

The American Environmental Movement's Lost Victory: The Fight against Sonic Booms

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Abstract: Political contestation over sound can take many forms, with profound consequences for the aural environment. One example is found in the battles over the sonic booms associated with the US government's supersonic transport (SST) program in the 1960s and early 1970s—a program that had it been realized, would have filled the everyday soundscape with thunderous sonic blasts. This article analyzes the individuals and groups who mobilized against sonic booms and the SST and the activists' unlikely success over the SST in 1971. Today, this victory stands as an important, if largely forgotten, victory of the early environmental movement.

Key words: sonic boom, environment, politics, United States

THE FUTURE WAS NOT SUPPOSED TO SOUND LIKE THIS. It was supposed to be louder—much louder. In the 1960s and early 1970s the US government spent three-quarters of a billion dollars to design and build a new kind of aircraft, a supersonic transport (SST), that if it had been realized, would have filled the skies with thunderous and startling sonic booms. Such booms would have rattled the nerves of humans and other animals, shattered windows, and caused large cracks to appear in plaster walls, transforming the soundscape of

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daily life for hundreds of millions of people, both within and beyond the United States. So certain did this future then appear that one book about the impending supersonic era was titled *The SST: Here It Comes, Ready or Not*. This future, however, was not to be. The SST had strong proponents but energetic critics too, and in a stunning, David-versus-Goliath victory, the opponents of the SST won the day. Despite strong support for the SST program from the White House, industry, and labor, Congress was swayed by an intense lobbying effort and an outpouring of public criticism and voted by a thin margin to kill the program in the spring of 1971. Driven by a cadre of young activists, the surge in organized protest against the SST prevailed. The aural environment would be preserved.¹

By rights, the defeat of the SST should have an established place in the history of the American environmental movement, but it does not. Given the tremendous environmental impact that the SST would have had and the central role that activists played in defeating the program, the SST fight would seem to be a landmark early victory for the movement, yet none of the leading histories of American environmentalism mentions it.² This article seeks to explain this historical amnesia by analyzing the opposition to the SST beginning in the early 1960s, before the environmental movement as such had even taken shape. At the center of the SST debate, I argue, stood the intractable problem of the sonic boom—a problem that neither scientists and engineers nor public relations gurus could make go away. To be sure, sonic booms were never the only grounds on which people objected to the SST, but they were the through-line, the issue against which the most persistent oppositional pressure was applied. Proponents of the SST claimed the plane was the “next logical step” in American aviation, that it was essential for American prestige, and that it would bring the United States substantial economic rewards. Critics, meanwhile, rejected the idea of the SST’s technological inevitability, doubted its economic benefits, and objected to its impact on the soundscape and, later, its potential effects on the upper atmosphere. Throughout it all, the sonic boom remained a core problem for public acceptance of the new technology, and highlighting opposition to the sonic booms reveals how the defeat of the SST materialized.³

1. Don Dwiggins, *The SST: Here It Comes, Ready or Not* (Garden City, NY: Doubleday, 1968).

2. Riley Dunlap and Angela G. Mertig, eds., *American Environmentalism: The US Environmental Movement, 1970–1990* (Philadelphia: Taylor & Francis, 1992); Robert Gottlieb, *Forcing the Spring: The Transformation of the American Environmental Movement*, rev. ed. (Washington, DC: Island Press, 2005); Philip Shabecoff, *A Fierce Green Fire: The American Environmental Movement*, rev. ed. (Washington, DC: Island Press, 2003); Benjamin Kline, *First Along the River: A Brief History of the U.S. Environmental Movement*, 4th ed. (Lanham, MD: Rowman & Littlefield Publishers, 2011); Samuel P. Hays and Barbara D. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985* (New York: Cambridge University Press, 1989); Hal K. Rothman, *The Greening of a Nation? Environmentalism in the U.S. Since 1945* (Fort Worth, TX: Wadsworth, 1997); Thomas R. Wellock, *Preserving the Nation: The Conservation and Environmental Movements 1870–2000* (Wheeling, IL: Wiley-Blackwell, 2007).

3. For a fuller discussion of the arguments for and against the SST, see David Suisman, “The Oklahoma City Sonic Boom Experiment and the Politics of Supersonic Aviation,” *Radical History Review*, no. 121 (January 2015): 169–95.

In part, the historical amnesia is the result of the tendency of historians to overlook sound or disregard its significance. Our everyday language has a strong visual bias—as in the use of words like “overlook” and “disregard”—which may make it easier not to apprehend sound (or other sensory experience) as historically important. Beyond that, though, the historical amnesia has a proximate explanation as well, lying in the unusual makeup and dynamics of the opposition to the SST. Agitation against sonic booms and the SST is best understood as having been a process, not a single unified movement. Criticism of and organization against the SST, we shall see, followed a peculiar path, beginning with what was effectively a one-man crusade and ending with an intense but brief groundswell of grassroots activism.

Two things made this ultimate mobilization possible. One was the emergence of the environmental movement itself in the late 1960s, growing out of the more narrowly focused conservation movement. The conservation movement, which had existed since the late nineteenth century, centered on the preservation of wildlife, wild lands, and other natural resources. In contrast to its antecedent, the environmental movement targeted a wider scope of issues, from pesticide use to air quality.⁴ Second, over the course of the 1960s, sound assumed a new kind of political importance and became a site of unprecedented political contestation. This included not only sonic booms but also disputes over subsonic jet aircraft noise and the nascent discourse of noise pollution, not to mention the sounds of civil rights protest and social rebellion by young people. Thus, sonic booms can help us think not only about the sonic dimension of the environmental movement but also about the political history of sound. In some contexts, sound can be said to function as an *instrument* of politics—as a means of achieving political ends—as would be the case with audio surveillance; sonic weaponry; music and sound used for torture; voice, music, and political rhetorics; and the noise of revolution and of public demonstrations. In other contexts, sound can function as a *subject* of politics—a sonic phenomenon over which political battles are fought—as with sonic booms, subsonic airplane noise, cabaret laws, or noise pollution. At times, the line between these two can blur or a sound could move from one category to the other (e.g., surveillance has become the subject of political debate; sonic booms have been used as a weapon), but this distinction helps us make sense of the different kinds of political work that sound can be involved in.⁵

As opposition to the SST mounted, it became clear that sonic booms presented numerous kinds of problems and that these commingled with other social, political, technological, economic, and environmental issues. On the subject of the sonic boom, the startle effect was the most obvious concern; as a letter writer to the *New York Times* put it, “Who will want to be under the

4. See Adam Rome, “‘Give Earth a Chance’: The Environmental Movement and the Sixties,” *Journal of American History* 90, no. 2 (September 2003): 525–54.

