H-Net Reviews
in the Humanities & Social Sciences

Martin V. Melosi, Joseph A. Pratt, eds. *Energy Metropolis: An Environmental History of Houston and the Gulf Coast.* Pittsburgh: University of Pittsburgh Press, 2007. vii + 344 pp. $27.95 (paper), ISBN 978-0-8229-5963-2; $60.00 (cloth), ISBN 978-0-8229-4335-8.

Reviewed by David Vail
Published on H-Environment (August, 2009)
Commissioned by Charles-François Mathis

Barrels of Crude and the Price of Pollutants: Power, Environment, and the Petroleum Complex in America's Energy Capital

Much of the American past is connected to the growth of cities. Throughout the late nineteenth and twentieth centuries, Americans saw drastic changes in transportation, communication, and economic systems. Their quests for prosperity, social mobility, and economic abundance directly related to the processes of incorporation and industrialism. From the expansion of railroads in the nineteenth century to changing land-use patterns and suburban sprawl in the twentieth century, the rural-urban relationship and the growth of the latter significantly defined the American experience. The reach of these urban centers and their socioeconomic impacts were directly connected to a larger, potent force of energy. Cities like Chicago or New York became metropolises due to the intense relationship between local production and consumption or the processes that "allow people to function in the physical world" and the surrounding environment as well as their larger connections to national markets (p. 1). And these cities have remained central to our understanding of how production and consumption of energy transformed land-use patterns and shaped local, state, and national views toward natural resources, "creating interdependence between the built and natural world" (p. 1).

These forces, however, did not only reside in the North, East, or West, but Houston, Galveston, and the Gulf Coast region emerged as centers of industrial development and urban sprawl. As Martin V. Melosi and Joseph A. Pratt argue in *Energy Metropolis*, the search for new sources of economic growth and power, primarily through fossil fuels, and the complex intersections between consumption, production, environment, and urbanization elevate Houston and the Gulf Coast to a central place in a larger energy past. Certainly, scholars have explored these trends before. Historians, like William Cronon (*Nature's Metropolis: Chicago and the Great West* [1992]), Melosi (*Coping with Abundance: Energy and the Environment in Industrial America* [1985]), Joel Tarr (*The Search for the Ultimate Sink*

Urban Pollution in Historical Perspective [1996]), and Craig Colten (*An Unnatural Metropolis: Wresting New Orleans from Nature* [2004]), have studied how environments, communities, politicians, and economies worked in dynamic ways to allow such cities as Chicago, Houston, Pittsburg, and New Orleans to expand, flourish, and in many ways adversely impact their surrounding biological communities, all in an effort to maximize the blessings of mechanization, industrialism, and consumption.

Other works, including David Stradling's *Smokestacks and Progressives: Environmentalists, Engineers, and Air Quality in America, 1881-1951* (1999) and Robert Gottlieb's *Forcing the Spring: The Transformation of the American Environmental Movement* (1994), explore the challenges of urban growth and the influence of environmentalism. Activists' critiques over technology, industrialism, and consumption are often presented in

the context of conservation and wilderness preservation, but these concerns also extended to cities and urban districts, demonstrating that refineries, chemical plants, and air pollution created dangers as significant as building dams or clearing land.

The breadth of this scholarship, however, fails to articulate the impact of the Gulf region in shaping the larger economic, social, cultural, and political contours significant to understanding energy, urban development, and environmentalism. Places like Houston, Galveston, and the Gulf region overall are crucial case studies in understanding the centrality of fossil fuels in energy policies and technologies, the growth of a petrochemical industry, tourism, and grassroots activism. These forces met along the shores of Houston's infamous shipping corridor, in the petroleum fields of Spindletop, and the region's sprawling system of roads and freeways, including the infamous Gulf Coast Highway connecting Houston with Galveston, binding the region's oil industry to the advances and problems of the nation and the world.

