ve seen the old men from the slag valley
wearing their worn gray caps
inhaling Lucky Strike and anthracite
congregating at the aluminum-sided bars
that line the dim street with familiar signs.
I’ve seen them malingering
outside vast cathedral doors



FIGURE 15.2 The culm bank at Beaver Meadow, Pennsylvania stands about 100 feet tall. The town developed adjacent to this culm bank. These culm banks are common throughout the anthracite region's landscape (Courtesy, Paul A. Shackel).

fidgety as children
in parochial Easter suits,
their catechism
on earth's dusty shelf
a bound history
of culm mountains.

The poem provides a faint perspective of the past, referring to the landscape of slag valley (a coal by-product) and inhaling cigarette smoke and anthracite dust. The cathedral doors open to the earth's dusty shelf, which is the dust and grime-filled environment. In the end, the toxic culm mountain looms large and dominates the toxic landscapes.

Since the coal industry's decline, monuments and statues commemorating the workers have sprung up in many town parks and public spaces. Anthracite mining nostalgia increased in the 1960s with the widespread economic devastation in the region. For instance, in 1961, the Ashland Community Enterprises developed a mine tour and a half-mile train ride to view the results of an abandoned strip mine, an imposing 250-foot high carved solid rock wall. Griess and Deasy (1964, 215) exclaimed that this site is "one of the great engineering wonders of the world." In some coal mine tours, former miners will interpret their mining experiences. Similar to what Dicks (2008) found in her ethnography of mine tours in Wales, these new tour guides present work as a form of dignity and, at the same time, acknowledge how they were subjugated and defeated as capital moved on. Forms of

nostalgia helped prop the value of working-class citizens that helped to ignite the industrial revolution.

The drive for a nostalgic past accelerated with the 1969 filming by Paramount Pictures of the movie *The Molly Maguires* in the coal patch town of Eckley. The film portrays coal mining life in northeastern Pennsylvania during the reign of the Molly Maguires. After filming and because Eckley was well preserved, the Anthracite Historic Site and Museum Corporation, affiliated with the Hazleton Chamber of Commerce, purchased the town in 1971 and then donated the village to the Commonwealth of Pennsylvania (Warfel 1993, 6). In 1975, Eckley Miners' Village became one of several museum sites in the anthracite region developed to interpret the history of the anthracite coal industry. Eckley Miners' Village reinforces a nostalgia for past working-class life, interpreting the life and working conditions people once endured under the rule of the coal barons.

In Mahanoy City, a memorial was erected in 2010 to commemorate the Molly Maguires. The Molly Maguires became active in the anthracite region since at least the Panic of 1873 and probably earlier. Consisting of miners of Irish descent, the Mollies confronted the coal operators for their unjust labor practices, and they were eventually accused of murder, arson, and other crimes. The Pinkerton National Detective Agency infiltrated the Molly Maguires, which led to the conviction of 20 men for murder, arson, kidnapping, and other crimes. They were executed by hanging in 1877 and 1878. Some histories characterize the Mollies as working-class laborers fighting their exploitations, while others condemn the organization for its violence. A memorial is a blindfolded man about to be hanged. It is located on the town's main street, although it sits behind a block wall that is not visible from the road (Hand 2015; Shackel 2019, 2020).

The Anthracite Heritage Museum in Scranton, Pennsylvania, documents the impact of the region's dominant industry. The museum explores the industry's impact on life and community during its growth and eventual demise. Adjacent to the museum is the Lackawanna Coal Mine Tour. It is one of three mine tours in the region (in addition to one in Lansford and the other in Ashland).

Another effort to support anthracite heritage is an oratorio for choir and chamber ensemble by Julia Wolfe titled *Anthracite Fields*. It premiered in Philadelphia in 2014 and was awarded the 2015 Pulitzer Prize for Music (Shackel 2019).

