

DAVID E. NYE SEVEN SUBLIMES





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DAVID E. NYE

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# CONTENTS

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PREFACE vii

ACKNOWLEDGMENTS ix

## TANGIBLE SUBLIMES

1 NATURAL 3

2 TECHNOLOGICAL 17

3 DISASTROUS 35

4 MARTIAL 53

## MEDIATED SUBLIMES

5 INTANGIBLE 75

6 DIGITAL? 93

7 ENVIRONMENTAL 115

## CONCLUSIONS

8 NATIONALISM AND THE SEVEN SUBLIMES 135

**9** **SUBLIME LANDSCAPES AND SPECTACLES** 151

**EPILOGUE: FUTURE SUBLIMES?** 165

NOTES 171

BIBLIOGRAPHY 189

INDEX 209



# PREFACE

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The sublime is a widely shared emotion that all human beings, regardless of their race, gender, or nationality, are capable of experiencing, for they all are endowed with the same bodily senses. When W. E. B. Du Bois visited the Grand Canyon, the railroads forced him to travel in a segregated railway car because he was Black, but this did not prevent him from appreciating its grandeur. Du Bois declared unequivocally, “I believe that all men, black and brown and white, are brothers, varying through time and opportunity, in form and gift and feature, but differing in no essential particular, and alike in soul and the possibility of infinite development.” His meditation on the enormous chasm concluded with these words: “It is not—it cannot be a mere, inert, unfeeling, brute fact—its grandeur is too serene—its beauty too divine! It is not red, and blue, and green, but, ah! the shadows and the shades of all the world, glad colorings touched with a hesitant spiritual delicacy.”<sup>1</sup> Du Bois understood that the capacity to experience the sublime is universal.

This book focuses less on formal philosophy than on personal experiences, such as visiting a national park, skyscraper, disaster site, battleground, or virtual reality. To experience the sublime, it is not necessary to travel to famous locations. During travel restrictions due to the pandemic in 2020–2021, many people discovered solace and inspiration in local microadventures. They camped in nearby parks; they climbed trees;

they disrupted routines; they stared at the night sky; they took walks in unfamiliar places. They discovered that “much of the work of cultivating awe is in paying attention to the small details around us.”<sup>2</sup> Recent quantitative psychological studies suggest that a majority of all people have experienced the sublime by the time they are twenty years old.<sup>3</sup> In such moments, “awe basically shuts down self-interest and self-representation and the nagging voice of the self.”<sup>4</sup> Recent studies confirm what philosophers have long said: confronted with the sublime, people commonly feel a sense of humility. These experiences of awe reduce self-interest and increase social cohesion. The sublime is a powerful individual moment, but it also has cultural effects, helping to hold groups together. This is a useful starting point for an historical assessment of the sublime, considered not as a static category but as an evolving realm of experiences with at least seven distinct forms.

# ACKNOWLEDGMENTS

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In 1994 I thought that my *American Technological Sublime* (MIT Press, 1994) provided the epitaph for the technological sublime. I was wrong. Instead, for the last quarter century new objects have been considered sublime. This general interest by itself might have prompted me to write a book, but I was spurred on by three invitations. In the fall of 2017, the University of Lodz in Poland invited me to give the keynote address at a conference on the technological sublime. The following year, the journal *Azimuth: Philosophical Coordinates in the Modern and Contemporary Age* requested a contribution to a special issue, published in 2018 as “What Comes after the Technological Sublime?” Finally, the journal *ISIS* asked me to review Alan G. Gross’s *The Scientific Sublime*.<sup>1</sup>

When I talked about writing a study of new forms of the sublime with Katie Helke, my editor at the MIT Press, she immediately encouraged me. Three institutions then helped make it possible. In 2017, the University of Minnesota appointed me Senior Research Fellow in the history of technology, provided a congenial workspace at the Charles Babbage Institute, and granted me access to library and archival resources. At the same time, the University of Southern Denmark allowed me to retain access to its library after retirement. In 2019, I worked out the structure of the project during a summer residency at the Netherlands Institute for Advanced

Study in Amsterdam. Three members of its staff were particularly helpful: Trinetze Zecevic-Boulogne, Astrid Schulein, and Ruud Van Veen.