5. On the weaponization of sonic booms, see Suisman, “The Oklahoma City Sonic Boom Experiment,” 188.

surgeon's knife when a sonic boom jars his hand?"⁶ A special committee of the National Academy of Sciences warned that the startle effect could also precipitate events like car accidents, heart attacks, and people falling from ladders, as well as disrupt sleep patterns.⁷ Other boom-related considerations included the bodily and psychological effects of long-term exposure to sonic booms; the effect of booms on non-human animal populations; the structural impact of sonic booms on buildings; the difficulty in assigning liability in instances of property damage caused by sonic booms; and the effect of booms on delicate rock formations in the country's national parks. Aside from sound-related concerns, skeptics and critics asked about the SST's costs and who should bear them; the potential dangers of flying at sixty to seventy thousand feet; whether or not the SST was politically necessary; whether the benefits of the SST would be shared equally; and if the proposed SST was technologically feasible. Taken together, these issues marked a new era for American aviation. They also demonstrated that sound is never simply an acoustic phenomenon—that invariably it resonates in political, economic, and social registers as well. Thus, in the environmental movement's unlikely victory over the SST, sound came to occupy a place of unusual importance, figuring prominently in a national political debate with global implications. The history of opposition to the sonic booms reveals what that triumph did, and did not, accomplish.

Challenging the SST

The US military began flying supersonic airplanes in the late 1940s, at a time early in the Cold War when the prevailing view in American society was that American science and engineering were infallible, benevolent, and politically and ethically neutral.⁸ Although some civilians objected to the airplanes' sonic booms, which military officials euphemistically referred to as the "sound of security" and the "sound of freedom," few people called the supersonic technology into question altogether.⁹ Then, in the late 1950s and early 1960s, an idea took shape among American aerospace strategists for a supersonic aircraft for civilian transportation—an initiative that could fill the skies with supersonic aircraft. It was known that the French, English, and Soviets were at work on their own supersonic transport planes, but the Americans'

6. Arthur Squires, "Price of SST," *The New York Times*, August 30, 1967.

7. Mel Horwitch, *Clipped Wings: The American SST Conflict* (Cambridge, MA: The MIT Press, 1982), 82.

8. Gabrielle Hecht and Paul N. Edwards, "The Technopolitics of the Cold War," in *Essays on Twentieth-Century History*, ed. Michael Adas (Philadelphia: Temple University Press, 2010), 285. On the pursuit of speed, see Paul Virilio, *Speed and Politics: An Essay on Dromology*, trans. Mark Polizzotti, 2nd ed. (Los Angeles: Semiotext(e), 2006).

9. On objection to sonic booms caused by military planes, see Suisman, "The Oklahoma City Sonic Boom Experiment," 173–74.

ambition was to build a plane that was bigger and faster (and, it would turn out, louder) than its rivals.¹⁰

Its champions promoted this supersonic transport as the next logical step in American aviation. Beyond this, they said, the SST was a necessary measure to prevent the Soviet Union from gaining international supersonic supremacy, which, if it were to happen, could be perceived as “another Sputnik.” Meanwhile, the SST would also have significant international prestige, proponents argued, and would bring two kinds of economic benefits. First, manufacturing the SST would create jobs. Second, as the airplanes were sold to foreign airlines, the SST would improve the United States’ balance of trade. None of these arguments predominated. Rather, support for the SST rested on the combination of these arguments, with different issues sometimes receiving higher priority depending on the context. US Air Force Lieutenant Colonel Donald J. Hackney put it this way in a paper for the Army War College: “The supersonic transport will have a significant impact on all basic elements of national power—economic, military, political/psychosocial, and technological.”¹¹

From the time that feasibility studies began in 1961, the SST’s greatest champion was Najeeb Halaby, the administrator of the Federal Aviation Agency (FAA, later renamed the Federal Aviation Administration) and a “true believer” in the promise of aviation. In opposition to him stood Secretary of Defense Robert S. McNamara, who focused on the economics of the SST and became one of the SST’s most influential skeptics in the mid 1960s. In short, McNamara did not believe that the FAA’s projections for the costs and economic benefits of the SST were based on hard data, and he doubted the SST’s long-term economic viability. Similarly, some observers were uncomfortable with the government’s subsidy of SST development, which emerged as a subject of debate as soon as President John F. Kennedy launched the National Supersonic Transport Program in June 1963. At that time, Kennedy pledged that the federal government would cover seventy-five percent of the estimated one billion dollars needed to design and build the SST, a share that was later increased to ninety percent. Some critics of the subsidy considered it too large; others questioned whether the government should be funding the program in the first place. In general, the SST enjoyed broad public and

10. On the French, English, and Soviet planes, see, e.g., Kenneth Owen, *Concorde and the Americans: International Politics of the Supersonic Transport* (Washington, DC: Smithsonian Institution Press, 1997); Howard Moon, *Soviet SST: The Techno-Politics of the Tupolev-144* (New York: Orion, 1989).

11. On the general history of the SST, see Horwitch, *Clipped Wings*; Erik Conway, *High-Speed Dreams: NASA and the Technopolitics of Supersonic Transportation, 1945–1999* (Baltimore: Johns Hopkins University Press, 2005); Kenneth Owen, *Concorde and the Americans*; Joshua Rosenbloom, “The Politics of the American SST Programme: Origin, Opposition and Termination,” *Social Studies of Science* 11, no. 4 (November 1981): 403–23; George Basalla, *The Evolution of Technology* (New York: Cambridge University Press, 1988). Hackney quoted in Jenifer Van Vleck, *Empire of the Air: Aviation and the American Ascendancy* (Cambridge, MA: Harvard University Press, 2013), 274.

political support at this time, but from the outset there were also those who were skeptical of the program on a variety of economic grounds.¹²

At the same time, a broader social, technological, and environmental critique started to emerge, propelled primarily by one man, a Swedish aeronautical engineer named Bo Lundberg, who became the most important international critic of supersonic transportation in the early to mid 1960s and the only person to wage a sustained campaign against it. To state the obvious, this was a mismatched battle: the voice of one lone Swede against the combined force of the American, English, and French governments plus the international aerospace industries. But Lundberg had one thing on his side—technical expertise—and as a result, he was taken seriously. Born in 1907, he was a pilot turned engineer who had led the design of Swedish fighter planes during World War II, and in 1958, he was one of the founding fathers of the International Council of the Aeronautical Sciences.¹³ In the early 1960s, critiquing supersonic aviation became the main thrust of his work. In this, he commanded serious attention, for he was neither a crank nor an activist but a respected member of the international community of aeronautical scientists and engineers. Moreover, because of his technical expertise, he could scrutinize the technical reports and projections about the SST as others could not, and consequently, he could make arguments that spanned from the sweepingly general to the painstakingly technical. Lay people and journalists lacked the technical sophistication to engage critically with the scientific and engineering data, but Lundberg could engage with that information on its merits.

