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Smoke space: material and imagined nature in the smelter city of Anaconda, Montana

Jeremy Bryson

Department of Humanities and Social Sciences, Northwest Missouri State University, 800 University Dr., Maryville, MO 64468, United States

Abstract

This paper argues that both the physical material of the environment as well as the social imagination of the environment are important actors in the production of urban space. Using a case study of the smelter city of Anaconda, Montana in the twentieth century, this paper shows how toxic smelter smoke and the complex social imagination of that smoke shape the contours of urban space. The production of smelter smoke for nearly a century in Anaconda persists today and presents a complex set of opportunities and challenges for the continuing development of the urban landscape. By taking a smoke-specific approach to the relationship between cities and industrial air pollution, this paper contends that material nature matters in the everyday urban experiences of life in this postindustrial city.

Keywords: Mining communities; Smoke; Nature; Pollution; American West

Smoke has always defined Anaconda, Montana. In 1886, only a year after the city's founding, a visiting reporter from the *Minneapolis Tribune* observed that 'for a distance of 30 miles the great clouds of smoke that rise from among the mountains indicate the location of Anaconda and the greatest copper smelter in the world.'[1] For nearly 100 years, the Anaconda Company operated copper smelters in the industrial city while community residents adjusted to the pains and pleasures that accompanied their smoke-filled urban environment. While Anaconda's airshed cleared after the smelter shutdown in 1980, smelter smoke continued to figure critically in the production of space in the postindustrial city.

For decades, as environmental historian Matt Klingle argues, students of the urban past have 'tracked effluents and chased fumes through their stories' in order to untangle the complex relationship between pollution and cities.[2] Legal battles, environmental injustice, health hazards, and technological mitigation solutions have helped scholars illustrate how differing urban interests have used industrial pollution as an instrument of social power.[3] This research, though, often treated the material environment as powerful only when mediated through social processes. Otherwise it was a passive stage to be controlled by lawyers, technocrats and civic groups. New work is beginning to address this oversight by revealing how the physical material of the environment, or nature, matters in the production of urban space.[4] Klingle puts it this way: 'Nature is an integral part of the messy planet on which human action unfolds. It may not be an actor in the strictest sense, yet its actions force people to make moral choices.'[5] Indeed, as historical research of urban environments shows, both material and socially imagined nature have a significant impact on the production of urban space.

Nature's power is particularly vivid in the relationship between pollution and cities, and no type of industrial pollution has been the

E-mail address: jbryson@nwmissouri.edu

[1] H. Shoebotham, *Anaconda: Life of Marcus Daly, The Copper King*, Harrisburg, 1956, 77.

[2] M. Klingle, Changing spaces: nature, property, and power in Seattle, 1880–1945, *Journal of Urban History* 32 (2006) 198.

[3] The literature on urban environmental history is rich, but important texts include: M. Melosi, *The Sanitary City: Urban Infrastructure in America from Colonial Times to the Present*, Baltimore, 1999; J. Tarr, *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*, Akron, 1996; W. Cronon, *Nature's Metropolis: Chicago and the Great West*, New York, 1991; A. Rome, *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*, New York, 2001; A. Hurley, *Environmental Inequalities: Class, Race, and Industrial Pollution in Gary*, Indiana, 1945–1980, Chapel Hill, 1995.

[4] For examples of how environmental researchers have argued that nature is an actor, see C. Colten, *An Unnatural Metropolis: Wresting New Orleans from Nature*, Baton Rouge, 2005; A. Kelman, *A River and its City: The Nature of Landscape in New Orleans*, Berkeley, 2003; Klingle, Changing space (note 2) 197–230; M. Kaika, *City of Flow: Modernity, Nature, and the City*, New York, 2005; S. Prudham, *Knock on Wood: Nature as Commodity in Douglas-Fir Country*, New York, 2005; E. Stroud, Does nature always matter? Following dirt through history, *History and Theory* 42 (2003) 75–81.

