**Whale-Oil Lamps to Electric Billboards**

Illuminating the Industrial City

Peter C. Baldwin (2012). *In the Watches of the Night: Life in the Nocturnal City*, 1820-1930. Chicago, IL: University of Chicago Press, 284 pp., illustrations, notes, index, $52 (cloth), $27 (paper).

David E. Nye (2018). *American Illuminations: Urban Lighting, 1800-1920*. Cambridge: The MIT Press, x + 280 pp., illustrations, notes, glossary, bibliography, $30 (cloth).

**Reviewed by**: Burton W. Peretti, *College of the Siskiyous, Weed, California*

Civic leaders in Chengdu, in southwest China, are planning to launch an “artificial moon” into space to illuminate the city. Described by the *People’s Daily* as “a necklace made of mirrors above the earth,” the satellite is “designed to complement the moon at night.” Eight times as luminous as the moon, the geostationary device, the engineer Wu Chunfeng claims, will be “bright enough to replace street lights” and would “light an area with a diameter of 10 to 80 kilometers, while the precise illumination range can be controlled within a few dozen meters.” Wu was confident that the needed technology had “matured” to permit the satellite’s deployment. Another technician tried to allay fears that the additional illumination “could have adverse effects on the daily routine of certain animals and astronomical observation,” claiming that “the light of the satellite is similar to a dusk-like glow, so it should not affect animals’ routines.”[1](https://emxpert.net/sageedit/journals/Embox/Index/871590#fn1)

The statements in Chengdu today are very similar to those of proponents of large-scale nocturnal illumination in U.S. cities of the industrial age. In the nineteenth and early twentieth centuries, American civic leaders sold citywide gas and electrical lighting as visionary technology, and they sought to win over citizens with a futuristic “wow” factor. Like the entrepreneurs in Chengdu, they claimed that their technology would outshine the candlepower of the full moon, and even boasted of replicating the sun’s brightness. They expressed confidence in the maturity and the dependability of the necessary technology to achieve the desired results, with little chance of failure or mishap. In addition, these civic boosters discounted the likelihood of resulting social costs or injuries. New modes of lighting cities at night have long contributed to narratives of technological utopia that told of new delivery systems for light that would improve upon nature’s devices for the benefit of all.

Peter C. Baldwin’s *In the Watches of the Night* and David E. Nye’s *American Illuminations* are splendidly researched and provocatively argued studies of the phenomenon of nocturnal illumination in American cities in the “long century” following 1820. The authors tell similar stories, but they emphasize different aspects, and in particular they exhibit contrasting theses regarding the role of technological transformation in the industrial era. This fundamental and highly suggestive difference concerns the general dynamic of this transformation and the impetus behind it. Simply put, the books offer divergent perspectives on whether technological change drives cultural change, or persistent cultural attitudes ultimately bend new technologies to conform to their own contours.

Baldwin’s study is a wide-ranging chronicle of the social impact of increased nocturnal illumination. He begins with a portrait of the streets of Providence, Rhode Island in 1780, in which the lone night watchman was virtually the only challenger to deep darkness—a darkness in which dissolute sailors and other males of questionable repute roamed freely. Crime and fear were associated with the night in preindustrial America. Gaslight networks arrived slowly in major cities, only gaining prominence by the 1830s. Other lighting may have had a greater impact at first. As Baldwin notes, “the streetlights in some neighborhoods were outshone by light spilling from theaters, saloons, shops, restaurants, and private homes” (p. 17). Such indoor lighting, often by means of whale oil, also contributed to the revolution in social practices caused by new illumination. Baldwin catalogs the important stages in the story of urban lighting, which effected a gradual yet inexorable transition from gaslight to electric street lamps from 1880 to 1920.