Living in a toxic environment has led to the creation of different forms of heritage. The anthracite region is in a visible state of ruin. The environment, landscape, and communities have been severely impacted. Within this devastated landscape, communities are striving to remember a past. Some forms of remembering glorify capital, while others condemn the region's destruction of people and communities.

Conclusion

There is often a question about how to view and interpret these ruined landscapes. Interestingly, Rudd and Davis (1998) show how a Utah corporation promoted

copper mine tourism intending to address the community's concern about the industry's impact on the environment. The corporation interprets its industry as "a gift of nature" developed only through active mining, although they do not address the activity as polluting the region and impacting the landscape. In northeastern Pennsylvania, the mining industry has left a toxic and ruined environment. However, the region's people have found ways to commemorate a heroic industrial past. Amid the ruined landscape, there are monuments, memorials, and museums.

In many cases, the glorification of capital overrides the industry's devastating impact on people and the environment. Looking beyond the memorialization of capital, a toxic heritage is found throughout the landscape and is a reminder of the coal industry's heedless destruction of people and communities (Figure 15.3).

The anthracite region has the most disturbed landscape in Pennsylvania. Currently, there are eight known underground mine fires in the region. In addition, there are about sixty-four square miles of abandoned mine lands and five hundred and four miles of impaired streams in the anthracite region (Clark 2011). There are black mounds and hills of coal waste, known as culm banks, some reaching 125 feet high. Water running through abandoned mines empty into streams and rivers. This water has a very low pH, and some water is orange in color,



FIGURE 15.3 Acid mine drainage near Mahanoy City, Pennsylvania. This orange water has high levels of iron hydroxide, a common feature found in waters impacted by mine water runoff. While this pool is found in a strip mine, the impact of acid mine drainage can be found throughout the anthracite region (Courtesy Gabby Zawacki, 2016).

a product of acid mine drainage (Figure 3). As early as 1924, the *New York Times* (May 30, 1924) reported that the abandoned mines in northeastern Pennsylvania were filled with water, mixing and reacting with coal. Communities had basements flooded with water. In order to address this situation, boreholes were drilled in abandoned mines. This work helped drain the mine water away from the property and into surrounding rivers and streams, thereby creating another environmental disaster, acid mine drainage (AMD) into major bodies of water (also see Conlogue 2013, 30). The Jeddo Tunnel, completed in 1894, was the largest mine drainage tunnel in the world. The tunnel still drains about 40,000 gallons of water per minute, with an average pH of 4.3. An average of 2,900 pounds of aluminum, 1,350 pounds of manganese, and 860 pounds of iron flow from the tunnel daily (*Coal Age* 1914, 391; Mendinsky and Dempsey 2004; Shackel 2017).

Hardwood forests in the region were once filled with diverse forms of wildlife are now replaced with mountainous culm banks. It takes several generations before the acid soils can support some primary growth, such as briar bushes, scrub vegetation, and eventually birch trees. There are several land reclamation projects in process. The focus is to bring the land back to its natural contours. After filling the open-pit mines, a layer of topsoil is added and then seeded to begin the reclamation process. A local cable talk show often interviews coal industry representatives. At times, they will state that when they finish mining, and the land is reclaimed, the landscape will be better than its original condition. Berger (2019: 48) found a similar situation in the industrial Ruhr valley. While the industrial site polluted the air and poisoned the lands, industrialists are claiming the emergence of an “industrial nature,” which is the re-emergence of vegetation on former industrial sites. The scarred landscape is healing, and industrialists claim that there is more plant and animal life diversity than before.

It is important to recognize the people who continue to live in these landscapes since the toxic landscape still has an impact on their daily lives today (Stoler 2013, 9). Today, the region’s population skews older than the rest of the state, with a large majority of the residents being descendants of the mining community. The region is not well. Heart disease deaths are 20% higher than the state’s average. In addition, the cancer death rates are about 24% higher, and the rate of deaths by respiratory disease is more than 30% higher than in the rest of the state (Huang 2019). As one author notes, “the coal region’s industrial economy left behind potential health hazards” (Huang 2019). Nevertheless, the community strives to find ways to remember a selective past.