[5] M. Klingle, *Emerald City: An Environmental History of Seattle*, New Haven, 2007, 9.

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subject of more research than smoke. This work illustrates the interactions between material and imagined environments. The physical material of smoke is the airborne manifestation of unburned particulate matter that infiltrates urban space and interacts, often detrimentally, with humans, plants, and animals. If solely a physical material, smoke would have been a critical actor in producing space in the industrial city, yet smoke's cultural symbolic significance amplified the importance of the physical material. Residents of industrial cities applied a complex layer of imagination to the smoke that penetrated their lives, making it at once necessity, nuisance, health hazard and economic opportunity.[6] Universally, though, smoke served as a cultural marker of urban space—a symbol that, as William Cronon argues, 'betokened urban growth and national pride, sent soaring skyward on jet black wings by 10,000 tons of burning coal.'[7] In sum, the physical material of smoke pervades urban landscapes while the social construction of smoke permeates urban imaginations.

However, recent advances in our understanding of nature as an actor warn against too-tidy an understanding of the relationship between smoke and urban space. The industrial and domestic spaces of Chicago, Pittsburgh, London and other cities of the industrial world were powered by coal. In consequence, much research has focused on coal smoke as a potent shaper of space and everyday life in cities.[8] Smoke from industrial copper smelters differs from coal smoke both physically and imaginatively. Coal smoke caused nuisance, health problems and esthetic blight, but smelter smoke was worse. During the smelting process, as mineral ore is roasted to produce nearly pure copper, a host of complex chemical reactions release vast quantities of sulfur and arsenic-laden smoke, a noxious stew of gases, dusts, and airborne heavy metals that is toxic to human health and vegetation—all of which is released into the air through the smelter's signature chimney.[9]

The physical composition of smelter smoke influences how it is socially imagined as well as its role as an actor in the creation of urban space. Yet while coal smoke enjoys a rich tradition of historical geographic scholarship, smelter smoke is relatively under-explored.[10] Moreover, research on smelter smoke usefully explores the mining, technology, and labor histories associated with copper production, but largely ignores the question of how smelter smoke influences urban space. While the coal smoke literature can act as a useful guide for understanding smoke in smelter cities, it cannot substitute for a smoke-specific analysis because these differences matter in the production of urban space.

This paper contends that both the physical material of the environment as well as the social imagination of the environment are actors in the production of urban space. More specifically, this paper shows how the complex amalgam of toxic physical smoke and richly-imagined nature of smelter smoke in Anaconda shaped the contours of the lived city and the shape of the industrial urban landscape. In the noxious haze of an industrial city, it was clear that smelter smoke was a constitutive force in the creation of urban space. Now, even postindustrial memories and lives remain centered on toxic air pollution suggesting that smelter smoke has a certain future in the production of space in Anaconda.

The production of smelter smoke, 1880–1905

In 1882, mining magnate Marcus Daly discovered rich copper deposits in Butte, Montana.[11] Late nineteenth-century demand for copper was high and the mine turned a profit even though the ore was shipped to Wales for processing.[12] Local smelting would massively reduce shipping costs, but Butte had neither the water supply nor the timber necessary for a smelter of the size envisioned by the Anaconda Company.[13] Moreover three small smelters already operating in Butte blanketed the town with smoke, prompting fierce smoke-abatement conflicts.[14] To escape this political pitfall the Anaconda Company sought a new site where smoke production would not be the litigious issue it had become in Butte.

The new site, around which the city of Anaconda would eventually develop, was 26 miles west of Butte along Warm Springs Creek. It had a plentiful water supply, abundant timber in the surrounding forests and no vigilant residents who would fight the noxious smoke dust, smells and sounds produced by crushing, concentrating, roasting and cooling ore that contained less than 1% copper.[15] According to *The Butte Daily Miner* 'a 10 acre tract would be sufficient for the purposes of the smelter,' but the company purchased 3000 acres of "contiguous farming land, [to avoid] future annoyance from claims for damages on account of fume blighted crops…'[16]

The Company had grand visions for the city of Anaconda, upon which they lavished money and attention.[17] They provided urban

[6] There is a rich literature on the social imagination of urban smoke. Notable examples include P. Thorsheim, *Inventing Pollution: Coal, Smoke, and Culture in Britain Since 1800*, Athens, OH, 2006; D. Stradling, *Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881–1951*, Baltimore, 1999.