His main interest, though, is to describe the new social institutions and practices that the new illumination stimulated. The aforementioned “theaters, saloons, shops, [and] restaurants” themselves were new institutions that became commercially viable due to the enlarged street traffic that new lighting systems accommodated. Due to increasing nighttime illumination, work was altered, as factories instituted two or three daily work shifts and nonstop industrial production. Police forces expanded their range of operations but also concentrated their efforts on the unlit or under-lit areas into which, they assumed, the criminal element had retreated. Saloons and restaurants extended their worknights into the early morning, as did the “owl cars” and other nocturnal conveyances that catered to nightlife patrons. With the refinement of electric bulbs and the increasing sophistication of switching and wiring, illuminated billboards appeared. Such advertising signaled the growth of the consumer culture’s dominance of nightlife after 1900. The garish billboard jungle of New York’s Times Square, in particular, was coupled with around-the-clock entertainment at cabarets and vaudeville, where women, youth, and people of color became more visible as patrons of the new urban entertainment. The triumph of electricity by the 1920s thus helped to define America’s urban culture in the industrial age.

The result, though, Baldwin argues, was not a transformation of “night into day.”

Certain social traditions proved too strong to overcome, including such lowly traditions as the young men’s drinking spree … Modern urban night proved to be something quite different from a simple extension of day. It became a complicated new “space” with its own schedule, its own rules of access, and its own codes of behavior. (p. 13)

The complications Baldwin locates in the new nightlife speak to the fact that his study is not solely centered on illumination. Innovations in transportation, commerce, finance, housing, sanitation, and many other areas—not to mention social transformations brought about by migrations and immigration—played significant roles in the transformation of the city after dark.

Nye’s study offers a different perspective on the same basic story. More than Baldwin, he focuses upon the planning and implementation of official and comprehensive plans for urban illumination. As a result, Nye first relates the heritage of royal-directed night lighting in Europe. These schemes included fireworks displays in commemoration of notable events. From these origins grew the first planning in Europe for extensive gas pipelines that fueled street lanterns, and power lines for electrical lighting. Later in the nineteenth century, European cities adapted these networks for heavily lit nighttime displays such as world’s fair expositions and commercial districts. With regard to the United States, Nye has relatively little to relate about elite planners—the Baron Haussmanns of American illumination still await their biographers—focusing instead on the mechanics and the cultural impact of new technologies.

The pioneering coal-gas lighting systems of Baltimore and Philadelphia, introduced in the 1810s, gave way in turn to the first system of arc lighting towers in Cleveland and in Wabash, Indiana (1877-1880) and the first electrifications by Edison’s company in the 1880s. Nye even provides a helpful glossary, with illustrations, of successive models of gas and electric lamps that dominated the American scene. Like Baldwin, he relates statements of utopian optimism and dystopian worry—as well as more temperate opinions—pertaining to new illumination schemes. Nye also alludes to changes in urban behavior and the development of new hallmarks of city culture such as the all-night eatery and the electrified billboard, but this is a secondary focus. His analysis pays special attention to the relative paces of change in major European and American cities, noting that London outpaced New York for decades, especially in gas lighting, only to fall behind fast-growing and innovative American cities in the adoption of electric lighting. World’s fairs in Paris in 1889 and 1900 made innovative use of massed electric illumination, but they were quickly outclassed by the ampler and more imaginative designs of the Buffalo (1901), St. Louis (1904), and San Francisco (1915) expositions. These expressions of the City Beautiful movement, Nye notes, lost influence just as quickly as they had gained it, due to the onslaught of commercial illumination of billboards and nightlife centers, which set urban lighting onto the relatively unplanned and disorderly trajectories of the past century.

Without descending into technical jargon, Nye elegantly describes the impact of new illumination systems. Arc lights, a technology now largely forgotten, were powerful devices mounted on tall towers. Arc light towers arranged in street grids most fittingly foreshadowed Chengdu’s proposed “artificial moon”; boosters claimed that these arrays provided a peculiarly soft but pervasive lighting across the cityscape that mimicked and amplified lunar illumination. At the same time, though, the Welsbach mantle and other new models allowed gas to compete with electric lighting well into the twentieth century.

