
American Technological Sublime

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Introduction

If any man-made object can be called sublime, surely the Golden Gate Bridge can. More than a mile long, it crosses the turbulent waters of San Francisco Bay between rocky headlands. Three times the height of the Brooklyn Bridge, it arches through crosswinds, clouds, and fog, slim and elegant, a triumph of engineering skill.¹ Icon of San Francisco and constantly featured on travel posters, postcards, and brochures, it has become an instantly recognizable landmark. Yet, like every sublime object, this magnificent piece of civil engineering cannot be comprehended through words and images alone. When visited, it outstrips expectations.

On May 24, 1987, the bridge was 50 years old, and to celebrate the occasion officials closed it to traffic for one day and allowed the public to walk across from both sides. On the day it was inaugurated,² 200,000 pedestrians paid a nickel each for a first look; in 1987 it seemed appropriate to ban cars once again for a day, abandoning the bridge's transportation function to emphasize its symbolic role. Since the novelty of the bridge had worn off, officials expected a smaller crowd than in 1937, and they were amazed to see an immense multitude gathering before dawn. The impatient crowd was as heterogeneous as the Bay Area's population and included every race, religion, and age group. A surprising number had been there 50 years earlier for the opening. Already at 5:30 A.M. some people flocked onto the bridge when a chain was dropped to let a truck drive across. By sunrise the deck was jammed, and the arched span flattened out under the weight of 250,000 people, with more than half a million more moving forward along the approach roads. Those trapped on the center of the bridge were pressed tightly together and could not move for hours. Police tried to get the crowd to back up, while engineers calculated whether the structure would buckle or collapse. The bridge began to sway in the wind, adding to



The fiftieth-anniversary celebration of the Golden Gate Bridge, May 24, 1987. Photo by Paul Kitagaki; courtesy of *San Francisco Examiner* and SABA Press Photos, Inc.

the tension. By late morning "footlock" had been overcome, but the majority never got to walk across. Yet most stayed through the day and into the evening for a massive fireworks display, a concert, and the spectacular lighting of the bridge's towers.³ Despite the crush, the mood was surprisingly good. The people clearly loved their bridge.

San Francisco officials were unprepared for the massive turnout because they did not understand the American public's affection for spectacular technologies. Each day crowds visit the Kennedy Space Center, ascend St. Louis's Gateway Arch, and visit the observation decks of prominent skyscrapers in New York, Chicago, Boston, Minneapolis, and other major cities. The public response to the birthday of the Golden Gate Bridge was matched by the excitement at the centenary of the Brooklyn Bridge or the Statue of Liberty. For almost two centuries the American public has repeatedly paid homage to railways, bridges, skyscrapers, factories, dams, airplanes, and space vehicles.

The sublime underlies this enthusiasm for technology. One of the most powerful human emotions, when experienced by large groups the sublime can weld society together. In moments of sublimity, human beings temporarily disregard divisions among elements of the community. The sublime taps into fundamental hopes and fears. It is not a social residue, created by economic and political forces, though both can inflect its meaning. Rather, it is an essentially religious feeling, aroused by the confrontation with impressive objects, such as Niagara Falls, the Grand Canyon, the New York skyline, the Golden Gate Bridge, or the earth-shaking launch of a space shuttle. The technological sublime is an integral part of contemporary consciousness, and its emergence and exfoliation into several distinct forms during the past two centuries is inscribed within public life. In a physical world that is increasingly desacralized, the sublime represents a way to reinvest the landscape and the works of men with transcendent significance. As Émile Durkheim concluded: "The ideal society does not stand outside the real society: it is part of it. Far from being torn between two opposite poles, we cannot be part of the one without being part of the other. A society is not simply constituted by a mass of individuals who compose it, by the territory they occupy, by the things they use and the actions they perform, but above all by the idea it has about itself."⁴ Since the early nineteenth century the technological sublime has been one of America's

central “ideas about itself”—a defining ideal, helping to bind together a multicultural society. Americans have long found the sublime more necessary than Europeans, so much so that they have devised formations of the sublime appropriate to their pluralistic, technological society. Precisely because American society is so pluralistic, no single religion could perform that function. Instead, ever since the early national period the sublime has served as an element of social cohesion, an element that was already quite evident when the first canals were dug and steam engines were first harnessed to trains.

The members of a multicultural society need not agree on the precise meaning of a rite; it can create solidarity through participation. In David Kertzer’s neo-Durkheimian view, “ritual can produce bonds of solidarity without requiring uniformity of belief.”⁵ The millions who travel to the Grand Canyon or Cape Canaveral can share an awed response to what they see without discussing or even articulating what their sublime encounter means. The crowd’s infectious enthusiasm is an essential part of the atmosphere surrounding a world’s fair, the celebration of a new technology, or an Independence Day celebration.⁶ At such events organizers mediate the crowd’s response through speeches, music, fireworks, and spectacular demonstrations, but unanimity is not necessary. The specific advantage of the sublime as a shared emotion is that it is beyond words.⁷

Yet the emotion, although ineffable, is not inevitable. Over time, the same objects cannot always be counted upon to evoke the sublime response. Their power often decays, and other alternatives are sought. Ultimately, the constant is not the technological object *per se*; it is the continual redeployment of the sublime itself, as a preferred American trope. Since the 1820s a number of interrelated American sublims have emerged. Each of these articulates a distinct political and social relation to technology, and to some extent these coexist uneasily as alternative social constructions. Yet these contradictions are more latent than expressed, because the sublime encounter leaves observers too deeply moved to reflect on the historicity of their experience. Sublimity seems not a social construction but a unique and precious encounter with reality.

This book is organized historically, exploring forms of the sublime as they have emerged between 1820 and the present. Chapter 1 briefly examines the sublime as described by Edmund Burke and then sketches Immanuel Kant’s synthesis and extension of previous

theory. The purpose here is to provide background to readers unfamiliar with the sublime and to demonstrate the continuing relevance of the term in understanding present-day responses to natural objects. Chapter 2 examines the early-nineteenth-century emergence of the sublime in the United States as a distinctive form related to religion, gender differences, and politics. Chapters 3–5 describe the emergence of the technological, geometrical, and industrial sublims in relation to railroads, bridges, skyscrapers, and factories. Chapters 6–8 turn to the electrical sublime, which emerged in the last decades of the nineteenth century in spectacular displays at world’s fairs and pageants and soon became the basis for permanent night illuminations and the phantasmagoria of the Great White Way. These developments culminated in the integration of the technological, geometrical, and electrical sublims in the stagecraft of the New York World’s Fair of 1939. The final chapters examine three subsequent examples of the technological sublime: the atomic bomb, the first manned flight to the moon, and the rededication of the Statue of Liberty on July 4, 1986. Manifestations of the sublime on Independence Day will be a recurrent theme in each of the periods examined, marking the changing relations between technology and politics.

In view of these subjects it should be clear that, although this book deals with the history of technology, it is not a history of machines and structures from an engineering point of view. Rather, it is concerned with the social context of technology, with how new objects are interpreted and integrated into the fabric of social life.

The technological sublime was first discussed in Perry Miller’s book *The Life of the Mind in America*. Miller appears to have coined the term, which was taken up and elaborated by Leo Marx in *The Machine in the Garden*. The most fully developed application of the term until now is to be found in John Kasson’s *Civilizing the Machine*, an analysis of political, aesthetic, and utopian responses to mechanization in nineteenth-century America. Barbara Novak has also employed the term to discuss American painting. More recently, Roland Marchand, in his study of American advertising, wrote of the “power of man to manufacture the sublime,” and John Sears devoted several pages to the technological sublime in his analysis of nineteenth-century tourism.⁸ These authors have used the concept of the technological sublime in roughly comparable ways, and since they often have cited one another it is fair to say that the term has become common. Each has helped to define the concept, chiefly by

example, yet to date it remains largely unexplored as a full-scale subject. Other research on the sublime in America has focused primarily on poetry and on nineteenth-century landscape painting, with little work on the years after 1890. The present volume systematizes and extends previous work to include both a wider range of phenomena and a longer time span.⁹

To trace such a broad topic through 200 years in one volume requires considerable selection. Expressions of the technological sublime are abundant, and I have adopted the strategy of examining a smaller number of examples in some depth rather than trying to survey the widest possible field. The Grand Canyon, Niagara Falls, and Virginia's Natural Bridge appear repeatedly in discussions of the natural sublime, for example, while most of the national parks are left out in the belief that their inclusion would lengthen the argument without changing it very much. One major area has been omitted: the experience of battle. The national anthem evokes "the rockets' red glare and bombs bursting in air," a reminder that the most powerful experiences of technology for many have long been encountered in warfare. This subject merits a study of its own.¹⁰

What are my criteria of selection? First, I have searched for the things that awed the public. Second, I have focused on phenomena that attracted maximum national attention: the Grand Canyon, Niagara Falls, the explosion of Mount St. Helens, the Erie Canal, the first transcontinental railroad, the Eads Bridge, the Brooklyn Bridge, the major international expositions, the Hudson-Fulton Celebration of 1909, the Empire State Building, Boulder (Hoover) Dam, the first atomic bomb, Apollo XI, and the rededication of the Statue of Liberty. Each of these was a national event that awed the multitude. In analyzing them I have not presupposed a trickling down of aesthetic theory to the masses; rather I have examined experiences which ordinary people have intensely valued. They have often, but not always, used the term 'sublime' to describe their experience. I want to emphasize that this study is not about the aesthetic education of the public and does not seek to trace the shifting definitions of 'sublime'. Rather, it is about repeated experiences of awe and wonder, often tinged with an element of terror, which people have had when confronted with particular natural sites, architectural forms, and technological achievements. This book is about the social construction of certain powerful experiences in industrial society, which is to say it is about the politics of perception. It does not primarily concern literature or the arts, but rather the public's experience of particular technologies.

Edmund Burke declared at the end of his *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*: "It was not my design to enter into the criticism of the sublime and beautiful in any art, but to attempt to lay down such principles as may tend to ascertain, to distinguish, and to form a sort of standard for them; which purposes I thought might be best effected by an enquiry into the properties of such things in nature as raise love and astonishment in us. . . ."¹¹ Where Burke hoped to lay down immutable principles concerning both the sublime and the beautiful, I have a more modest goal: to sketch the emergence of new sublime objects that have "raised astonishment." I do not take the sublime to be immutable, and therefore its changing cultural and political meaning must form part of the subject. My first working title, *Varieties of Sublime Experience*, echoed William James's title *The Varieties of Religious Experience*. It suggested no historical development, but rather a range of possible experiences that coexist in time. However, I want to stress the historicity and the politics of sublime experiences, presenting them as emotional configurations that both emerge from and help to validate new social and technological conditions. This volume traces the emergence of new forms of the sublime, considering them not as absolute categories of aesthetic experience but as contingent categories within social and political systems.

Each new form of the sublime may undermine and partially displace older versions. Durkheim understood that "when . . . conflicts break out . . . they do not take place between the ideal and the real but between different ideals, between the ideal of yesterday and the ideal of today."¹² One person's sublime may be another's abomination. An environmentalist finds the Grand Canyon or Niagara Falls sublime and dislikes technological "improvements" such as bridges, canals, and dams. To an engineer, a bridge may simultaneously be both a work of art that is sublime in its scale and power and a technical feat that is legible to the trained eye; the same engineer may balk at the idea of trimming a bridge in ornamental lights, preferring the unadorned technological sublime to the electrical sublime. What seems sublime can vary from one individual to another. Longinus argued that sublimity was established by the consensus of people from different backgrounds; only a work that could arouse universal admiration qualified. But we live in a world splintered into interpretive communities, each claiming the right to establish its own aesthetic standards. Conservationists and ecologists disagree with civil engineers on the sublimity of dams; this results in conflicts such as the one over the Storm King Dam proposed by New York's

Consolidated Edison Company in the 1960s.¹³ Were these differences merely private opinions without public consequences, the variable social construction of the sublime would be only a curiosity. But in the United States, where the sublime has increasingly become a group experience rather than a moment of private contemplation, these experiences often have overt political consequences, both as matters of public display and as issues of social policy. The questions of central concern in this study are these: What objects have Americans invested with sublimity? What responses have there been to these different objects? What is the larger ritual or political framework within which the sublime appears? What patterns emerge when the sublime is studied over time?

Americans were not the first to admire feats of engineering and architecture. Though the term 'technology' did not exist in antiquity, some classical authors did adapt the sublime to describe both man-made and natural landscapes. Statius was perhaps the first author "to devote whole poems to the praise of technological progress," and Pliny "successfully introduced this poetic topic to prose."¹⁴ While earlier poets such as Horace and Lucretius extolled simplicity and a primitive life without luxury, the poets of the Roman empire regularly praised villas, baths, and aqueducts and the blending of nature with art. Statius even devoted an entire poem to "the praises of a good modern road . . . expressing joy at man's successful effort at levelling mountains, cutting down forests, building a firm surface across soft and shifting sands. . . ." ¹⁵ The ancient world likewise had established the notion of the "seven wonders of the world," all of which were man-made.

