
Introduction

In 1844, the engineer James Smith explored the alleys and courts of Leeds, stepping through and around the cast-off filth of the poorest of the city's 170,000 inhabitants. He encountered heaps of waste that lingered for six months and the stench of drains that lacked any flushing water for unknown spans of time.¹ Meanwhile, Dr. William Kay scouted Bristol, where only 5,000 of its 130,000 inhabitants enjoyed piped water, the remainder walking long distances to draw from public wells or, more often, simply going without.² James Martin investigated Leicester, where the sick suffered from a lack of water due to the scarcity of common pumps in working-class neighborhoods.³ Smith, Kay, and Martin were members of the Commission for Inquiring into the State of Large Towns and Populous Districts, an official government investigation of the severity and causes of the health and sanitation problems more and more frequently seen, or smelled, in Britain's cities; its thirteen commissioners visited Britain's fifty largest cities and towns, met with local doctors and public health officials, and conducted a survey of each locale's water supply, water drainage and waste handling, working-class housing, and other living conditions.

They argued that Britain's cities, their populations having grown extraordinarily in recent decades, had not expanded their water and sewer capacity proportionately; water sources that were sufficient for the populations of previous centuries were stretched to their limits and threatened with the refuse of larger populations. There were few

sewers as we know them. Water removal provisions usually aimed to shunt storm water away from structures and did not always include any sort of flushing except by rain. Private companies, which operated most cities' water supplies, tended to serve wealthier neighborhoods while bypassing the poorest. In the absence of effective central legislation or regulating authorities, these companies could not be forced to provide a constant service, nor were they all obligated to maintain a minimum standard of quality. The result, according to the commissioners' work in 1844–45, was a precarious situation that they believed threatened the health of millions; epidemic lurked in the poorly disposed waste of the masses, in the water supply tainted with it, and in a supply that threatened to fail at any moment, perhaps in the middle of an outbreak of disease. For the commissioners, it was rather straightforward to identify the intolerable state of affairs: insufficient clean water was being introduced into cities and insufficient polluted water was being extracted from them. In the eyes of investigators, a myriad of other urban problems would be solved if only this hydraulic input/output problem were solved. They contended that working-class dwellings would be cleaner, pure water would replace alcohol as a beverage, and the workers would wash more often, thus inhibiting illness.

Correcting the situation was less straightforward. Restructuring cities' water systems demanded urban governments with clearly defined and broad powers, and these were very rare before the turn of the twentieth century. But the 1844–45 commission and investigations like it, coupled with cholera outbreaks in 1848 and 1853, elicited impassioned newspaper columns, public debate, and, ultimately, environmental action undertaken by urban governments and endorsed by the national government. There was, in short, a transformation in government machinery in order to repair cities' hydraulic machinery. Cities sought and received the authority and means to purchase private water companies, and they borrowed large sums of money to construct sewers and build new waterworks. Action was widespread and profound even in an age that valued economizing. Between 1841 and 1881, the proportion of municipalities that took responsibility for providing their own water supply doubled, with more than 150 towns and cities adopting municipal water supplies.⁴ In the same period, increases in the average water consumption per head ranged from around 60 percent to as much as 400 percent.⁵

The changes in Britain's urban governments were profound not

only for the sheer magnitude of the water system reformation across towns and cities but also because of a new ideal that was prominent in the debate about identifying and solving urban water problems. Many of those who transformed urban water regimes acted on principle as well as pragmatism, basing their action on a vision of what they considered an enlightened—a modern—society and city. From the 1840s onward, a belief developed among urban leaders that a modern society would be one that equipped its cities with a physical infrastructure that ameliorated conditions dangerous to public health. Local governments had to act in the public interest, even if it meant significant expense to taxpayers. The editors and publishers of newspapers and periodicals often lent their support, registering indignation at the apparent water and drainage crisis, even calling the failures a “flagrant social crime” committed by a society that claimed nearly miraculous scientific knowledge and mechanical skill.⁶ The nation, by tolerating the suffering in the deserts of its cities, was failing that test of “the progress of true civilization.”⁷ “Water reform,” as contemporaries called it, was a moral obligation and modern prerequisite.⁸