Because writing a book is largely a solitary affair, occasional discussions with colleagues were not just helpful but vital. Many offered advice or pointed me to useful materials. At Virginia Tech, Richard Hirsh listened to an account of the project in 2018 and took an interest in its development. At the University of Maryland, Thomas Zeller discussed his work on constructed sublime experiences on scenic highways in Germany and the United States. At the University of Minnesota, Douglas Lewis for half a century has patiently tried to improve my understanding of philosophy, while the late Alan Gross, whom I first met when the project was well along, suggested sources for chapters 4 and 5. At Minnesota's Charles Babbage Institute, Tom Misa and Jeffrey Yost suggested materials that improved chapter 6. My Danish colleagues Jørn Brøndal, Thomas Ærvold Bjerre, Niels Bjerre Poulsen, Anders Bo Rasmussen, and Anne Mørk drew my attention to historical examples. At the University of Munich, Klaus Benesch shared his thoughts on cyborgs and his expertise in literary and cultural history, while Temple University's Miles Orvell directed me toward photographic representations of the sublime. Richard Haw shared with me his wide knowledge of New York City and nineteenth-century technology. Years ago, Professors Jeff Bolster and Marty Melosi were senior Fulbright scholars in Odense, and they provided insights into environmental history that proved useful in writing chapter 8. None of these fine scholars, nor the three anonymous peer reviewers selected by MIT Press, are responsible for errors or misconceptions that may remain.

This book is gratefully dedicated to Helle Bugge Bertramsen Nye, who believed in it from the start and endured my talking about it until the end.

# TANGIBLE SUBLIMES

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# 1

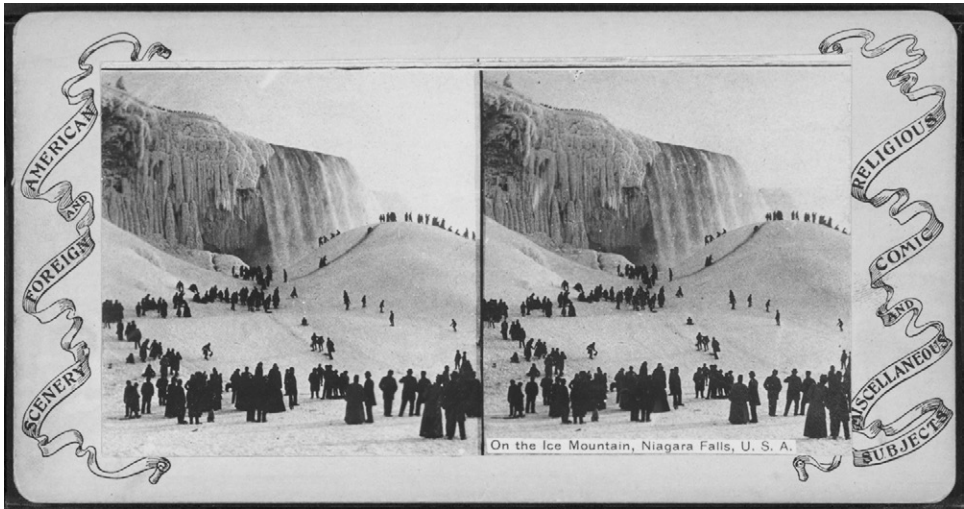
## NATURAL

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What is it like to experience the natural sublime? Charles Dickens could answer that question based on travel experiences. Arriving at Niagara Falls, he saw first, “two, white, great clouds rising up slowly and majestically from the depths of the earth,” and coming closer he heard “the mighty rush of water and felt the ground tremble underneath my feet.” He climbed down the steep bank to the foot of the American falls, “deafened by the noise, half-blinded by the spray, and wet to the skin.” Boarding a small ferry that crossed the river to the Canadian side, he felt “stunned, and unable to comprehend the vastness of the scene,” until he stood on Table Rock and was enthralled by the cataract’s “full might and majesty.”<sup>1</sup> He remained at Niagara for ten days, viewing it from every angle and at different times of day. The experience engulfed his senses, and it filled him with a sense of peace, as “the strife and trouble of daily life receded from my view.” Had Dickens stayed until winter, he might have seen the great falls transformed into a great wall of ice, with water falling behind it (figure 1.1).