In part 1, Pratt, in his essay "A Mixed Blessing," explores the complicated intersections of energy, oil, and economic growth, and environment in Houston, which before the discovery of the Spindletop oilfield in 1901, was not an especially promising city. As Pratt points out, the Texas Gulf Coast was "flat, ugly and hot"–a boggy country with hurricanes and limited natural resources, and prone to flooding (p. 22). However, the religion of boosterism that helped define the American West throughout the nineteenth century found an enclave along the Gulf Coast. The early quests of landowners to find new agricultural opportunities brought southerners to the region, but the difficulties of small farming convinced second and third generations of the early migrants to move into urban areas, where opportunity seemed to exist in stark contrast to the growing poverty of rural areas.

Yet boosters wanted more. To maintain a reliable economic relationship, businessmen convinced railroad executives to invest in a larger transportation network that would connect Texas to the nation's larger industrial network that included a combination of railroad lines and shipping networks. Opportunity and expansion, as Pratt suggests, "became the central tenants of Houston's religion of boosterism [and] whatever it took to foster economic growth in the region would be done" (pp. 23-24). While the Reconstruction era saw an increased network of southern railroad connections with social notions of economic opportunities first and environmental consequences last, the discovery of oil accelerated these trends, reinforcing an economic-expansionist ideology over suggestions of efficiency or pollution control.

This dynamic would change throughout the early part of the twentieth century as air quality from coal plants and overall pollution increasingly became a qualm of social gospel groups and others that saw fossil fuel production as causing more harm than economic good. Oilmen and petroleum companies in Houston were very suspicious of increasing calls for federal regulation, and as Congress moved to pass limited measures to control oil pollution in 1924, Houstonians attempted to block these measures by campaigning for self-regulation. Part of this strategy was to place federal regulation in the context of larger calls for desegregation. The oil industry continued to define the pollution debate; to control regulation attempts to benefit economic prosperity; and, until the 1960s, to remain insulated to the larger challenges of oil pollution. The tensions between industry and government regulators would ebb and flow throughout the late twentieth century with the primary debate remaining around job creation versus environmental sanctity.

Hough Gorman identifies another part of this matrix in his essay "The Houston Ship Channel and the Changing Landscape of Industrial Pollution," suggesting that policymakers and oilmen alike viewed the industry through lenses of production and consumption, giving more thought to efficiency than how "their processes and products interacted with the physical environment" (pp. 52-53). The shipping channel, in the nineteenth century, supported boosters' attempts to make Houston an important commercial and transportation center. The Buffalo Bayou acted as a primary channel for steamboats and barges, but by the 1880s, Galveston would become the central route for most ocean-going vessels. Both the dilemma of pollution along waterways and the ultimate move toward the creation of the Houston shipping channel had more to do with industry and navigation than environment. Industrial waste from sawmills and domestic sewage created hazardous navigation and water quality problems for barges, which translated to delays and other potential socioeconomic problems. As Gorman suggests, city boosters lobbied the United States Congress to finance a deepwater channel that would connect to Houston rather than keeping ferry and barge traffic limited to Galveston. And it was only through the destruction of Galveston harbor by a hurricane tidal wave that Congress finally agreed to finance the Houston channel.

Gorman continues to explore how this waterway be-

came interconnected with the burgeoning oil industry that emerged in the early twentieth century. From wildcatters to refineries, all business and infrastructure benefited from transportation access. Houston's channel became a primary impetus of the city's expansion, and oil would soon dominate the waterway's traffic. In the postwar era, fossil fuels continued to define the Gulf's economy, society, politics, and culture. The industry created jobs for petrochemical products, connected Houston and the Gulf to larger fossil fuel markets, and reinforced private industry over public regulation. The channel, like many waterways in the United States, continued to get dirtier due to increased traffic and industrial pollution. Managing environmental quality proved as difficult as preventing potential community concerns. Houston's ship channel, then, became part of a larger industrial cluster that included several factors that worked together to shape the urban expansion of the Gulf.

In Robert Fischer's and Robert Thompson's essays the question moves from a heritage of industrialism and economic prosperity to consumption and comfort. In Fischer's essay, the air pollution that had been minimally debated in the early twentieth century found increasing relevance in the 1960s, 1970s, and 1980s as fossil fuel production and the petrochemical industry became connected to ozone layer destruction, the danger of greenhouse gasses, and global warming. Climate control, convenience, and standard of living all worked to create a landscape where oil provided the energy, personal convenience, and industrial development.