The primary target of Lundberg's critiques of supersonic aviation was the sonic boom. Much more powerful than a regular sound wave, a sonic boom was actually a shock wave. It was created by a large object—an airplane—traveling through air faster than the sound waves it was creating, causing a buildup of energy that was released continuously in the airplane's wake as it flew. Thus, a boom was not a momentary, instantaneous phenomenon but rather something that was heard and felt everywhere on the ground in a fifty-mile-wide strip the entire length of the supersonic flight path—meaning that a single supersonic flight could affect tens of millions of people. And each sonic boom was physically and psychologically disturbing, day or night, and capable of causing damage to property as well.

Lundberg was unstinting in his critique of the sonic boom problem, attacking it from every conceivable angle. He did not view the sonic boom in isolation; for him, it was always part of a complex of problems, false assumptions, and unrealistic projections, all of which gave a misleading picture of the SST's real social, environmental, political, and economic costs. "If we have to

12. Horwitch, *Clipped Wings*, 21–55.

13. "Bo Lundberg," *Dagens Nyheter*, June 9, 1991; "Vårt Flygvapen Efter 1945," n.d., 143–44, http://www.aef.se/Flygvapnet/PDF-dokument/Det_bevingade_verket/4_Bevingade%20verket_Efter%201945.pdf; "J22, J22A, J22B, S22-3, FFVS 22," n.d., <http://www.aef.se/flygvapnet/notiser/FPL%2022%20notis%202.htm>; Anders Gustafsson, e-mail correspondence, February 25, 2013.

think in terms of a race with Russia," he wrote in 1961, "let us engage in a 'race of common sense' instead of a 'supersonic race.'"¹⁴ It made little sense, he argued, to rush headlong into a technology with side effects that might disrupt people's sleep patterns, agitate the sick, and disturb people who sought open spaces for quiet. He also questioned the physiological effect of sonic booms on animals, and he outlined some of the legal problems that supersonic air travel would cause (e.g., the difficulty of assigning liability in sonic boom damage cases).

Based on these issues, he proposed delaying development of commercial supersonic aviation until the concerns had been addressed, for once SST service was put into effect, he argued, the airlines' investment would be so great that it would be unlikely they would halt service just because of problems or protests. Indeed, the crux of the problem, he noted, was not individual sonic booms (which military aircraft had been producing occasionally for some time) but the creation of a whole system of transportation that would fill the skies with booms continually, to the benefit of only a small elite who could afford to travel on such airplanes. "Never before in history," he wrote, "would so many have been disturbed so much by so few!"¹⁵ Reaching out directly to experts and policymakers at professional meetings and summits and in the pages of technical and policy-oriented journals, Lundberg did not succeed in reversing any specific policies, but his sustained one-man campaign became the technical basis for the more expansive critique and organized opposition that emerged later.¹⁶

By 1964, concerns about sonic booms raised by Lundberg and others, including some within the government, were substantial enough to warrant what was, in retrospect, a remarkable community impact study. For six months, from February to the end of July, air force planes bombarded a test city, Oklahoma City, with eight sonic booms a day, every day, in order to test the community reaction. At the same time, the organizers of the study, which was conducted jointly by the FAA, the air force, and NASA, contracted with the National Opinion Research Center (NORC) of the University of Chicago to conduct a longitudinal survey of community reaction to the sonic booms based on nearly ten thousand interviews. Both proponents and opponents seized on the study's results, which found that seventy-three percent of the respondents

14. Bo Lundberg, "Should Supersonic Airliners Be Permitted?," *New Scientist*, February 23, 1961, 462.

15. Lundberg, "Should Supersonic Airliners Be Permitted?," 460.

16. In addition to a series of technical reports, Lundberg penned articles for a wide range of publications. See for example, Bo Lundberg, "The Sonic-Boom Menace," in *Praxis Der Lärm-bekämpfung. Pratiques De La Lutte Contre Le Bruit. Noise Abatement in Practice* (Baden-Baden, Germany: Aeronautical Research Institute of Sweden, 1966); Bo Lundberg, "The Menace of the Sonic Boom to Society and Civil Aviation," *Smog and Noise News* 14, no. 1-4 (1966): 77-91; Bo Lundberg, "Pros and Cons of Supersonic Aviation in Relation to Gains or Losses in the Combined Time/Comfort Consideration," *Journal of the Royal Aeronautical Society* 68, no. 645 (September 1964): 611-30; B. K. O. Lundberg, "The Supersonic Threat," *The Observer* (London), August 25, 1963; "Science: Never Before . . .," *Time*, March 17, 1961. Werner Wiskari, "Air Experts Hear 'Go Slow' Appeal," *The New York Times*, August 28, 1962.

said they could live with eight sonic booms of that magnitude every day indefinitely. To champions, this sizable majority was a vindication. To critics, what mattered was the size of the minority; more than one-quarter said they could *not* live with such booms. The study also found that people's tolerance for booms decreased over time, which was the opposite of what SST advocates predicted. Meanwhile, the Oklahoma City experiment prompted the national press to acknowledge, at least momentarily, the problem of the sonic boom for the SST program as a whole. Indeed, in the words of the *Saturday Review*, the Oklahoma City experiment marked a new relationship between citizens and the state and signaled the advent of the "era of supersonic morality."¹⁷

In the wake of the Oklahoma City experiment, articles questioning the ethics and practicability of the SST began slowly to appear in publications across the political spectrum, and in 1967 a second phase of opposition began to take shape. Until that time, there was no sustained or organized *movement* against sonic booms or the SST. This changed, however, when a canny Harvard physicist, William A. Shurcliff, dismayed at what he perceived as the "whitewash" in government documents concerning the "acceptability" of sonic booms, launched a group called the Citizens League Against the Sonic Boom (CLASB) with his Harvard colleague John T. Edsall, a distinguished biochemist with a long history of activism related to science and politics. By 1970, the group would claim more than five thousand members, from all fifty states and seven foreign countries.¹⁸ Its aim was to take on the SST with as intelligent and respectable a campaign as possible, based on well-researched facts, and not to descend to the level of name-calling or appeals based on emotion more than reason. To do this, it harvested data and analysis from material provided by Lundberg (his published articles, special reports, copies of correspondence, etc.), plus voluminous information from government research agencies, articles in technical journals, special reports by research workers in university or government laboratories, National Academy of Sciences publications, and many other sources.¹⁹ With all these materials, Shurcliff's organization became a clearinghouse for all things SST, and this volume of information enabled Shurcliff to become a powerful public voice against supersonic aviation.

