



## The health rationale for urban parks in the nineteenth century in the USA

John L. Crompton

To cite this article: John L. Crompton (2013) The health rationale for urban parks in the nineteenth century in the USA, *World Leisure Journal*, 55:4, 333-346, DOI: [10.1080/04419057.2013.836557](https://doi.org/10.1080/04419057.2013.836557)

To link to this article: <https://doi.org/10.1080/04419057.2013.836557>



Published online: 13 Sep 2013.



Submit your article to this journal [↗](#)



Article views: 441



View related articles [↗](#)



Citing articles: 8 View citing articles [↗](#)

## RESEARCH PAPER

### The health rationale for urban parks in the nineteenth century in the USA

John L. Crompton\*

*Recreation, Park and Tourism Sciences, Texas A&M University, AGLS Building, MS 2261, College Station, TX 77843-2261, USA*

*(Received 28 August 2012; final version received 26 February 2013)*

Urban parks in the USA sprang from multiple influences, but the belief that they would contribute to improved health has not previously received detailed attention in the parks literature. They emerged in the industrial cities where squalor and filth characterised living conditions. Taking their lead from peers in the UK, the US medical community believed these conditions created miasmas (obnoxious gases) that were the source of all diseases. Urban parks were perceived to provide oxygenised oases that offered protection against miasmas. Thus, they were viewed by government entities as contributing to reducing societal costs associated with pauperism and lost labour productivity, while individuals viewed parks as offering a defence against disease contagion and epidemics.

**Keywords:** urban parks; history; industrial cities; health costs

The confluence of forces that led to the emergence of public urban parks in the mid-nineteenth century in the USA was convoluted and untidy. They emerged from a smorgasbord of motives including: raising real estate values, enhancing a city's image, sustaining workers' productivity, encouraging social cohesion and alleviating crime, exercising control over the behaviours of the working classes, facilitating democratic equality and social integration, promoting education and self-improving forms of leisure, stimulating tourism, protecting water supplies and creating enclaves to segregate the rich from the poor. The complexity of pedigree and motives makes it difficult to produce a definitive narrative, but prominent among these forces was a belief that parks alleviated disease contagion and epidemics, and the costs associated with pauperism and lost labour productivity which were outcomes of disease and epidemics.

This paper traces the evolution of the health arguments for urban parks in the USA during their formative years. Urban parks emerged in the UK approximately 15 years before they were developed in the USA. Many of the health rationales, data and processes that had proven effective in the UK were adopted by park advocates in the USA. Hence, these are briefly reviewed at the beginning of the paper, together with a description of miasmas which undergirded the health case for parks. The transition to the USA of the broader sanitation issue and specifically the role of parks within it is then discussed.

In the past decade, urban parks advocates have argued that they can contribute to alleviating the widespread concerns with obesity. For example, the authors of a review of

---

\*Email: [jcrompton@tamu.edu](mailto:jcrompton@tamu.edu)

the scientific evidence relating to this claim concluded, “the number of parks and playgrounds in a community and the physical area devoted to them are positively related to physical activity levels” (Mowen & Godbey, 2010, p. 5).

This contemporary health justification is reminiscent of arguments that were used with great effect in the middle of the nineteenth century to justify the use of public funds for urban parks. The health rationale justifying tax support for parks in the USA remained prominent until around 1880.

The egregious living conditions of most of those living in the rapidly expanding nineteenth-century industrial cities were much worse than those found in the most dilapidated slums of contemporary US major cities. Governments were overwhelmed by the rapidity and magnitude of population movements into these cities and lacked the resources to address them adequately. Ostensibly, the decision to spend huge sums of money – often tens of millions of dollars in today’s values – on each of the many public urban parks that were an entirely new phenomenon when there were so many other pressing basic needs seems outrageous and bizarre.

The case for creating large urban parks in the eastern cities where they first emerged in the USA relied strongly on data, anecdote and process drawn from the UK, particularly the Great Britain Poor Law Commission’s (GBPLC) landmark, *Report on the Sanitary Conditions of the Labouring Population of Great Britain* published in 1842. This report took nearly three years to complete and synthesised the testimony and reports from 2000 medical officers, clergy, civil servants, prominent citizens and other experts (Flinn, 1965). While it was published by the GBPLC, its organisation and compilation was almost exclusively the work of the Commission’s CEO, Sir Edwin Chadwick, and it is colloquially known as “The Chadwick Report.” Filth was a ubiquitous theme throughout the 457 page report which documented in great detail the miserable living conditions of the poor in the new individual cities of the UK. This report set the tone for the strategies to be employed in combating disease and improving sanitation for much of the remaining century in the USA as well as in the UK (Melasi, 2000).

### **Miasmas**

Before Chadwick’s report, society for the most part regarded filth as an unpleasant nuisance. The report “elevated environmental problems to be the causative factor in disease” (Melasi, 2000, p. 111). The prevailing explanation for disease in the 1830s was miasmatic theory (later called pythogenic theory), and Chadwick’s report buttressed, advanced and gave widespread popular visibility to the belief in miasmas as the source of disease. Miasmas were defined as “noxious emanations carried in and by the air” (Cartwright, 1977, p. 198). This says nothing about their origin, roles, physiological processes or consequences, which led to these being vaguely and variously defined by multiple authorities. The definition was sufficiently broad to encompass all manner of diseases, which was part of its appeal.