Different sublime experiences arise from confrontations with impressive natural sites, large-scale technologies, disasters, warfare, intangible features of nature, digital technologies, and ecological complexity. However, the terminology used to discuss the different forms of the sublime has long been limited, with the result that quite different experiences



1.1 Niagara Falls, Ice Bridge. Crowds gathered on the winter ice from the 1880s until 1912, when several deaths led to prohibition of the practice. Courtesy of New York Public Library, <http://link.nypl.org/B7zLwJVXQxSL4m8BKB33uwB>.

often are spoken of as though they were similar. But gazing from the top of a mountain at a vista is not the same thing as looking at a metropolis from the observation deck of a skyscraper. Living through a military bombardment is not like visiting Niagara Falls. Looking at images constructed from Hubble Space Telescope data is not the same as experiencing a powerful earthquake or visiting a battlefield. In different ways, each of these experiences can be sublime, but an expanded terminology is needed to distinguish among them. As Ronald Hepburn has observed of the natural sublime, "it is still seriously possible to look on a substantial set of recorded experiences of the sublime as having a phenomenological centre—approached but maybe never captured by aesthetic theorising in all its variety." The realization that the natural sublime remains elusive although it still has a phenomenological core also applies to other forms of the sublime. Hepburn characterizes the natural sublime as being an experience that "combined, or fused, dread at the overwhelming energies of nature and the vastness of space and time with a solemn delight or exhilaration."<sup>2</sup> By extension, other sublimes concern the energies of humankind in constructing powerful systems and large projects, in living



through and often contributing inadvertently to disasters, in mechanized warfare, and in scientific discovery. Each of these may inspire a combination of awe, dread, delight, and exhilaration.

Dickens had another sublime experience when, by the light of a full moon, he climbed Mount Vesuvius, the volcano outside Naples. Near the top, his party arrived at the "region of Fire, an exhausted crater formed of great masses of gigantic cinders, like blocks of stone from some tremendous waterfall, burnt up; from every chink and crevice of which, hot, sulphurous smoke is pouring out: while, from another conical shaped hill, the present crater, rising abruptly from this platform at the end, great sheets of fire are streaming forth: reddening the night with flame, blackening it with smoke, and spotting it with red hot stones and cinders, that fly up into the air like feathers, and fall down like lead." Dickens clambered over "the broken ground," smelled the suffocating sulfurous fumes, and feared "falling down through the crevices in the yawning ground." The party had to stop "every now and then, for somebody" missing in the smoke, while listening to the "hoarse roaring of the mountain." With all their senses aroused, they crossed "to the foot of the present Volcano," sat "down among the hot ashes at its foot," and looked up "in silence; faintly estimating the action that is going on within, from its being full a hundred feet higher, at this minute, than it was six weeks ago." Standing so close to the fiery mouth of the volcano, Dickens felt there was "something in the fire and roar, that generates an irresistible desire to get nearer to it. We cannot rest long, without starting off, two of us, on our hands and knees, accompanied by the head guide, to climb to the brim of the flaming crater, and try to look in." Amid the rumbling, on a trembling "thin crust of ground, that seems about to open underneath our feet and plunge us in the burning gulf below" they face "the flashing of the fire" and "the shower of red-hot ashes that is raining down, and the choking smoke and Sulphur." They become "giddy and irrational, like drunken men." Yet they press on and "climb up to the brim, and look down, for a moment, into the Hell of boiling fire below. Then, we all three come rolling down; blackened, and singed, and scorched, and hot, and giddy: and each with his dress alight in half a dozen places."<sup>3</sup> Dickens did not use the word "sublime" in his descriptions of Niagara and Vesuvius, but these were sublime encounters that assaulted all of his senses.