As a protest against environmental noise, CLASB was not unprecedented. Indeed, it was prefigured by the noise abatement campaigns from the early twentieth century, which appealed to municipal governments to regulate sonic excess, particularly in relation to automobiles. There had also been

17. Suisman, "The Oklahoma City Sonic Boom Experiment"; John Lear, "The Era of Supersonic Morality," *Saturday Review* 47 (June 6, 1964): 49–50.

18. [William A. Shurcliff], "Brief History of the Citizens League Against the Sonic Boom," November 15, 1978, folder 4, box 1, Papers of the Citizens League Against the Sonic Boom, MIT Library, Cambridge, MA (hereafter CLASB Papers). Other charter members included William H. Ferry, vice president, Center for the Study of Democratic Institutions; philanthropist Elizabeth P. Borish of Vermont; physicist J. Reece Roth; and several others.

19. [Shurcliff], "Brief History," 1.

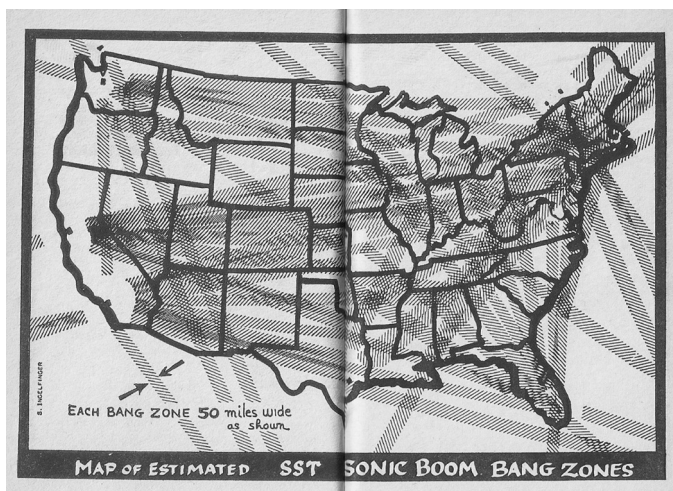
numerous protests specifically against jet engine noise starting in the 1950s, especially in densely populated areas, such as around New York's Idlewild Airport. If CLASB, however, had forerunners, it also represented something new, for CLASB's battle against the booms was an anti-noise campaign of a different order—not merely a local or municipal grievance but an issue that was national and international in scope, appealing for intervention by the federal, not local, government. Moreover, in this instance the state itself was implicated in the offending sounds. Yet the state was not monolithic. Perhaps, as the *Saturday Review* had suggested, the era of sonic booms signaled a new kind of relationship—a sonic relationship—between citizens and the state, and in this case it was both the source of the problem and the recourse for relief.²⁰

Meanwhile, CLASB's Shurcliff had just the right profile and skills to wage a campaign against sonic booms. Unlike Lundberg, he was not a specialist in aviation or aeronautics, but as a physicist at Harvard and a veteran of the Manhattan Project, he had, if anything, greater scientific authority. Moreover, he claimed to be speaking out on the SST issue not as a professional or expert but simply as a concerned citizen. If Lundberg's critiques consisted of highly sophisticated technical analysis, CLASB's strategy was to turn such highly sophisticated technical analysis into the basis for an aggressive public information campaign. Among Shurcliff's greatest assets was his ability to distill complex scientific and technical arguments into ordinary language, which he did with remarkable industry, turning out scores of newsletters, press releases, and fact sheets. He was also an indefatigable letter writer, corresponding at length with virtually every government official who had anything to do with the SST and with all CLASB supporters—all while holding down a day job as a scientist at a particle accelerator. As was the case with Lundberg, Shurcliff was concerned with every aspect of the SST, but as the name of the organization suggests, CLASB viewed the sonic boom as the galvanizing issue. Although many aspects of the SST warranted concern, no aspect touched so many people, so directly, and with such serious environmental, psychological, physiological, social, political, and economic consequences as the sonic boom.²¹

Shurcliff's success lay in calling public attention to the SST and sonic boom issues, which he did with full-page advertisements in the *New York Times*, the *Washington Post*, and the *New Republic*; through interviews; and by supplying copious amounts of information to the press. As a result, articles on Shurcliff

20. On noise abatement, see Emily Thompson, *The Soundscape of Modernity: Architectural Acoustics and the Culture of Listening in America, 1900–1933* (Cambridge, MA: The MIT Press, 2002), chap. 4; Karin Bijsterveld, *Mechanical Sound: Technology, Culture, and Public Problems of Noise in the Twentieth Century* (Cambridge, MA: The MIT Press, 2008), chap. 4; Lilian Radovac, "The 'War on Noise': Sound and Space in La Guardia's New York," *American Quarterly* 63, no. 3 (September 2011): 733–60. On protests against jet noise, see for example, *The New York Times*, October 3, 1951; September 9, 1952; and October 5, 1958.

21. On Shurcliff and the Citizens League, see the CLASB Papers, *passim*.



William Shurcliff's "Bang Zone" map from *The S/S/T and Sonic Boom Handbook*. (Courtesy of Charles Shurcliff.)

and CLASB appeared in *Time* magazine, the *New York Times*, the *Wall Street Journal*, *Harper's*, *Life* and other publications. He also wrote and distributed a compendium of information and analyses he called the *S/S/T and Sonic Boom Handbook*, which was published as a book by Ballantine in 1970 (with support from Friends of the Earth) and sold more than ninety thousand copies.²² In one of the book's most remarked upon sections, Shurcliff presented a "bang zone" map, showing the areas of the continental United States that would be affected by sonic booms if commercial SST service were to go into effect. It was a picture worth a thousand words, for it showed affected areas crisscrossing virtually the whole continental United States.

Little by little, the press was paying more attention to the gravity of the sonic boom problem. In January 1967, newspapers reported that sonic booms from military aircraft had damaged prehistoric cliff dwellings and geological formations at two national parks.²³ Seven months later, it was widely reported that booms triggered by the French Air Force caused a Breton farm house to collapse, killing three people.²⁴ In 1969, *Life* magazine reported that two cities—Santa Barbara, California, and Dearborn, Michigan—and three (unnamed) counties had even banned sonic booms outright.²⁵ And newspapers throughout the country reported on a study on sonic booms by the National Academy of Sciences (NAS), which found that little could be done

22. [Shurcliff,] "Brief History," 2.

23. William M. Blair, "Sonic Booms Damage U.S. Parks," *The New York Times*, January 12, 1967.

24. "Supersonic Noise Pollution," *The New York Times*, August 3, 1967.