Miasmatic theory was not justified or explained by Chadwick or most of its other proponents; rather it was regarded as axiomatic. Even though Louis Pasteur described the germ theory of disease in 1862, this did not gain wide acceptance quickly among physicians and miasmatic theory continued to dominate the medical thinking about disease until the 1880s when germ theory gradually displaced it. Thus, as late as 1884, the influential New York City Commission report that led to the remarkable decision to add six new parks, 3000 acres of park land in that city, in a single day in 1886 observed:

“It is conceded that parks are indispensable to the health of great centres of population – a fact which is sustained by the highest authorities in sanitary science” (Commission, 1884, p. 57). Even after the medical community embraced germ theory and discredited miasmatic theory, its influence remained a part of society’s conventional wisdom into the early decades of the twentieth century (Duffy, 1992).

The knowledge base of US physicians in the nineteenth century was drawn primarily from Europe, especially the UK and France. Thus, when Thomas Southwood Smith who was the UK’s leading medical authority published his *Treatise on Fever* in 1830, it received wide visibility among the US medical community. He explained that miasmal atoms could be absorbed either through inhalation or through skin contact, and argued that miasmas caused diseases in two ways. Their “predisposition” role weakened the body’s resistance to disease so it “brought the system into a condition capable of being affected” by “the ‘exciting role’ which immediately produced the disease” (p. 360). In his 1830 *Treatise*, Southwood Smith did not pretend to understand the *modus operandi* of the miasmas, “We know nothing beyond its power to strike the human being with sickness or death” (p. 361), but was confident of its source: “Vegetable and animal matter, during the process of putrefication, give off a principle or give origin to a compound, which when applied to the human body produces the phenomena constituting fever” (p. 360). Sixteen years later, Southwood Smith offered a more definitive explanation on how miasmas might work: “They are carried by the air, inspired to the air-cells of the lungs, the thin delicate membranes of which they pierce, and thus pass directly into the current of the circulation” (Parliamentary Papers, 1846, p. 651).

The “predisposition” and “exciting” roles purported to explain the difference between sickness and the epidemic fevers of cholera, typhoid, typhus, yellow fever, et al. If the predisposition weakening deteriorated to a point “where the power of resistance is less than the power of the poison” (p. 383), then the sickness morphed into one of the epidemic fevers.

The apparent ability of miasmatic theory to explain all manifestations of illness from minor sickness to major epidemic through its predisposition and exciting roles meant the argument was “adaptable to the many manifestations of illness and helped to explain the degree to which certain individuals were more susceptible than others” (Szczygiel & Hewitt, 2000, p. 712).

Miasmatic theory was entirely erroneous. Nevertheless, the excrement and putrefication were breeding grounds for disease-carrying flies and air and water-borne germs, so the instincts of society to remove the filth and for individuals to move to locales (such as parks) where the air was more salubrious were well-founded. While individuals viewed open spaces as offering protection against disease contagion and epidemics, a complementary concern of governmental entities was the costs of pauperism and loss of labour productivity that were attributed to miasmas.

The slogan “pay now or pay later” is a contemporary rallying cry for those who today passionately articulate the health values associated with parks. It has a long, rich heritage in the parks field. Similarly, it was a concern for the economic costs of ill-health, rather than altruistic concern for improving human lives, that stimulated Chadwick’s *Sanitary Report*. In the 1830s, welfare responsibilities for the indigent poor were established by the English Poor Law. This directed that a “poor rate” should be levied at the local level on the property-owning middle and upper classes to provide basic food, clothing and shelter to the poor. Thus, while the middle and upper classes suffered least from contagious

disease and epidemics, they were responsible for covering the substantial costs they inflicted on the community through the poor rate.

Throughout the *Sanitary Report* Chadwick stressed the cost effectiveness of prevention measures arguing that removing the sources of miasmas was much less expensive than dealing with their consequences. Investments in cleaning the air were the key to reducing the costs of sickness. Thus, in the Report's summary of its findings he states, "Improved cleansing would be a pecuniary gain, by diminishing the existing charges attendant in sickness and premature morality" (p. 371). In the 1830s, "civic economy" was a popular theme in the UK (Briggs, 1963, p. 20), so the contention that removing the sources of the miasmas would save money resonated.

### *Miasmas and the proximate principle*

Belief in miasmas as the source of disease resulted in an intense fear of all bad smells. The natural response to this among the wealthy was to seek out locales where the air was clean:

Separation from traffic noise and dirt, and from industrial smell and smoke, became highly desirable as the scale of urban activities constantly increased, but separation from human contamination was even more persuasive. Once it had been shown by the sanitary enquiries of the 1840s how many diseases were spread by human filth, and once the statisticians had demonstrated how widely mortality rates varied in different areas of towns and in different occupations, the poor became unacceptable as near neighbours. (Burnett, 1978, p. 101)

Two strategies were available for accomplishing this separation. For some, the search for clean air led to them living outside the cities and commuting into them. The alternative strategy was to stay in the city and locate close to a large park area. In 1859 *Scientific American* observed, "'Man made the city, but God made the country' is an adage as true as it is forcible; and to combine the rural with the artificial in cities has been considered a most necessary and important arrangement for the health and happiness of the people" (p. 337). As the nineteenth century progressed, US cities continued to grow rapidly, and the commute became more inconvenient, so this alternative strategy gained momentum.