References

- Barendse, Michael A. 1981. *Social Expectations and Perception: The Case of the Slavic Anthracite Workers*. The Pennsylvania State University Studies, no. 47. University Park, PA: Pennsylvania State University Press.
- Berger, Stefan. 2019. “Industrial Heritage and the Ambiguities of Nostalgia for an Industrial Past in the Ruhr Valley, Germany.” *Labor* 16(1): 37–64.

- Brooks, John Graham. 1898. "Notes." *The Yale Review: A Quarterly Journal for the Scientific Discussion of Economic, Political and Social Questions* 6: 306–311.
- Coal Age. 1914. *Coal Age: Devoted to Coal Mining and Coal Manufacturing* 6 (10).
- Clark, Tom. 2011. "Anthracite Region Mine Drainage Remediation Strategy." *Susquehanna River Basin Commission*, December: 1–3.
- Conlogue, Bill. 2013. *Here and There: Reading Pennsylvania's Working Landscape*. University Park, PA: The Pennsylvania State University Press.
- Deasy, George F., and Phyllis R. Griess. 1961. "Tourism for the Anthracite Region: An Alternative for Unemployment." *Mineral Industries* 30(7): 1–8.
- Dicks, Bella. 2008. "Performing the Hidden Injuries of Class in Coal-Mining Heritage." *Sociology* 42 (3): 436–452.
- Ewall, Mike. 2017. "Waste Coal." *Energyjustice.net*. <http://www.energyjustice.net/coal/wastecoal>
- Goin, Peter, and C. Elizabeth Raymond. 2004. *Changing Mines in America*. Santa Fe, NM and Staunton, VA: The Center for American Places.
- Greene, Victor R. 1968. *The Slavic Community on Strike: Immigrant Labor in Pennsylvania Anthracite*. Notre Dame, IN: University of Notre Dame Press.
- Griess, Phyllis R., and George F. Deasy. 1964. "Economic Impact of a Pennsylvania Tourist Facility." *Land Economics* 40(2): 213–220.
- Hand, Mark. 2015. "West Virginia Miners Play Second Fiddle to the Molly Maguires." *CounterPunch*. September 29. <http://www.counterpunch.org/2015/09/29/west-virginia-miners-play-second-fiddle-to-the-molly-maguires/>
- Huang, Binghui. 2019. "Pennsylvania Coal Region's Industry Burned Out. What Remains are Pockets of Poverty where Sick People Get Sicker." *The Morning Call*. January 27. <https://www.mcall.com/news/watchdog/mc-nws-health-coal-country-project-20181216-htlstory.html>
- Keil, Thomas, and Jacqueline M. Keil. 2015. *Anthracite's Demise and the Post-Coal Economy of Northeastern Pennsylvania*. Bethlehem, PA: Lehigh University Press.
- MacGaffey, Janet. 2013. *Coal Dust on Your Feet: The Rise, Decline, and Restoration of an Anthracite Mining Town*. Lewisburg, PA: Bucknell University Press.
- Mah, A. 2010. "Memory, Uncertainty and Industrial Ruination: Walker Riverside, Newcastle upon Tyne." *International Journals of Urban and Regional Research* 34 (2): 398–413. 10.1111/j.1468-2427.2010.00898.x
- Marsh, Ben. 1987. "Continuity and Decline in the Anthracite Towns of Pennsylvania." *Annals of the Association of American Geographers*. 77(3): 337–352. <http://www.jstor.org/stable/2563271>
- McDowell, Rev. John. 1902. "The Strike of the Anthracite Miners: Its Causes, Justice, and Significance." *The Pilgrim*, July: 9–10.
- Mendinsky, Justin J., and Brian A. Dempsey. 2004. "Effects of AMD Pollutant Loading On Streams in the Hazleton PA Area." *Proceedings America Society of Mining and Reclamation*. <http://www.asmr.us/Portals/0/Documents/Conference-Proceedings/2004/1289-Mendinsky.pdf>
- Miller, Donald L., and Richard E. Sharpless. 1985. *The Kingdom of Coal: Work, Enterprise, and Ethnic Communities in the Mine Fields*. Philadelphia, PA: University of Pennsylvania Press.
- New York Times. 1924. "Veteran Buried by Mine Cave." May 30.
- Roberts, Peter. 1904 1970. *Anthracite Coal Communities*. New York: Arno Press and the New York Times.