To summarize Nye’s book as merely a chronicle of technological progress, however, would be an injustice. *American Illuminations* builds upon the findings of Nye’s *Electrifying America* (1990). In this work Nye first challenged the tendency of historians of technology to attribute significant cultural change to new inventions and systems and proposed instead that the opposite was true: culture determined how and when new technology would be used. “Certainly public lighting made the city safer, more recognizable, and easier to negotiate,” Nye argues in *Electrifying America*. “But such a functionalist approach cannot begin to explain why electric lighting had its origins in the theater or why spectacular lighting emerged as a central practice in the United States between 1885 and 1915, when promoters and public alike demanded ever-greater public displays.”[2](https://emxpert.net/sageedit/journals/Embox/Index/871590#fn2) In his latest book, Nye explicitly takes issue with a prominent history of illumination, Wolfgang Schivelbusch’s *Disenchanted Night*.[3](https://emxpert.net/sageedit/journals/Embox/Index/871590#fn3)He counters Schivelbusch’s “romantic conceptions of what nighttime was once like, as though the world before 1800 had been poetic and enchanted compared to a drab industrial aftermath” with his own claim that “culture shapes technology” (p. 4). *American Illuminations* in particular shows how totalizing forces—some of them semi-public utilities that originated in the Progressive era, but mostly private corporations—were able to impose illumination, and many of its resulting effects, from above:

As used in illuminations for special events, beginning in the Renaissance, powerful lighting was a hegemonic form of social power. As gas and later electric light were dispersed in society, they were seldom used to light all areas equally. Instead, light often remained hegemonic, and was used to promote some locations and cast others into the shadows. (p. 220)

Nye’s argument runs counter to those of recent popular histories of nocturnal illumination, which echo Schivelbusch’s thesis that electrification irrevocably changed urbanites’ perceptions of night, weaning them away from ancient fears and superstitions. Brian Bowers, for example, characterizes electric lighting as the “lengthening [of] the day,” and Paul Bogard posits the “end of night” in the early twentieth century.[4](https://emxpert.net/sageedit/journals/Embox/Index/871590#fn4)

By virtue of its areas of emphasis, Baldwin’s book might seem to fall more into this latter camp of studies. As gas and electric lighting took hold, he argues, new and diverse “watches of the night” appeared. Solar-dictated time became increasingly meaningless, and even industrial clock-time withered in importance in the face of twenty four-hour illumination, transportation services, and commercial activity. The technology-changes-culture position is bolstered heavily by some of the testimony cited by both authors, which tended to detect momentous change acting upon society. In the face of this change, Americans seemed (at least at first) to be transfixed. Thus, according to a newspaper report, an early demonstration of arc light towers left onlookers “overwhelmed with awe as if they were near a supernatural presence . . . Men fell to their knees, groans were uttered at the sight, and many were dumb with amazement” (p. 87-88). Night lighting was blamed for social problems, such as when Jane Addams lamented in 1909 the apparent ruination of the adolescent male:

It is nothing short of cruelty to over-stimulate his senses as does the modern city. This period is difficult everywhere but it seems at times as if the great city almost deliberately increased its perils. The newly awakened senses are appealed to by all that is gaudy and sensual. (p. 181-82)

Boys’ (and girls’) clubs of the settlement-house era were the cultural responses to expressed fears such as that of Addams.

In general, though, it is difficult to freight Baldwin with the charge that he is recycling the simplistic technology-changes-culture argument that Nye attributes to Schivelbusch. Both works, in fact, provide evidence that despite the advent of ubiquitous and novel new forms of illumination, urban Americans persisted in adhering to traditional cultural concepts of the night as a liminal and frightening time that remained fundamentally different from day. As noted above, though, Baldwin’s evidence shows that other new technologies and cultural systems worked with illumination to transform the culture in the night. New transportation, expanded factory work, and the concert saloon, especially, conspired with electric lighting to create new nocturnal work and leisure.

Nye displays a special interest in the ambiguities surrounding the impact of illumination. He agrees with Baldwin that night was not turned into day, but his careful focus on the application of lighting technology brings the peculiar qualities of its impact into sharp relief. Nye borrows a phrase from Walter Benjamin—“multiple blindings”—to emphasize the ironic results of many of these lighting schemes. His perception of these results is filtered through Marxist cultural theory, as the Gramscian reference to hegemonic industrial power in illumination, cited above, suggests. Night lighting, Nye argues, “produced unexpected juxtapositions and transformations, notably in city centers . . . The effect of this landscape on the average citizen could be defamiliarization . . . The incoherence and visual cacophony of an increasingly commercialized public space.” In certain particulars, Nye debunks the Western Marxist tradition, such as when he discounts the actual significance of Benjamin’s favorite urban type, the flannêur, in American culture (p. 41-42). Generally, though, he finds justification in Michel Foucault’s characterization of the nocturnal city as a “heterotopia,” in which lighting both revealed and created “incompatible” or conflicting social realities (p. 7).