It was pioneered in London by the Prince Regent (later King George IV) and his architect, John Nash, in the period from 1811 to 1828 when they created Regent's Park as the focal point for a private real estate development targeted at the wealthy. The park offered an oasis of relatively clean air on the edge of the city, free of the nauseating pungent smells associated with miasmas. The willingness of people to pay premiums for dwellings proximate to parks that were sufficient to pay for the cost of land acquisition and development of a park, and result in a profitable real estate venture has been termed "the proximate principle" (Crompton, 2004, 2006, 2007).

It has been demonstrated that in the formative years of urban parks the proximate principle was a central justification for them in both the UK and the USA (Crompton, 2006, 2007; Nolen, 1913). While scenic views and physical access to these "lungs" were salient in creating the premium on house values, it seems likely that the primary attractor to many was that they were perceived to offer protection against miasmas. Thus, Szczygiel and Hewitt (2000) note, "Naturalistic and man-made landscape and urban conditions were seen increasingly in terms of their benign and pathogenic characteristics" (p. 713).

### Transition of the sanitation arguments to the USA

Urbanisation in the USA came later than in the UK. Briggs (1963) noted, “The United States went through its great ‘urban revolution’ in the late nineteenth and early twentieth centuries. Between 1860 and 1910, places with more than 50,000 inhabitants increased in number from 16 to 109” (p. 74). Conditions in US cities during their rapid expansion were comparable to those in the UK cities. The filth and nausea that were pervasive in UK cities, also prevailed in their US counterparts as descriptions of conditions in Philadelphia (Weigley, 1982), Boston (Commissioners, 1850) and New York City (Duffy, 1968; Winslow, 1923) confirm. Responses to this filth were adapted from those used in the UK. As Melasi (2000) notes: “Local circumstances affected the timing of new sanitary service delivery, but the forms and methods traveled across the Atlantic” (p. 18).

As in the UK, belief that miasmas were responsible for epidemics meant they were powerful stimuli for action to improve sanitation. Epidemics in New York City included cholera in 1805, 1832, 1849 and 1864; and yellow fever from 1819 to 1822. The first in-depth study of sanitary health problems in the USA was published in 1845 (Griscom, 1845). It was titled, *The Sanitary Condition of the Laboring Population of New York City with Suggestions for its Improvement*, and authored by John H. Griscom who was appointed as the city’s health inspector in 1842. In concept, as well as title, Griscom’s report relied heavily on Chadwick’s work. He cited Chadwick’s report in parts and used a similar format of having physicians testify in the document. Griscom espoused miasmatic theory:

Summer is the season generally deemed most prolific in diseases; the cause usually assigned for this is the heat of the weather acting upon animal and vegetable matter, producing more extensive and rapid decomposition, the gases from which are generally imagined to be so destructive to life and health. (p. 3)

And he made the case for clean air that parks provided:

Atmospheric air is to the animal system, a powerful stimulant as well as nutrient substance. In sufficient purity and copiousness, it imparts a sustaining and vivifying power unequalled by any other substance... Air, when pure, gives a freshness and vigor, a tone to the nervous and muscular parts of the system, productive of the *highest degree* of mental and physical enjoyment. (p. 49)

Given testimony of this nature from highly respected physicians, it is no surprise that those who were exposed to such testimony and who could afford to do so, would elect to live near the clean air provided by large parks.

The city’s elected officials refused to accept the report. Indeed, they were so displeased with Griscom’s depiction of conditions that they chose not to reappoint him to his position of chief health inspector (Melasi, 2000). Griscom responded by persuading a commercial publisher to print it. The report: “Laid down certain prerequisites if the city was to avoid epidemics and enjoy good health. He listed, first, the need for an adequate water system and, second, the necessity for city planning to provide open parks and squares” (Duffy, 1968, p. 171).

Thus, in this pioneering report in the USA, creating public parks was perceived to be part of the solution to sanitation and health problems.

In the abutting city of Brooklyn, a campaign to establish a public park led by Walt Whitman in his role as editor of the *Brooklyn Eagle* came to fruition in 1848 with the

dedication of Washington Park (subsequently named Fort Greene Park). Immediately afterwards, the directors of Brooklyn City Hospital made a decision to place their new building adjacent to the park. At the groundbreaking ceremony it was “noted that the new facility would be able to speed the recovery of the sick because of the plentiful supply of fresh air which would flow through the building” (Simon, 1972, p. 147).

Griscom was prominently involved in a more ambitious effort a few years later when the newly formed American Medical Association organised a committee of twelve prominent physicians to produce reports on the public hygiene status in each of their respective cities. This was perceived to be a pioneering investigation since hygiene was an “almost unexplored region of medical inquiry that has but just commenced” (American Medical Association, 1849, p. 441). Their reports and conclusions also were modelled on Chadwick’s. They reported that in all of their cities, conditions resulted in “a greater mortality than in the adjacent country districts” (p. 443). Like Chadwick, they concluded that the hygiene problems were caused by deficient drainage, street cleaning, supply of clean water and ventilation. The role of ventilation was to dissipate the miasmas. Recommendations for enhancing it included widening of streets to enable free circulation of air through them and explicit advocacy for the creation of parks.

The conventional wisdom, embraced by leading medical figures of the era, that parks were part of the solution to miasmatic diseases led to the Committee recommending that cities invest in them for this purpose: “The necessity for public squares, tastefully ornamented and planted with trees, cannot be too strongly urged upon public attention, as one of the most powerful correctives to the vitiated air within the reach of the inhabitants of a populous place” (American Medical Association, 1849, p. 438).