Such sublime experiences gradually became salient after 1700. The sublime first emerged during the Roman Empire, when the term was used to praise well-crafted texts, speeches, or outstanding architecture.<sup>4</sup> When the idea of the sublime was revived in the eighteenth century, it primarily referred to impressive natural sites, although some authors, including Edmund Burke, also described particular buildings as sublime.<sup>5</sup> He emphasized that the sublime experience begins with astonishment, “that state of the soul, in which all its motions are suspended, with some degree of horror.” Like Dickens at Niagara Falls or Mount Vesuvius, the observer is struck dumb with amazement, and “the mind is so entirely filled with its object, that it cannot entertain any other, nor by consequence reason on that object.” The sublime has an overwhelming grandeur, and it “hurries us on by an irresistible force.”<sup>6</sup> It begins with powerful sensations that meld together in a rush of impressions, a sensory overload. For Burke, as Sandra Shapshay explains, “the pleasure of the sublime does not result from something like a chain of reasoning or free play of ideas,” which would be closer to Immanuel Kant’s view. Rather, in Burke “it results from a basic but unreflective cognitive appraisal” based on strong impressions.<sup>7</sup> Burke linked the sublime to sensations. As the philosopher Richard Shusterman has emphasized, “Burke’s aesthetics is distinctively embodied, relying on an implicit naturalistic, empiricist ontology that affirms the close union of mind and body while claiming that mental contents are ultimately the product of sensations involving bodily effects.”<sup>8</sup> Burke did not posit a mechanical cause-and-effect relationship in which sensations caused the sublime, however, for he recognized that the mind also shapes sensations. Yet regardless of whether one agrees with Burke or Kant, as Emily Brady summarizes in *The Sublime in Modern Philosophy*, the qualities that make an experience sublime can include “darkness, obscurity, greatness, massiveness, the tremendous, towering, dizzying, shapeless, formless, boundless, blasting, thundering, roaring, raging, disordered, dynamic, tumultuous,”<sup>9</sup> all terms that might be applied to Niagara Falls or to Mount Vesuvius.

Modern psychology recognizes not only the five senses that Aristotle defined (touch, taste, smell, hearing, and sight), but also four more. Three of these are located in the skin that, in addition to touch, can also sense temperature, pain, and the position of the body, or body awareness. In

addition, three semicircular canals in the ears provide a sense of balance and the ability to feel acceleration and deceleration.<sup>10</sup> These additional senses make it possible to avoid burns and frostbite, to know without looking where the various parts of our body are at all times, and to maintain our balance when moving through space. Dickens needed these additional senses at Niagara Falls and Mount Vesuvius, both of which were disorienting and potentially dangerous. Likewise, an earthquake upsets the sense of balance, and the experience of flying would be greatly diminished without awareness of balance or acceleration. Multiple sensations are part of most sublime experiences, merging in a powerful overall impression. A motorcyclist explained to Rebecca Solnit “the infinitely subtle ways racers use their bodies to turn at high speeds and the incredible pleasure of those acts.”<sup>11</sup> These maneuvers rely on balance and body awareness, and a feeling for sudden acceleration and braking, as well as the rush of the wind, the roar of the motorcycle, and the blur of visual impressions when speeding through a landscape. Something similar would be true of skateboarders, divers, or gymnasts. All nine senses function in daily life, and a sublime experience arouses them to a high pitch.