Nye wears such cultural theory rather lightly, though, and while his thoughts on ambiguity and hegemony are a refreshing contrast to Baldwin’s cautious analysis, it is disappointing that he does not delve deeper into some of the implications of these ideas. The discourse on crime examined by Nye, for example, repeatedly stated that illumination plunged unlighted streets and neighborhoods into even deeper shadows, literally and figuratively, paradoxically making it more difficult for law enforcement to detect the most elusive criminals. “Every increase in lighting made the dark parts of the city more mysterious” (p. 138). After 1900, though, this mystique was overlaid with new tourist industries and a culture of slumming, which brought polite society into greater contact with the demimonde. The actual nature of this dark underworld, though, is elusive in both of the books under review here. The analysis might have been informed, for example, by Bryan Palmer’s *Cultures of Darkness*, which detects continuous proletarian rebellion in the prostitution, saloon-keeping, rough music, and carnival atmosphere found in both premodern and modern urban nightlife. Another Marxist strand, evident in the theories of Felix Guattari, Jennifer Robinson, and Robert Shaw, emphasizes the coalescing of market, migration, and technological forces in the modern city. This is a body of theory that likely would yield valuable insights into the impact of illumination.[5](https://emxpert.net/sageedit/journals/Embox/Index/871590#fn5) Future scholars will have to build upon Nye’s suggestions that successive lighting systems—in world’s fairs as well as central cities—at least potentially exhibited the qualities of the panopticon and that authorities strove to use these systems as tools of social control.

The treatment of gender in each book is limited. Baldwin restates the familiar argument about the hostility of the gas-lit city to women of all classes, which gave way to the more permissive and gender-fluid electrified cities of the twentieth century. His discussion of labor regulations helpfully indicates how protective rules for female workers were influenced by progressives’ fears about female work at night—which including the “scientific” allegation that “menstruation, pregnancy, and nursing . . . [are] coordinated with the natural arrangement of the order of day and night” (p. 197). For the most part, though, gendered thinking existed independently of ideas about the night; the latter reinforced concepts of gender, but did not redefine them. Nye addresses the restrictions on women briefly in his conclusion. Future scholars, perhaps, may explore the interplay of artificial illumination both in the streets (the traditional male domain) and indoors (the feminine “sphere”) and their likely gendering in language and in policy. Also, it is probable that more flexible definitions of “illumination,” which extended beyond lighting to ideas about education and consciousness, yielded more fundamental revelations about how lighting was perceived and how the culture was ordered.

Both studies conclude in the 1920s, when electric lighting finally achieved its domination and when daring new urban behavior gained its greatest prominence. Justifying this stopping point in his story, Baldwin states that “alterations in public policy, gender relations, and urban demography from the 1920s onward are difficult to place within a history framed by artificial lighting. To the limited extent that they were shaped by technology, it was by the automobile, not the gas jet or lightbulb” (p. 202). Nye, for his part, can claim accurately that the victory of electric lighting by street lamps and commercial signage was complete by the 1920s; by then, gaslights, arc light towers, and the City Beautiful movement largely had faded into history. As valid as these conclusions are, they inspire some objection and qualification. Historians of “the 1920s onward” likely would contest the notion that technology only affected culture “to a limited extent.” The cultural impact of television, for example—which gained notice in the 1950s as a new “illumination” of domestic interiors—would be significant. Conversely, as I suggested earlier, changes in urban culture in the century preceding 1920 might also be viewed most profitably outside of the ‘frame’ of “artificial lighting.” We are still left to ponder whether the lighting chronicle is a driver of cultural change, or a component of a general industrialization that reshaped work, leisure, and gender similarly through many different technologies and in many facets of life.