These efforts were followed in 1850 by a third influential landmark report on the same theme: *Report of a general plan for the promotion of public and personal health* (Commissioners, 1850). The chair of the commission and primary author of the report was Lemuel Shattuck. Shattuck was not a medical doctor. His speciality was analysing public problems through statistics and he led the effort to establish the American Statistical Association in 1838. Like Chadwick, he had long recognised that statistics could demonstrate the extent of health problems and help convince civic leaders that sanitary reforms were sound economics. His report accepted miasmas emanating from the contaminated atmosphere of cities as the explanation for disease. The report extensively quoted from Chadwick’s report and was explicit in identifying parks and vegetation as being part of the solution:

WE RECOMMEND *that open spaces be reserved, in cities and villages, for public walks; that wide streets be laid out; and that both be ornamented with trees.* Such an arrangement would have a good effect upon the beauty and social enjoyments of the place; but it would have a greater effect upon its general sanitary condition. (p. 166)

The Massachusetts report used the same “pay now or pay later” economic arguments that proved so effective in the UK:

The expense of preventive sanitary measures is the most common argument brought against their adoption ... [but] debility, sickness, and premature deaths, are expensive matters. They are inseparably connected with pauperism; and whenever they occur they must, directly or indirectly, be paid for. The city or town must pay for the sick man’s support – for his food and clothing, for medical attendance on him during life, and for the support of his widow and

children (if he leaves any) after his death. A town in which life is precarious pays more taxes than its neighbors of a different sanitary character. An individual who is unable to perform a large amount of labor or no labor at all, is a less profitable member of society than one who can do whatever vigorous health allows. (p. 254)

The Commission estimated the cost of disease for one year in Massachusetts to be \$7,512,000 and noted this estimate “we believe would fall far below the reality” (p. 259). They concluded, “It has been well said that it costs more money to create disease than to prevent it; and that there is not a single structural arrangement chargeable with the production of disease that is not in itself an extravagance” (p. 259).

### **Parks as a partial antidote to disease in the USA**

In 1771, Joseph Priestley had discovered oxygen and nature’s role in producing it. When he put a mouse in a sealed box with a burning candle, the candle went out and the mouse died due to a lack of air. However, he found that putting a green plant in that jar and exposing it to sunlight “refreshed” the air, so the flame continued to burn and the mouse to breathe. Priestley subsequently emigrated to Pennsylvania, so by the end of the eighteenth century his work was widely known in the USA. For example, the *New York Gazette* for May 1799, emphasised the value of trees in maintaining the purity of air, and urged that city to encourage their planting (Klein, 1971).

This knowledge appears to have been embraced by De Witt Clinton in 1809 when he developed New York City’s first plan. At that time, the city’s population was less than 100,000. The plan set aside land for 480 acres of parks, i.e., 1 acre for every 201 inhabitants. (Commission, 1884). However, his plan was quickly countered by an 1811 report which made the naive assumption that New York received so much fresh and pure air from the “large arms of the sea which embrace Manhattan Island” that parks and squares, while desirable, were not vital for the well-being of its citizens (Klein, 1971). Consequently, as the century progressed, these lands were released for commercial use.

One of the city’s early major developers, Samuel Ruggles, believed this was a mistake. In response, he conceived a project modelled on London’s squares. The central feature was the two acre Gramercy Park which was richly planted and owned by those who purchased the surrounding lots. Importantly to Ruggles, he was ensuring those property owners had access to “the free circulation of air” no matter how dense the city became around this area. The deed for the land established it as a private park owned by the surrounding lot purchasers. Responsibility for its maintenance was given to five trustees elected by the lot owners (Pine, 1921).

By the middle of the century, Ruggles’ Gramercy Park was a solitary accomplishment. However, in the 1840s there were stirrings. Parks as “lungs of the city” that would purify and regenerate the atmosphere were periodically invoked by New York editors and politicians during the 1840s. For example, in July 1842, the *New York Mirror* cited this reason in proposing that a park should be created on each riverfront in the city (Spann, 1981). An extended network of parks in New York City was first proposed by Bryant in 1844 (Rosenzweig & Blackmar, 1992) and in the late 1840s and early 1850s his efforts were reinforced when the case for parks was most prominently articulated by Andrew Jackson Downing, who was editor of the influential *Horticulturalist* publication. Downing lauded “the sanitary value and importance of these breathing spaces for large cities” (Schuyler, 1986, p. 61).



The New York, American Medical Association and Massachusetts sanitary reports all explicitly embraced urban parks as part of the solution for the sanitation problems that were perceived to cause ill-health. They buttressed and added credibility to the nascent parks advocacy movement which was stirring especially in New York City. Economics again were prominent in the debate extending beyond the direct costs of ill-health to embrace its negative impacts on business: “grave public health problems marred New York’s reputation as an attractive place to visit, settle, or do business?” (Rosenzweig & Blackmar, 1992, p. 24).

As in the UK, the wealthy had the option of escaping from US cities and commuting into them. Thus, “suburban villas proliferated as affluent urban Americans sought therapeutic immersion in nature” (Baldwin, 2003, p. 4). Similarly, in times of epidemics they had the capacity to flee the city. In New York, for example, about one-third of residents fled during the 1805 cholera epidemic (Melasi, 2000). However, this option was not available to the majority of artisans and working people.