In eighteenth-century England the sublime also included architecture. Just as Roman literature adapted the sublime to its roads and other monumental public works, Burke took it for granted that two basic categories of the sublime, namely difficulty and magnificence, particularly applied to architecture, Nicholas Taylor points out that Burke's writing on this point was often less a theory than a codification of already-existing architectural achievements—"filing into appropriate categories for criticism the raw materials of a new sensibility which had already appeared among artists." In the following century Victorian cities were filled with structures that were not meant to be beautiful or picturesque, but rather awesome, astonishing, vast, powerful, and obscure, striking terror into the observer. The new railway stations, aqueducts, factories, and warehouses were rhetorical structures, demonstrating the power of the builders in

what Taylor calls "a permanent harangue to the public." What later generations often came to perceive as Victorian ugliness had, Taylor writes, "a direct relationship to the permanence of the social hierarchy. It is, I believe, central to Sublimity, with its hugeness and massiveness and unashamed arrogance, that it was the aristocratic taste of the time."¹⁶

In the United States the sublime took a different turn, for a variety of political and economic reasons. Democratic principles were translated into a strong preference for Greek Revival architecture in public buildings. Furthermore, because the United States urbanized and industrialized considerably later than England, there were fewer impressive buildings in the private sector. With no royalty or aristocracy, architects had little opportunity to design massive, sublime structures for private use. Engineers, rather than architects, built the first man-made objects that Americans regarded as sublime, and what particularly distinguished their response from that of the classical age or the English Enlightenment was the focus on moving machines. Americans often favorably compared their technological achievements to those of the ancient world. Daniel Webster emphatically declared that "the hydraulic works of New York, Philadelphia, and Boston surpass in extent and importance those of ancient Rome."¹⁷ Writing of the Philadelphia Exposition of 1876, Walt Whitman proclaimed:

Mightier than Egypt's tombs,
Fairer than Grecia's, Roma's temples.
Prouder than Milan's statued, spired cathedral,
More picturesque than Rhenish castle-keeps,
We plan even now to raise, beyond them all,
The great cathedral sacred industry, no tomb,
A keep for life of practical invention.¹⁸

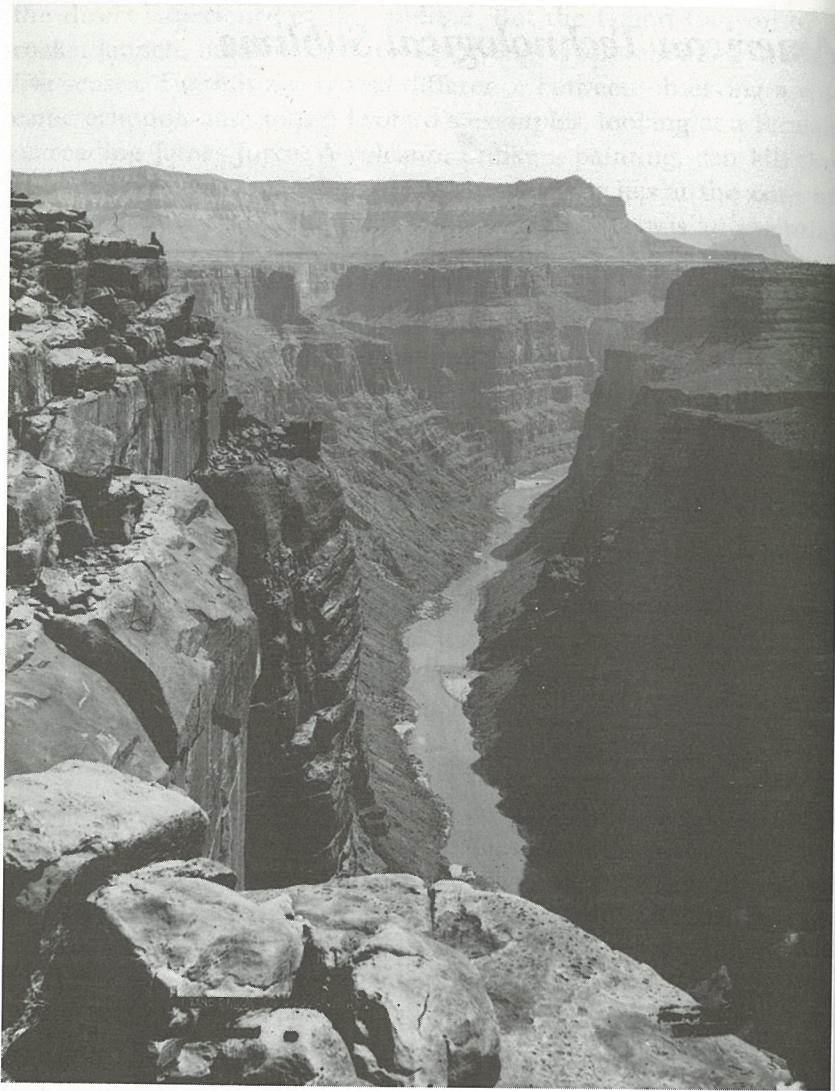
"Sacred industry" rivaled the religious architecture of antiquity; in America technological achievements became measures of cultural value.

The two-century-long American project of the technological sublime is not identical to the currently fashionable postmodern "sublime." Jean-François Lyotard, who adapted Kant's theory of the sublime to his analysis of the postmodern condition, gave increasing emphasis to the sublime in his later work. He attacked the project of modernism, making little distinction between the sublime in the arts and

the direct experience of the sublime. But the Grand Canyon or a rocket launch, unlike a book or a painting, is apprehended with all five senses. There is a very real difference between observing a volcanic eruption and, to use Lyotard's examples, looking at a Picasso or reading James Joyce. A volcano, unlike a painting, can kill the observer. An eruption can cause the terror that lies at the core of Burke's philosophy of the sublime and which later was an essential part of Kant's theory of the dynamic sublime. Take out terror and the mind is not transfixed; rather, it is free to engage in games of reference and to lose itself in an interior hall of mirrors.¹⁹ Lyotard's early writing on the sublime celebrates avant-garde art and its continuous rule-breaking, which pushes the viewer toward the limits of perception and the intuition of the unrepresentable, producing an emotion that he calls "the sublime." Yet this emotion has nothing to do with fear. When Lyotard speaks of postmodern art, he is writing not about the sublime but about another form of the unspeakable, which might better be called the aesthetic of the strange.²⁰ Apparently unaware of the long tradition of the technological sublime, he sets his form of the sublime in opposition to what he (mis)conceives to be the rationality of the technicians.

In fact, the reemergence of the natural sublime in the eighteenth century soon led to technological versions of the sublime that have persisted down to the present.²¹ Nineteenth-century engineers, architects, and inventors were hardly rational technicians, and they often embraced transcendental ideas. Along with clergymen, writers, and artists, they imbued technology with moral values. Likewise, ordinary Americans repeatedly demonstrated en masse their love of technological objects, from the Erie Canal and the first railroads to the space program of the 1960s and the 1987 celebration of the Golden Gate Bridge. The *San Francisco Examiner* editorialized that the bridge is "a gateway to the imagination," noting that "in its artful poise, slender there above the shimmering channel, it is more a state of the spirit than a fabricated road connection. It beckons us to dream and dare. First seen as an impossible dream, it became a moral regenerator in the 1930s for a nation devastated by depression." Like other forms of the technological sublime, the bridge seemed to confer not only economic benefits but "can do proof" that the nation's "inventive and productive genius" would prevail.²² It was, and is, an outward and visible sign of an ideal America. This book will examine how such objects fuse practical goals with political and spiritual regeneration.

American Technological Sublime



A photo from John K. Hillers' 1879 geological survey of the Grand Canyon. Courtesy of National Archives.

The Sublime

The North American continent possesses every feature that a theory of the natural sublime might require, including mountains, deserts, frozen wastes, endless swamps, vast plains, the Great Lakes, and hundreds of unusual sights, notably Yellowstone, Mammoth Cave, Niagara Falls, and the Grand Canyon. Likewise, its tornadoes, hurricanes, floods, and other natural disasters are among the most terrifying phenomena one could encounter anywhere. It would be tempting to say that had no theory of the sublime existed, Americans would have been forced to invent one. In a sense, this is what happened, for by the middle of the nineteenth century the American sublime was no longer a copy of European theory; it had begun to develop in ways appropriate to a democratic society in the throes of rapid industrialization and geographic expansion.

The American sublime drew on European ideas in the fine arts, literature, and philosophy. In art history the concept of the sublime is often applied to paintings that are unreal, monstrous, nightmarish, or imaginary. In architecture a sublime building usually is vast and includes striking contrasts of light and darkness, designed to fill the observer with foreboding and fear.¹ Intellectual historians and literary critics have been particularly interested in eighteenth-century and early-nineteenth century texts on the sublime. David B. Morris writes:

The discovery of the sublime was one of the great adventures of eighteenth-century England: accompanying the establishment of a commercial empire, the growth of industrialism, the invention of the common reader, and the rise of the waltz, a taste developed among almost all classes of society for the qualities of wildness, grandeur, and overwhelming power which, in a flash of intensity could ravish the soul with a sudden transport of thought or feeling. . . . Sublimity liberated the eighteenth-century imagination from all that was little, pretty, rational,

regular, and safe—although only for as long as the moment of intensity could be sustained.²

As Marjorie Hope Nicolson notes, English writers on the sublime (including Dennis, Shaftsbury, and Addison) agreed that the most important “stimulus to the Sublime lay in vast objects of Nature—mountains and oceans, stars and cosmic space—all reflecting the glory of Deity.” To them, the experience in nature was primary; the “rhetorical” sublime was “only secondary.” Despite this agreement on the primary stimulus of nature, however, it was difficult to classify the emotional content of this “moment of intensity.” Shaftsbury argued that the sublime was the highest form of beauty. Addison saw the sublime and the beautiful as distinct categories. Burke agreed with Addison on this point, but he emphasized the terror of the sublime whereas Addison spoke of “pleasing astonishment” and “awe.”³ One can easily give too much weight to such differences, however. As Nicolson says, the important point is that “during the eighteenth century the English discovered a new world. In a way, they were like the imaginary cosmic voyagers who, from Lucian to writers of modern science-fiction, have traveled to the moon or planets to find worlds that puzzle, amaze, astound, enthrall by their very differences from our world.”⁴

An actual new world had been discovered in the western hemisphere—one which, according to the first explorers, contained a wild profusion of monsters and previously unknown phenomena, including bullfrogs as large as dogs, mosquitoes the size of bats, mountains 50 miles high, strange winds that caused a living man’s body to rot, earthquakes that toppled mountains, and enormous seagoing lions that seemed to glide over the water. Howard Mumford Jones surveyed the profusion of creatures and marvels described in early travelers’ reports and concluded that “the New World was filled with monsters animal and monsters human; it was a region of terrifying natural forces, of gigantic catastrophes, of unbearable heat and cold, an area where the laws of nature tidily governing Europe were transmogrified into something new and strange.”⁵ Descriptions of such marvels continued unabated throughout the sixteenth and early seventeenth centuries, establishing a discourse about the Americas as an anti-Europe, a strange world that challenged every presupposition about nature.

Since this discourse was well established by 1700, it should not be surprising that the intellectual ferment over the sublime was trans-

mitted to the American colonies, although, as is the case whenever a complex of ideas is carried from one culture to another, its content was transformed in the process. A modified form of the sublime emerged that was in harmony with American political, social, and religious conditions. Because it had originated in classical antiquity, the sublime was peculiarly suited to Americans as they increasingly sought to emulate the Roman Republic and the democracies of ancient Greece, after about 1750. As Jones notes, in the revolutionary years “classicism remained a powerful force, whether for propaganda, historical precedent, warning, or the theory of a republic.”⁶ In the years after the revolution, as Americans fashioned a discourse that identified the new nation with the landscape, their language gradually became permeated with classical ideas—not least the idea of the sublime. As Raymond O’Brien notes, “Pre-Romantic concepts of mountain gloom, Old World superstitions of the forest, and puritanically mundane views of nature were dissipated more slowly in the colonies; consequently there is a time lag apparent between the formulation of landscape theories of the sublime and picturesque and the adaptation of these ideas in America.”⁷ Such ideas reached a large audience only in the nineteenth century.

The history of the sublime from antiquity shows, if nothing else, that, although it refers to an immutable capacity of human psychology for astonishment, both the objects that arouse this feeling and their interpretations are socially constructed. The objects and interpretations vary not only from one epoch to another and from one culture to another but also from one discipline to another, and a large volume would be necessary to provide a history of the sublime from antiquity to the nineteenth century. Here a short summary must suffice.