As Pratt likewise noted in his essay, Fischer argues that Houston's oil companies continued to ward off impetuous federal regulators by claiming self-regulation, what Fischer identifies as privatism. More important, however, the struggles with air pollution met new prospects of city planners and local businessmen to transform Houston into a world-class city. Certainly, the main tension between economic goals and environmental realties continued to interfere with the financial success of petrochemical companies and the larger debate over the scientific accuracy of depletion of the ozone layer or global warming. Houstonians had to merge socioeconomic needs with environmental quality. And while environmentalists often struggled to find traction amidst the power petrochemical companies, public health and an overall impact of emissions moved the political center of the pollution debate toward a version of privatism that supported reduction and containment.

Another impetus shaping Houston's cityscape was air-conditioning. As Robert Thompson suggests in his essay, the Gulf Coast acquired new energy fame beyond oil–the region became the air-conditioning capital of the world. Consumption and convenience moved in tandem with the desire of Houston's residents and business leaders to remake their urban space into a modern city throughout the twentieth century. A cooled, controlled climate was in stark contrast to the hot and muggy air outside. Indeed, the A/C represented a kind of prosperity and amity that business leaders promised throughout the 1940s and 1950s. As units moved from affluent to lower-middle and impoverished neighborhoods, air-conditioning had the potential, or so it seemed, to "bridge class divisions and foster the peaceful and harmonious society that growing Cold War and racial tensions in the 1950s threatened to shatter" (p. 92).

However, as air-conditioning became associated with economic prosperity, it also fostered dependency. By the 1960s and 1970s, many Houstonians could not be urban residents without climate control in their homes, businesses, and shopping malls. Ultimately, Houston's economic growth and energy complex had as much to do with the blasts of cool air as with fossil fuel production or technological advancement. And all of these elements, as Thompson suggests, were "neither inevitable nor universally beneficial.... The city's growth stemmed from the business community's commitment to economic expansion of which climate control played only a part" (p. 104).

Part 2 of *Energy Metropolis* surveys how urban sprawl and advancement in fossil fuel technologies developed Houston, Galveston, and the Gulf region into a metropolis. Convenience, efficiency, and expansion all worked to create an energy complex that depended on two additional infrastructure systems: sanitation and freeways. Also, urban sprawl quickly became the hallmark of the Gulf region, ever intensifying the consequences of Houston's emergence as an economic locale. In Melosi's essay, for example, the growth and dominance of Houston in the oil petrochemical industries directly related to city development and sanitation. Wastewater and solid waste had to be moved and disposed of in a manner that worked with the rampant growth trends of Houston in the early twentieth century. City officials had to expand their water and sanitation networks beyond the city limits to address the most basic needs of waste removal and water reliability. Waste technologies, like storm sewers, pumping stations, and sewage treatment systems, were built throughout the 1950s and 1960s to address the problems of abundance: pollution and waste. Put simply, as many conflicts emerged as solutions; new tensions abounded

between local and regional patterns, between dynamic views of consumption and environmental realities.

Other essays by Tom Watson McKinney, William Barnett, and Diane Bates survey how freeways, tourism, and landscape development worked to mold Houston, Galveston, and the Gulf region into the energy metropolis it is today. The themes of job creation, adverse environmental consequences, and fossil fuel dependency in many ways inform the complicated urban sprawl. The highways of Texas that helped shape Houston and Galveston and these cities' dynamic economic and environmental relationships, as McKinney and Barnett suggest, worked in myriad ways to continue expanding a modern, metropolis-based environment. Freeway construction became the most visible illustration of urban sprawl and consumption. It represented a facet of the energy complex that had to continually be remade and advanced to serve the transportation needs of Houstonians and the growing tourist industry that Galveston had fostered in the decades after World War Two.

Eventually, a superhighway would replace the multiple roadways connecting certain urban locales with others, creating a "sprawling urban form and fostering an automobile dependency as travel distances increased" (p. 172). Also the impetus of tourism and reliance on automobile transportation placed roadways at the heart of the Gulf region's development and sustainability as an energy complex. As both Houston and Galveston took divergent routes, according to Barnett, the former becoming a central hub of industrialization and the latter a tourist gateway, both cities relied on a complex network of transportation, industrialization, and boosterism, all of which reified the petroleum industry. And the array of environmental problems that encompassed these cities emerged on both personal and regional levels.