The need for “lungs” in US cities was even more acute than in the UK, because the UK royal parks and private estates of the nobility and upper classes which had been outside of towns, increasingly were embraced by expanding town boundaries and *de facto* became “lungs.” Further, these properties gradually were yielding to societal pressures that caused them to become more accessible for public use. No comparable urban private park spaces were available in US cities.

In 1859, *Scientific American* observed, in the context of New York City, that “Hitherto our public parks have been so small as to excite the derision of foreigners” (p. 337). The author went on to note: “In all the cities of Europe, there are large public parks which form huge lungs for the pent-up streets ... As a means of promoting the public health, they have been considered invaluable and indispensable” (p. 337).

The first US attempt to develop a large park to serve as a “lung” for proximate property was Llewellyn Park, located just 12 miles west of New York City in Orange, New Jersey. It adopted the private real estate model exemplified by Regent’s Park and Prince’s Park in Liverpool in the UK and on a small scale by Ruggles’ Gramercy Park. It was the creation of Llewellyn Haskell, a pharmaceutical magnate from New York City (Henderson, 1987). The development was designed to be a large housing area targeted at businessmen and intellectuals and their families from the city. Importantly, it was connected by a new rail line to the city.

The Central Park, which was the project’s primary feature, was 50 acres. Additional land purchases were subsequently made, so that the community’s size increased to 500 acres in 1860 and 750 acres in 1870. The topography was undulating, in parts rugged and parts were forested. A prominent architect, Alexander Jackson Davis, worked with Haskell to create a picturesque design for the park that retained these natural features, imported thousands of new trees and shrubs to the site and incorporated extensive flower beds.

The initial advertisements to sell the real estate were headed “Country Homes for City People” and they promoted “For ... healthfulness of climate, being in the healthiest region so near the city” (Henderson, 1987, p. 225). To pay for maintenance of the private park, all lot owners were required to sign a covenant obligating them to pay an annual fee of 10 dollars per acre of their lot. Votes on administration and management of the park were allotted on the basis of property: one vote per acre. Thus, Llewellyn Park became a prototype and inspiration for US urban public parks: “For advocates of parks it

demonstrated how the proposed Central Park, as New York City's green lung, would ensure mental and physical health" (Henderson, 1987, p. 240).

### *Olmsted's influence*

This was the setting when Olmsted arrived on the parks stage in the early 1850s fresh from his walking tour in England and, consequently, familiar with miasmatic theory and the sanitation debates in that country. Public health needs were articulated by Olmsted as a prominent rationale for parks throughout his career. Olmsted lost his first child to cholera-infantum and firmly believed the cause was "miasmatic contagion" (Blodgett, 1976, p. 878). He stated, "modern science has beyond all question determined many of the causes of the special evils by which men are afflicted in towns" and primary among these was air that "carries in to the lungs highly corrupt and irritating matters, the action of which tends strongly to vitiate all our sources of vigor" (Olmsted, 1870, p. 179). He spoke of "the two great natural agents of disinfection, sunshine and fall foliage" (1871, p. 183) and explained how parks and tree-lined boulevards performed their cleansing role:

Air is disinfected by sunlight and foliage. Foliage also acts mechanically to purify the air by screening it. Opportunity and inducement to escape at frequent intervals from the confined and vitiated air of the commercial quarter, and to supply the lungs with air screened and purified by trees and recently acted upon by sunlight...if these could be supplied economically, our problem [ill-health] would be solved. (Olmsted, 1870, p. 182–183)

Olmsted's explanation reiterated the prevailing view of the medical community in the USA. For example, he corresponded regularly with John Rauch who was a Chicago physician whose leadership in the US public health movement was exemplified by his presidency of the American Public Health Association in 1876–1877. When Rauch published his landmark *Public Parks* report in 1869, Olmsted reviewed and commented on a draft of it (Szczygiel & Hewitt, 2000). Rauch's views were highly influential in the USA and he was a staunch proponent of miasmatic theory.

Rauch (1869) noted that "vegetation is the only operation in nature which gives to the air free oxygen which is indispensable to animal life" (p. 36). He called attention to:

a series of facts, gathered from different sources, which illustrate in a marked degree, the application of these principles, clearly proving that the infection and diffusion of malaria [i.e. miasmas] or noxious emanations are arrested by trees, whose structure and canopy of foliage act in a three-fold capacity; – first as a barrier to break the flow, second as an absorbent of those emanations, and third as [generators] of oxygen. (p. 38)

Rauch explains "vegetable physiology" in the following terms:

Under the influence of light, takes place the chemical decomposition of one or more substances in the sap, liberating the oxygen at the ordinary temperature of the air, and transforming the mineral, inorganic food into organic matter – the organized substance of living plants and animals. The chief material given back to the air in this process is oxygen gas, that element of our atmosphere which renders it fit for the breathing and life of animals. That the foliage of plants in sunshine is continually yielding oxygen to the surrounding air has been known since the days of Ingenloup and Priestley. (p. 36)

Like Rauch, Olmsted believed that parks and tree-lined boulevards had a substantial impact in mitigating miasmas:

Beyond all reasonable doubt, at least, the larger share of the immunity from the visits of the plague and other forms of pestilence, and from sweeping fires, and the larger part of the improved general health and increased length of life which civilized towns have lately enjoyed is due to the abandonment of the old-fashioned compact way of building towns, and the gradual adoption of a custom of laying them out with much larger spaces open to the sunlight and fresh air. (Olmsted, 1868, p. 126)

Throughout his career, Olmsted interacted with leading professionals in the sanitary engineering and medical fields who consistently reaffirmed his belief in miasmas. In his early work at Central Park he became friendly with George Warner, a nationally recognised sanitation engineer, who was in charge of the park's drainage system. Warner was convinced of the effect of miasmas; was well-versed in the UK public health movement; and reinforced Olmsted's belief in the remediation effect of parks on health (Szczygiel & Hewitt, 2000).