25. "Uproar Over Sonic Booms" *Life*, November 7, 1969, 51–52.

to eliminate or minimize the booms, contrary to what many proponents had claimed.²⁶

Indeed, even CLASB's most powerful opponents sometimes acknowledged the force of the anti-SST arguments. In a confidential memo to Richard Nixon in 1969, Henry Kissinger wrote, "I must admit that many of the arguments against going ahead with the project are extremely persuasive." Nevertheless, Kissinger urged Nixon to maintain his support for SST lest the United States cede supersonic superiority to the Soviet Union and for what Kissinger referred to as "our national spirit and sense of purpose" at a time when "we, as a nation, are increasingly losing our verve for challenge and adventure." For his part, Nixon continued to fight hard for the SST until its defeat in 1971.²⁷

CLASB also forged relationships and alliances with like-minded anti-SST activists around the world. Most notably, across the Atlantic, a parallel movement was active in England against the Anglo-French version of the SST, the "Concorde." There, a thirty-five-year-old teacher named Richard Wiggs founded an organization called the Anti-Concorde Project to combat sonic booms and supersonic airplanes. Wiggs employed some similar media strategies, and, like Shurcliff, he was knowledgeable and relentless in his attacks. Indeed, the *Observer* called Wiggs "one of the most doggedly articulate protesters of our time."²⁸ Over the years, Shurcliff and Wiggs formed a robust professional relationship, corresponding frequently and sending each other large amounts of material. Shurcliff also sent funds to the Anti-Concorde Project regularly, and he allowed Wiggs to draw heavily from his book *The S/S/T and Sonic Boom Handbook* for Wiggs's own book, *Concorde: The Case Against Supersonic Transport*, published in 1971.²⁹

If these were the two most active organizations in the world in fighting sonic booms and commercial supersonic aviation, they had allies all over the globe. These included the French Association Nationale Anti-Bang, the Australian Project to Stop the Concorde, the France-based Association Internationale Contre le Bruit, and the Germany-based European Union Against Aircraft Nuisances. Most notable was the Swiss group the Federal Action Committee Against the Supersonic Bang of Civilian Aircraft, which succeeded in getting Switzerland to ban all sonic booms in 1972. Meanwhile, individuals in locations as far-flung as Athens, Teheran, Beirut, Kinshasa, and Pretoria wrote to Shurcliff for information and in some cases sent him

26. The report was "Report on Generation and Propagation of Sonic Boom," by the Research Committee of the NAS Committee on SST-Sonic Boom. A survey of the national news coverage of the report appears in National Academy of Sciences Committee on SST-Sonic Boom, "Committee on Sonic Boom Newsletter," no. 29, n.d.

27. Kissinger to Nixon, April 25, 1969, folder 7, box 397, Richard M. Nixon Collection, National Archives and Records Administration.

28. "Scourge of Concorde," *Observer*, February 2, 1973; "Physicist William Shurcliff, Advocated for Public Interest," *Washington Post*, June 28, 2006.

29. "Scourge of Concorde"; William Shurcliff to Elizabeth Borish, February 15, 1972, folder 138, box 3, CLASB Papers.

financial contributions. Not surprisingly, no opposition group sprang up in the Soviet Union, but Shurcliff did receive support for his work from the prominent Soviet biologist and physiologist P. K. Anokhin in Moscow and from another biologist in Leningrad, J. A. Vinnikov.³⁰

The Coalition Against the SST

Political opposition to sonic booms grew gradually over the course of the 1960s. In its first phase, it had been defined by Bo Lundberg and his one-man campaign against supersonic aviation. He achieved little outright success, but he introduced an element of doubt regarding all the figures and projections put forward by government and industry officials, and he identified most of the fault lines of the SST debate for the years to follow. In its second phase, it was defined by CLASB and William Shurcliff's activities as a persistent SST agitator. His work did little to retard progress on SST, but he got a critical discourse about SST into mainstream circulation and created national and international networks of SST opponents. In the early 1970s, a brief third but decisive phase of opposition took shape, defined by a new organization called the Coalition Against the SST. Indeed, the organization was active for only one year, but in that time, it achieved the ultimate David-versus-Goliath victory: getting the SST killed by Congress.

Established in the spring of 1970, shortly before Earth Day, the Coalition was a remarkable organization that was grounded in the nascent environmental movement, and within that movement, the Coalition's success stands as an important early victory, albeit one that historians have largely overlooked. It grew out of two quite peculiar circumstances. First was the initiative of a new environmental activist group called Friends of the Earth (FOE), which was looking for a signature issue to take on. FOE was founded by David Brower, former executive director of the Sierra Club, the pioneering environmental group, after a schism within the Sierra Club led to Brower's departure, along with that of numerous activists loyal to him, including Gary Soucie, who became FOE's first executive director. Unlike the Sierra Club, FOE was not set up purely as a nonprofit organization and therefore was not barred from direct lobbying activities in Washington. In 1969 and 1970, the scrappy young organization was spoiling for a fight, looking for an issue or a cause that would help establish a reputation for the group. Initially, it took on the issue of furs, convincing the wives of numerous prominent people to forsake wearing them. Then, Soucie, a one-time public relations officer for SwissAir, urged FOE to take on the SST issue, which the Sierra Club had been prevented from doing because of its close relationship with Washington State's powerful senator Henry "Scoop" Jackson, a key supporter of both conservation issues and the aerospace industry (especially as Boeing, which was to build the SST, was

30. See the correspondence in folder 309, box 8, CLASB Papers.

located in his home state).³¹ In the SST, Soucie saw an issue of real importance that required serious technical, scientific, and economic analysis and that would put FOE in a leadership position on an issue that the other environmental organizations were paying little attention to.³² It also represented a crucial issue in the emergence of the environmental movement as differentiated from the more narrowly focused conservation movement. Soucie recalled,

[The SST] was a really important issue because we knew that the conservation movement was going to be going environmental. And [the SST] was really an environmental, not a conservation, issue. And it was a big one. And we thought that if we didn't take it on, it was not going to be taken on because of the fear of Scoop Jackson.³³

At Friends of the Earth's organizational meeting in the summer of 1969, the group chose the SST as one of its main foci.³⁴

Then, FOE's interest in the SST issue converged with another, more unusual circumstance. In 1970, an independently wealthy Baltimore school-teacher named Kenneth L. Greif wanted to teach his students a lesson about constructive dissent, and he made the SST his target. As an English teacher at the Park School, a progressive private school, during a period of widespread alienation among young people, the thirty-four-year-old Greif wanted to demonstrate to his students that positive change could be effected through the existing political process, that "the system" could be responsive, and that it was not necessary "to tear everything down."³⁵ So he called on an attorney, George Liebmann, in a Baltimore law firm where he himself had, for a time, practiced corporate litigation. He asked Liebmann to help him identify the leading opponents of the SST, which seemed to him a grossly misguided technological project. (Earlier, he had read and been so impressed by William Shurcliff's *S/S/T and Sonic Boom Handbook* that he bought several hundred copies of it and distributed them at school.) Liebmann then consulted the legislative staff of Senator Edmund Muskie, who had recently had his ideas about the SST turned around by a former White House fellow and Department of Transportation staffer (and future Sierra Club president) Laurence Moss, who had initially supported the SST but ended up a skeptic. At Liebmann's request (and on Greif's dime), Moss arranged a dinner to bring together various SST opponents to strategize. Out of this dinner, on March 24, 1970, with guests that included a range of congressional staffers and activists from FOE and other organizations, the Coalition Against the SST was born.³⁶