As conceived in the first century, the sublime was defined as an attribute of oratory and fine writing. The anonymous author usually identified as Longinus wrote:

If an intelligent and well-read man can hear a passage several times, and it does not either touch his spirit with a sense of grandeur or leave more food for reflection in his mind than the mere words convey, but with long and careful examination loses more and more of its effectiveness, then it cannot be an example of true sublimity—certainly not unless it can outlive a single hearing. For a piece is truly great only if it can stand up to repeated examination, and if it is difficult, or rather

impossible to resist its appeal, and it remains fairly and ineffaceably in the memory. As a generalization, you may take it that sublimity in all its truth and beauty exists in such works as please all men at all times. For when men who differ in their pursuits, their ways of life, their ambitions, their ages, and their languages all think in one and the same way about the same works, then the unanimous judgement, as it were, of men who have so little in common induces a strong and unshakable faith in the object of admiration.⁸

The sublime is identifiable by the repetition and the universality of its effect. In this definition, the sublime is not an esoteric quality. Rather, it is available to everyone, regardless of background.⁹

Discussions of the sublime usually begin with Longinus and then jump to early-eighteenth-century England, where the topic was taken up and elaborated by many authors—most notably Edmund Burke, whose *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*, published in 1756, became the most influential work on the subject. In the United States it went through at least ten editions before the Civil War.¹⁰ Most discussions treat ‘sublime’ as a noun, seldom noting that during the interval between Longinus and Burke it was also a verb meaning to act upon a substance so as to produce a refined product. Alchemists seeking to bring substances to higher states of perfection employed sublimation in their efforts to attain the philosopher’s stone. Alchemy gave the term ‘sublime’ a special coloring that anticipated the later response to industrial objects. Before the eighteenth century it was not yet common to praise as sublime an object of natural grandeur, such as a vast forest seen from a mountaintop or a tempest raging over the sea, but it was common to call the process of converting a substance into a vapor by heating it and then cooling it down to a refined product ‘sublimation’. Metaphorically, ‘sublime’ suggested pure realms of thought and attempts to obtain hidden knowledge.¹¹ Alchemy was not a failed proto-chemistry; its practitioners did not see themselves as objective scientists. Alchemists were not neutral observers, and what happened in their beakers, vials, and retorts were not objectified experiments. They believed that material transformations worked upon the spirit.

In contrast, the general tendency of the new science of the seventeenth century was, as Mulford Sibley puts it, “to despiritualize nature, to wipe out the distinction between animate and inanimate, and to create a sharp separation between the inner and outer worlds.”¹² Seen in this perspective, the eighteenth-century form of

the sublime is not only a rewriting of Longinus; it is part of the Enlightenment project of defining reason, a project that included not only the creation of the encyclopedia but also the definition of what was not reason. As Michel Foucault has argued, to define science it was necessary to define what it was not. The mystical relation between man and nature assumed by the alchemist was replaced by the ideal of scientific objectivity. The alchemical connotations of ‘sublime’ were largely forgotten. Burke and his contemporaries provided a checklist of the objective attributes in objects that could be expected to call forth sublime emotion, and Burke often speculated on how external objects affected the body.¹³ The sublime of the eighteenth century was a permissible eruption of feeling that briefly overwhelmed reason only to be recontained by it.

Why did the sublime reemerge when it did, fastening attention on particular natural objects? The literature of the Middle Ages and of the Renaissance marginalized the sublime. Nicolson’s *Mountain Gloom and Mountain Glory* investigates the dramatic revaluation of the natural landscape that occurred after the late seventeenth century in England. For centuries mountains were thought to be the deformities of a fallen world whose surface had been smooth at the creation. Until c. 1650, mountains were “warts, blisters, imposthumes, when they were not the rubbish of the earth, swept away by the careful housewife Nature—waste places of the world, with little meaning and less charm.”¹⁴ But this attitude began to change as astronomers demonstrated the existence of mountains on the moon and the planets and as geologists proposed theories that explained the formation of mountains through natural processes. Equally important, John Calvin argued that there had been mountains in Eden, and that they existed at the creation. No part of the natural world was inherently ugly or evil. Man’s soul was deformed; the world was not. Calvin believed that God could be seen in the beauty of nature: “On all his works he hath inscribed his glory in characters so clear, unequivocal, and striking, that the most illiterate and stupid cannot exculpate themselves by the plea of ignorance.” Protestants increasingly looked for God in “the mirror of his works.”¹⁵ Americans would later incorporate this view in a powerful version of the natural sublime. The central point is that the sublime was not part of a static view of the world, nor was it part of a proto-ecological sensibility that aimed at the preservation of wilderness. Rather, to experience the sublime was to awaken to a

new vision of a changing universe. The reemergence of the sublime was part of a positive revaluation of the natural world that by the eighteenth century had become a potential source of inspiration and education.

This revaluation was well underway by the time of Burke. He established an absolute contrast between the beautiful, which inspired feelings of tenderness and affection, and the sublime, which grew out of an ecstasy of terror that filled the mind completely. The encounter with a sublime object was a healthy shock, a temporary dislocation of sensibilities that forced the observer into mental action. To seek out the sublime was not to seek the irrational but rather to seek the awakening of sensibilities to an inner power. Burke wrote to a friend after seeing a raging flood in Dublin: "It gives me pleasure to see nature in these great though terrible scenes. It fills the mind with grand ideas, and turns the soul in upon itself."¹⁶ Burke's sublime was subjected to rational controls; he created a list of the attributes in objects that could arouse this passion: obscurity, power, darkness, vacuity, silence, vastness, magnitude, infinity, difficulty, and magnificence. Herder later argued that Burke had relied upon a Newtonian idea of attraction and repulsion according to which the beautiful attracted and the sublime repulsed. While this view is oversimplified, Burke's version of the sublime ultimately seems to rest on the view that human beings respond to certain terrible or vast objects in predictable ways. Similar usage of the term has continued since his time, and most textbook definitions of the sublime refer to powerful natural scenes that are universally available and that deepen and strengthen the mind of the observer. The Oxford English Dictionary notes this sense of the term as "Of things in Nature and Art, affecting the mind with a sense of overwhelming grandeur or irresistible power; calculated to inspire awe, deep reverence, or lofty emotion by reason of its beauty, vastness, or grandeur."

When Kant adapted Burke's theory to his own, he argued that because the sublime included pleasure as well as pain it was not the opposite of the beautiful. Kant linked the beautiful to quality and the sublime to quantity, and argued that

the beautiful brings with it a direct feeling of the expansion of life, and hence imagination; the feeling of the sublime is a pleasure, which arises only indirectly, being produced by the feeling of a momentary checking of the vital forces followed by a stronger outflow of them, and as involving emotional excitement it does not appear as the play, but as

the serious exercise, of the imagination. Accordingly, it cannot be united with sensuous charm [the beautiful]; and as the mind is alternately attracted and repelled by the object, the satisfaction in the sublime implies not so much positive pleasure as wonder or reverential awe, and may be called a negative pleasure.¹⁷

The function of this negative pleasure was to unite aesthetics with moral experience. As John Goldthwait summarizes, for Kant "the sublime makes man conscious of his destination, that is, his moral worth. For the feeling of the sublime is really the feeling of our own inner powers, which can outreach in thought the external objects that overwhelm our senses."¹⁸

In the *Critique of Judgement* Kant divided sublime experience into two forms: the mathematical sublime (the encounter with extreme magnitude or vastness, such as the view from a mountain) and the dynamic sublime (the contemplation of scenes that arouse terror, such as a volcanic eruption or a tempest at sea, seen by a subject who is safe from immediate danger). The mathematical sublime concerns that which is incomparably and absolutely great. But since every phenomena in nature is measurable, and therefore great only in relation to other things, the infinity of the sublime ultimately is an idea, not a quality of the object itself. In the presence of this apparent infinity, Kant's subject experiences weakness and insignificance, but then recuperates a sense of superior self-worth, because the mind is able to conceive something larger and more powerful than the senses can grasp.¹⁹ In this experience the subject passes through humiliation and awe to a heightened awareness of reason.

In the dynamic sublime, the individual confronts a powerful and terrifying natural force. Kant notes that "we can, however, view an object as fearful without being afraid of it." He gives the following examples:

Bold, overhanging and as it were threatening cliffs, masses of cloud piled up in the heavens and alive with lightning and peals of thunder, volcanoes in all their destructive force, hurricanes bearing destruction in their path, the boundless ocean in the fury of a tempest, the lofty waterfall of a mighty river; these by their tremendous force dwarf our power of resistance into insignificance. But we are all the more attracted by their aspect the more fearful they are, when we are in a state of security; and we at once pronounce them sublime, because they call out unwonted strength of soul and reveal in us a power of resistance of an entirely different kind, which gives us courage to measure ourselves against the apparent omnipotence of nature.²⁰

Contemplating such dangers makes the subject realize that nature can threaten only his physical being, leading him to feel superior to nature by virtue of his superior reason. For Kant both the mathematical and the dynamic forms of the sublime are not attributes of objects; they are the results of a dialogue between the individual and the object, a dialogue in which the distinction between the senses and the ego is forcibly manifested. "Sublimity, therefore, does not reside in any of the things of nature, but only in our own mind, insofar as we may become conscious of our superiority over nature within, and thus also over nature without us. . . ." ²¹

From Burke to Kant to later thinkers, the natural world plays a smaller and smaller role in definitions of the sublime, and the observer becomes central in defining the emotion as the mind projects its interior state onto the world. Burke insisted on the centrality of the natural scene in evoking the sublime. Kant emphasized that the mind was central in apprehending the sublime, thus shifting attention from physical nature to its perception.

Touristic practice came to somewhat the same conclusion as formal philosophy, arriving there by a different route. For at the same time that philosophers were deemphasizing the external object as the stimulus to sublime feelings, tourists were having more and more difficulty capturing the elusive emotion. Elizabeth McKinsey traces such a declension in *Niagara Falls: Icon of the American Sublime*. By the second half of the nineteenth century, she notes, the sublime was seldom an accessible emotion: "Changes in the image of Niagara Falls after about 1860 indicate a profound shift in attitude toward nature. Both the actual scenes at the Falls [marred by excessive tourism] and the aesthetic assumptions of artists who journeyed there reveal the eclipse of the sublime as a motive force in American culture." ²²

Since touristic experience and formal philosophy seem to point to the same conclusion, it would only seem necessary to illustrate the gradual disappearance of the sublime with extensive examples from the nineteenth century. But it will be the burden of this book to describe the popular sublime, a history of enthusiasms for both natural and technological objects that has lasted until our time and that answers to classic aesthetic theories only partially. This history will not trace the intellectual's sense of an attenuating connection to the world, nor will it be concerned with the sublime in literature and the fine arts. Rather, it will trace the continual discovery of new sources of popular wonder and amazement, from the railroad to

the atomic bomb and the space program. Such a history requires a different definition of the sublime, one that treats it less as part of a self-conscious aesthetic theory than as the cultural practice of certain historical subjects. Even if the sublime is not a philosophical absolute but a historicized object of inquiry, I will argue, the sublime experience still retains a fundamental structure, regardless of the object that inspires it or the interpretation that is given to the experience.

At the core of any sublime experience is a passion that Burke defined: "The passion caused by the great and sublime in nature, when those causes operate most powerfully, is Astonishment; and astonishment is that state of the soul, in which all its motions are suspended, with some degree of horror. In this case the mind is so entirely filled with its object, that it cannot entertain any other, nor by consequence reason on that object which employs it. Hence arises the great power of the sublime, that far from being produced by them, it anticipates our reasonings, and hurries us on by an irresistible force." The Grand Canyon is a good example of such a natural object. William F. Cody, better known as Buffalo Bill, wrote in a visitor's book that the canyon was "too sublime for expression, too wonderful to behold without awe, and beyond all power of mortal description." ²³

The millions who travel to the Grand Canyon visit it in order to sense a magnificence that cannot be described or grasped through descriptions or images but must be experienced directly. The huge scale can produce an awareness of human insignificance, of natural power, of immensity, and of eternity. The experience of visiting it is akin to the classical definitions of the sublime, even if there is little reason to believe that ordinary Americans self-consciously visit such a site with either Burke or Kant on their lips. The canyon exemplifies much of what Burke said about the sublime, and it exercises a powerful hold on the imagination of most who visit it, particularly if they do more than merely park their cars and look at a small part of it from the rim. The first reaction to this sublime object is often incomprehension. Joseph Wood Krutch realized this in observing both his own reactions and those of others on first peering over the rim into the abyss: "At first glance the spectacle seems too strange to be real. Because one has never seen anything like it, because one has nothing to compare it with, it stuns the eye but cannot really hold the attention. For one thing, the scale is too large to be credited. . . . We cannot realize that the tremendous mesas and curiously

shaped buttes which rise all around us are the grandiose objects that they are. For a time it is too much like a scale model or an optical illusion. One admires the peep show and that is all."²⁴ At first one stands outside the object as though one were looking through a frame at a peep show. It requires much more effort to "relate one's self to it somehow"; indeed, that may take days.