Kant focused on the mind more than Burke, emphasizing the thoughts after a sublime encounter.<sup>12</sup> He made the invaluable observation that the natural sublime falls into two broad categories: the “mathematical sublime,” an encounter with extreme magnitude such as the Grand Canyon or a view from the top of a mountain; and the “dynamic sublime,” an encounter with irresistible force, such as a hurricane or volcanic eruption. All forms of the sublime have these variant modes, which can be broadly defined as either encounters with landscapes (magnitude) or encounters with spectacles (engulfing forces). When experiencing the natural sublime, the observer at first feels overwhelmed, diminished, and insignificant. Climbing a mountain is a good example of an encounter with immensity, which as Solnit points out is often misunderstood to be simply the conquest of the landscape; “but as you get higher, the world gets bigger, and you feel smaller in proportion to it, overwhelmed and liberated by how much space is around you, how much room to wander, how much unknown.” Out of necessity, during a climb attention is mostly fixed on the steep and often uneven trail, with occasional pauses to see the enlarging view. But at the summit, the view opens in

every direction, and “the world doubles in size.”<sup>13</sup> Kant noted that in such a sublime experience initial awe leads to a “momentary checking of the vital forces” followed by a recuperation and an abiding sense of wonder. The sublime compels an observer to realize inner mental powers that reach beyond the evidence of the senses, which have been overwhelmed.<sup>14</sup> Because the mind is able to conceive patterns and meanings that surpass the senses, the observer achieves an enlarged feeling of self-worth. For these experiences to occur, however, it is vital that one be in relative safety. Kant explained that in the face of tremendous forces, “we are all the more attracted by their aspect the more fearful they are, when we are in a state of security.”<sup>15</sup> Dickens, for example, was best able to take in Niagara Falls from the security of an island, not from the unstable boat that took him there. At Mount Vesuvius, he relied on a guide to lead him to a safe viewpoint.

The sublime occupies a central place in Kant’s philosophy, which he developed as religious beliefs weakened and gave way to the Enlightenment. Rather than anchor morality in holy scripture, he concluded that it had to arise from some form of universally available experience. The natural sublime emerged in Kant’s thinking as that key experience; a feeling for the natural sublime made it possible to intuit the power of our rational faculties. In short, for Kant there was a connection between sublime experience and ethics. Sublimity roused the mind to reach for higher thoughts, and it made the observer aware that the mind could reach beyond the palpable world of the senses. As John Goldthwait summarized, in 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.”<sup>16</sup>

The technological sublime superficially resembles Kant’s natural sublime. The observer again is amazed when confronted by a vast scene, such as the view from the top of a skyscraper, or a powerful force, such as the launch of a rocket carrying astronauts to the moon.<sup>17</sup> But there are important differences between these encounters and the natural sublime. Substituting a technological object, such as a railroad, for a natural object, such as a powerful waterfall, places humanity in a different position. It may seem that the only difference is in the object, not in the mind of the

observer, but the meaning of the sublime changes decisively when based on a cultural construction. A natural object is an expression of external powers, while a technological object is a human product. When nature is the powerful source of experience, humankind is reduced to insignificance. But when awe is induced by human constructions, the experience may be identified with the conquest of nature, for example by conquering gravity in flight or containing a powerful river behind a dam. Humanity, often personified by the architect or the engineer, is exalted. The observer is not made aware of inner powers that reach beyond the visible world, but rather focuses on the human power to transform the visible world.

The intangible sublime offers another perspective. A new apparatus can make possible new perceptions, as Galileo realized when, through a telescope, he saw new features of the universe such as the mountains of the moon. The heavens have always been a source of awe. But during the Renaissance scientists discovered that Earth is not the center of the universe, and then found that the sun was but a minor star in a vast space. To many, this dislocation was a diminishment, marginalizing humanity. Kant understood that human beings existed in a tiny part of the cosmos, but he found this fact potentially sublime. As he put it, "If the grandeur of a planetary world in which the earth, as a grain of sand, is scarcely perceived, fills the understanding with wonder; with what astonishment are we transported when we behold the infinite multitude of worlds and systems which fill the extension of the Milky Way!" Such contemplations exemplified Kant's mathematical sublime, or the encounter with that which is absolutely great. Kant understood that the universe is "an abyss of a real immensity; in presence of which all capability of human conception sinks exhausted, although it is supported by the aid of the science of number."<sup>18</sup> Kant saw that for science to advance perception was not enough. An observer needed mediating instruments and mathematics, products of what he termed "Reason," to gain a larger grasp of the universe.