31. Gary Soucie, interview by the author, Williamstown, MA, August 7, 2011.

32. Joe Browder, telephone interview by the author, May 23, 2013.

33. Soucie interview.

34. John Lear, "Teaching in the Big School," *Saturday Review* 54, no. 1 (January 2, 1971): 64.

35. Kenneth Greif, telephone interview by the author, January 29, 2013.

36. Lear, "Teaching in the Big School," 63–64.

With five thousand dollars in seed money from Greif, the Coalition was launched with Gary Soucie of FOE as chair, W. Lloyd Tupling of the Sierra Club as vice chair, FOE's George Alderson as treasurer, and George Liebmann as secretary.³⁷ Greif, a modest man who wished not to seem like a publicity hound, remained at arm's length.³⁸ With Greif's money, however, the Coalition was able to set up a small office on Capitol Hill in space donated by the Sierra Club and to hire one full-time staffer. This turned out to be Joyce Teitz, an energetic twenty-six-year-old Harvard Law graduate, who was looking for a socially constructive six-month job before she was to go to England to get married.³⁹ Notably, except for Tupling, who was in his sixties, all of the anti-SST activists were in their twenties and thirties. At Soucie's initiative, the Coalition also recruited an honorary chairman to serve as a high-profile figurehead. For this they got the popular radio and television broadcaster and entertainer Arthur Godfrey. Not only was Godfrey a well-known aviation enthusiast personally licensed to fly many kinds of airplanes, he was also staunchly anticommunist, which helped the Coalition seem like a voice of conservative or mainstream, not radical, dissent. Then, with an honorary chairman in place, the Coalition reached out to potential member organizations, and by May of 1970, the Coalition's core staff of four people (Liebmann was not actively involved) was working on behalf of fifteen member organizations, representing 39.5 million people.⁴⁰

The Coalition had one specific goal: to defeat a \$290 million appropriation to build an SST prototype, to be voted on in May 1970. In previous years, a small number of congressmen—most notably Senator William Proxmire of Wisconsin and Representative Sidney Yates of Illinois—had campaigned to get SST appropriations eliminated, but their opposition had gotten little traction. Indeed, they faced a formidable opposition. Nixon remained intensely committed to the program, which he viewed as essential to national prestige. The aerospace industry and other business interests supported it, and so did organized labor (with a few exceptions) and the military.⁴¹ By the spring of 1970, however, especially after Earth Day on April 22, it seemed possible that popular opposition could be mobilized against the SST—and even more so after the vote was pushed back until the fall. The Coalition Against the SST faced daunting odds, to be sure, but the arguments against the SST—the sonic boom problem, takeoff and landing noise, the aircraft's excessive costs, doubts about its economic benefits, and most recently, concerns about damage that SSTs could cause to the ozone layer of the upper atmosphere—were so compelling that Coalition activists believed they might be able to win.

37. George Liebmann to George Alderson, March 31, 1970, folder 248, box 6, CLASB Papers.

38. Soucie interview.

39. Joyce (Teitz) Wood, Skype interview by the author, May 4, 2012.

40. Joyce Teitz, "Against the SST," *Wall Street Journal*, May 13, 1970; "Coalition Member Groups," *National Journal*, January 9, 1971, 49.

41. Richard H. Rovere, "Letter from Washington," *New Yorker*, March 27, 1971, 131.

The Coalition had a two-pronged strategy: it would provide abundant anti-SST information to members of Congress, and it would back this up with grassroots pressure.⁴² Lloyd Tupling, a one-time Senate staffer, and George Alderson, the Coalition's chief lobbyist, devised this strategy. Together, they reviewed the voting records of every single member of Congress and divided them into one of three categories: those who firmly opposed the SST; those who firmly supported it; and those who were in the middle or were capable of being persuaded. Then, they focused the Coalition's energies on those in the last category, pushing whatever anti-SST argument(s) were most relevant to any particular member of Congress. Some members were more sensitive to the balance-of-payments argument, for example, while others were more sensitive to the environmental issues.

In doing this work, one of the Coalition's principal tactics was, as Teitz put it, to "analyze the arguments the other side was making and try to come up with material that would answer [them] in a conspicuous and imaginative way."⁴³ One of Teitz's most creative efforts was conducting a survey in which sixteen leading economists from across the political spectrum, including Milton Friedman, John Kenneth Galbraith, Walter Heller, and Paul Samuelson (who had just won the Nobel Prize), were asked to give their opinions of the economic prospects of the SST based just on materials circulated by SST proponents. Fifteen of the sixteen said unequivocally that they thought it was a bad idea. Milton Friedman went so far as to give the Coalition his personal telephone number and invited skeptical members of Congress to call him.⁴⁴ For many members of Congress, the sonic boom issue and the other environmental threats held little weight, but the economic arguments registered. In another example of the Coalition's handiwork, the group responded to a map put out by the Department of Transportation showing how much money each state would reap in SST subcontracts. The Coalition's widely circulated answer to this was its own map, showing that forty-three of the fifty states would pay more in taxes for the SST than they would collect in wages under SST subcontracts. Indeed, the map showed that most of the money would go to just three states: Washington, Kansas, and Ohio.⁴⁵

If economic arguments often played the best on Capitol Hill, environmental concerns—potential damage to the upper atmosphere by SST exhaust; increased aircraft noise during takeoff and landing; and, of course, sonic booms—energized the grassroots. In the spring and summer of 1970, the Coalition ran several full-page advertisements in major newspapers around the country emphasizing the environmental issues. They were designed by Jerry Mander, a well-known West Coast environmental activist with a background in

42. George Alderson, "Senate SST Vote Shows Environmental Muscle," *Not Man Apart* (January 1971): 6.

43. "A Coalition with a Purpose: 'Something to Stop the SST,'" *National Journal* 3, no. 2 (January 9, 1971): 44.