Krutch provides a specific example of Burkean astonishment, a state in which all internal reflection is suspended. The Grand Canyon opens up suddenly in the midst of a high plateau, and the Colorado River is so far away that it seems to be a small stream when it is in fact 300 feet wide. The canyon's sheer size is difficult to grasp. Its depth is so terrifying that many pull back in fear after their first glimpse. A late-nineteenth-century traveler reported one group's experience: "Our party were straggling up the hill: two or three had reached the edge. I looked up. The duchess threw up her arms and screamed. We were not fifteen paces behind, but we saw nothing. We took a few steps, and the whole magnificence broke upon us. No one could be prepared for it. The scene is one to strike dumb with awe, or to unstring the nerves; one might stand in silent astonishment, another would burst into tears. . . . It was a shock so novel that the mind, dazed, quite failed to comprehend it."²⁵

But the Grand Canyon does more than suspend the mental faculties. Burke points out that "to make any thing very terrible, obscurity seems in general to be necessary. When we know the full extent of any danger, when we can accustom our eyes to it, a great deal of the apprehension vanishes."²⁶ The canyon meets this requirement admirably, because it is so large that proportion and scale are confusing for a long time after one first looks into it. Furthermore, because of weather conditions and because of the shadows cast by the walls, much of the canyon is obscured a good deal of the time. The Grand Canyon contains virtually all of the elements Burke associated with the sublime in natural landscapes, including power, vacuity, darkness, solitude, silence, vastness, infinity, magnificence, and color. It is 280 miles long and up to 18 miles wide. It seems infinite in both time and space, presenting 2 billion years of geology in 15,000 feet of tilted-up stone, carved down by the Colorado River. It offers so many intriguing views and so many vantage points that it can never be seen in its entirety. Burke noted "that height is less grand than depth; and that we are more struck at looking down from a precipice, than at looking up at an object of equal height."²⁷

Who would deny that the mile-deep Grand Canyon is more impressive than a mile-high mountain range?

A well-traveled Welshman, Colin Fletcher, had these Burkean reactions when he first came up to the canyon's rim: "And there, defeating my senses, was the depth. The depth and the distances. Cliffs and buttes and hanging terraces, all sculptured on a scale beyond anything I had ever imagined." His initial reaction also included a strong sense of light, fusing colors, and a powerful silence. "In that first moment of shock, with my mind already exploding beyond old boundaries, I knew that something had happened to the way I looked at things."²⁸ The novelist and essayist Frank Waters noted that the Grand Canyon is unlike such landscapes as the prairies, the Rockies, or the bayous of Louisiana, which can be depicted reasonably well in photographs or paintings. In contrast, the Grand Canyon is a complex system of views which no single image can possibly convey. "It is the sum total of all the aspects of nature combined in one integrated whole. It is at once the smile and the frown upon the face of nature. In its heart is the savage, uncontrollable fury of all the inanimate universe, and at the same time the immeasurable serenity that succeeds it."²⁹ In these contradictions, the Grand Canyon contains most of the qualities Burke finds essential to sublimity, and it illustrates Kant's mathematical sublime.³⁰ The first geologist to survey the region, Clarence Dutton, recognized this exemplary quality and named one of the most impressive lookouts Point Sublime.³¹

In contrast, the volcanic eruption of Mount St. Helens in Washington State on May 18, 1980, exemplifies the dynamic sublime. An overwhelming force, it hurled millions of tons of pulverized rock into the air, creating a cloud that rose 60,000 feet. The volcano literally blew its top, reducing its height by 1500 feet. Dust fell to the thickness of half an inch 500 miles away, and nearby it covered fields with 8 tons of ash per acre.³² The eruption evaporated a lake, melted a glacier, set innumerable forest fires, changed day into night, and unleashed mudslides that swept away every tree in a 120-square-mile area. The cloud of ash and rock moved so fast that drivers found they could not outrun it and were trapped in a blinding dry rain.³³ The Portland *Oregonian* noted: "Eclipsing Dante's horrible dreams of Hell, the mountain poured out burning pyroclastic clouds that incinerated everything they touched—animal, vegetable, mineral." One witness said: "When the mountain went, it looked like the end of the world."³⁴

Yet more than one observer realized that the eruption's meaning could not be reduced to death and destruction. A pilot who saw the eruption from a safe distance recalled: "I consider it a great privilege to have seen it. It was just a beautiful show."³⁵ Many said that it was the most exciting thing they had ever seen. The *Rocky Mountain News* commented: "If it weren't for the loss of life and the devastation done to the environment, the eruption of Mount St. Helens in Washington might almost be enjoyed as one of the most awesome spectacles of unleashed energy that nature can display."³⁶ There were thousands of eyewitnesses to the blast, which had been long anticipated. Tourists were drawn to the site by tremors in the weeks before the eruption, and the governor had to cordon off the area and even evict people from their own land, creating much resentment among property owners. Despite the barricades and numerous public warnings, however, at least 77 people died, including an 84-year-old man named Harry Truman who had lived on Spirit Lake at the foot of the mountain for half a century.

Because the eruption had long been anticipated, one television reporter and many amateur photographers recorded the blast on film. Yet no medium could capture the totality of the event. For example, an amateur photographer who had his camera pointed at the mountain at the moment it erupted made ten images that recorded the event as well as photography could; but even these images do not record what it looked like entirely satisfactorily, because the cloud grew so quickly that during the sequence the photographer had to switch from a telephoto to a 50-millimeter to a wide-angle lens.

The witnesses to the eruption had an experience that was not only visual but also visceral. The ground shook. Lightning flashed out of the spreading cloud. There was thunder, and a sulfuric odor. One man recalled: "I saw a puff of steam come out, and then it looked like the whole mountain blew out sideways and just fanned out. The animals, the elk especially, were signaling and bugling. The whole forest was full of it."³⁷ Those who saw Mount St. Helens erupt did not subdivide and analyze their experience like philosophers, and each of them articulated only part of a sudden, overwhelming event. However, in accord with Thomas Weiskel's observations in *The Romantic Sublime*, they passed through a three-stage psychological experience. The first stage is that of normal perception, of a person with no immediate expectation of seeing anything extraordinary. On that serene Sunday morning the official

observers decided not to make their routine flight over the volcano because there were so few tremors, and one man who had been watching the volcano for a week recalls being utterly bored just before the eruption. The second stage begins at the moment when the subject perceives a break in ordinary perception, and a gap opens up between the self and the object, as was the case when the mountain blew up. Weiskel explains that at this moment of astonishment "there is an immediate intuition of a disconcerting disproportion between inner and outer." In the third stage the subject recovers from the shock of the encounter and regains his equilibrium, creating a new relationship to the sublime object; now "the very indeterminacy which erupted in phase two is taken as symbolizing the mind's relation to a transcendent order."³⁸

This psychological progression assumes, however, that the individual encounters the sublime object without warning and without expectations. Virtually everyone who sees an object that is considered sublime has heard of it first and comes to it with a set of expectations. Mount St. Helens was something of an exception, since even the scientists flying over the site admitted "This is our first volcano."³⁹ Ordinarily, however, the visitor does not see the Grand Canyon or any other site with innocent or unprepared eyes. Most sublime objects have become tourist sites. Their existence has been well advertised in advance, their appearance has been suggested by photographs, and their meaning has been overdetermined. As a result, in many cases tourists do not experience the sublime at all. And this is by no means a phenomenon of the late twentieth century. In 1818 one visitor to Niagara Falls remarked "the unbridled scope in which imagination delights to riot, magnifying what is small and exaggerating what is great" and noted "surely it will no longer be surprising that many, who take but a flying view of the wonders of Niagara, should depart utterly displeased that they are not still more wonderful."⁴⁰ Because the experience of standing before a sublime object is affected by expectations, it is often necessary to linger several days before preconceptions are overcome by direct experience.

McKinsey recounts the example of Nathaniel Hawthorne, who visited Niagara Falls and who later wrote a sketch about a man who came to the cataract with expectations so strong that they blocked the possibility of being astonished. Like many modern tourists, he experienced an inversion. The sublime object was not overwhelming. Instead, powerful expectations that exceeded the immediate

appearance of the object created a disjunction between the man's consciousness and Niagara, leading to disappointment. (Weiskel considers this excess of expected meaning the determining quality of the "egotistical sublime.") Hawthorne's narrator, unlike most tourists, remains at the site for days and overcomes his initial disappointment by continually viewing the Falls until they overwhelm his inaccurate expectations.

Margaret Fuller's experience of Niagara Falls, recounted in *Summer on the Lakes, in 1843*, was somewhat different. She also had predetermined ideas of the site, but initially she had "a quiet satisfaction" when she "found that drawings, the panorama, etc. had given me a clear notion of the position and proportion of all the objects here; I knew where to look for everything, and everything looked as I thought it would." Though satisfied with the scene, she "thought only of comparing the effect on my mind with what I had read and heard. I looked for a short time, and then with almost a feeling of disappointment, turned to go to other points of view to see if I was not mistaken in not feeling any surpassing emotion at this site." Fuller, like Hawthorne, stayed for more than a week, viewing the falls from both sides, from Goat Island, and from a boat, and also taking in the whirlpool and the rapids below. During this time she found that every day Niagara's "proportions widened and towered more and more upon my sight, and I got, at last, a proper foreground for these sublime distances. Before coming away, I think I really saw the full wonder of the scene." After some days "it so drew me into itself as to inspire an undefined dread, such as I never knew before, such as may be felt when death is about to usher us into a new existence. The perpetual trampling of the waters seized my senses. I felt that no other sound, however near, could be heard." Nevertheless, her most powerful response was not to the falls, for which she was "prepared by descriptions and paintings," but to the rapids seen from Goat Island: "My emotions overpowered me, a choking sensation rose to my throat, a thrill rushed through my veins, 'my blood ran rippling to my fingers' ends.' This was the climax. . . ." Yet, far from being satisfied with this sublimity, Fuller was "provoked with [her] stupidity in feeling most moved in the wrong place."⁴¹

The examples of Hawthorne and Fuller are not unusual; the natural sublime is often blocked by powerful preconceptions. Americans of their generation had ample opportunities to envision Niagara before seeing it in person. Not only were many lithographs

and other reproductions for sale; P. T. Barnum had a scale model of it, complete with running water, on display in his American Museum in New York. In 1840 a 200-square-foot moving diorama of the cataract went on display in Philadelphia. An even more spectacular canvas, by Godfrey N. Frankenstein, toured the United States between 1853 and 1859. It was 1000 feet long and took 90 minutes to unwind, accompanied by music and a commentary.⁴²

Such familiarity with an object threatens to undermine its potential sublimity. Yet the mark of the truly sublime object, as Longinus emphasized, is that it grows in significance with repetition, as Margaret Fuller found in her week at Niagara and as many a tourist has realized after spending several days at the Grand Canyon. As early as 1882 Clarence Dutton warned travelers that it took time to apprehend the latter. He had observed that a visitor came "with a picture of it created by his own imagination. He reaches the spot, the conjured picture vanishes in an instant, and the place of it must be filled anew. Surely no imagination can construct out of its own material any picture having the remotest resemblance to the Grand Cañon." Ideally, it might seem that the sublime should be an unexpected encounter, a largely unmediated experience of discontinuity between the self and a startling natural object. Because the traveler is so prepared in advance, the sublime may seem to be swallowed up by representations in the mass media. Only a prolonged reexperiencing of the site can overcome the egotistical demands of the informed visitor. Dutton concluded that "those who have long and carefully studied the Grand Cañon of the Colorado do not hesitate to pronounce it by far the most sublime of all earthly spectacles." In contrast, a less spectacular but unexpected object of grandeur, such as the rapids below Niagara Falls, may more easily inspire a powerful response. Yet the sublime object cannot be extirpated by expectations. Indeed, even an "innocent observer" can only be certain of an object's sublimity by continually reexperiencing it to see if it gains rather than loses force through deeper acquaintance. The first view is almost never the "pure" experience of a hypothetical observer without preconceptions, but this by no means makes the sublime inaccessible to modern people.

The experience, when it occurs, has a basic structure. An object, natural or man-made, disrupts ordinary perception and astonishes the senses, forcing the observer to grapple mentally with its immensity and power. This amazement occurs most easily when the observer is not prepared for it; however, like religious conversion at a

camp meeting, it can also occur over a period of days as internal resistance melts away. Kant distinguished between the mathematical and the dynamic sublime. In either case he expected that in the aftermath of the immediate experience the individual would become conscious of “our superiority over nature within, and thus also over nature without us.” Yet this is not necessarily the conclusion everyone will draw from a sublime experience, particularly if the object is man-made rather than natural. The perception of what is immense and infinite changes over time and across cultures.⁴³ Although the interpretation developed in Weiskel’s third stage may be more culturally determined than the astonishment at the core of the experience, even here previous perceptions shape responses. In short, American forms of the sublime are culturally inflected, including the awe bordering on terror of the second stage. The test for determining what is sublime is to observe whether or not an object strikes people dumb with amazement. The few experiences that meet this test have transcendent importance both in the lives of individuals and in the construction of culture.

2

The American Sublime

The classical definitions of the sublime were written by and for intellectual elites. Longinus, for example, begins with the words “If an intelligent and well-read man. . . .” Burke, Kant, Schiller, and later commentators, too, address an educated elite. While they assert that certain scenes will affect all minds in certain ways, they take no pains to demonstrate that this is the case, being content to let the reader experiment or to reflect on personal experience. And even if all readers of philosophy agreed, historians would still regard them as an interpretive community that might be labeled “readers of aesthetics,” a group hardly representative of the whole population. This chapter will examine how non-philosophers developed their own understanding of the sublime, based on nationalism, gender divisions, religious convictions, new technologies, and political values. By the 1820s a distinctive American version of the sublime had emerged.