[7] Cronon, *Nature's Metropolis* (note 3) 11.

[8] For an introduction to the literature on coal smoke an urban space see Thorsheim, *Inventing Pollution* (note 6); Stradling, *Smokestacks and Progressives* (note 6); Tarr, *The Search for the Ultimate Sink* (note 3), 219–284; A. Gugliatta, Class, gender, and coal smoke: gender ideology and environmental injustice in Pittsburgh, 1868–1914, *Environmental History* 5 (2000), 165–193; S. Mosley, *The Chimney of the World: A History of Smoke Pollution in Victorian and Edwardian Manchester*, Cambridge, 2001; E. M. DuPuis, *Smoke and Mirrors: The Politics and Culture of Air Pollution*, New York, 2004.

[9] For concise summaries of copper smelting processes see G. Bridge, The social regulation of resource access and environmental impact: production, nature and contradiction in the US copper industry, *Geoforum* 31 (2000) 237–256; T. LeCain, The limits of 'eco-efficiency:' arsenic pollution and the Cottrell Electrical Precipitator in the U.S. copper smelting industry, *Environmental History* 5 (2000) 336–351.

[10] For important work on smelter smoke see LeCain, The limits of eco-efficiency (note 9); D. MacMillan, *A History of the Struggle to Abate Air Pollution from Copper Smelters of the Far West, 1885–1933*, University of Montana, unpublished doctoral dissertation, 1973; D. Macmillan, *Smoke Wars: Anaconda Copper, Montana Air Pollution, and the Courts, 1890–1920*, Helena, 2000; F. Quivik, *Smoke and Tailings: An Environmental History of Copper Smelting Technologies in Montana, 1880–1930*, University of Pennsylvania, unpublished doctoral dissertation, 1998; J. Wirth, *Smelter Smoke in North America: The Politics of Transborder Pollution*, Lawrence, 2000.

[11] For useful histories of Butte mining see M. Malone, *The Battle for Butte: Mining and Politics on the Northern Frontier*, Seattle, 2006, 100–105; G. Bakken, An inversion layer in western legal history: air pollution in Butte, Montana, in: J. Reid, H. Hartog, and W. Nelson (Eds), *Law as Culture and Culture as Law: Essay in Honor of John Phillip Reid*, Madison, 2000, 264–291; M. Murphy, *Mining Cultures: Gender, Work, and Leisure in Butte, 1914–41*, Chicago, 1997.

[12] For more about metals mining in the American West see M. Malone, The collapse of western metal mining: an historical epitaph, *Pacific Historical Review* 55 (1996) 455–464; D. Smith, *Mining America*, Lawrence, 1987.

[13] For more about the Anaconda Copper Mining Company, hereafter referred to as the Anaconda Company, or the Company, see I. Marcosson, *Anaconda*, New York, 1957; Quivik, *Smoke and Tailings* (note 10).

[14] See MacMillan *Smoke Wars* (note 10), 25–82.

[15] MacMillan, *Smoke Wars* (note 10), 21; Marcosson, *Anaconda* (note 13).

[16] *Butte Daily Miner*, 22 May 1883. As cited in G. Bakken, Montana, Anaconda, and the price of pollution, *The Historian* (2007) 36–48 (note 15).

[17] For useful histories of the city of Anaconda see P. Morris, *Anaconda Montana: Copper Smelting Boom Town on the Western Frontier*, Bethesda MD, 1997; L. Mercier, *Anaconda: Labor, Community, and Culture in Montana's Smelter City*, Urbana, 2001; W. Hoover, *Marcus Daly—and his Contributions to Anaconda*, New York, 1950.