44. Soucie interview.

45. Lear, "Teaching in the Big School," 66.

advertising. Indeed, Mander had the idea that the Coalition could get a lot of important extra mileage out of these advertisements by sending them to scores of college newspapers around the country with “permission” to reprint the advertisements, free of charge, if they so wished. And many of them did.⁴⁶ College campuses delivered many anti-SST activists, especially after Earth Day, and these activists became more and more important as the battle in Congress heated up in 1970. As George Alderson remembered, “We had people visiting their legislators back home as the year went on, and then when we knew the vote was coming up, we told them to come to Washington for the vote. And where we needed to, the Coalition came up with some money to pay their air fare to get here, and we managed to find places for them to stay.”⁴⁷ In some cases, high school students became active as well. Teitz recruited a group of high school students through Ecology Action for Rhode Island, and their pressure led both of the senators from Rhode Island, John Pastore and Claiborne Pell, to reverse their positions on the SST. In the case of Pastore, who was a senior member of the Appropriations Subcommittee on Transportation, this was a major and highly symbolic flip.

Although sonic booms continued to be important in the Coalition Against the SST’s argumentation, by 1970 they had a somewhat different profile in the anti-SST movement than they had had earlier. The previous year, the FAA had announced a rule that the SST would be barred from flying at supersonic speeds over land. On its face, this rule reduced or eliminated the sonic boom problem, but critics were quick to note two problems with this rule. First, it was, in fact, only an administrative rule and could be modified or rescinded at any time—and once SST service was put into effect there would be tremendous pressure to do just that. Second, the rule did nothing to protect the thousands of people at sea who would still be exposed to sonic booms, nor did it address the potential threat to marine wildlife. Thus, sonic booms remained a controversial subject, but not as much as if the government had been altogether silent about the issue. Meanwhile, greater concern was being expressed about the noise that SST planes would be making during takeoffs and landings. As Teitz said, “When the Federal Aviation Administration argued that the SST would sound only two or three times as loud as conventional jets on takeoff, lots of people were appalled. They didn’t need that. Who does?”⁴⁸

Sonic booms were rarely first in the Coalition’s concerns, but they undoubtedly mattered a great deal, in two ways. For one thing, sonic booms appeared in virtually every one of the Coalition’s fact sheets and policy statements. For another, the Citizens League Against the Sonic Boom supplied

46. Soucie interview.

47. George Alderson, “George Alderson: Environmental Campaigner in Washington, D.C., 1960s–1970s,” interview by Ted Hudson, TS, 1982, Sierra Club Oral History Project, Sierra Club History Committee, Bancroft Library, University of California, Berkeley, CA; Soucie interview.

48. Stewart Udall and Jeff Stansbury, “The Lady and the SST,” *Newsday*, December 19, 1970.

the Coalition Against the SST with critical financial support. In fact, beyond Greif's crucial seed money (and another infusion later in 1970), the Coalition received the majority of its operating funds from CLASB, which sent out solicitations to its more than five thousand members.⁴⁹ (The Coalition also tried sending out fund-raising letters, but these brought in little money.)

Meanwhile, a different kind of coalition was taking shape in Congress. There, the most prominent SST opponent was Senator William Proxmire of Wisconsin, a staunch critic of wasteful government spending. Other leading congressional opponents included Representatives Sidney Yates of Illinois and Henry Reuss from Wisconsin. None was a major player on Capitol Hill; the most distinguished was the gadfly Proxmire. By contrast, the pro-SST side was led by the two senators from Washington State, Henry "Scoop" Jackson and Warren Magnuson, two of the most respected and powerful members of the Senate.⁵⁰ To take them on, Proxmire formed a coalition with senators of other political persuasions. He himself was a liberal Democrat, but he made common cause with conservative Democrats (e.g., Harry Byrd of Virginia), liberal Republicans (e.g., Charles Percy of Illinois), and conservative Republicans (Marlow Cook of Kentucky).⁵¹ Opposition to the SST, therefore, did not come simply from one particular political position. Rather—and this became crucial by the time of the final vote in 1971—there were many points across the political spectrum from which people objected to the SST, and this distinguished the SST fight from, say, the antiwar movement or the civil rights movement.

Behind the scenes, much of the anti-SST organizing on Capitol Hill was done by congressional staffers, especially Richard Wegman in Proxmire's office, Harold Bergan in Yates's office and James Verdier in Reuss's office. These staffers worked closely with the Coalition Against the SST to devise a strategy that would keep the SST issue in play. "We put together a working coalition with the environmental community, who became very actively involved," Wegman said. "They took this on as one of their first major projects." With different politicians sensitive to different political issues, both the economic and environmental arguments were crucial. As Wegman put it, "I can't stress . . . strongly enough the importance . . . of the combination of the economic argument and the environmental argument." And when it came to the environmental argument, sound was critical—the dual force of the sonic boom issue and the problem of increased sound during takeoff and landing. Indeed, the question of the SST's profitability put special pressure on the sonic boom issue. As Wegman recalled,

49. "A Coalition with a Purpose," 45; Joyce Teitz to William Shurecliff, November 5, 1970, folder 248, box 6, CLASB Papers.

50. Jackson was chair of the Interior Committee, and Magnuson was a member of the Commerce Committee (and ultimately became chair of the Appropriations Committee).

51. Richard Wegman, "An Oral History Interview with Richard Wegman," 31, interviewed by Anita Hecht, March 18, 2009, William H. Proxmire Collection, Wisconsin Historical Society, Madison, WI, <http://content.wisconsinhistory.org/u?proxmire,3094>.

The sonic boom was always a concern because it was assumed from the outset that the plane would never be able to turn a profit if it only flew across the ocean. If it only flew transatlantic or transpacific routes, it could not be profitable. And the argument was sooner or later, there's going to be huge pressure to fly the plane across the United States, to fly the plane across Europe. And therefore, it will create a sonic boom that will be deafening to people on the ground and will have a very adverse environmental consequence. In addition, however, apart from the sonic boom, the plane was going to be far and away the noisiest plane ever to land and take off at U.S. airports.⁵²

In the fall of 1970, as the Senate debated the appropriation for the Department of Transportation, William Proxmire proposed an amendment not to approve \$290 million for the SST program—in effect killing the program. In December, after months of intense lobbying, a narrow majority (52–41) voted in favor of Proxmire's amendment. Those rejecting further funding included a diverse mix of northern liberals, westerners, and southerners, both Republicans and Democrats.⁵³ The House of Representatives, however, then rejected this SST-killing amendment, and the bill went into conference. The bill that came out of conference had almost the whole appropriation restored, and this led the SST opposition in the Senate to stage a filibuster, which was rare at that time. In mid-December, a filibuster began, with individual senators standing up and making arguments against the SST for two hours at a stretch (unlike filibustering today, which is entirely pro forma), blocking any other legislation from getting voted on. Much to the chagrin of many senators, it continued until 9 p.m. on New Year's Eve, at which point the Senate voted to shelve the matter until the next Congress could take it up in March. The critical final vote came in the spring, with the House voting 215–204 against continued SST funding, and the Senate voting 51–46 the same way.