Urban sprawl also adversely affected environments adjacent to this sprawl as well as defined Houston and Galveston as cities of consumption. Bates investigates the destructive paths of urban growth as suburbanization moved northward from the city. The four counties of the San Jacinto River watershed saw expansion into the Piney Woods region maintain an aesthetic woodland but not an actual one. Deforestation largely occurred as the result of this sprawl: retail centers, streets, highways, parking lots, and uncontrolled development replaced the piney woods that helped with air filtration and other environmental problems. Through historical accounts, satellite imagery, and remote-sensing analysis, Bates is able to show how the "natural" environment of the Piney Woods, even in the master-planned communities of Kingwood and the Woodlands, did not translate to a retention of forest characteristics. As Bates suggests, "while distinguishable from more highly urbanized locations such as downtown Houston, the reflective signature of these areas was much more similar to urban areas than to natural forests" (p. 181). Thus, while forests may "comfort people who dislike concrete and skylines, they offer few of the environmental services of genuine forests" (p. 181).

Part 3 explores the socio-environmental consequences of petroleum prosperity. Environmental activism and social justice movements largely emerged from local movements that combined the problems of pollution and toxicity with the injustice of segregation and lower income. Authors Robert Bullard, Elizabeth Blum, Teresa Tomkins-Walsh, and Kimberly Youngblood all focus on how urban injustice, the placement of superfund sites, and attempts to silence minority opposition led to grassroots activism to challenge the petrochemical industry and environmental pollution. The first two essays focus on the legacy of NIMBY (Not in My Back Yard) movements throughout the Gulf region that identified serious racial and minority injustices as they related to industrial development. The plight of African American communities in places like the Northwood Manor where a newly proposed landfill was intentionally placed in "unwanted areas" suggests a kind of environmental discrimination that is crucial to understanding the local roots of institutional racism as well as grassroots activism that has informed American environmentalism overall.

Both Bullard and Blum discuss different facets of this local activism through the historical significance of Houston's *Bean v. Southwestern Waste Management* (1979) case in fostering community change by local people. Not only do minority challenges to pollution and discriminatory practices by the petrochemical industry support Bullard's notions of environmental justice, but as Blum suggests, they help identify the substantial role of African American women in this larger framework, dispelling some of the myths of the movement. Tomkins-Walsh and Youngblood address the important connections between city activists calling for urban environmental change (air pollution, toxic dump locations, and residual impacts on minorities) and rural environmental conditions. The unintentional consequences of landfill development, waste reallocation, and toxic wastes from the Brio Superfund site in downtown Houston matched the unplanned and unchecked development that brought destruction to natural resources, like the bayous, shar-

ing similar concerns "about urban and industrial environmental problems with their counterparts in Northwood Manor and the protestors against Brio" (p. 206).

Ultimately, then, Houston, Galveston, and the Gulf region dramatically illustrate the complex relationships between industry, technology, community, and environment and the larger quest for energy. *Energy Metropolis* is an important addition to the expanding historical focus on urban environments and their relationship to energy. Melosi and Pratt have brought together a very diverse and well ordered group of authors to reconstruct the environmental history of Houston and the Gulf Coast and elevate these narratives beyond local significance to larger historical applications. Indeed, the processes and places that made Houston an economically successful metropolis with severe environmental problems allude to larger economic, political, social, and environmental trajectories that Americans faced throughout the twentieth century and remain powerful forces today.

This collection of essays could have benefited from certain additions to various authors' surveys. In Thompson's piece on Houston as the "Air-Conditioning Capital of the World," for example, a better explanation of the adverse environmental impacts of Freon in the context of both production and impact would have provided insight into how controlled urban environments met harsh and unpredictable conditions outdoors. Another weakness is the failure by Melosi and Pratt to provide a conclusion or even a forecasting of new research areas. Nevertheless, this work makes important advances in understanding how the history of cities, resource use, infrastructure, and socio-cultural habits are as much about energy as industrialism, political economy, or place–a necessary framework to understand our environmental future.