To trace this emergence, consider William Byrd, an eighteenth-century Virginian planter with an English education, whose extensive commentary on the wilderness of the Appalachian mountains, *History of the Dividing Line*, was imbued with European landscape ideas. Taken by itself, the book seems to prove that Americans of the day had already adopted the Enlightenment’s ideas of nature, and that they no longer regarded the wilderness as a hostile region to be conquered. As an “intelligent and well-read man,” however, Byrd did not represent the public of his day; rather, he was one of a wealthy group of tidewater planters who had the leisure to cultivate not only their fields but also their minds. Far from articulating widely held views, he was part of a tiny minority. The dominant view of nature was that of farmers and pioneers, who were determined to subdue the land and the Native Americans. They regarded both as obstacles to be overcome. To travelers, a landscape with no marks



Virginia's Natural Bridge. Courtesy of Collections of Library of Congress.

of settlement or agriculture upon it called up few pleasant associations; it was a forbidding solitude.¹ That point of view remained dominant until at least the 1820s, when such natural wonders as Virginia's Natural Bridge and Niagara Falls began to attract many visitors.

One can trace this changing response to natural scenery in the case of the Natural Bridge. For Jefferson's generation, scientific observation and the experience of the sublime were not thought to be incompatible, as his famous passage on the Natural Bridge in *Notes on the State of Virginia* demonstrates. He begins with a series of measurements, seeking to give a precise description of the site:

The Natural Bridge, the most sublime of nature's works . . . is on the ascent of a hill, which seems to have been cloven through its length by some great convulsion. The fissure, just at the bridge, is by some admeasurements, two hundred and seventy feet deep, by others only two hundred and five. It is about forty-five feet wide at the bottom and ninety feet at the top; this of course determined the length of the bridge, and its height from the water. Its breadth in the middle is about sixty feet, but more at the ends, and the thickness of the mass, at the summit of the arch, about forty feet. A part of this thickness is constituted by a coat of earth, which gives growth to many large trees. The residue, with the hill on both sides, is one solid rock of lime-stone. The arch approaches the semi-elliptical form; but the larger axis of the ellipsis, which would be the cord of the arch, is many times longer than the transverse.

Modern geology was being invented during the eighteenth century, and portions of *Notes on the State of Virginia* demonstrate that Jefferson was acquainted with the effects of water erosion and the ease with which limestone could be hollowed out into underground caverns. Yet, while aware of this gradualist notion of how a natural bridge might evolve, Jefferson showed a preference for the catastrophe theory, which held that violent cataclysms of earthquake and flood had destroyed many beautiful structures, of which only a few remained. When he suggests that the ridge "seems to have been cloven through its length by some great convulsion," he is reading the landscape of Virginia as evidence for the catastrophe theory. The imagination of such disasters heightens the pleasure of seeing the Natural Bridge. Likewise, Jefferson remarks that another landscape records "a war between rivers and mountains, which must have shaken the earth to its centre." Such observations were later systematized by Cuvier into a general theory of catastrophe, which

would compete with uniformitarian theory until after Jefferson's death.²

Had Jefferson stopped his description of the Natural Bridge here, his account would remain an impersonal record of measurements placed in the context of contemporary scientific theories. But his text continues without a break to characterize the experience of viewing it from different positions, and here he introduces the language of the sublime. Simultaneously, his narration shifts from the third person to the second to the first:

Though the sides of this bridge are provided in some parts with a parapet of fixed rocks, yet few men have the resolution to walk to them, and look over into the abyss. You involuntarily fall on your hands and feet, creep to the parapet of fixed rocks, and peep over it. Looking down from this height about a minute, gave me a violent head-ache. If the view from the top be painful and intolerable, that from below is delightful in an equal extreme. It is impossible for the emotions arising from the sublime to be felt beyond what they are here, so beautiful an arch, so elevated, so light, and springing as it were up to heaven! the rapture of the spectator is really indescribable! The fissure continuing narrow, deep, and straight, for a considerable distance above and below the bridge, opens a short but very pleasing view of the North mountain on one side.³

Jefferson abandons the neutral scientific tone as he recalls powerful emotions and urges the reader to seek out, as a necessary counterpart to the view from below, the "painful and intolerable" view that gave him a headache. The natural bridge is sublime because it is terrifying, painful, almost intolerable, and yet at the same time delightful. It is enormous yet graceful, massive yet light. It induces both terror and rapture.

Jefferson's Natural Bridge was not yet a tourist site in the 1770s, when only a few had acquired a taste for the sublime. Viewing another striking landscape, Jefferson complained that "here, as in the neighborhood of the Natural Bridge, are people who have passed their lives within a half dozen miles, and have never been to survey these monuments." The taste for landscape was long limited to an educated minority, such as Byrd and Jefferson. In the 1840s Margaret Fuller still encountered people who lived unconsciously in the landscape, and to her they were part of it. Once, as she stood on a hill with a friend, looking at "one of the finest sunsets that ever enriched this world,"

a little cow-boy, trudging along, wondered what we could be gazing at. After spying about some time, he found it could only be the sunset, and looking too, a moment, he said approvingly, 'that sun look well enough.'"⁴

Fuller felt that the boy's speech was "worthy of Shakespeare's Cloten, or the infant Mercury." His uneducated eye pleased her, suggesting a native simplicity and good sense. But if his naiveté is a foil to her own superior sensibility and taste, his presence also underscores her separation from the land, which to her has become landscape.

Fuller reveals once again the split in sensibility between those of European taste, educated to see the landscape in terms provided by Kant and Burke, and the majority of the population. The highly educated have received more scholarly attention, not least because they have left behind an abundant record of their feelings. John Quincy Adams, for example, reported his experience of seeing Niagara Falls in terms that clearly echo classical theory: "I have seen it in all its sublimity and glory—and I have never witnessed a scene its equal. . . . a feeling over-powering, and which takes away the power of speech by its grandeur and sublimity."⁵ The popular response to the falls was less predictable. As early as 1822 a Scottish traveler noted: "There is a large tavern on each side of the river, and in the album kept at one of these, I observed that upwards of a hundred folio pages had been written with names within five months." Such customs continued, and in 1845 a book was published containing selections from what tourists had written in a similar album placed at Table Rock, above the falls.⁶ A few made ironic remarks in this *Table Rock Album*. One man declared "It is only some water running over some rocks—that's all." Another complained "They ain't good for nothin' for manufacturin'; and they completely spile navigation—that's a fact."⁷ Many of the writers simply declared that it was impossible to describe their feelings, but that they felt certain that seeing Niagara was a religious experience. For example, a visitor from Baltimore wrote: "It is utterly impossible for any man to give expression to the overwhelming feeling he experiences on beholding this display of the Great Creator's works. . . . This roar of Niagara is but a song of praise to he Almighty God." The majority adopted the language of the sublime, and they often wrote in verse. A man from Philadelphia declared Niagara the "Eternal-prototype of God!" and concluded his stanzas with "thou

would compete with uniformitarian theory until after Jefferson's death.²

Had Jefferson stopped his description of the Natural Bridge here, his account would remain an impersonal record of measurements placed in the context of contemporary scientific theories. But his text continues without a break to characterize the experience of viewing it from different positions, and here he introduces the language of the sublime. Simultaneously, his narration shifts from the third person to the second to the first:

Though the sides of this bridge are provided in some parts with a parapet of fixed rocks, yet few men have the resolution to walk to them, and look over into the abyss. You involuntarily fall on your hands and feet, creep to the parapet of fixed rocks, and peep over it. Looking down from this height about a minute, gave me a violent head-ache. If the view from the top be painful and intolerable, that from below is delightful in an equal extreme. It is impossible for the emotions arising from the sublime to be felt beyond what they are here, so beautiful an arch, so elevated, so light, and springing as it were up to heaven! the rapture of the spectator is really indescribable! The fissure continuing narrow, deep, and straight, for a considerable distance above and below the bridge, opens a short but very pleasing view of the North mountain on one side.³

Jefferson abandons the neutral scientific tone as he recalls powerful emotions and urges the reader to seek out, as a necessary counterpart to the view from below, the "painful and intolerable" view that gave him a headache. The natural bridge is sublime because it is terrifying, painful, almost intolerable, and yet at the same time delightful. It is enormous yet graceful, massive yet light. It induces both terror and rapture.

Jefferson's Natural Bridge was not yet a tourist site in the 1770s, when only a few had acquired a taste for the sublime. Viewing another striking landscape, Jefferson complained that "here, as in the neighborhood of the Natural Bridge, are people who have passed their lives within a half dozen miles, and have never been to survey these monuments." The taste for landscape was long limited to an educated minority, such as Byrd and Jefferson. In the 1840s Margaret Fuller still encountered people who lived unconsciously in the landscape, and to her they were part of it. Once, as she stood on a hill with a friend, looking at "one of the finest sunsets that ever enriched this world,"

a little cow-boy, trudging along, wondered what we could be gazing at. After spying about some time, he found it could only be the sunset, and looking too, a moment, he said approvingly, 'that sun look well enough.'⁴

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has been / To me a lesson deep and ineffaceable / And I leave this spot, I trust, a better man." Another wrote: "What mind is not enlarged, what soul not filled with ennobling emotions, by the contemplation of such wonders? Let man behold with awe and admiration, and learn." A visitor from Michigan recorded:

when I saw Niagara, I stood dumb, "lost in wonder, love and praise." Can it be, that the mighty God who has cleft these rocks with a stroke of his power, who has bid these waters roll on to the end of time, foaming, dashing, thundering in their course; can it be, that this mighty Being has said to insignificant mortals, "I will be thy God and thou shalt be my people?" . . . Roll on! thou great Niagara, roll on! and by thy ceaseless roaring, lead the minds of mortals from Nature's contemplation up to Nature's God.⁸

As these responses indicate, the rhetoric of the religious sublime became the standard way of understanding the meaning of the falls. Moreover, this rhetoric was woven together with the nationalistic language of exceptionalism, so that Niagara became a sign of a special relationship, or a covenant, between America and the Almighty.⁹

Such feelings lay behind much of the public outcry over the commercialization of the falls later in the century. The adjacent lands were privately owned, and, as at the Natural Bridge, the owners charged admission. Tourists complained about the number of vendors and guides who impeded their progress, and about paying an entry fee each time they approached an outlook or crossed a footbridge.¹⁰ Many small entrepreneurs set up businesses and amusements, choking the area around the falls with unsightly structures, signs, and carnival crowds. In the 1860s many tourists spent more time enjoying these commercial pleasures than they did gazing at the falls.¹¹ By the 1880s a reaction set in, and sentiment to preserve the falls from commerce was strong enough to force the legislature into action. The lands around the falls were purchased and put under the control of the state of New York.

At the dedication of the Niagara State Reservation, in 1885, James C. Carter gave an oration that expressed what had become the orthodox view of Niagara Falls. He took it for granted that the spectacle of the falls was sublime, and went on to declare:

There is in man a supernatural element, in virtue of which he aspires to lay hold of the Infinities by which he is surrounded. In all ages men

have sought to find, or to create, the scenes or the objects which move it to activity. It was this spirit which consecrated the oracle at Delphi and the oaks of Dordona; reared the marvel of Eleusis, and hung in the heavens the dome of St. Peter. It is the highest, the profoundest, element of man's nature. Its possession is what most distinguishes him from other creatures, and what most distinguishes the best among his own ranks from their brethren.¹²

By conflating the man-made and the natural, Carter suggests that the technological sublime is identical with the natural sublime. Here is that typical American amalgamation of natural, technological, classical, and religious elements into a single aesthetic. In it, natural wonders, such as Yosemite, the Grand Canyon, Niagara Falls, and Yellowstone, became emblems of divinity comparable to the wonders of the ancient world and the greatest architectural achievements of modern times.

The convergence of popular and refined responses to the falls suggests that, as Kant proposed, the experience of sublimity is based on a universal capacity for a certain kind of emotion. But Americans nevertheless shaped this emotion to their own situation and needs. The sublime object is by definition something one is not accustomed to, something extraordinary. It virtually requires that one be an outsider. It does not require that one be comfortable, however. For example, a California-bound migrant passing through Wyoming could not look at the landscape as a tourist might. He admitted that "the scenery might have been judged 'sublime' by others, but he asked 'what charm had barren prairies to us who wanted grass and water?'"¹³ Yet many early travelers strove to suggest the bleak magnificence of the western landscape, and, as Lewis Saum discovered, the "surprising thing about the common people is that they flirted as much as they did with the terror-laden sublime." For settlers confronting tornadoes, violent thunderstorms, blizzards, mountains, and other unaccustomed rigors of the west, Saum notes, "the category of the sublime not only did much to render the wilderness, vastness, and chaos of the American landscape acceptable, but it also did somewhat in rendering other, hitherto objectionable things less objectionable."¹⁴ Those undergoing hardships were hardly immune to the sublime response. On the contrary, catastrophe seemed to induce it. When the Ohio River flooded Cincinnati in 1832, carrying away much of the town and forcing thousands to leave their homes, a correspondent wrote to the *New England Magazine*: "All is tumult, hurry, excitement, distress. . . .