From Belfast to Birmingham to Bristol there arose a consensus that cities should purchase the joint-stock water companies, which had failed citizens in burgeoning communities, and make water supply a matter of local government responsibility. A second but no less important component of this movement involved the construction of new waterworks. Water sources of greater volume and purity than existing ones were required in order to solve the problems of insufficient, impure, and irregular water service and the lack of drainage and sewers. The projects undertaken across Britain were quite similar both for practical reasons and because projects were based on shared ideals of modernization. The new model waterworks tended to be quite large, with reservoirs ranging in size from a few acres to the equivalent of Britain’s largest lakes, so that, by 1880, various commentators described a “fashion for huge schemes.” Such magnitude was due, in part, to local governments seeking to ensure the growth potential of their cities with one monumental project. The larger the water system, the larger their populations and water-consuming industries could grow. The same small group of engineers was behind the vast majority of the projects, too, contributing to the consensus about their design and scale. A few individuals became identified as the experts in the field; they were men whose names became connected with the more mon-

umental water schemes and whose names lent prestige to the town council that hired them as a designer or consultant.

This book grew out of a simple question: Why, when every other large town and city in Britain took over the operation of its water supply in the nineteenth century, did London not do so?⁹ The governments of Bradford, Birmingham, Leeds, Liverpool, Manchester—every provincial seat, in short—took on the responsibility of supplying its citizens with water in this period, buying local commercial suppliers or building new waterworks, but not the government of London. That one city should defy an overwhelming trend is noteworthy, and that the city left out of the development should be the first city of the nation, usually the epicenter of trends and movements, is remarkable. The search for an explanation for this paradox very quickly leads to yet more questions, more distant histories, and the need to reevaluate the implications of the primary question and even of water itself.

This line of inquiry revealed that the water systems constructed by British towns, or purchased from existing water companies and expanded, represented environmental reforms with broad implications. First, the development of water systems involved a significant development in the system of modern urban governance. Additionally, waterworks were viewed as not only a means of literally engineering public health but also as an essential mechanism for realizing a new epoch for the British city. Through water, the city could be modernized and moralized. This motivation belies the idea that the development of urban water systems was a simple, automatic process in which growing, industrializing towns of the nineteenth century faced epidemic disease and a lack of clean water and that the municipal waterworks that proliferated, first in Britain and then throughout Europe and America, were the inevitable, obvious response.¹⁰

This book, like a collection of histories written in recent years, is predicated on the belief that the story is far more complicated than it appears.¹¹ Figures ranging from legislators to self-proclaimed experts to water consumers and others argued over water reform at every step. These groups did not agree on the problems presented by insufficient, unclean water. They argued over critical questions: What was the relationship between disease and poor water supply? Were problems chiefly caused by dirty environments? These interest groups also failed to agree on the solutions. What were the appropriate technological

responses? What expenses, what changes to landscape were justified? As this book insists, those who helped to hash out water reform were guided by their views on the proper order of society and morality, by their visions of the city and government, and by their conceptions of the proper relationship between people and the landscape.

What becomes clear is that tremendous social import was invested in the basic resources that sustained a city's life moment to moment and that it was usually during moments of environmental stress that this critical investment came into sharpest focus. At those times especially, when natural systems ceased to serve the social systems that relied upon them, groups within society sought to realize their goals for the community through the physical reorganization of the environment—of resource collection and delivery—and the administration of the environment. The environment drove political action, and society reengineered the environment to effect social change.

Society was not unified in its goals for the environment and itself. In the case of London, rival political authorities argued over the right to re-administer the city's environment—to operate the acquisition and delivery of water—in order to realize very different visions. One authority offered one picture of the modern city, and a rival power offered an alternative modernity. So, finally, the question that originally prompted this line of inquiry—why London's government failed to provide its own water supply—needs to be revised. How did water come to be so charged with meaning that it resulted in a bitter struggle in London, with unexpected consequences?