- Rood, H. E. 1898. "A Pennsylvania Colliery Village: A Polyglot Community." *Century*, April 0055(6): 809–821.
- Rose, Dan. 1981. *Energy Transition and the Local Community: A Theory of Society Applied to Hazleton, Pennsylvania*. Philadelphia, PA: University of Pennsylvania Press.
- Rudacille, Deborah. 2015. "Steel Mills, Coal Mines, and Blast Furnaces Have Killed and Poisoned Thousands of Americans – So Why Mourn their Passing?" *Aeon*. <https://aeon.co/essays/how-toxic-is-smokestack-nostalgia>
- Rudd, M., and J. Davis. 1998. "Industrial Heritage Tourism at the Bingham Canyon Copper Mine." *Journal of Travel Research*. 36:85–89.
- Shackel, Paul A. 2016. "The Meaning of Place in the Anthracite Region of Northeastern Pennsylvania." *International Journal of Heritage Studies* 22(3): 200–213. 10.1080/13527258.2015.1114009
- Shackel, Paul A. 2017. "Anthracite Heritage: Landscape, Memory and the Environment." *Open Rivers: Rethinking Water, Place and Community* 7(Summer). <http://editions.lib.umn.edu/openrivers/article/anthracite-heritage-landscape-memory-and-the-environment/>
- Shackel, Paul A. 2018. "Transgenerational Impact of Structural Violence: Epigenetics and the Legacy of Anthracite Coal." *International Journal of Historical Archaeology* 22(4): 865–882. 10.1007/s10761-017-0451-0
- Shackel, Paul A. 2019. "Structural Violence and the Industrial Landscape." *International Journal of Heritage Studies* 25(7): 750–762. 10.1080/13527258.2018.1517374
- Shackel, Paul A. 2020. *An Archaeology of Unchecked Capitalism: From the American Rust Belt to the Developing World*. NY: Berghahn Books.
- Shackel, Paul A. 2023. *The Ruined Anthracite: Historical Trauma in Coal Mining Labor Communities*. Champaign, IL: University of Illinois Press.
- Smith, Laurajane, and Gary Campbell. 2017. "'Nostalgia for the Future': Memory, Nostalgia and the Politics of Class." *International Journal of Heritage Studies* 23(7): 612–627.
- Stoler, A. L. 2013. "Introduction: 'The Rot Remains': From Ruins to Ruination." In *Imperial Debris: On Ruins and Ruination*, edited by A. L. Stoler, 1–35. Durham: Duke University Press.
- Tarone, L. A. 2004. *We Were Here Once: Successes, Mistakes, & Calamities in Hazleton Area History*. Hazleton, PA: Citizen Publishing, Company, Inc.
- Turner, Victor, and Edith Turner. 1978. *Image and Pilgrimage in Christian Culture*. New York: Columbia University Press.
- Warfel, Stephen G. 1993. *A Patch of Land Owned by the Company*. Harrisburg, PA: Pennsylvania Historical and Museum Commission.
- Warne, Frank Julian. 1904. *The Slav Invasion and the Mine Workers*. Philadelphia, PA: J.B. Lippincott.
- Wolensky, Robert, ed. 2020. *Sewn in Coal: An Oral History of the Ladies' Garment Industry in Northeastern Pennsylvania, 1945-1995*. University Park, PA: The Pennsylvania State University Press.