During the Civil War, Olmsted became secretary of the US Sanitary Commission in June 1861. Olmsted was both one of its commissioners and its chief executive officer based in Washington D.C. The knowledge and expertise he had gained about principles of drainage as a scientific farmer and at Central Park, and his logistical and organisational skills amply demonstrated at Central Park, resulted in the Commission inviting him to lead their effort. He remained in the position for over two years until September 1863.

Sickness among soldiers caused by unhygienic conditions in the camps was rampant and was undermining the North's military effort (Censer, 1986). It was estimated that each soldier suffered six bouts with sickness during the course of the war (Duffy, 1992). The Commission's emphasis was on relaying the latest medical and scientific information to army doctors. Many of the professional staff whom Olmsted hired were physicians and civil engineers who inspected army camps and advised army officers on best medical and hygiene practises. The Commission issued guides on field sanitation which were distributed to army medical officers that upheld the basic premises of the miasmatic position. Olmsted's interactions with physicians at the Sanitation Commission reinforced his conviction of the linkage between miasmas and disease.

One of Olmsted's primary justification for parks was that they were "outlets for foul air and inlets for pure air." This was exemplified by his use of phrases such as "lungs of a city," "ventilating places," "breathing-holes" and "airing grounds" (Olmsted, 1886, p. 467). Like Chadwick, Griscom, Shattuck and others, Olmsted consistently argued that the savings in health costs meant parks paid for themselves. Thus, he stated: "Nor is there a single case ... that it has not been found that the people are obtaining a degree of benefit to health through their use of the park that far more than compensate for the outlay by which it has been obtained for them" (Olmsted, 1881, p. 345).

With his first partner, Calvert Vaux, Olmsted designed and planned 50 projects. After his partnership with Vaux dissolved, Olmsted and his partners went on to carry out an additional 550 commissions (Beveridge, 1989). Olmsted's extraordinary effectiveness in facilitating the expansion of urban parks in the USA was a function of his extensive writings and speeches, and his alignment with the prevailing ideas of the day relating to miasmas. "He spoke a language of landscape and health that provided a foundation for discussion in each urban community in which he was employed. His clients were

concerned and active citizens; both parties mutually supported the perspective of an essential environmental connection to health” (Szczygiel & Hewitt, 2000, p. 733).

### ***Parks’ linkages to sanitary reform in major US cities***

The effectiveness of linking parks to sanitary reform is apparent from the consistency with which it appeared as the primary rationale for their establishment. Fryer (1879) in New York City declared: “Parks are the lungs of the city, and through them come life and strength and growth” (p. 6). He proposed a new city park in the dense tenement area of eastern Manhattan because, “The bills of mortality prove that disease is ever rampant in these terrible neighborhoods,” and suggested the whole city would benefit since “Pestilence knows no boundaries and is no respecter of persons” (p. 3). Similarly, McMahon (1884) suggested, “If several blocks in the Fourth, Seventh, Fourteenth, Eleventh and Nineteenth wards were separately taken, the houses on them demolished, open air spaces created, laid out in green grass, the sanitary condition of the city would thereby be improved” (n.p.).

The extensive land acquisitions that formed the basis for the renowned Minneapolis park system were acquired in the 1880s. Although other values of parks were articulated in the extended debate, the public health rationale dominated. For example, an 1880 editorial in the *Minneapolis Tribune* opined:

Public parks have come to be recognized as institutions essential to the health, as well as the happiness, of thickly settled communities. Children suffer from privations, pine and sicken and ultimately fill graves because they are cut off from a healthful provision of God’s light and the pure atmosphere that circulates among the trees and through broad, vast expanses. To keep down the death rate, and to be rid of wasting disease, a plentiful supply of parks is needed in every large town. Minneapolis has none, it is a painful fact to state. (Rea, 1880)

In his address inaugurating Baltimore’s first large park, Druid Hill Park, the city’s mayor stated, “It is only by the occurrence of modern epidemics producing that attention to sanitary matters ... that the necessity for good parks has been duly recognized, and the insufficiency of those already existing properly felt” (cited in Schuyler, 1986, p. 62).

The cores of contemporary park systems in New York, Boston and Chicago were established in the 1870s and 1880s. In each case, the dominant justification for the unparalleled investment of public tax dollars in them was their perceived ability to ameliorate the impact of miasmas.

When New York City acquired the 864 acres for Central Park in the mid-1850s, it attained a ratio of 1 acre of park land for 613 inhabitants. Despite the widespread recognition of that park’s social, civic and financial success, the city made only minor investments in parks during the next 30 years, so by the mid-1880s the ratio had deteriorated to 1 acre for 1363 residents. At that time, this situation was rectified by a single commitment to urban parks which was of a scale that remains unprecedented today in any city in the world.