The examples that Kant used in his *Universal History and Theory of the Heavens* were not available to philosophers before astronomers demonstrated that the sun, not Earth, was the center of the solar system, and discovered that the sun was but a small star in a vast universe. Even for Kant, the sublime was not an absolute but a contingent category, based

on perceptions shaped by new scientific knowledge. Were Kant alive today, he presumably would be enthralled by new technologies such as the Hubble telescope that have deepened our understanding of the universe. Kant already knew that the sublime features of the universe cannot be grasped by the senses alone. By combining Newtonian mathematics with astronomical observations, Kant rather accurately predicted the shape of the universe. Likewise, today, only through reasoning and the use of instruments that extend the senses can one begin to understand black holes or dark matter.

Burke and Kant defined the sublimes known to the eighteenth century; new technologies subsequently made possible additional forms. Kant identified the dynamic and the mathematical modes of the sublime that can be experienced in the natural world. This study presents other forms of the sublime that have a similar duality. This is not merely a matter of taxonomy. The accelerated movement of the early railroad offered an experience akin to Kant's dynamic sublime, but without moral absolutes or the supposition that the deity was involved in its meaning. The Olympian impressions when seeing the world from the top of a skyscraper or from an airplane offer an experience akin to Kant's mathematical sublime, but they are not the same. The present work defines and briefly explains six additional forms: the technological sublime, the disastrous sublime, the martial sublime, the intangible sublime, the virtual sublime, and the environmental sublime.

Why these seven sublimes? This project began by surveying books that dealt with the sublime published after 1990, to update what I had learned when writing *American Technological Sublime*. I next examined Google Scholar's list of more than two thousand articles that cited that book,<sup>19</sup> as well as articles listed in J-STOR, MUSE, and other bibliographic aids. This survey was not a matter of quantification. An article that merely mentions the sublime in a footnote did not merit the same attention as a seminal book such as Brady's *The Sublime in Modern Philosophy*. Likewise, an author who uses a term such as "postmodern sublime" or "digital sublime" with little attempt at a definition was less helpful than J. Glenn Gray's *The Warriors*.<sup>20</sup> However, casting a wide net established the range of objects that might be considered sublime and suggested topics that I might have overlooked, such as holography and drone photography. This

survey included studies not only of impressive natural sights and technologies such as skyscrapers and railroads, but also of photographs, films, literary works, paintings, factories, canals, dams, battles, scientific discoveries, computer games, virtual reality, world's fairs, spectacular lighting, earthquakes, fires, floods, and more. I tried various ways to organize this material. A chronological approach did not suggest distinct eras that could be organized into coherent clusters for analysis. Divisions based on nation-states created tedious repetitions, as one would then need consider each topic—from volcanoes to canals to battles to virtual reality—in every national context. Instead, I saw the importance of the dividing line between sublime phenomena experienced directly through the senses and intangible sublime that can only be known through instruments, such as telescopes, microscopes, sensors, and computers. By focusing on this distinction, I could sort examples of the sublime into four forms of the tangible sublime (natural, technological, disastrous, and martial) and three forms of the intangible sublime (scientific, digital, and environmental). This book devotes a chapter to each of these. While developing these chapters, I realized that the different sublimes did not merely focus on different classes of objects. Each also implied a distinct perception of space and time and entailed a different teleology. The natural sublime is ultimately about human insignificance when confronted with the enormous age and apparently infinite space of the universe. In contrast, the technological sublime focuses on humanity's advance into the future. In the disastrous sublime the eruption of natural forces, as in an earthquake or a fire, compels attention to perils in the present. The martial sublime is also intensely focused on an immediate danger, but humanity unleashes its destructive forces. Study of the three intangible forms of the sublime yielded three additional perspectives. In short, the seven categories proved to be more than merely seven clusters of objects that human beings have considered sublime. Each of the seven sublimes presented a distinct perspective on space and time, which is to say that each one pointed toward a different understanding of humanity's place in the world. Future researchers may discern additional, but probably not fewer, sublimes. The evidence suggests there are at least these seven.