Access to the city from every quarter is cut off." Yet, in the midst of adversity he found "no sad countenances." "The universal expression," he continued, "is that of amazement. Men forget their own petty grievances, in the universal sublimity of the scene. I have surveyed it from an eminence, which commands the whole view. I can only say it is a miniature of the Deluge."¹⁵ This reaction is reminiscent of Burke's response to a flood in Dublin, but the differences are also important. Whereas Burke wrote of his individual feelings, Americans in the 1830s already responded more as a group and often saw sublime events in biblical terms. The Cincinnati flood was a miniature of the deluge, and later the Chicago fire of 1871 and the San Francisco earthquake and fire of 1906 would be called "American apocalypses."

Surveying the world from an eminence was the special province of landscape paintings, the most popular native genre, which explored not only scenes of tranquility but also what Thomas Cole termed "the more terrible objects of nature."¹⁶ Charles Sanford has noted that both Cole and the poet William Cullen Bryant "had need of the sublime to celebrate what they felt was peculiar and unique about American scenery, which the concept of the beautiful was incapable of expressing." They found a way to "salvage the sublime for patriotic service" by adapting Burke's ideas "to the Scotch moralists—chiefly Kames, Blair, and Alison, which united sentiments of the sublime to a great moral idea assumed to exist in and behind nature." In this way, "the passions released into art by the sublime" would "be harnessed to lofty spiritual ends."¹⁷ This modified philosophy also informed the travel books that guided early tourists through the wide range of American landscapes, and it was this philosophy that seemed self-evident to the visitor to the Natural Bridge or Niagara Falls.

As Americans became tourists in their own country, interest in sublime landscapes became not an idle diversion but an act of self-definition. John Sears found that "tourism had deeper cultural sources than the need for diversion. Tourism played a powerful role in America's invention of itself as a culture. . . . It was inevitable when they set out to establish a national culture in the 1820s and 1830s, that they would turn to the landscape of America as the basis of that culture."¹⁸ Lacking the usual rallying points (a royal family, a national church, a long history memorialized at the sites of important events), Americans turned to the landscape as the source of national character. So marked was this tendency that few public

monuments were built before the Civil War. Wilbur Zelinsky notes that "the post-Revolutionary American landscape was remarkably bereft of monuments of any sort for decades, and exceedingly few of the rare pre-1850 items have survived."¹⁹ Bunker Hill Monument, one of the earliest large monuments, was completed in 1843, and George Washington's home, Mount Vernon, was only rescued and restored in the 1850s. Until 1856, when a statue of Washington was erected, New York City contained no monuments of any kind to the Revolution. In short, during the antebellum period natural monuments such as Niagara became repositories and representations of the national spirit.

Journeys to natural wonders began to take on the character of pilgrimages in the Jacksonian period, broadening to include the trans-Mississippi west after 1865. Yosemite, Yellowstone, and the Grand Canyon were added to the ideal itinerary. Alfred Runte concluded that by the time of the Civil War Americans had "embraced the wonderlands of the West" as "replacements for [the] man-made marks of achievement" celebrated in European cultures. This attitude certainly continues today. The anthropologists Victor and Edith Turner note that "every year millions visit the national parks and forests (the precincts of 'Old Faithful' in Yellowstone Park irresistibly recall the cultural landscape of a major religious shrine), mostly, no doubt, for recreational purposes, but partly to renew love of land and country, as expressed in 'secular psalms' like 'America the Beautiful.'"²⁰ Just as European pilgrims once traveled to Santiago de Compostela or to Jerusalem, Americans seek out Niagara Falls, Yosemite, and the Grand Canyon. In doing so, they break with the daily round of habit, seeking renewal through a transcendent experience of natural power. The anthropologist of religion Mircea Eliade has argued that all cultures set aside certain places as sacred precincts. These sites preserve an original relation to the deity, offering the chance to step out of ordinary time and into the sacred time of an eternal present. To seek the sublime is, in effect, to step out of historical time into the eternal now.

Such journeys to the natural sublime began in the early nineteenth century, when the Natural Bridge, largely ignored in Jefferson's youth, began to attract a steady stream of tourists. Samuel Kercheval visited the spot in 1819. In his often reprinted account, he writes that he "was so struck with the grandeur and majesty of the scene as to become for several minutes terrified and nailed to the spot, and incapable to move forward." He continues:

"After recovering in some degree from this, I may truly say, agonizing mental state of excitement, the author approached the arch with trembling and trepidation."²¹ Many such descriptions were published. The Natural Bridge became nationally famous and supported a small tourist industry. Nearby, a hotel and farmers rented out lodgings. The bridge was privately owned, and visitors were charged admission. Virginians were fond of pointing out that it was 55 feet higher than Niagara Falls.

The Natural Bridge had long been an obligatory stop on any Southern tour in 1904, when Clifton Johnson found that it still carried a road over the valley but remained part of a rustic setting. The gradualist theory of evolution rather than catastrophe theory had become the accepted explanation of the Natural Bridge, but the resolution of this conflict had hardly detracted from its appeal as a tourist attraction, and it still supported several hotels nearby. Johnson wrote:

Its immensity quite took my breath away. Nothing one has read or imagined can wholly prepare the visitor for this herculean span of rock across that abysmal chasm. Viewed from below it seems lifted into the very sky. Trees and bushes grow on its tip as on a mountain summit, and the swallows dart under it so far above the spectator as to make the arch appear like another firmament. The grace and regularity of the bridge suggest human handiwork, but doubtless in ages past the stream hollowed out a cavern in the valley, the roof of which all fell in long, long ago, save for this sturdy fragment.²²

Johnson was also quick to point out that for the past century tourists had been writing their names on the underside of the arch. "George Washington" was carved on the rock 25 feet above the ground, and Washington's reputed presence at the site had stirred others to surpass him by climbing ever higher up the walls to place their names. The inevitable result was that one young man "early in the last century [before 1820], after out-rivalling all his predecessors in the height to which he attained, found he was placed in such a situation that it was impossible to descend." He escaped death by climbing the rest of the way to the top of the arch by cutting hand grips in the soft limestone with his knife.²³

Thus were many sublime objects defaced and conquered. Visitors to Niagara Falls and the Grand Canyon painted their names on accessible rocks. Yet this defacement was not necessarily meant as disrespect for the object. Rather, the tourist identified with the

site, wishing to share in its importance, to declare himself present in it, and to put his autograph on it. Writing on the natural object underlines the fact that sublimity is not inherent but a social construction.

The development of Niagara Falls and the Natural Bridge as tourist sites suggests some of the ways in which Americans adapted the sublime to their own society. Although in philosophical discussion the sublime is usually treated as an emotion enjoyed in solitude, in America it has quite often been experienced in a crowd. Natural wonders are usually surrounded by tourists, and virtually every technological demonstration, such as a world's fair or a rocket launch, provides a sublime experience for a multitude. A crowd requires many facilities—toilets, first aid, food, public transportation, supervision, and accommodations—that seem vulgar and demeaning to those in search of the classical sublime experience of solitary meditation in unspoiled surroundings. Thus, there are constant discussions about the obtrusive presence of tourist facilities and complaints about the crowds at Niagara Falls, Yosemite, the Grand Canyon, and other natural wonders. Such discussions can miss a larger point: the presence of a crowd can enhance the interest in an object, confirming its importance. The psychology of the crowd creates additional meanings. From the organizers' point of view, exciting and pleasing the crowd became a matter of techniques to be learned and refined. The sublime soon became not the result of serendipity but rather a scheduled part of travel. The sublime was considered to be practically guaranteed during a tourist's trip to Niagara Falls, the Grand Canyon, or Yosemite. It became a matter of promotion and public relations. Specialists emerged who could provide the best access to sublime experience, or who had discovered ways to enhance it or make it more predictable. In the case of Niagara Falls, these enhancements were mostly in the form of new vantage points—for example, taking crowds on a boat ride to the base of the falls and onto ledges behind them. A series of bridges, paths, and ladders made it possible to see Niagara anew. At the Grand Canyon, promoters provided trails, outlooks, mules, guides, rafting, camping, and hotel facilities. By 1993 the annual number of visitors was up to 5 million—13,000 people a day, demanding parking, food services, and so on. National shrines attract a national audience.²⁴

In addition to being an event organized for the crowd, the popular sublime differs from that of the philosophers in that it is less

clearly articulated. Many visitors' experiences are nearly inchoate, described in words such as 'amazing', 'fabulous', 'astounding', and 'overwhelming'. This failure of public speech to describe the sublime is, of course, one of the hallmarks of the emotion itself. People are awed and virtually dumbstruck, and most of the discourse only points at emotions without giving many details. And for most people the sublime retains linkages to the magical and the marvelous that have been removed from formal philosophy. While the highly educated classified their reactions to natural events and felt gratified that their reasoning made them superior to nature, the vast majority of people were ever ready to pay homage to the spectacular with wonder and delight (mixed with irreverence and ironic complaints if something failed to satisfy as advertised). Yet the popular sublime was never wholly commercialized. Though the sublime object might be part of a tour package, the experience itself could not be guaranteed to occur. One had to do more than just pay the price of admission; like a religious penitent intent on grace, one had to be receptive and patient as well.

Because of its highly emotional nature, the popular sublime was intimately connected to religious feelings—particularly in the nineteenth century, when revivals periodically swept communities into a frenzy. The sublime could hardly avoid becoming intimately interwoven with popular religion. Indeed, one of the most intense revivals took place not far from Niagara Falls, in western New York State, and that region came to be known as the "burned over" district—a metaphor expressing the belief that the region had been swept by waves of conversions, as if ravaged by the fire of God. Little wonder that Niagara was a site much frequented by revivalists, and that visits to Chautauqua in the later nineteenth century were often accompanied by visits to the cataracts. Likewise, the Baptists constructed a church near the Natural Bridge and used a pool directly beneath its arch for baptisms. One observer noted that these ceremonies were especially impressive, "in that place, always tinged in ordinary times with a semi-religious atmosphere." He went on:

In the many times that this writer attended this religious drama beneath the mighty arch of the Bridge, he does not recall that anything ever occurred to strike a false note, no unforeseen incident to mar the solemnity of the scene. The assemblage of people, whether drawn thither by idle curiosity or by a truly religious motive, were never other than orderly and quiet and attentive. It was as if the concrete evidence right at hand of the Almighty's handiwork in this gigantic struc-

ture, touched a chord in the heart of even the most thoughtless, causing him to conform, outwardly at least, to the spirit of the occasion.²⁵

This description lays bare both how organized religion appropriated the natural sublime for its own purposes and how such ceremonies influenced the "thoughtless" and enforced conformity on witnesses. Revivalist religion denounced intellectual approaches to salvation and insisted on the need to move the sinner's heart. The sublime was easily reconciled with such a doctrine, and the use of the Natural Bridge as a site for baptism is but one of many examples of the religious appropriation of the natural sublime. Revivalists often sought out dramatic backdrops for their efforts, and visitors to Niagara, Yosemite, or the Natural Bridge wrote many poems that professed to see God manifested in these natural works. In 1819, for example, the publisher of the *Lexington Gazette* composed these lines on the Natural Bridge:

Beneath this noble arch, men wondering stand;
'Twas fashioned here, by an Almighty hand,
An Architect Divine, whose voice can call
Worlds into being—or, decree their fall.

If I had never known Jehovah's law,
This scene had taught me reverential awe;
Inspired my soul its feeble powers to raise,
Admiring nature—nature's God to praise.

Atheist! contemplate this grand scene, one hour
And thou shalt own there is a God of Power.²⁶

In view of Calvinism's propensity to read nature as a second scripture, it seemed perfectly appropriate, as Perry Miller observed, to fuse the sublime and religion in the Jacksonian period. "The Sublime and the Heart! That they should, so to speak, find each other out and become, in the passions of the Revival, partners—this is a basic condition of the mass civilization of the nation." The revivalist cast of mind explicitly rejected "the cultivation of the intellect," and camp meetings instead emphasized spontaneity and practical results.²⁷

Because of the centrality of women in the religious life of the United States, the sublime was also inflected by gender. In the sexual politics of the nineteenth century, women were generally regarded as the repositories of feeling, religion, and sensitivity, and they

were considered peculiarly sensitive to natural wonders. Elizabeth McKinsey gives the example of a man who visited Niagara several times in the 1820s, both with and without female companions, and concluded, "the view of anything grand or sublime in nature or art is not worth two pence in selfish solitude, or rude male companionship, unembellished by the sex."²⁸ Women, whom the cataracts moved to tears, liberated his own emotional response.

Women's responses were not limited to those that men expected of them. Their attitudes toward nature, examined by Annette Kolodny, often did not emphasize the sublime. Characteristically, their domestic fantasies focused on the great plains and concerned themselves with the beautiful.²⁹ Margaret Fuller found the Middle West of the 1840s parklike, a vast garden of spring wild flowers and new farms. She and other women writers of the time typically described the frontier and the middle border not in the language of the sublime but in terms of the beautiful and the picturesque. Such literary travelers found, however, that the women who lived on the middle border had so many domestic burdens that they seldom could leave home to enjoy the natural scenes around them. Their aesthetic concerns were usually limited to the immediate surroundings, especially their gardens and their efforts at landscaping.