In 1886, the New York State legislature authorised New York City to acquire and develop six parks: Van Cortlandt, The Bronx, Crotona, St. Mary’s, Claremont and Pelhorn Bay, which together comprised 3000 acres of park land. This extraordinary event was the culmination of a formal process that commenced in 1883 when the legislature authorised the Mayor of New York City to “appoint Commissioners to select and locate

lands for Public Parks in the Twenty-third and Twenty-fourth Wards, and the vicinity thereof.”

The Commission reported in 1884 with an exhaustive analysis. Experience with Central, Prospect and other parks had demonstrated that parks served multiple functions beyond their sanitation effect. In addition, Pasteur had discovered germ theory in 1862 and by the mid-1880s, it was slowly percolating into the conventional wisdom of medical practice. Nevertheless, the sanitation case, allied with the enhanced real estate values that were at least partially a product of the desire for proximity to the clean air urban parks were perceived to nurture, were the dominant rationales presented by the Commission to justify this unprecedented expansion of city park land (Commission, 1884).

Similarly, in Boston justification for the huge investment of tax funds in Olmsted’s famed Emerald Necklace plan used the same arguments as those that characterised the New York debate. Notably they were articulated by some of the city’s leading physicians which presumably added to their credibility (Boston, 1876).

In Chicago, Rauch’s standing as a leading physician, the city’s Sanitary Superintendent and its Registrar Vital Statistics ensured that his *Public Parks* (1869) publication would be highly influential in that city’s parks debate. Rauch’s views on the role of parks in ameliorating miasmas were described earlier in this paper. His conviction that they were an essential element for protecting public health had a receptive general audience in Chicago and his “medical mandate swayed park commission opponents (p. 726) ... in a disease-weary city that had already experienced three major cholera epidemics in 1834, 1849-50, and 1854” (Szczygiel & Hewitt, 2000, p. 729). Thus, in 1869 the Illinois legislature authorised the South, West and Lincoln Park Commissions. By 1877 Rauch was able to report “The parks proper and the boulevards contain nearly 2500 acres” (p. 14) and that at least one million trees had been planted in the last 10 years in Chicago and its suburbs. He reviewed the city’s mortality rates from 1843 to 1877 and attributed their impressive decline to the overall sanitary programme (which included parks and trees), concluding that these results validated his advocacy for the programme.

### **Concluding comments**

The intent of this paper was to identify the influence of miasmas and concern for the monetary and personal costs they inflicted on society in the evolution of urban parks in the USA. The introductory paragraph recognised ten other forces that contributed to their emergence. All of these have received attention in the parks literature, but to the best of the author’s knowledge, there has been no previous detailed discussion of the role of the sanitation movement in nurturing urban parks.

The concerns of institutions and individuals were complementary. Governmental entities such as GBPLC in the UK, and city councils exemplified by New York, Boston and Chicago in the USA, recognised that the costs miasmas were inflicting on their societies from pauperism and lost labour productivity could be alleviated by preventative action of which park provision was a component. This complemented the concerns of their constituents, who viewed parks as a defence against contagion and epidemics.

### **References**

- American Medical Association. (1849). First report of the committee on public hygiene of the American Medical Association. *The Transactions of the American Medical Association*, 2, 425–642.