In searching for examples of the seven sublimes, I have not been concerned with whether a witness actually used the word “sublime,” or

was familiar with Burke's or Kant's philosophy. Someone facing battle or viewing images from the Hubble telescope may not employ the word "sublime," but their experience nevertheless may exemplify it. Whalers who were awed by the Canadian Arctic wrote home of its magnificent landscapes.<sup>21</sup> In 2019, many scientists were moved by the first images of a black hole, which brought tears to their eyes and provoked exclamations such as "We have seen what we thought was unseeable" and "This will leave an imprint on people's memories."<sup>22</sup> They had experienced the sublime, even if they did not use the philosophical term.

Just as Kant distinguished between two modes of the natural sublime (mathematical and dynamic), the other six forms of the seven sublimes also have two modes of experience: dynamic spectacles and vast landscapes. Spectacles sweep up the observer with irresistible force and mesmerizing movement. Landscapes overwhelm with their extent, bulk, or grandeur. The following chart lists the seven forms of the sublime in the order that they will be discussed.

One chapter is devoted to each of these seven sublimes. This introductory chapter has briefly discussed the natural sublime. Chapter 2 concerns the technological sublime, which has two modes: the landscapes made

**Table 1.1** Seven forms of the sublime

Chapter	Form of sublime	Dynamic mode	Mathematical mode
		Spectacles	Landscapes
1	Natural	e.g., Niagara Falls	e.g., Grand Canyon
2	Technological	balloons, railroads, airplanes, rockets	bridges, dams, skyscrapers, factories, cityscapes
3	Disastrous	conflagration, earthquake, flood	ruins, recreations
4	Martial	battle, bombing	panoramas, battlefields, airshows
5	Intangible	driving a Mars rover	microscope, telescope, etc.
6	Digital	virtual reality	server farms & computers
7	Environmental	symbiotic complexity of habitat	blighted ecologies; antilandscapes



possible by bridges, dams, skyscrapers and other constructions; and the dynamic experience of accelerated movement through space by balloon, canal, railroad, automobile, airplane, or rocket. Both modes are often seen as examples of technical reason. Chapter 3 examines the disastrous sublime, which can be classified as either landscapes seen after the fact, such as the ruins of Pompeii, or as spectacles directly observed, such as the Great Chicago Fire of 1871. Chapter 4 examines the martial sublime, whose two modes are the dynamic experience of battle, including explosions, firefights, and bombardment, and the panoramic view of a battle when observed from a distance, preserved at a historic site, or recreated in painted panoramas or films. Anyone, regardless of race, gender, class, or culture, has the capacity to directly experience these tangible sublimes.

The argument then turns to experiences that are only possible with the aid of mediating technologies. Chapter 5 discusses the intangible sublime or encounters with objects or forces that human beings cannot observe with their unaided senses, such as microscopic particles or black holes. These sublime experiences are delayed by a mediating technology such as an orbiting telescope that sends back to Earth data that must be processed before they can be interpreted. The public's experience of such sublime discoveries is in keeping with the ideas of Longinus, the ancient author who first wrote of the sublime. He defined the sublime as the effect produced by persuasive oratory or writing that uplifts and enthralls an audience. Some scientists make discoveries accessible to the layperson, acting as rhetoricians who explain the microscopic building blocks of life, subatomic particles, or distant galaxies. There is also a second mode of the intangible sublime that is a dynamic experience, such as the exploration of Mars or another inaccessible location through the interactive control of a remote vehicle.