In addition, scholars ought to pay more special attention to the continuation and the deepening of Americans’ investment in electric lighting in the 1920s. The cultural story told in these books, in other words, hardly comes to an end with the advent of Prohibition. As Baldwin suggests in his last chapter, the lighting of neighborhoods like Manhattan’s theater district and the ubiquity of electricity in speakeasies and dance halls certainly helped to raise nightlife and socially marginal behavior to a new plateau. At the same time, it is all too easy to point out, as Nye might, that the new urban leisure of the 1920s led participants to make innovative new uses of electricity. People in the Twenties, in other words, actually lifted electric lighting to a new level of importance. Transformations such as Prohibition, large-scale recent immigration, open discussion of women’s equality and sexuality, the African American Great Migration, and the competition to build skyscrapers all redefined what was lit in the 1920s, what stayed in the shadows, and why.

The Twenties also indicates that a narrow focus on lighting ignores the role of other technologies, either as agents or as subjects of cultural transformation. In this sense, Baldwin’s concluding statement is suggestive. Technologies such as the automobile (especially taxicabs), radio, phonograph, the subway, the stock ticker, plastics, and neon lighting resituated urban electric lighting at night. Automobile headlights in the 1920s, for example, demonstrated a synthesis of two technologies that created a significant new cultural reality—the not-insignificant phenomenon of the mobile streetlight. Since people had more agency in operating their vehicles (behind the steering wheel) than in determining the source of illumination on these vehicles (which mostly was decided upon by the automobile manufacturers), it is likely that illumination, while significant, played a secondary role in the cultural history of headlights.

The history of illumination is well served by these two thoroughly researched and engagingly written studies. The significance of the topic ought to be evident today, as we continue to wrestle with the potential hegemony of systematic technological innovation and its increasing intrusion on our lives and privacy. As robotics and artificial intelligence are promising to play an increasing role in our culture, and as computer hacking and various forms of surveillance grow exponentially, we must consider if Nye’s thesis on the controlling power of culture over technology can reassure us about our power to determine the future in the face of rapid and frequently bewildering change. The citizens of Chengdu, for example, may well be wondering if the artificial moon of the future will not just be illuminating their nights but also surveilling them and gathering oceans of data about their activities. The interplay of technology and culture will continue to define the nocturnal city.

**Notes**

1. “Chengdu to Launch ‘Artificial Moon’ in 2020,” *People’s Daily*, October 16, 2018, accessed October 23, 2018, <http://en.people.cn/n3/2018/1016/c90000-9508748.html>.

2. David E. Nye, *Electrifying America: Social Meanings of a New Technology, 1880-1940* (Cambridge: MIT Press, 1990), 29.

3. Wolfgang Schivelbusch, *Disenchanted Night: The Industrialization of Light in the Nineteenth Century*, trans. Angela Davies (Berkeley: University of California Press, 1988). Schivelbusch’s argument is largely replicated in a coeval study by Murray Melbin, *Night as Frontier: Colonizing the World after Dark* (New York: Free Press, 1987).

4. Brian Bowers, *Lengthening the Day: A History of Lighting Technology* (New York: Oxford University Press, 1998); Paul Bogard, *End of Night: Searching for Natural Darkness in an Age of Artificial Light* (New York: Little, Brown, 2013). See also Jane Brox, *Brilliant: The Evolution of Artificial Light* (New York: Mariner, 2011).

5. Bryan D. Palmer, *Cultures of Darkness: Night Travels in the Histories of Transgression* (New York: Monthly Review Press, 2000); Felix Guattari, *Three Ecologies*, trans. Ian Pindar and Paul Sutton (London: Transaction, 2000); Jennifer Robinson, *Ordinary Cities: Between Modernity and Development* (London: Routledge, 2006); Robert Shaw, *The Nocturnal City* (London: Routledge, 2018), 14. Recent works that buttress Palmer’s characterization of preindustrial cultures of darkness include A. Roger Ekirch, *At Day’s Close: Night in Times Past* (New York: Norton, 2006) and Nancy Gonlin and April Nowell, eds., *Archeology of the Night: Life after Dark in the Ancient World* (Boulder: University Press of Colorado, 2017).

**Author Biography**

**Burton W. Peretti** is the author of *Jazz in American Culture* (1997) and *Nightclub City* (2007) and other books. He is currently researching the life of New York City mayor Jimmy Walker.