- Baldwin, P. (2003). How night air became good air 1776–1930. *Environmental History*, 8(3), 1–13. doi:[10.2307/3986202](https://doi.org/10.2307/3986202)
- Beveridge, C. E. (1989). Frederick Law Olmsted. In W.H. Tishier (Ed.), *American landscape architecture: Designers and places* (pp. 38–41). Washington, DC: Preservation Press.
- Blodgett, G. (1976). Fredrick Law Olmsted: Landscape architecture as conservative reform. *The Journal of American History*, 62(4), 869–889. doi:[10.2307/1903842](https://doi.org/10.2307/1903842)
- Boston. (1876). *Parks for the people. Faneuil hall meeting June 7*. Boston, MA: Franklin Press, Rand, Avery & Co.
- Briggs, A. (1963). *Victorian cities*. New York, NY: Harper and Row.
- Burnett, J. (1978). *A social history of housing 1815–1940*. London: David & Charles.
- Cartwright, F. F. (1977). *A social history of medicine*. London: Longman.
- Censer, J. T. (1986). *Defending the union: The civil war and the U.S. sanitary commission 1861–1863*. Baltimore: Johns Hopkins University Press.
- Commission to Select and Locate Lands for Public Parks in the Twenty-Third and Twenty-Fourth Wards of the City of New York, and in its vicinity thereof. (1884). *Report to the New York legislature of the commission*. New York, NY: Martin B. Brown.
- Commissioners for the sanitary survey of the state of Massachusetts. (1850). *Report of a general plan for the promotion of public and personal health*. Boston, MA: Ditton & Wentworth.
- Crompton, J. L. (2004). *The proximate principle: The impact of parks, open space and water features on residential property values and the property tax base*. Ashburn, VA: National Recreation and Park Association.
- Crompton, J. L. (2006). The genesis of the proximate principle in the emergence of urban parks in England. *Annals of Leisure Research*, 9(4), 214–244.
- Crompton, J. L. (2007). The role of the proximate principle in the emergence of urban parks in the United Kingdom and in the United States. *Leisure Studies*, 26(2), 213–234. doi:[10.1080/02614360500521457](https://doi.org/10.1080/02614360500521457)
- Duffy, J. (1968). *A History of public health in New York city 1625–1866*. New York, NY: Russell Sage Foundation.
- Duffy, J. (1992). *The sanitarians: A history of American public health*. Urbana, IL: University of Illinois Press.
- Flinn, M. W. (1965). *Report on the sanitary condition of the laboring population of Great Britain by Edwin Chadwick 1842*. Edited with an introduction by M.W. Flinn. Edinburgh: Edinburgh University Press.
- Fryer, W. J. (1879). *A proposed new city park for the extreme portion of New York*.
- Great Britain Poor Law Commissioners (1842). *Report to her majesty's principal secretary of state for the home department on an inquiry into the sanitary condition of the laboring population of Great Britain*. London: W. Clowes.
- Griscom, J. H. (1845). *The sanitary conditions of the laboring population of New York City*. New York, NY: Harper & Brothers.
- Henderson, S. (1987). Llewellyn Park, suburban idyll. *Journal of Garden History*, 7(3), 221–243. doi:[10.1080/01445170.1988.10412470](https://doi.org/10.1080/01445170.1988.10412470)
- Klein, A. (1971). *The empire city: A treasury of New York*. Freeport, NY: Books for Libraries Press.
- McMahon, D. (1884). Letter to L.R. March, Chairman of Commission to Select and Locate Lands for Public Parks, February 15.
- Melasi, M. V. (2000). *The sanitary city: Urban infrastructure in American from colonial times to the present*. Baltimore, MD: Johns Hopkins University Press.
- Mowen, A., & Godbey, G. (2010). *The benefits of physical activity provided by park and recreation services*. Ashburn, VA: National Recreation and Park Association.
- Nolen, J. (1913). Some examples of the influence of public parks on increasing city land values. *Landscape Architecture*, 3(4), 166–175.
- Olmsted, F. L. (1868). Report to the Brooklyn park commission. In C. E. Beveridge, Hoffman, C. F., & K. Hawkins (Eds.), *The papers of Frederick Law Olmsted. Supplementary Series 1. Writings on public parks, parkways and park systems* (pp. 112–146). Baltimore, MD: Johns Hopkins University Press.
- Olmsted, F. L. (1870). Public parks and the enlargement of towns. In C.E. Beveridge, C.F. Hoffman, & K. Hawkins (Eds.), *The papers of Frederick Law Olmsted. Supplementary Series 1*.

- Writing on public parks, parkways and park systems* (pp. 171–205). Baltimore, MD: Johns Hopkins University Press.
- Olmsted, F. L. (1871). Report to the Staten Island Improvement Commission of a preliminary scheme of improvements. In A. Fein (Ed.), *Landscape in to cityscape: Frederick Law Olmsted's plans for a greater New York city*. Ithaca, NY: Cornell University Press.
- Olmsted, F. L. (1881). A consideration of the justifying value of a public park. In C.E. Beveridge, C. F. Hoffman, & K. Hawkins (Eds.), *The papers of Frederick Law Olmsted. Supplementary Series 1. Writings on public parks, parkways and park systems* (pp. 331–349). Baltimore, MD: Johns Hopkins University Press.
- Olmsted, F. L. (1886). Notes on the plan of Franklin park and related matters. In C. E. Beveridge, C. F. Hoffman, & K. Hawkins (Eds.), *The papers of Frederick Law Olmsted. Supplementary Series 1. Writings on public parks, parkways and park systems* (pp. 460–534). Baltimore, MD: Johns Hopkins University Press.
- Parliamentary Papers* (1846). Metropolitan Sewage Manure Company Committee. p. 651.
- Pine, J. B. (1921). *Gramercy park: An American Bloomsbury*. Baltimore, MD: John Hopkins University Press.
- Rauch, J. H. (1869). *Public parks: Their effects upon the moral, physical, and sanitary conditions of the inhabitants of large cities with special reference to the city of Chicago*. Chicago: S.C. Griggs & Co.
- Rauch, J. H. (1877). *The sanitary problems of Chicago, past and present: An introductory discourse*. Cambridge, Mass: Riverside Press.
- Rea, J. P. (1880). Give us a park. *Minneapolis Tribune*, May 23.
- Rosenzweig, R., & Blackmar, E. (1992). *The park and the people*. Ithaca, NY: Cornell University Press.
- Scientific American*. (1859). City public parks 1:21, November 19, p. 337.
- Schuyler, D. (1986). *The new urban landscape: The redefinition of city form in Nineteenth-century America*. Baltimore, MD: Johns Hopkins University Press.
- Simon, D. E. (1972). *The public park movement in Brooklyn. 1824–1873* (PhD dissertation). New York University.
- Southwood Smith, T. (1830). *Treatise on fever*. Philadelphia, PA: Caney and Lea.
- Spann, E. K. (1981). *The new metropolis: New York city, 1840–1857*. New York, NY: Columbia University Press.
- Szczygiel, R., & Hewitt, R. (2000). Nineteenth-century medical landscapes: John H Rauch, Frederick Law Olmsted and the search for salubrity. *Bulletin of the History of Medicine*, 74(4), 708–734. doi:[10.1353/bhm.2000.0197](https://doi.org/10.1353/bhm.2000.0197)
- Weigley, R. F. (1982). *Philadelphia: A 300 year history*. New York, NY: Norton.
- Winslow, C. E. A. (1923). *The evolution and significance of the modern public health campaign*. New Haven, CT: Yale University Press.