Fuller and other early feminists experienced an institutionalized bifurcation in sensibilities: the sublime was for men; the beautiful and the picturesque were suited to effeminate men, women, and preachers. This division was sanctioned by the highest authority. Kant himself declared in his early essay *Observations on the Feeling of the Beautiful and Sublime* that men had an innate appreciation of the sublime, whereas women were more disposed to the beautiful:

... all the other merits of a woman should unite solely to enhance the character of the beautiful, which is the proper reference point; and on the other hand, among the masculine qualities the sublime clearly stands out as the criterion of his kind. All judgements of the two sexes must refer to these criteria. ...

The fair sex has just as much understanding as the male, but it is a beautiful understanding, whereas ours [the male] should be a deep understanding, an expression that signifies identity with the sublime.³⁰

Kant's work, translated into English in 1799, crystallized widespread assumptions about how gender entered into the definition of appropriate emotions. Fuller, both in the act of traveling and in her writing, was demanding for women the right to appreciate not only

the beautiful but also the "masculine" emotions associated with the sublime.

Yet if women made the sublime their own, it was as observers. Works of the technological sublime were decidedly male creations. Throughout the nineteenth century, women's intellectual faculties were judged to be different in kind from men's. Even more than the professions of medicine, architecture, and law, engineering was overwhelmingly male, and women were thought to be intellectually incapable of higher mathematics. Women were deemed inferior, and their education was usually restricted to the humanities. Kant argued: "Deep meditation and a long-sustained reflection are noble but difficult, and do not well befit a person in whom unconstrained charms should show nothing else than a beautiful nature. Laborious learning or painful pondering, even if a woman should greatly succeed in it, destroy the merits that are proper to her sex. . . . A woman who has a head full of Greek, like Mme. Dacier, or carries on fundamental controversies about mechanics, like the Marquise de Chatelet, might as well even have a beard. . . . A woman will therefore learn no geometry." Educational institutions reflected this sexual division of knowledge. From the founding of Harvard University in 1636, for 200 years universities were for men only. Even after colleges were created for women, technical education was generally denied them, and most engineers were male throughout the nineteenth century. In addition, it was an extremely mobile profession; engineers constantly moved from one large assignment to the next one. In an age when women were expected to remain at home and preserve the domestic sphere as a haven of repose, such a nomadic profession was so unorthodox for a female as to be almost unthinkable.

Some men did not want women present when they contemplated natural wonders. In 1864 this male response to nature was formalized by Clarence King, who spoke for many geologists when he complained of the women and "literary travelers" who stood at Inspiration Point in Yosemite Valley, inflated at the sight, and used "cheap adjectives" to describe it.³¹ The "literary traveler" was feminized and, by implication, incapable of responding accurately to the landscape. Only a man such as King, who was both a Yale-educated reader of Ruskin and a geologist hardened by years of field work, could achieve a balance of aesthetics, scientific knowledge, and practical experience, which together made possible a masculine sublime response to the grandiose nature of the far west.

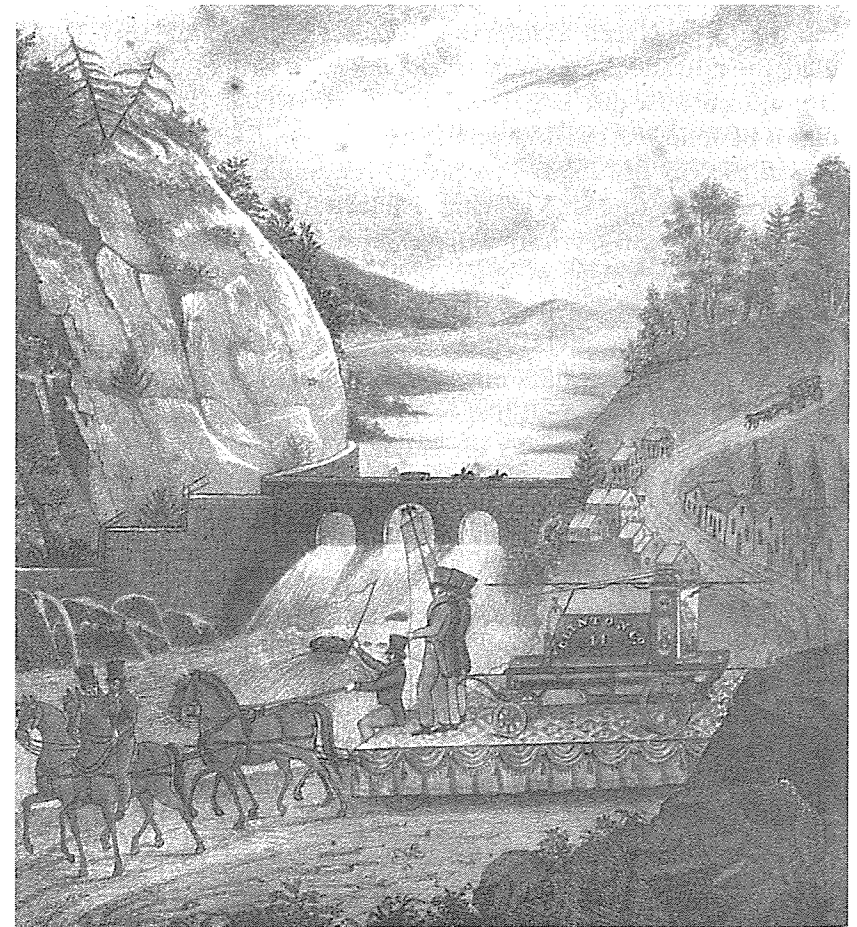
King could satirize landscape painters, and yet he could comment so perceptively on art that John Ruskin sought his acquaintance after overhearing his comments in a London gallery. In a public lecture he once placed himself in “that resolute band of nature-workers who both propel and guide the great plowshare of science on through the virgin sod of the unknown.” Yet, as Michael Smith points out, in his private notebooks King explored the possibility that the scientist ought to combine the sensibilities that his age assigned to men and women. If in his public statements he often posed as a macho mountaineer, in the notebooks he admitted the value of “feminine” receptivity.³²

Mark Twain wrestled with the same problem when, in *Life on the Mississippi*, he expressed disdain for an educated but inexperienced steamboat passenger’s response to a Mississippi sunset. As Leo Marx has argued, the pilot observes the river in terms of its dangers, such as sandbars, snags, and currents, while the passenger sees it in terms of landscape conventions. This difference, Marx notes, is coded by Twain in terms of gender: “On the beautiful surface nature has obvious feminine characteristics (softness, dimples, graceful curves), but the subsurface is represented by objects with strongly masculine overtones (logs, bluff reefs, menacing snags).” When it came time to write *Huckleberry Finn*, says Marx, “It would have been absurd to have had Huck Finn describe the Mississippi as a sublime landscape painting.” Rather, Twain’s achievement was that Huck spoke neither the analytical language of the pilot nor the stilted clichés of landscape convention, but a vernacular language.³³

King and Twain were exceptional observers, equally comfortable in the lecture hall and the mining camp and able to speak to most of their contemporaries. But few were able to achieve such a balance. Many women, like Fuller, struggled to overcome the limitations on their responses imposed by a gender-inflected language so that the sublime could be democratically enjoyed by both men and women.

The popular sublime became part of the emergent cultural nationalism of the United States in the nineteenth century. The American public celebrated the fact that a spectacular sight was the biggest waterfall, the longest railway bridge, or the grandest canyon, and they did so with a touch of pride that Europe boasted no such wonders. Natural places and great public works became icons of America’s greatness.

By the 1830s, sublime technological objects were assumed to be active forces working for democracy. This is exemplified by the popular enthusiasm for the Erie Canal. Built in only eight years over the 300 miles from Albany to Buffalo, this canal more than doubled the volume of west-east trade in its first year of operation, stimulating urban development along its banks, speeding up westward migration, and making western agricultural products available to eastern cities. In addition, the canal was immediately perceived as a powerful political link binding the Great Lakes region to the East. Just as important, the canal became a tourist site, a demonstration



A depiction of the Grand Canal Celebration. Courtesy of Collections of Library of Congress.

of American engineering skill, and one of the first icons of the technological sublime. Its numerous locks, aqueducts, and cuts through solid rock demonstrated control over natural forces. Several sites became famous landmarks, including the 802-foot stone aqueduct that carried the canal over the Genesee River at Rochester and the ladder of five locks in Lockport that carried boats up a giant staircase over the Niagara Escarpment.

When the Erie Canal was officially inaugurated in October 1825, for the first time the whole nation celebrated a technological project. Months beforehand, committees of citizens in New York and Albany organized the celebration, issuing suggestions and requesting cooperation between state and local authorities. They called for cannon to be placed at intervals between Buffalo and Albany, and that “the entrance of the first boat from Lake Erie into the canal be announced by a discharge from the cannon near at the lake, and that it be followed by successive discharges from the cannon on the line to the city of Albany.”³⁴ A procession of canal boats wended its way from west to east, carrying a selection of products from the western states and territories that the canal would serve. The boats halted in every village of consequence for speeches, dinners, and fireworks that had been arranged by local committees. In Utica, for example, the day was celebrated by an excursion on the canal, the boats decorated with flags and “accompanied by a band of music.” A “cold collation” of food had been prepared for each boat. In the evening, all the bridges over the canal and their adjoining buildings were illuminated, and fireworks were ignited. An illuminated barge with an orchestra on board proceeded along the canal, leading the citizens to a “Grand Ball and concert.” Afterwards the local paper noted the general enthusiasm: “. . . the whole proceeding was emphatically the work of the citizens—some classes were particularly distinguished and none felt the generous impulse more forcibly than the mechanics and military: —their zeal was unbounded.” The overall effect of the event was that “political animosity has for a time been banished by the generous burst of popular enthusiasm; and a whole people have poured forth the overflowing of their gratitude and mingled in a general acclamation of joy.”³⁵ A recent history of the canal notes that “crowds gathered everywhere. Visitors in holiday spirit flocked to the canal from miles around. Horses and carriages filled the roads. People covered the towpath, crowded the bridges, and pressed forward to hear speeches of welcome, speeches of response, and speeches of farewell. Arches garlanded with

evergreens and flowers spanned the canal at nearly every village and supported banners praising Clinton, republicanism, or internal improvements. Bands played and cannon thundered in salute. Local militia companies escorted the guests to feast at the best hotel. . . .”³⁶ Governor De Witt Clinton’s orations en route repeatedly linked internal improvements with prosperity, with “the duration of the Union,” and with the “holy cause of Republican Government.”³⁷ As the procession moved east, more boats joined the flotilla. When they reached the Hudson at Albany, a week after leaving Buffalo, a vast parade was followed by a banquet at the capitol building. Later, as the flotilla moved down the Hudson, a contingent of steamboats from New York City joined the procession to New York Harbor, where seagoing vessels joined the “Grand Aquatic Display.” The flotilla then sailed out to Sandy Hook, where water from Lake Erie was ceremoniously poured into the Atlantic Ocean. Clinton declared in his dedication that “the first arrival of vessels from Lake Erie, is intended to indicate and commemorate the navigable communication, which has been accomplished between our Mediterranean seas and the Atlantic Ocean.” After the flotilla returned to New York, there was a “Grand Procession” of some 5000 marchers, including many workingmen. “A surfeit of processions, speeches, banquets, bell-ringing, illuminations, and fireworks” lasted the rest of the day and long into the night.³⁸

The Erie Canal ceremonies provided the opportunity to celebrate more than the completion of the canal. They united the militia, political leaders, merchants, mechanics, and the general public. Aside from creating a general sense of well-being, the speeches and editorials stressed the political values of republicanism.

American republicanism was less a creed than a language that could be used to explain the citizen’s relation to the state. It was rooted in Machiavelli’s civic humanism and in the founding fathers’ reading of classical authors. Its key concepts were independence, virtue, popular sovereignty, citizenship, and commonwealth.³⁹ Since politics was expected to inspire vigorous debate and continual self-examination rather than automatic patriotism, another realm of unquestioned allegiance was needed to unite the citizenry. Hence the centrality of the natural and technological sublimities. While voters might disagree on the issues of the day, they could agree on the uplifting sublimity of Niagara Falls, the Natural Bridge, or the Erie Canal at Lockport. Such sights, it was felt, purified and uplifted the mind and helped individuals see themselves as members of a larger

community. The canal was understood as a product of democracy. As the Utica paper stressed, "the successful completion of this great work must have an important bearing upon the destinies of this nation, and eventually upon the whole world," because of the "proof which it will present to all mankind of the capabilities of a free people, whose energies, undirected by absolute authority, have accomplished, with a sum insufficient to support regal pomp for a single year, a work of greater public utility, than the congregated forces of Kings have effected since the foundations of the earth." The Erie Canal showed how a free people could "complete without a burthen" a work "surpassing in its benefits to the human race the most splendid monuments of ancient or modern history."⁴⁰ The citizen who contemplated such public improvements became aware of the power of democracy and saw himself as part of the moral vanguard, leading the world toward universal democracy. These man-made objects became national symbols. Traveling to America's natural wonders and great public works became the act of a good citizen, just as a pilgrimage to Jerusalem was the sign of a good Christian. American democratic virtue could not be based on a state religion—that was forbidden by the constitution, and in any case there were many different sects. Nor could it be based on adherence to ancient traditions, since there were none. But democratic virtue could be invigorated by the powerful experience of sublimity. Hence the central importance of visiting Niagara Falls, the Hudson River Valley, and the Erie Canal, which could be done all in one trip. Contemplation of these sites or of the Natural Bridge taught the individual his place in the world, lifting him out of himself.