It was a stunning victory. Although it is doubtful that the opponents could have won on the strength of the environmental argument alone, they did indeed carry the day, and at the time the defeat of the SST stood as a milestone victory for grassroots environmental activism.⁵⁴ At least one activist felt that when the Senate voted to kill the SST, it was “Day One of the environmental movement.”⁵⁵ Another person said the fight turned him into a career environmental activist: the “campaign on the SST was so motivating for me that it inspired the rest of the things I did over the next forty years before retiring.”⁵⁶ Others involved in the anti-SST fight were more measured in their judgments but credited the fight with more personal kinds of impact. The victory encouraged Kenneth Greif, who put up the seed money for the

52. “Oral History Interview with Richard Wegman,” 32, 34.

53. Horwitch, *Clipped Wings*, 303.

54. Rovere, “Letter from Washington,” 131.

55. The environmentalist in question was the activist-lawyer James Moorman, quoted in Alderson, “George Alderson.”

56. Brent Blackwelder, telephone interview by the author, May 28, 2013.

Coalition Against the SST, to go on to support other environmental causes.⁵⁷ For George Alderson, the Coalition's treasurer and key lobbyist, the SST fight had provided an education in how to get things done in Washington. Alderson went on to write a book, *How You Can Influence Congress: The Complete Handbook for the Citizen Lobbyist*, drawing heavily on the experience of the anti-SST campaign.⁵⁸ Even if the economic arguments tipped the scales, then, the experience of the grassroots campaign left a permanent imprint.

Conclusion

To what extent is this a story about the politics of sound? The final congressional showdown hinged on many factors, including possibly a softening of support by Boeing and the airline industry, which would have reduced the strength of the pro-SST forces.⁵⁹ But sound mattered. Unquestionably, the SST was a technology that would have transformed the American soundscape and ultimately much of the global soundscape as well. Sound was not the whole story, to be sure, but it was in many ways the through-line, the crucial element connecting all phases of opposition to the SST. Bo Lundberg launched this opposition with his critique of supersonic aviation, which focused heavily on the sonic boom problem. Lundberg laid the groundwork for the more media-savvy work of William Shurcliff and the Citizens League Against the Sonic Boom. As Friends of the Earth's Gary Soucie put it, "Sonic boom was what got [the SST battle] started. Shurcliff and his league made it possible to think about."⁶⁰ By 1970–71, other issues might have become higher priorities, but sonic booms and airport noise continued to matter. "It's clear that noise was very important," concluded Joyce Teitz Wood, the former staffer of the Coalition Against the SST, "It was certainly the backdrop—the . . . soundtrack—for what happened."⁶¹

Ten years ago, in an article titled "The Strange Stillness of the Past," Peter Coates urged environmental historians to listen to history, to take seriously the sounds of different historical settings, and to problematize the historical

57. Greif interview.

58. George Alderson, interview by the author, Baltimore, MD, September 25, 2011; George Alderson, *How You Can Influence Congress: The Complete Handbook for the Citizen Lobbyist* (New York: Dutton, 1979).

59. Evidence suggests that as the battle wore on (leading up to the votes in 1970 and 1971) some in the airline industry had begun to think that supersonic air service would not be profitable and that Boeing engineers may not have believed that the planes could be designed so that all the size, weight, cargo, and noise specifications were met. According to Soucie, on numerous occasions the Coalition Against the SST received leaked information unfavorable to the SST from people working within the airline industry. Soucie interview. On Boeing, see James R. Hansen, *The Bird Is on the Wing: Aerodynamics and the Progress of the American Airplane* (College Station: Texas A & M University Press, 2004), 143–71.

60. Soucie interview.

61. Wood interview. George Alderson expressed a similar view, "The sonic boom thing didn't figure as a big argument in public during the campaign, but it was always there." Alderson interview.

soundscape. The present article represents, in part, an attempt to answer Coates's call by looking at a moment of great threat to the sonic environment and the response to that threat by activists in the environmental movement and their antecedents. (Bo Lundberg and William Shurcliff were nothing if not exemplary environmental activists *avant la lettre*.) In the final reckoning, the environmental arguments did not carry the day by themselves, but they certainly helped shape the outcome of the SST fight and left a lasting mark on those who were involved. At a crucial early moment in the history of the environmental movement, a political mobilization took shape that had its roots in a battle over sound. Although it would be a distortion to claim that sound, and sound alone, was the dominant issue for the final result, it would be no less a perversion to obscure or minimize the importance of sound in the development of the opposition to the SST. A nuanced history of the process of opposing the SST must admit and integrate a host of other factors besides sound, certainly, but this article aims to make clear how important sound actually was.⁶²

The focus on sonic booms in the course of the SST fight both reflected and contributed to a shift in the way that people thought about the aural environment. Perhaps nothing signaled this shift as well as the emergence in the late 1960s of a new term for unwanted environmental sound: "noise pollution."⁶³ As this term gained currency, references to it frequently made mention of jet airplane noise and SSTs. This heightened attentiveness to sound led to the establishment in 1970 of a federal Office of Noise Abatement and Control, which existed as a division of the Environmental Protection Agency until 1982, and to the Noise Control Act of 1972 and the Quiet Communities Act of 1978, which remain in effect today (although essentially unfunded). Earlier noise abatement activists had appealed to the state to curb sonic excesses, but the battle over sonic booms differed dramatically in scale and scope and in the fact that the offending sounds were backed by the state itself, making the anti-boom activists' ultimate victory all the more remarkable.

In sonic booms, the government exercised an awesome auditory power. The fight against the SST was an attempt to contest this form of power, and the success of this fight stands as one of the major political battles over sound in the postwar period. Many sounds, it can be said, have a political valence of one kind or another, but only under some circumstances does sound become the subject of explicit political debate. Given that a single supersonic flight could affect tens of millions of people, the SST signified a grossly disproportionate relationship between those making sound and those affected by it, and this made the sonic boom a phenomenon with both extensive and intensive

62. Peter A. Coates, "The Strange Stillness of the Past: Toward an Environmental History of Sound and Noise," *Environmental History* 10, no. 4 (October 2005): 636–65.

63. See, e.g., James L. Hildebrand, "Noise Pollution: An Introduction to the Problem and an Outline for Future Legal Research," *Columbia Law Review* 70, no. 4 (April 1970): 52–92; L. K. Smith, "Noise as a Pollutant," *Canadian Journal of Public Health/Revue Canadienne de Santé Publique* 61, no. 6 (November 1970): 475–80.

ramifications. The history of opposition to sonic booms and SST shows both the high degree of interconnectedness of sound with other social, political, and economic concerns, and how far-reaching the politics of sound can be.

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