Mediated interactions are also possible through computers, and chapter 6 turns to dynamic digital experiences such as virtual reality. Not every engrossing digital technology is sublime, however, and this chapter briefly considers what experiences might qualify. There is also a landscape mode of the digital sublime, in which one is enthralled by the vast scale of information, the immensity and power of computer technologies like the Internet, and the enormous capacity of giant server farms.

Chapter 7 examines the environmental sublime, which neither celebrates the domination of nature, as in the classic technological sublime, nor seeks to construct a virtual nature, as in the digital sublime. In its dynamic mode, it focuses on living ecosystems, evoking wonder at their complex symbiosis. In contrast, the landscape mode of the environmental sublime confronts the death of ecosystems, due to pollution, habitat destruction, global warming, and species extinction. Human actions threaten not just one or another species but entire ecological systems such as coral reefs and rainforests. The environmental sublime expresses awareness of the consequences of human action. One cannot go back to the natural sublime of Kant or Ralph Waldo Emerson. In the Anthropocene, human beings need to move beyond celebrating the technological sublime, beyond the pretense that they are not part of nature, and beyond the melancholy contemplation of apocalypse, into a creative engagement with the environment.

Chapter 8 examines how sublimines have been selectively integrated into different national identities. Because sublime experiences are universal, it might seem that they would unite humanity across national borders. However, different cultures value somewhat different experiences. Every country develops a distinctive repertoire of possible sublime experiences, and these are interpreted differently from one nation to the next. The final chapter reviews the formations of the sublime, both those known directly through the senses and those experienced indirectly through mediating technologies. It contrasts the largely static landscapes with the dynamic, often dangerous spectacles, followed by discussion of the temporal and spatial dimensions of the different sublimines. Finally, the epilogue ponders the future of the sublime.

The first seven chapters organize the hodgepodge of places, events, and experiences that are frequently referred to as sublime. Because each of these seven sublime forms entails a fundamentally different concept of space and time, they can be on odds with one another. A waterfall or canyon exemplifies the natural sublime to some, and yet other people value more highly a large hydroelectric dam that obliterates these landscapes and exemplifies the technological sublime. Likewise, virtual reality (VR) makes possible new perceptions but engages only a few of the senses, in contrast to the all-encompassing sensory engagement with a local

ecology that is the hallmark of the environmental sublime. The martial sublime and the technological sublime are based on the mastery of many of the same technologies, but they work toward quite different ends and express incompatible values. In short, the seven sublimes share certain characteristics, but they are not a coherent system. They are related but not congruent.

And yet, most of the seven sublimes were suggested in the writings of Kant and Burke, although both writers focused their attention on the natural sublime. Burke considered some buildings to be sublime, anticipating the technological sublime, discussed in chapter 2.<sup>23</sup> Kant wrote of violent storms and Burke of raging floods, suggesting the disastrous sublime, discussed in chapter 3. After seeing an inundation in Dublin, Burke wrote to a friend, "It gives me great pleasure to see nature in these great though terrible scenes. It fills the mind with grand ideas."<sup>24</sup> Kant considered warfare potentially sublime, while Burke speculated on the psychological impact of hearing cannons, adumbrating the martial sublime that is the subject of chapter 4.<sup>25</sup> Kant was acutely aware of the usefulness of telescopes and other tools that extended the senses to the intangible, and he helped lay the groundwork for the scientific sublime discussed in chapter 5. In his *Universal Natural History and Theory of the Heavens* he speculated that the nebulae were island universes, that there were likely planets beyond the solar system, and that new worlds were continually being created.<sup>26</sup> In short, the seeds of the different sublimes discussed in the first five chapters are in Kant and Burke. Furthermore, the environmental sublime, discussed in chapter 7, can be seen as a hybrid of the natural and the scientific sublimes, which leaves only the digital sublime as a largely new formation, but one that often imitates the others.

With this overview in mind, we can now consider the two modes of the technological sublime.



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