Yet the experience of the natural sublime was not intended to justify preserving the wilderness or halting development. The Jeffersonian ideal was not the wild but the agrarian, not the frontier retreat but the rural township with a free public school in the middle.⁴¹ Thomas Jefferson's democratic landscape was the rural grid of roads and section lines. In 1785 the National Survey began to lay out the grid pattern that is still visible in the checkerboard of farms that can be seen from any airplane passing over the Middle West. It applied science to the division of the continent into freeholds for small farmers, whom Jefferson believed would be innately good citizens. As Jefferson put it in *Notes on the State of Virginia*, "The country produces more virtuous citizens."⁴² Jefferson cultivated a taste for sublime landscape, yet he also focused on the settled agrarian state

and on the steady habits and good morals which he believed it encouraged. He saw the land as a commodity to be divided into uniform squares and then made available to independent farmers, yet he turned to portions of the landscape as sources of spiritual inspiration.

The sublime was inseparable from a peculiar double action of the imagination by which the land was appropriated as a natural symbol of the nation while, at the same time, it was being transformed into a man-made landscape. One appeal of the technological sublime in America was that it conflated the preservation and the transformation of the natural world. This conflation was in part characterized by what Bryan Wolf has called "an astonishing capacity of mind, an ability to consume the world as nothing more than a plenum of nutrients in that characteristically American project of self-making."⁴³ "At its most audacious," Wolf continues, "the sublime entailed a virtual substitution of self for world: it was an egotistical affair conceived in pride and consummated in an incestuous twining of nature back into the self, the NOT ME into the ME." Wolf wrote these words in an essay on Herman Melville. As literary scholars so often do, he imperialistically swallows all reality into his own discipline as he goes on to say: "The key to this project was language, the uncanny talent of words to usurp the place of things." In fact, however, most Americans of the Jacksonian period had read little philosophy, and they were swallowing the world not through language but through direct action. They were assaulting the natural world with axes, shovels, plows, and railroads, literally reworking the landscape, usurping the place of natural things with man-made objects. They were vigorously projecting themselves into the world, mixing their labor with it, and building internal improvements.⁴⁴

The transformation of the land did not abate. Saum notes in his study of diaries and letters from the period that "the common man's pleasure in the pastoral . . . derived not from his comparative proximity to nature but from his recognition that, in agricultural and pastoral settings, nature had been subdued and rendered orderly."⁴⁵ Andrew Jackson echoed these convictions in his second annual message to Congress: "What good man would prefer a country covered with forests and ranged by a few thousand savages to our extensive Republic, studded with cities, towns and prosperous farms, embellished with all the improvements which art can devise or industry execute?"⁴⁶ Jackson's rhetorical question articulated what, after two centuries of pioneering and settlement, was the

dominant view. He began by evoking the contrast between savages in the forest and a prosperous, settled landscape. Had he stopped there, his description would have been close to Jefferson's vision. But the end of his statement introduces the characteristic note of his generation, which wanted not a balanced, pastoral state but "all the improvements which art can devise or industry execute." Much as Jacksonians wanted these changes, however, they were suspicious of a centralized government or a permanent civil service. Indeed, they abolished the nation's central bank on the grounds that it was a threat to democracy. They wanted technological progress, but they rejected the political and economic structures needed to ensure it. As Marx notes, they refused to recognize "a root contradiction between industrial progress and the older, chaste image of a green Republic."⁴⁷ Instead, they believed hopefully that mechanical improvements would be harmonious with nature. Many asserted that industrial development was not merely compatible with democracy but a direct outgrowth of it. This idea had already reached full expression in the 1825 celebration of the Erie Canal. In 1841 a journalist underlined the apparently indissoluble relationship between democracy and advancing technology:

In exact proportion to the extension of political freedom and the diffusion of popular intelligence, has been the advance of invention in the useful arts. . . . As political power has been diffused among the great mass of men, the human mind has been directed to those inventions that were calculated to confer solid benefits upon the mass. Among the most important of these useful inventions is the discovery of the mariner's compass, the arts of printing and cotton spinning, and last of all, the science of navigation by steam, everywhere displaying its triumphs upon the rivers, the lakes, and the oceans of the world, the crowning victory of the mechanical philosophy of this nineteenth century.⁴⁸

The Jacksonian version of the sublime focused as easily on the "victory of the mechanical philosophy" as on nature, and enfolded both in the larger scenario of Manifest Destiny. As Donald Pease puts it, "in the ideological American rendition, the sublime was not man's but Nature's discourse. . . . Some order beyond Nature seemed to command man to get in touch with Nature's higher will and to obey the implicit command to move beyond Nature."⁴⁹ Nature was understood to have authored the script sanctioning its own transformation in the service of an inevitable destiny. History

was to be President Jackson's story of the creative subjugation of "a country covered with forests" to produce "cities . . . embellished with all the improvements which art can devise or industry execute." In this scenario both natural and man-made objects became part of the discourse of Manifest Destiny. Those who praised Niagara Falls and a new railroad did not see any inconsistency in embracing both. Each could be comprehended within what Albert Boime has called "the magisterial gaze"—a "diagonal line of sight . . . taking us rapidly from an elevated geographical zone to another below and from one temporal zone to another, locating progress synchronically in time and space."⁵⁰

Landscape paintings, in their repeated use of the "magisterial gaze," embodied Jackson's ideology. Like Clarence King, who loved the wilderness but nevertheless sought to "propel and guide the great plowshare of science on through the virgin sod of the unknown,"⁵¹ nineteenth-century Americans saw no irreconcilable contradiction between nature and industry; rather, they enjoyed contemplating the dramatic contrasts created by rapid progress.⁵²

In the political realm, Kasson concludes, republicanism—despite early suspicions of capitalism—"developed into a dynamic ideology consonant with rapid technological innovation and expansion." In particular, "the promise of labor-saving devices strongly appealed to a nation concerned with establishing economic independence, safeguarding moral purity, and promoting industry and thrift among her people."⁵³ Many observers justified internal improvements as a spur to labor. George S. White, an apologist for industrialization, wrote in 1836: "Let our legislators be assured, that while they are extending towards its completion that system of improvement planned and hitherto carried forward with so much wisdom, they are putting into operation a moral machine which, in proportion as it facilitates a constant and rapid communication between all parts of our land, tends most effectually to perfect the civilization, and elevate the moral character of the people. . . . An idle population is ever vicious and degraded."⁵⁴ In this vision, the Erie Canal and other internal improvements were components of a "moral machine." They ensured not only prosperity but also democracy and the moral health of the nation.

Both natural wonders and mechanical triumphs like the Erie Canal were said to elevate the moral character of the people. To safeguard democracy, the ideology of republicanism demanded virtuous and



A view of the Upper Village of Lockport. Courtesy of Collections of Library of Congress.

active citizens who voted wisely and participated in their society. The need for active citizens in public life was itself relatively new, having emerged after the breakdown of royal authority in seventeenth-century England. This need became acute in the United States after the revolution. J. G. A. Pocock has argued that the revolutionary generation had to invent new forms of civic virtue and a citizenry motivated by non-pecuniary motives.⁵⁵ Republicanism was suspicious of capitalism because the entrepreneur was motivated by short-term self-interest. Republicanism was not entirely comfortable with a *laissez-faire* economic system, but it could embrace the useful arts. As Joyce Appleby has noted, “classical republicanism denied liberals their forward-moving, freedom-loving makers of history.” At the same time, republicanism spoke “a language which wrote capitalists out of the political script.”⁵⁶ The inventor of a new device, in contrast, rendered humanity a service in perpetuity. If the initial republican heroes were revolutionary statesmen and generals, by the 1820s inventors—Benjamin Franklin, Eli Whitney, Samuel Morse, Robert Fulton—seemed ideal republican heroes, because their new machines benefitted all of society. At the banquet of the Erie Canal celebration at Albany, three portraits had

been emphasized: Governor De Witt Clinton, George Clinton (vice-president of the United States from 1805 to 1812), and George Washington.⁵⁷ In the Jacksonian age, however, engineers, builders, and inventors began to occupy important places in pantheon of republicanism. These new heroes and the machines they created were often celebrated on Independence Day, technology and republicanism thus being merged in one event. The participation of ordinary citizens in these occasions, an innovation of the late eighteenth century, helped to articulate the role of the individual in the new democratic state.

Not for another generation was the Fourth of July—celebrated in Philadelphia in 1777, only a year after independence was declared—widely recognized as a holiday.⁵⁸ Commemorations in the 1790s were often quite partisan, with separate ceremonies sponsored by competing parties. By the 1820s, however, the Fourth had become broadly popular, having shed most of the partisan spirit. It became an occasion for bombastic rhetoric not only celebrating the revolution but also tracing the progress of the nation and predicting its future greatness. By the time of the Civil War the celebration had become a fixture in most communities. Shortly before his death, Jefferson interpreted the meaning of the holiday in a famous letter:

All eyes are opened or opening to the rights of man. The general spread of the light of science has already laid open to every view the palpable truth, that the mass of mankind has not been born with saddles on their backs, nor a favored few, booted and spurred, ready to ride them legitimately, by the grace of God. There are grounds of hope for others; for ourselves, let the annual return of this day forever refresh our recollections of these rights, and an undiminished devotion to them.⁵⁹

Jefferson placed the Revolution in an international context, as part of a worldwide movement toward democracy. He conceived of science as the enemy of superstition and blind tradition; the handmaiden of democracy, it found expression in public improvements. In Jefferson’s vision, ritual observance of the Fourth of July inculcated civic virtue, giving it international and historical dimensions as the ritual rejection of undemocratic European models of government. Jefferson wished “this day” to “forever refresh our recollections” of the rights won in the past, with the hope that they would soon be won by others.

Independence Day exemplifies how a culture invents rites in which, to use Durkheim's words, "the social group reaffirms itself periodically."⁶⁰ John Adams understood this need at the very moment that the founding fathers declared America's independence. He felt that the event "ought to be solemnized with pomp and parades, with shows, games, sports, guns, bells, bonfires, and illuminations, from one end of the continent to the other, from this day forward, forever more."⁶¹ These were in fact the chief elements of the republican ceremony in the 1820s, notably at the inauguration of the Erie Canal. Politicians organized these elements into an effective presentation. Parades and other displays were important preliminaries, military salutes excited the crowd, and fireworks and illuminations were suitable for the finale. But speeches were the central element—an Independence Day oration was the start of many a political career. Fourth of July ceremonies were quite distinct from the disorderly revels of the lower classes, and they provided the wealthy and the political elite with an opportunity to display their power. Local organizers invariably orchestrated the participation of many groups—including skilled workers, who usually marched in parades arranged by trade and profession.

During the nineteenth century new technologies became increasingly important in Fourth of July events, which are perhaps best understood as a form of street theater. Gradually, rather than commemorate the past, the Fourth began to emphasize the social effects of technology and to compare America to other civilizations. For example, Daniel Webster, speaking from the steps of the new addition to the Capitol Building in Washington on July 4, 1851, said: "The network of railroads and telegraphic lines by which this vast country is reticulated have not only developed its resources, but united emphatically, in metallic bands, all parts of the Union. The hydraulic works of New York, Philadelphia, and Boston surpass in extent and importance those of ancient Rome."⁶² Similar sentiments marked the inaugurations of new canals, railroads, bridges, and buildings. The importance of technology in public ceremonies was in evidence as early as July 4, 1817, when Governor De Witt Clinton thrust a spade into the ground to officially begin the digging of the Erie Canal. Later Independence Days saw the official opening to navigation of the first section of the Erie Canal (1820); the start of the construction of the Pennsylvania Grand Canal (1826), the Baltimore and Ohio Railroad (1828), and the Baltimore and Ohio Canal (1828); the inauguration of the Boston

and Worcester Railroad (1835); the dedication of the Eads Bridge in St. Louis (1874); and the rededication of the Statue of Liberty (1886). President John Quincy Adams presided over the 1828 canal ceremony. Not to be outdone, the Baltimore and Ohio had the last living signer of the Declaration of Independence, Charles Carroll, inaugurate the building of the first American railroad. Carroll solemnly declared "I consider this among the most important acts of my life, second only to that of signing the Declaration of Independence, if, indeed, second to that."⁶³ The railroad promised to be a moral machine that would promote public virtue and so preserve the nation he had helped create in 1776.

As technological achievements became central to July Fourth, the American sublime fused with religion, nationalism, and technology, diverging in practice significantly from European theory. It ceased to be a philosophical idea and became submerged in practice. In keeping with democratic tradition, the American sublime was for all—women as well as men. Rather than the result of solitary communion with nature, the sublime became an experience organized for crowds of tourists. Rather than treat the sublime as part of a transcendental philosophy, Americans merged it with revivalism. Not limited to nature, the American sublime embraced technology. Where Kant had reasoned that the awe inspired by a sublime object made men aware of their moral worth, the American sublime transformed the individual's experience of immensity and awe into a belief in national greatness.